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All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refers, if not otherwise indicated, to liquids of Group II at +20°C.

300,000 stock lines • Re-Coding service • Order online 24/7/365 • Fast Delivery Webshop Service

Expertise and Fast Delivery

• 300,000 stock lines • 99,06 % of orderlines ex stock • Same day shipping

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All Online-Shop orders which have been placed up to 6:00 pm will leave our warehouse on the same day.
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• Neutral-Shipping

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Store your items in our warehouse: Your customers can place orders up to 9:00 pm. We will handle the logistic part for you and ship on the same day!

20 fully automatic storage lanes

= 560,000 storage places

4 fully automatic pallet shelf lanes

= 7,000 pallet shelf places

storage

effective area
27,000 m²

storage volume:
270,000 m³

main area:
63,000 m²

automatic storage:
560,000 storage places

pallet storage:
7,000 storage places

products

catalog products:
more than 300,000 stock lines

product range:
complete range of industrial supplies

delivery capacity:
99.06 % of all ordered order lines will be shipped immediately

Order up to 9:00 pm
www.landefeld.com

Metric thread (M)

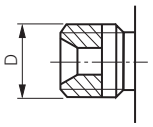
Nominal dimension	D	d
M 8 x 1	8.0	6.9
M 10 x 1	10.0	8.9
M 12 x 1	12.0	10.9
M 12 x 1.5	12.0	10.4
M 14 x 1.5	14.0	12.4
M 16 x 1.5	16.0	14.4
M 18 x 1.5	18.0	16.4
M 20 x 1.5	20.0	18.4
M 22 x 1.5	22.0	20.4
M 24 x 1.5	24.0	22.4
M 26 x 1.5	26.0	24.4
M 30 x 1.5	30.0	28.4
M 30 x 2	30.0	27.8
M 36 x 1.5	36.0	34.4
M 36 x 2	36.0	33.8
M 38 x 1.5	38.0	36.4
M 42 x 2	42.0	39.8
M 45 x 1.5	45.0	43.3
M 45 x 2	45.0	42.8
M 52 x 1.5	52.0	50.4
M 52 x 2	52.0	49.8

Inch thread (G = cylindrical/R = conical)

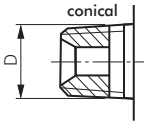
Nominal dimension	No. of turns to 1 inch	D	d
1/8"	28	9.7	8.6
1/4"	19	13.2	11.5
3/8"	19	16.7	15.0
1/2"	14	21.0	18.6
5/8"	14	22.9	20.6
3/4"	14	26.4	24.1
1"	11	33.3	30.3
1 1/4"	11	41.9	39.0
1 1/2"	11	47.8	44.9
2"	11	59.6	56.7
2 1/2"	11	75.2	72.2
3"	11	87.9	84.9
4"	11	113.0	110.1
5"	11	138.4	135.4
6"	11	163.8	160.9

metric/imperial

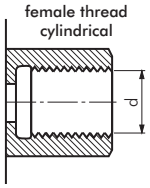
male thread



male thread conical



female thread cylindrical

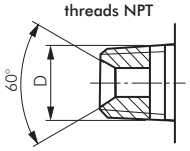


NPT thread

Nominal dimension	No. of turns to 1 inch	D	Nominal dimension	No. of turns to 1 inch	D
NPT 1/8"	27	10.3	NPT 1 1/4"	11.5	42.2
NPT 1/4"	18	13.7	NPT 1 1/2"	11.5	48.3
NPT 3/8"	18	17.2	NPT 2"	11.5	60.3
NPT 1/2"	14	21.3	NPT 2 1/2"	8	73.0
NPT 3/4"	14	26.7	NPT 3"	8	88.9
NPT 1"	11.5	33.4			

NPT

American standard male threads NPT

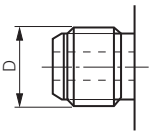


JIC thread/UNF/UN thread

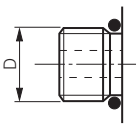
Nominal dimension	No. of turns to 1 inch	Class	D	d	Parameter JIC	Parameter SAE
5/16	24	UNF	7.9	6.8	2	2
3/8	24	UNF	9.5	8.4	3	3
7/16	20	UNF	11.1	9.8	4	4
1/2	20	UNF	12.7	11.4	5	5
9/16	18	UNF	14.3	12.8	6	---
5/8	18	UNF	15.9	14.4	---	6
3/4	16	UNF	19.1	17.4	8	8
7/8	14	UNF	22.2	20.3	10	10
1 1/16	12	UN	27.0	24.8	12	---
1 1/16	14	UNS	27.0	25.1	---	12
1 3/16	12	UN	30.2	28.1	14	14
1 5/16	12	UN	33.3	31.1	16	16
1 5/8	12	UN	41.3	39.0	20	20
1 7/8	12	UN	47.6	45.4	24	24
2 1/2	12	UN	63.5	61.3	32	32
3	12	UN	76.2	74.0	40	40
3 1/2	12	UN	88.9	86.7	48	48

JIC/UNF/UN

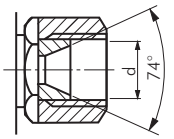
JIC male thread



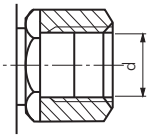
UNF/UN male thread



JIC female thread



UNF/UN female thread

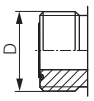


ORFS thread

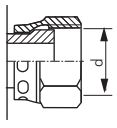
Nominal dimension	No. of turns to 1 inch	Class	D	d	Parameter ORFS
9/16	18	UNF	14.3	12.9	4
11/16	16	UN	17.4	15.4	6
13/16	16	UN	20.5	18.6	8
1	14	UNS	25.3	23.1	10
1 3/16	12	UN	30.2	28.1	12
1 7/16	12	UN	36.5	34.5	16
1 11/16	12	UN	42.7	40.6	20
2	12	UN	50.8	48.8	24

ORFS

ORFS male thread



ORFS female thread

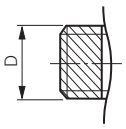


Metric standard thread

Thread	Slope	D	d	Thread	Slope	D	d
M 3	0.5	3	2.5	M 12	1.75	12	10.1
M 4	0.7	4	3.2	M 14	2.0	14	11.8
M 5	0.8	5	4.1	M 16	2.0	16	13.8
M 6	1.0	6	4.9	M 18	2.5	18	15.3
M 8	1.25	8	6.7	M 20	2.5	20	17.3
M 10	1.5	10	8.4				

metric standard thread

male thread



female thread cylindrical

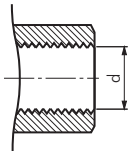


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Table collection

Conversion table for units of pressure

Unit	Bar	mbar	kPa	MPa	psi	mWS	ft H_2O	in. H_2O	mmHg	Torr	in. Hg	kg/cm²
1 bar	1	1000	100	0.1	14.5038	10.1972	33.4553	401.463	750.064	750.064	29.53	1.01972
1 mbar	0.001	1	0.1	0.0001	0.0145	0.0102	0.03346	0.40146	0.75006	0.75006	0.02953	0.00102
1 kPa	0.01	10	1	0.001	0.14504	0.10197	0.33455	4.01463	7.50064	7.50064	0.2953	0.0102
1 MPa	10	10000	1000	1	145.04	101.97	334.55	4014.63	7500.64	7500.64	295.3	10.1972
1 psi	0.06895	68.9476	6.89476	0.0068948	1	0.70307	2.30666	27.6799	51.7151	51.7151	2.03602	0.07031
1 mWS	0.09807	98.0665	9.80665	0.0098067	1.42233	1	3.28084	39.3701	73.5561	73.5561	2.8959	0.1
1 ft H_2O	0.02989	29.8907	2.98907	0.0029891	0.43353	0.3048	1	12	22.4199	22.4199	0.88267	0.03048
1 in. H_2O	0.00249	2.49089	0.24909	0.0002491	0.03613	0.0254	0.08333	1	1.86833	1.86833	0.07356	0.00254
1 mmHg	0.00133	1.33322	0.13332	0.0001333	0.01934	0.0136	0.0446	0.53524	1	1	0.03937	0.00136
1 Torr	0.00133	1.33322	0.13332	0.0001333	0.01934	0.0136	0.0446	0.53524	1	1	0.03937	0.00136
1 in. Hg	0.03386	33.8639	3.38639	0.0033864	0.49115	0.34532	1.13293	13.5951	25.4	25.4	1	0.03453
1 kg/cm²	0.98067	980.665	98.0665	0.0980665	14.2233	10	32.8084	393.701	735.561	735.561	28.959	1

Example: 5 MPa = 5 x 145.04 = 725.2 psi

Conversion table for units of force

Unit	N	kN	MN	p	kp
1 N	1	10^{-3}	10^{-6}	102	0.102
1 kN	10^{3}	1	10^{-3}	1.02×10^{5}	102
1 MN	10^{6}	10^{3}	1	1.02×10^{8}	1.02×10^{5}
1 p	0.00981	9.81×10^{-6}	9.81×10^{-9}	1	10^{-3}
1 kp	9.80665	9.81×10^{-3}	9.81×10^{-6}	10^{3}	1

Tube dimensions

NW mm	Inches	DIN 11850-R2 External Ø (mm)	ISO External Ø (mm)	Metric measurements* in mm
10	3/8″	13	17.2	12 x 1.0
15	1/2″	19	21.3	18 x 1.5
20	3/4″	23	26.9	23 x 1.5
25	1″	29	33.7	28 x 1.5
32	1 1/4″	35	42.4	35 x 1.5
40	1 1/2″	41	48.3	43 x 1.5
50	2″	53	60.3	54 x 2.0
65	2 1/2″	70	76.1	69 x 2.0
80	3″	85	88.9	84 x 2.0
100	4″	104	114.3	104 x 2.0
125	5″	129	139.7	129 x 2.0
150	6″	154	168.3	154 x 2.0
200	8″	204	219.1	204 x 2.0
250	10″		273.0	254 x 2.0
300	12″		323.9	304 x 2.0
350	14″		355.6	354 x 2.0
400	16″		406.4	406 x 3.0
450	18″		457.2	
500	20″		508.0	
600	24″		609.6	
700	28″		711.2	
800	32″		812.8	
900	36″		914.4	
1000	40″		1016.0	

* nominal width = inside width (dependant on wall thickness)

Thread designations used in this catalogue

Code	Example	Description	Female thread	Male thread
M*	M 8 x 1	Cylindrical, metric thread acc. to DIN 13	Yes	Yes
M (con.)*	M 8 x 1 (con.)	Conical, metric thread acc. to DIN 158	Yes	Yes
G**	G 1/8″	Cylindrical Whitworth pipe thread acc. to DIN/ISO 228 (DIN 259)	Yes	Yes
R**	R 1/8″	Conical Whitworth pipe thread acc. to DIN EN 10226-1/ISO 7-1 (DIN 2999)	No	Yes
Rp**	Rp 1/8″	Cylindrical Whitworth pipe thread acc. to DIN EN 10226-1/ISO 7-1 (DIN 2999)	Yes	No
NPT	NPT 1/8″	American, conical thread acc. to ANSI/ASME 1.20-1-1983	Yes	Yes
UNF, UN	7/16″-20 UNF	American, cylindrical thread acc. to SAE J 514/SAE J 1926	Yes	Yes

* can be combined with each other
** can be combined with each other (attention: Due to different tolerances a cylindrical G male thread cannot always be screwed into a parallel Rp female thread.)

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Air consumption of a pneumatic cylinder, single acting, 100 mm stroke (Standard litres)

Piston Ø	2 bar	3 bar	4 bar	5 bar	6 bar	7 bar	8 bar
8	0.02	0.02	0.03	0.03	0.04	0.04	0.05
10	0.03	0.03	0.04	0.06	0.07	0.08	0.09
12	0.03	0.04	0.06	0.07	0.08	0.09	0.10
16	0.06	0.08	0.10	0.12	0.14	0.16	0.18
20	0.09	0.13	0.16	0.19	0.22	0.25	0.28
25	0.15	0.20	0.25	0.29	0.34	0.39	0.44
32	0.24	0.33	0.40	0.48	0.57	0.63	0.72
40	0.38	0.51	0.63	0.75	0.85	1.05	1.13
50	0.60	0.79	1.01	1.20	1.40	1.56	1.76
63	0.97	1.27	1.58	1.89	2.20	2.54	2.80
80	1.52	2.04	2.52	3.04	3.51	4.01	4.51
100	2.38	3.17	3.97	4.75	5.53	6.34	7.13
125	3.72	4.96	6.21	7.42	8.64	9.91	11.14
160	6.09	8.12	10.16	12.16	14.16	16.23	18.25
200	9.52	12.68	15.88	19.00	22.12	25.36	28.52
250	14.88	19.81	24.81	29.69	34.56	39.63	44.56

Pressure-force table for pneumatic cylinders (for return stroke)*

Piston Ø	Factor for return stroke	1bar	2bar	3bar	4bar	5bar	6bar	7bar	8bar	9bar	10bar	11bar	12bar	13bar	14bar	15bar	16bar
		Piston force [N]															
8	0,75	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
10	0,84	8	16	24	31	39	47	55	63	71	79	86	94	100	110	110	120
12	0,75	11	23	34	45	57	68	79	90	100	110	120	130	140	150	170	180
16	0,86	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
20	0,84	31	63	94	120	150	180	220	250	280	310	340	370	400	440	470	500
25	0,84	49	98	140	190	240	290	340	390	440	490	540	580	630	680	730	780
32	0,86	80	160	240	320	400	480	560	640	720	800	880	960	1,000	1,100	1,200	1,200
40	0,84	120	250	370	500	620	750	880	1,000	1,100	1,200	1,300	1,500	1,600	1,700	1,800	2,000
50	0,84	190	390	580	780	980	1,100	1,300	1,500	1,700	1,900	2,100	2,300	2,500	2,700	2,900	3,100
63	0,90	310	620	930	1,200	1,500	1,800	2,100	2,400	2,800	3,100	3,400	3,700	4,000	4,300	4,600	4,900
80	0,90	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000
100	0,94	780	1,500	2,300	3,100	3,900	4,700	5,400	6,200	7,000	7,800	8,600	9,400	10,000	10,000	11,000	12,000
125	0,93	1,200	2,400	3,600	4,900	6,100	7,300	8,500	9,800	11,000	12,000	13,000	14,000	15,000	17,000	18,000	19,000
160	0,94	2,000	4,000	6,000	8,000	10,000	12,000	14,000	16,000	18,000	20,000	22,000	24,000	26,000	28,000	30,000	32,000
200	0,96	3,100	6,200	9,400	12,000	15,000	18,000	21,000	25,000	28,000	31,000	34,000	37,000	40,000	43,000	47,000	50,000
250	0,96	4,900	9,800	14,000	19,000	24,000	29,000	34,000	39,000	44,000	49,000	53,000	58,000	63,000	68,000	73,000	78,000
320	0,96	8,000	16,000	24,000	32,000	40,000	48,000	56,000	64,000	72,000	80,000	88,000	96,000	104,000	112,000	120,000	128,000

* idealised values for cylinders moving without friction. Please notice that with many cylinders the forces in the end position are lower due to reduced effective piston surface area and static friction. Reductions of 5 - 25% are realistic here. For the calculation of the return stroke the factor for the return stroke must be used due to the reduced effective surface by the piston rod.

Tips for selecting the right pressure gauges

By answering a few questions, the selection of the right pressure gauge for your application is very easy.

	Connection thread
G 1/8"	Pressure gauge Ø 40 mm, seal with pressure gauge flat gasket
G 1/4"	Pressure gauge Ø 50 and 63 mm, seal by pressure gauge profiled seal (adjustable)
G 1/2"	Pressure gauge Ø 80, 100 and 160 mm, seal by pressure gauge profiled seal (adjustable)
	Location of the connection
Below - vertical	Largest variety
Rear - horizontal	Common for servicing units & built-in pressure gauges
	Measuring system - medium
Copper alloy	For Cu-alloy compatible medium, gaseous or liquid, non-crystallising (e.g. compressed air, water, oil)
Stainless steel	Aggressive medium, gaseous or liquid, non-crystallising
Stainless steel with extra safety acc. to S3 EN 837-1	For applications where the medium, in case the measurement system bursts, must safety leak out to the rear in order not to endanger the observer in danger (e.g. high temperatures, aggressive or toxic substances). These pressure gauges are equipped with an unbreakable baffle wall between the measuring system and display and a blow-out back.

	Dynamik
Without glycerine filling (uncushioned)	Can be used for most applications. Do not use, with pulsations (pumps) or pressure peaks (switching directional valves in hydraulic applications).
With glycerine filling (cushioned)	Ideal for applications with pulsations or light pressure peaks (hydraulic applications). For increased pulsations or pressure peaks, it is recommended to place a pressure gauge snubber upstream or the use of pressure gauge stop cocks. Warning: After installation the housing must be opened on the vent openings (top), so that the pressure gauge displays the correct measured values. That is normally done by opening a small tap or cutting a rubber seal.
	Accuracy class (class)
2.5, 1.6, 1.0 or 0.6	Indicates the maximum permissible deviation between displayed measured value and actual pressure in percent based on the end value of the display range. A pressure gauge, for example with a display range up to 10 bar and a class of 1.6 may thus have a maximum deviation of 0.16 between the actual and displayed pressure.
	Pressure range
	It is common practice to load the pressure gauge up to maximum 80% of the display range in order to protect it against overload. It is thus recommended for example for a measurement up to 10 bar to use a pressure gauge with a display range up to 16 bar.

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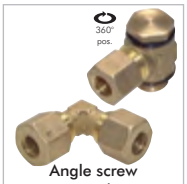

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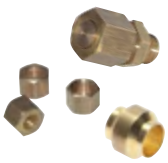
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Swivel joints

Compressed air
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All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

IQS push in connections - Standard & Big

Design Award Winner

Sang-A

Dimensions can be found in the item details in our Online Shop!

PU, PA, PTFE and PE hoses from page 192

IQS Push in connections Standard

Materials: Body: Nickel-plated brass/PA 66 (M 3: nickel-plated steel/PA66), sleeve: PA 66, seal: NBR, holding claws: Stainless steel, cartridge: Zinc-plated ZnDC (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: -0.95 to 20 bar
Media: Compressed air, neutral gases. Water up to +60°C may be used only after we approve the performance specifications.

Hoses: 3 - 16 mm
Thread: M 3 - 1/2"

Advantages:
- Large product variety
- Extremely tight
- Available with conical, PTFE-coated thread
- Available with cylindrical thread with captive O-ring

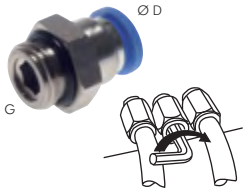
IQS Push in connections Big

Materials: Body: POM (Ø 28: brass/POM, Ø 32: PP), seal: NBR
Temperature range: -20°C to max. +70°C
Operating pressure: -0.95 to 10 bar (70°C: max. 7 bar)
Media: Compressed air, neutral gases, cold water

Hoses/Tubes: 15 - 32 mm
Thread: 3/8" - 1 1/2"

Advantages:
- Ideal for compressed air distribution in halls, buildings etc.
- Numerous approvals (not Ø 32): FDA, DVGW-W270, KTW, NSF 51 & 61

Push in fittings, cylindrical threads Standard



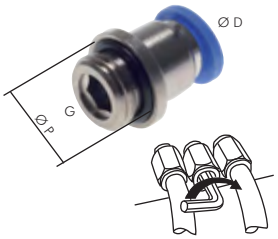
Type	G	D
IQSG M33*	M 3	3
IQSG M34*	M 3	4
IQSG M53*	M 5	3
IQSG M54*	M 5	4
IQSG M56*	M 5	6
IQSG 184 G	G 1/8"	4
IQSG 186 G	G 1/8"	6
IQSG 188 G	G 1/8"	8
IQSG 1810 G	G 1/8"	10

Type	G	D
IQSG 1812 G	G 1/8"	12
IQSG 144 G	G 1/4"	4
IQSG 146 G	G 1/4"	6
IQSG 148 G	G 1/4"	8
IQSG 1410 G	G 1/4"	10
IQSG 1412 G	G 1/4"	12
IQSG 386 G	G 3/8"	6
IQSG 388 G	G 3/8"	8
IQSG 3810 G	G 3/8"	10

Type	G	D
IQSG 3812 G	G 3/8"	12
IQSG 3814 G	G 3/8"	14
IQSG 3816 G	G 3/8"	16
IQSG 126 G	G 1/2"	6
IQSG 128 G	G 1/2"	8
IQSG 1210 G	G 1/2"	10
IQSG 1212 G	G 1/2"	12
IQSG 1214 G	G 1/2"	14
IQSG 1216 G	G 1/2"	16

* without hexagon socket

Push in fittings with round body, cylindrical threads Standard



Type	G	D	P
IQSG M33 I	M 3	3	8.2
IQSG M34 I	M 3	4	8.2
IQSG M53 I	M 5	3	8.2
IQSG M54 I	M 5	4	8.2
IQSG M56 I	M 5	6	11.0
IQSG 184 IG	G 1/8"	4	14.0
IQSG 186 IG	G 1/8"	6	14.0
IQSG 188 IG	G 1/8"	8	14.0
IQSG 1810 IG	G 1/8"	10	15.5
IQSG 1812 IG	G 1/8"	12	18.8
IQSG 144 IG	G 1/4"	4	17.0

Type	G	D	P
IQSG 146 IG	G 1/4"	6	17.0
IQSG 148 IG	G 1/4"	8	17.0
IQSG 1410 IG	G 1/4"	10	17.0
IQSG 1412 IG	G 1/4"	12	18.8
IQSG 388 IG	G 3/8"	8	21.0
IQSG 3810 IG	G 3/8"	10	21.0
IQSG 3812 IG	G 3/8"	12	21.0
IQSG 128 IG	G 1/2"	8	25.0
IQSG 1210 IG	G 1/2"	10	25.0
IQSG 1212 IG	G 1/2"	12	25.0

Push in fittings Big

type Ø 15 - 28 mm

type Ø 32 mm

Type	R	D
IQSG 1215	R 1/2"	15
IQSG 3422	R 3/4"	22
IQSG 1028	R 1"	28

Type	R	D
IQSG 1032	R 1"	32
IQSG 11232	R 1 1/2"	32

Push in fittings, cylindrical threads Big

standard type

2-piece design type

Type	G	D
IQSG 3815 G	G 3/8"	15
IQSG 1215 G	G 1/2"	15
IQSG 1218 G	G 1/2"	18
IQSG 1222 G*	G 1/2"	22

Type	G	D
IQSG 3422 G	G 3/4"	22
IQSG 3428 G*	G 3/4"	28
IQSG 1028 G	G 1"	28

* 2-piece design

Push in fittings with conical threads

Many additional products and sizes are available in our **Online Shop!**

Almost all push in fittings are also available with Teflon-coated conical threads.

conical, teflon-coated threads

Order example: IQSG 184 G

Standard type

Designation for the options
with conical threads, order without the last "G" -G
e.g.: IQSG 184

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IQS push in connections - Standard & Big

Push in fittings with female threads — Standard

Type	G	D
IQSF M33	M 3	3
IQSF M34	M 3	4
IQSF M53	M 5	3
IQSF M54	M 5	4
IQSF 184	G 1/8"	4
IQSF 186	G 1/8"	6
IQSF 188	G 1/8"	8

Type	G	D
IQSF 1810	G 1/8"	10
IQSF 144	G 1/4"	4
IQSF 146	G 1/4"	6
IQSF 148	G 1/4"	8
IQSF 1410	G 1/4"	10
IQSF 1412	G 1/4"	12
IQSF 386	G 3/8"	6

Type	G	D
IQSF 388	G 3/8"	8
IQSF 3810	G 3/8"	10
IQSF 3812	G 3/8"	12
IQSF 128	G 1/2"	8
IQSF 1210	G 1/2"	10
IQSF 1212	G 1/2"	12
IQSF 1216	G 1/2"	16

Bulkhead push in fittings with female threads — Standard

Type	G	D	A	Emax
IQSSF 184	G 1/8"	4	M 12 x 1	5
IQSSF 186	G 1/8"	6	M 14 x 1	7
IQSSF 188	G 1/8"	8	M 16 x 1	9
IQSSF 144	G 1/4"	4	M 12 x 1	5
IQSSF 146	G 1/4"	6	M 14 x 1	7
IQSSF 148	G 1/4"	8	M 16 x 1	9
IQSSF 1410	G 1/4"	10	M 20 x 1	7

Type	G	D	A	Emax
IQSSF 1412	G 1/4"	12	M 22 x 1	9
IQSSF 386	G 3/8"	6	M 14 x 1	7
IQSSF 388	G 3/8"	8	M 16 x 1	9
IQSSF 3810	G 3/8"	10	M 20 x 1	7
IQSSF 3812	G 3/8"	12	M 22 x 1	9
IQSSF 1212	G 1/2"	12	M 22 x 1	9

L push in fittings, short, cylindrical threads — Standard

Type	G	D
IQSL M33	M 3	3
IQSL M34	M 3	4
IQSL M53	M 5	3
IQSL M54	M 5	4
IQSL M56	M 5	6
IQSL 184 G	G 1/8"	4
IQSL 186 G	G 1/8"	6
IQSL 188 G	G 1/8"	8
IQSL 1810 G	G 1/8"	10

Type	G	D
IQSL 144 G	G 1/4"	4
IQSL 146 G	G 1/4"	6
IQSL 148 G	G 1/4"	8
IQSL 1410 G	G 1/4"	10
IQSL 1412 G	G 1/4"	12
IQSL 386 G	G 3/8"	6
IQSL 388 G	G 3/8"	8
IQSL 3810 G	G 3/8"	10
IQSL 3812 G	G 3/8"	12

Type	G	D
IQSL 3814 G	G 3/8"	14
IQSL 3816 G	G 3/8"	16
IQSL 126 G	G 1/2"	6
IQSL 128 G	G 1/2"	8
IQSL 1210 G	G 1/2"	10
IQSL 1212 G	G 1/2"	12
IQSL 1214 G	G 1/2"	14
IQSL 1216 G	G 1/2"	16

L push in fittings, cylindrical threads — Big

Type	G	D
IQSL 3815 G	G 3/8"	15
IQSL 1215 G	G 1/2"	15
IQSL 1218 G	G 1/2"	18
IQSL 1222 G	G 1/2"	22

Type	G	D
IQSL 3422 G	G 3/4"	22
IQSL 3428 G	G 3/4"	28
IQSL 1028 G	G 1"	28

L push in fittings, medium-long, cylindrical threads — Standard

Type	G	D
IQSL M54 L	M 5	4
IQSL M56 L	M 5	6
IQSL 184 GL	G 1/8"	4
IQSL 186 GL	G 1/8"	6
IQSL 188 GL	G 1/8"	8
IQSL 1810 GL	G 1/8"	10

Type	G	D
IQSL 144 GL	G 1/4"	4
IQSL 146 GL	G 1/4"	6
IQSL 148 GL	G 1/4"	8
IQSL 1410 GL	G 1/4"	10
IQSL 1412 GL	G 1/4"	12
IQSL 386 GL	G 3/8"	6

Type	G	D
IQSL 388 GL	G 3/8"	8
IQSL 3810 GL	G 3/8"	10
IQSL 3812 GL	G 3/8"	12
IQSL 128 GL	G 1/2"	8
IQSL 1210 GL	G 1/2"	10
IQSL 1212 GL	G 1/2"	12

L push in fittings, long, cylindrical threads — Standard

Type	G	D
IQSLL M33	M 3	3
IQSLL M34	M 4	4
IQSLL M53	M 5	3
IQSLL M54	M 5	4
IQSLL M56	M 5	6
IQSLL 184 G	G 1/8"	4
IQSLL 186 G	G 1/8"	6

Type	G	D
IQSLL 188 G	G 1/8"	8
IQSLL 1810 G	G 1/8"	10
IQSLL 144 G	G 1/4"	4
IQSLL 146 G	G 1/4"	6
IQSLL 148 G	G 1/4"	8
IQSLL 1410 G	G 1/4"	10
IQSLL 1412 G	G 1/4"	12

Type	G	D
IQSLL 386 G	G 3/8"	6
IQSLL 388 G	G 3/8"	8
IQSLL 3810 G	G 3/8"	10
IQSLL 3812 G	G 3/8"	12
IQSLL 1210 G	G 1/2"	10
IQSLL 1212 G	G 1/2"	12
IQSLL 1216 G	G 1/2"	16

L push in fittings, longer body, cylindrical threads — Standard

Type	G	D
IQSLLK M54	M 5	4
IQSLLK M56	M 5	6
IQSLLK 184 G	G 1/8"	4
IQSLLK 186 G	G 1/8"	6
IQSLLK 188 G	G 1/8"	8
IQSLLK 1810 G	G 1/8"	10

Type	G	D
IQSLLK 144 G	G 1/4"	4
IQSLLK 146 G	G 1/4"	6
IQSLLK 148 G	G 1/4"	8
IQSLLK 1410 G	G 1/4"	10
IQSLLK 1412 G	G 1/4"	12
IQSLLK 386 G	G 3/8"	6

Type	G	D
IQSLLK 388 G	G 3/8"	8
IQSLLK 3810 G	G 3/8"	10
IQSLLK 3812 G	G 3/8"	12
IQSLLK 1210 G	G 1/2"	10
IQSLLK 1212 G	G 1/2"	12

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IQS push in connections - Standard & Big

Push in fittings 45°, cylindrical threads — Standard

Type	G	D	Type	G	D	Type	G	D
IQSW M54	M 5	4	IQSW 144 G	G 1/4"	4	IQSW 388 G	G 3/8"	8
IQSW M56	M 5	6	IQSW 146 G	G 1/4"	6	IQSW 3810 G	G 3/8"	10
IQSW 184 G	G 1/8"	4	IQSW 148 G	G 1/4"	8	IQSW 3812 G	G 3/8"	12
IQSW 186 G	G 1/8"	6	IQSW 1410 G	G 1/4"	10	IQSW 128 G	G 1/2"	8
IQSW 188 G	G 1/8"	8	IQSW 1412 G	G 1/4"	12	IQSW 1210 G	G 1/2"	10
IQSW 1810 G	G 1/8"	10	IQSW 386 G	G 3/8"	6	IQSW 1212 G	G 1/2"	12

L push in fittings with female threads — Standard

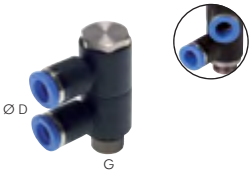
Type	G	D	Type	G	D	Type	G	D
IQSLF M54	M 5	4	IQSLF 144	G 1/4"	4	IQSLF 386	G 3/8"	6
IQSLF M56	M 5	6	IQSLF 146	G 1/4"	6	IQSLF 388	G 3/8"	8
IQSLF 184	G 1/8"	4	IQSLF 148	G 1/4"	8	IQSLF 3810	G 3/8"	10
IQSLF 186	G 1/8"	6	IQSLF 1410	G 1/4"	10	IQSLF 1210	G 1/2"	10
IQSLF 188	G 1/8"	8	IQSLF 1412	G 1/4"	12	IQSLF 1212	G 1/2"	12

L push in fittings with exterior hexagon, cylindrical threads — Standard

Type	G	D	Type	G	D	Type	G	D
IQSLV M53	M 5	3	IQSLV 188 G	G 1/8"	8	IQSLV 3810 G	G 3/8"	10
IQSLV M54	M 5	4	IQSLV 146 G	G 1/4"	6	IQSLV 3812 G	G 3/8"	12
IQSLV M56	M 5	6	IQSLV 148 G	G 1/4"	8	IQSLV 1210 G	G 1/2"	10
IQSLV 184 G	G 1/8"	4	IQSLV 1410 G	G 1/4"	10	IQSLV 1212 G	G 1/2"	12
IQSLV 186 G	G 1/8"	6	IQSLV 388 G	G 3/8"	8			

L push in fittings with hexagon socket — Standard

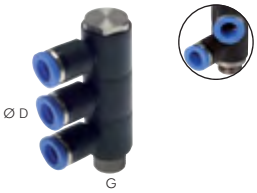
Type	R	D	Type	R	D	Type	R	D
IQSLV 184 I	R 1/8"	4	IQSLV 148 I	R 1/4"	8	IQSLV 3812 I	R 3/8"	12
IQSLV 186 I	R 1/8"	6	IQSLV 1410 I	R 1/4"	10	IQSLV 1210 I	R 1/2"	10
IQSLV 188 I	R 1/8"	8	IQSLV 388 I	R 3/8"	8	IQSLV 1212 I	R 1/2"	12
IQSLV 146 I	R 1/4"	6	IQSLV 3810 I	R 3/8"	10			



Multi-distributor, 2-way*, cylindrical threads — Standard

Type	G	D	Type	G	D	Type	G	D
IQSLV2 184 G	G 1/8"	4	IQSLV2 148 G	G 1/4"	8	IQSLV2 3810 G	G 3/8"	10
IQSLV2 186 G	G 1/8"	6	IQSLV2 1410 G	G 1/4"	10	IQSLV2 3812 G	G 3/8"	12
IQSLV2 188 G	G 1/8"	8	IQSLV2 384 G	G 3/8"	4	IQSLV2 128 G	G 1/2"	8
IQSLV2 144 G	G 1/4"	4	IQSLV2 386 G	G 3/8"	6	IQSLV2 1210 G	G 1/2"	10
IQSLV2 146 G	G 1/4"	6	IQSLV2 388 G	G 3/8"	8	IQSLV2 1212 G	G 1/2"	12

* operating pressure: 10 bar, 60°C max., plastic body made of PBT



Multi-distributor, 3-way*, cylindrical threads — Standard

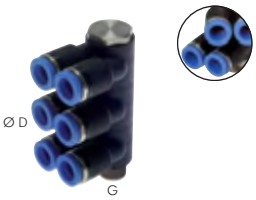
Type	G	D	Type	G	D	Type	G	D
IQSLV3 184 G	G 1/8"	4	IQSLV3 148 G	G 1/4"	8	IQSLV3 3810 G	G 3/8"	10
IQSLV3 186 G	G 1/8"	6	IQSLV3 1410 G	G 1/4"	10	IQSLV3 3812 G	G 3/8"	12
IQSLV3 188 G	G 1/8"	8	IQSLV3 384 G	G 3/8"	4	IQSLV3 128 G	G 1/2"	8
IQSLV3 144 G	G 1/4"	4	IQSLV3 386 G	G 3/8"	6	IQSLV3 1210 G	G 1/2"	10
IQSLV3 146 G	G 1/4"	6	IQSLV3 388 G	G 3/8"	8	IQSLV3 1212 G	G 1/2"	12

* operating pressure: 10 bar, 60°C max., plastic body made of PBT

Multi-distributor, 4-way*, cylindrical threads — Standard

Type	G	D	Type	G	D	Type	G	D
IQSLV4 184 G	G 1/8"	4	IQSLV4 148 G	G 1/4"	8	IQSLV4 3810 G	G 3/8"	10
IQSLV4 186 G	G 1/8"	6	IQSLV4 1410 G	G 1/4"	10	IQSLV4 3812 G	G 3/8"	12
IQSLV4 188 G	G 1/8"	8	IQSLV4 384 G	G 3/8"	4	IQSLV4 128 G	G 1/2"	8
IQSLV4 144 G	G 1/4"	4	IQSLV4 386 G	G 3/8"	6	IQSLV4 1210 G	G 1/2"	10
IQSLV4 146 G	G 1/4"	6	IQSLV4 388 G	G 3/8"	8	IQSLV4 1212 G	G 1/2"	12

* operating pressure: 10 bar, 60°C max., plastic body made of PBT



Multi-distributor, 6-way*, cylindrical threads — Standard

Type	G	D	Type	G	D	Type	G	D
IQSLV6 184 G	G 1/8"	4	IQSLV6 148 G	G 1/4"	8	IQSLV6 3810 G	G 3/8"	10
IQSLV6 186 G	G 1/8"	6	IQSLV6 1410 G	G 1/4"	10	IQSLV6 3812 G	G 3/8"	12
IQSLV6 188 G	G 1/8"	8	IQSLV6 384 G	G 3/8"	4	IQSLV6 128 G	G 1/2"	8
IQSLV6 144 G	G 1/4"	4	IQSLV6 386 G	G 3/8"	6	IQSLV6 1210 G	G 1/2"	10
IQSLV6 146 G	G 1/4"	6	IQSLV6 388 G	G 3/8"	8	IQSLV6 1212 G	G 1/2"	12

* operating pressure: 10 bar, 60°C max., plastic body made of PBT

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Y push in fittings with exterior hexagon — Standard

Type	R	D
IQSYLV 186	R 1/8"	6
IQSYLV 148	R 1/4"	8
IQSYLV 3810	R 3/8"	10
IQSYLV 3812	R 3/8"	12
IQSYLV 1212	R 1/2"	12

L push in fittings with female and male threads — Standard

Type	R	G	D
IQSTF 184	R 1/8"	G 1/8"	4
IQSTF 186	R 1/8"	G 1/8"	6
IQSTF 188	R 1/8"	G 1/8"	8
IQSTF 146	R 1/4"	G 1/4"	6
IQSTF 148	R 1/4"	G 1/4"	8
IQSTF 1410	R 1/4"	G 1/4"	10
IQSTF 388	R 3/8"	G 3/8"	8
IQSTF 3810	R 3/8"	G 3/8"	10
IQSTF 3812	R 3/8"	G 3/8"	12
IQSTF 1210	R 1/2"	G 1/2"	10
IQSTF 1212	R 1/2"	G 1/2"	12

Y push in fittings with female threads — Standard

Type	R	G	D
IQSYTF 186	R 1/8"	G 1/8"	6
IQSYTF 148	R 1/4"	G 1/4"	8
IQSYTF 3810	R 3/8"	G 3/8"	10
IQSYTF 1212	R 1/2"	G 1/2"	12

T push in fittings, cylindrical threads — Standard

Type	G	D
IQST M33	M 3	3
IQST M34	M 3	4
IQST M53	M 5	3
IQST M54	M 5	4
IQST M56	M 5	6
IQST 184 G	G 1/8"	4
IQST 186 G	G 1/8"	6
IQST 188 G	G 1/8"	8
IQST 1810 G	G 1/8"	10
IQST 144 G	G 1/4"	4
IQST 146 G	G 1/4"	6
IQST 148 G	G 1/4"	8
IQST 1410 G	G 1/4"	10
IQST 1412 G	G 1/4"	12
IQST 386 G	G 3/8"	6
IQST 388 G	G 3/8"	8
IQST 3810 G	G 3/8"	10
IQST 3812 G	G 3/8"	12
IQST 3814 G	G 3/8"	14
IQST 3816 G	G 3/8"	16
IQST 128 G	G 1/2"	8
IQST 1210 G	G 1/2"	10
IQST 1212 G	G 1/2"	12
IQST 1214 G	G 1/2"	14
IQST 1216 G	G 1/2"	16

T push in fittings, cylindrical threads — Big

Type	G	D
IQST 3815 G	G 3/8"	15
IQST 1215 G	G 1/2"	15
IQST 1218 G	G 1/2"	18
IQST 1222 G	G 1/2"	22
IQST 3422 G	G 3/4"	22
IQST 3428 G	G 3/4"	28
IQST 1028 G	G 1"	28

T push in fittings with female threads — Standard

Type	G	D
IQSTFF M54	M 5	4
IQSTFF M56	M 5	6
IQSTFF 184	G 1/8"	4
IQSTFF 186	G 1/8"	6
IQSTFF 188	G 1/8"	8
IQSTFF 144	G 1/4"	4
IQSTFF 146	G 1/4"	6
IQSTFF 148	G 1/4"	8
IQSTFF 1410	G 1/4"	10
IQSTFF 386	G 3/8"	6
IQSTFF 388	G 3/8"	8
IQSTFF 3810	G 3/8"	10
IQSTFF 1210	G 1/2"	10

T push in fittings, cylindrical threads — Standard

Type	G	D
IQSTL M33	M 3	3
IQSTL M34	M 3	4
IQSTL M53	M 5	3
IQSTL M54	M 5	4
IQSTL M56	M 5	6
IQSTL 184 G	G 1/8"	4
IQSTL 186 G	G 1/8"	6
IQSTL 188 G	G 1/8"	8
IQSTL 1810 G	G 1/8"	10
IQSTL 144 G	G 1/4"	4
IQSTL 146 G	G 1/4"	6
IQSTL 148 G	G 1/4"	8
IQSTL 1410 G	G 1/4"	10
IQSTL 1412 G	G 1/4"	12
IQSTL 386 G	G 3/8"	6
IQSTL 388 G	G 3/8"	8
IQSTL 3810 G	G 3/8"	10
IQSTL 3812 G	G 3/8"	12
IQSTL 3814 G	G 3/8"	14
IQSTL 128 G	G 1/2"	8
IQSTL 1210 G	G 1/2"	10
IQSTL 1212 G	G 1/2"	12
IQSTL 1214 G	G 1/2"	14
IQSTL 1216 G	G 1/2"	16

T push in fittings, cylindrical threads — Big

Type	G	D
IQSTL 3815 G	G 3/8"	15
IQSTL 1215 G	G 1/2"	15
IQSTL 1218 G	G 1/2"	18
IQSTL 1222 G	G 1/2"	22
IQSTL 3422 G	G 3/4"	22
IQSTL 3428 G	G 3/4"	28
IQSTL 1028 G	G 1"	28

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

IQS push in connections - Standard & Big

Y push in fittings, cylindrical threads — Standard

Type	G	D
IQSY M54	M 5	4
IQSY M56	M 5	6
IQSY 184 G	G 1/8"	4
IQSY 186 G	G 1/8"	6
IQSY 188 G	G 1/8"	8
IQSY 1810 G	G 1/8"	10

Type	G	D
IQSY 144 G	G 1/4"	4
IQSY 146 G	G 1/4"	6
IQSY 148 G	G 1/4"	8
IQSY 1410 G	G 1/4"	10
IQSY 1412 G	G 1/4"	12
IQSY 386 G	G 3/8"	6

Type	G	D
IQSY 388 G	G 3/8"	8
IQSY 3810 G	G 3/8"	10
IQSY 3812 G	G 3/8"	12
IQSY 128 G	G 1/2"	8
IQSY 1210 G	G 1/2"	10
IQSY 1212 G	G 1/2"	12

Multi-distributor with cylindrical male threads — Standard

Type	G	D
IQSQ 184 G	G 1/8"	4
IQSQ 186 G	G 1/8"	6
IQSQ 144 G	G 1/4"	4
IQSQ 146 G	G 1/4"	6

T multi-distributors with cyl. male thread and 3 outlets — Standard

Type	G	D	D1
IQST3 1864 G	G 1/8"	6	4
IQST3 1464 G	G 1/4"	6	4
IQST3 1484 G	G 1/4"	8	4

Type	G	D	D1
IQST3 1486 G	G 1/4"	8	6
IQST3 3886 G	G 3/8"	8	6
IQST3 38108 G	G 3/8"	10	8

Push in connectors (also reducing) — Standard

Type	D	D1
IQSG 30	3	3
IQSG 4030	4 reduced	3
IQSG 40	4	4
IQSG 6040	6 reduced	4
IQSG 60	6	6
IQSG 8040	8 reduced	4

Type	D	D1
IQSG 8060	8 reduced	6
IQSG 80	8	8
IQSG 10060	10 reduced	6
IQSG 10080	10 reduced	8
IQSG 100	10	10
IQSG 12080	12 reduced	8

Type	D	D1
IQSG 120100	12 reduced	10
IQSG 120	12	12
IQSG 140	14	14
IQSG 160120	16 reduced	12
IQSG 160	16	16

Push in connectors (also reducing) — Big

Type	D	D1
IQSG 150	15	15
IQSG 180	18	18
IQSG 220	22	22

Type	D	D1
IQSG 280	28	28
IQSG 320280	32 reduced	28
IQSG 320	32	32

FESTO
You will find Festo stop cylinders in our Online Shop

FESTO
You will find grippers in our Online Shop

FESTO
Mini-carriages are found in our Online Shop

Outstanding value!

Bulkhead push in connections made of plastic — Standard

Type	D	A	Emax
IQSSK 40	4	M 12 x 1.5	8
IQSSK 60	6	M 14 x 1.5	10
IQSSK 80	8	M 16 x 1.5	10

Type	D	A	Emax
IQSSK 100	10	M 20 x 2	11
IQSSK 120	12	M 24 x 2	13

Elbow push in fittings — Standard

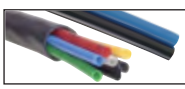
Type	D
IQSL 30	3
IQSL 40	4
IQSL 60	6
IQSL 80	8

Type	D
IQSL 100	10
IQSL 120	12
IQSL 140	14
IQSL 160	16

Elbow push in fittings — Big

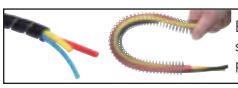
Type	D
IQSL 150	15
IQSL 180	18
IQSL 220	22

Type	D
IQSL 280	28
IQSL 320	32



Multiple hoses made of PA and PU from page 199

PU, PA, PTFE and PE hoses from page 192



Bundle & steel spirals from page 247

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Elbow bulkhead push in connectors — Standard

Type	D	A	Emax
IQSLS 40	4	M 12 x 1.5	6
IQSLS 60	6	M 14 x 1.5	8
IQSLS 80	8	M 16 x 1.5	8

Type	D	A	Emax
IQSLS 100	10	M 20 x 2	9
IQSLS 120	12	M 24 x 2	11

T push in connectors (also reducing) — Standard

Type	D		D_1
IQST 30	3		3
IQST 40	4		4
IQST 604060	6	reduced	4
IQST 60	6		6
IQST 804080	8	reduced	4
IQST 806080	8	reduced	6

Type	D		D_1
IQST 80	8		8
IQST 10060100	10	reduced	6
IQST 10080100	10	reduced	8
IQST 100	10		10
IQST 12080120	12	reduced	8
IQST 120100120	12	reduced	10

Type	D		D_1
IQST 120	12		12
IQST 14080140	14	reduced	8
IQST 140	14		14
IQST 160	16		16

T push in connectors (also reducing) — Big

Type	D		D_1
IQST 150	15		15
IQST 180150180	18	reduced	15
IQST 180	18		18
IQST 220150220	22	reduced	15

Type	D	D_1
IQST 220	22	22
IQST 280	28	28
IQST 320	32	32

type Ø 15 - 28 mm

type Ø 32 mm

Y push in connectors (also reducing) — Standard

Type	D		D_1
IQSY 30	3		3
IQSY 40	4		4
IQSY 6040	6	reduced	4
IQSY 60	6		6
IQSY 8040	8	reduced	4

Type	D		D_1
IQSY 8060	8	reduced	6
IQSY 80	8		8
IQSY 10060	10	reduced	6
IQSY 10080	10	reduced	8
IQSY 100	10		10

Type	D		D_1
IQSY 12080	12	reduced	8
IQSY 120100	12	reduced	10
IQSY 120	12		12
IQSY 140	14		14
IQSY 160	16		16

X push in connectors — Standard

Type	D
IQSX 40	4
IQSX 60	6
IQSX 80	8

Type	D
IQSX 100	10
IQSX 120	12

X push in connectors with 2 reduced outlets — Standard

Type	D	D_1
IQSX2 8060	8	6
IQSX2 10080	10	8
IQSX2 120100	12	10

X push in connectors with 3 reduced outlets — Standard

Type	D	D_1
IQSX3 8060	8	6
IQSX3 10080	10	8
IQSX3 120100	12	10

T multi-distributors with 3 outlets — Standard

Type	D	D_1
IQST3 6040	6	4
IQST3 8040	8	4
IQST3 8060	8	6

Type	D	D_1
IQST3 10060	10	6
IQST3 10080	10	8

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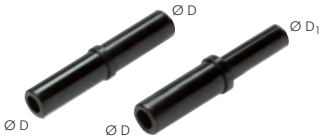
IQS push in connections - Standard & Big

Multi-distributors with 4 outlets — Standard

Type	D	D1
IQSQ 6040	6	4
IQSQ 8060	8	6



Push in nipples (also reducing) — Standard

Type	D		D1
IQSH 40	4		4
IQSH 6040	6	reduced	4
IQSH 60	6		6
IQSH 8040	8	reduced	4
IQSH 8060	8	reduced	6
IQSH 80	8		8

Type	D		D1
IQSH 10060	10	reduced	6
IQSH 10080	10	reduced	8
IQSH 100	10		10
IQSH 12080	12	reduced	8
IQSH 120100	12	reduced	10
IQSH 120	12		12

Type	D		D1
IQSH 140	14		14
IQSH 160120	16	reduced	12
IQSH 160	16		16
IQSH 320220	32	reduced	22
IQSH 320280	32	reduced	28

Push in nipples with hose screw connections for PVC hose — Standard

Type	D	D1	For hose Ø internal
IQSGT 40H4	4	5.9	4
IQSGT 40H5	4	6.9	5
IQSGT 60H5	6	6.9	5
IQSGT 60H6	6	7.9	6
IQSGT 80H6	8	7.9	6
IQSGT 80H8	8	10.0	8

Type	D	D1	For hose Ø internal
IQSGT 100H8	10	10.0	8
IQSGT 120H8	12	10.0	8
IQSGT 120H10	12	12.0	10
IQSGT 120H13	12	15.0	13
IQSGT 140H14	14	16.0	14

Push in connectors, reducing, with push in nipple — Standard

Type	D	D1
IQSG 40H60	4	6
IQSG 60H40	6	4
IQSG 80H40	8	4
IQSG 80H60	8	6

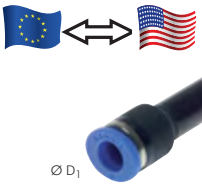
Type	D	D1
IQSG 100H60	10	6
IQSG 100H80	10	8
IQSG 120H60	12	6
IQSG 120H80	12	8

Type	D	D1
IQSG 120H100	12	10
IQSG 140H120	14	12

Push in connectors, reducing, with push in nipple — Big

Type	D	D1
IQSG 150H100	15	10
IQSG 150H120	15	12
IQSG 180H150	18	15
IQSG 220H150	22	15

Type	D	D1
IQSG 220H180	22	18
IQSG 280H150	28	15
IQSG 280H220	28	22



Push in adapter with imperial push in nipple for metric hoses — Standard

Type	D	D1
IQSG 5/32H-40	5/32"	4
IQSG 3/16H-40	3/16"	4
IQSG 1/4H-60	1/4"	6

Type	D	D1
IQSG 5/16H-80	5/16"	8
IQSG 3/8H-100	3/8"	10
IQSG 1/2H-120	1/2"	12

L push in connectors with push in nipple (also reducing) — Standard

Type	D		D1
IQSL 30H	3		3
IQSL 40H	4		4
IQSL 60H40	6	reduced	4
IQSL 60H	6		6

Type	D		D1
IQSL 80H60	8	reduced	6
IQSL 80H	8		8
IQSL 100H80	10	reduced	8
IQSL 100H	10		10

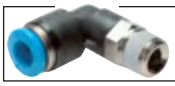
Type	D		D1
IQSL 120H100	12	reduced	10
IQSL 120H	12		12
IQSL 140H	14		14
IQSL 160H	16		16

type Ø 15 - 28 mm

type Ø 32 mm

L push in connectors with push in nipple — Big

Type	D
IQSL 150H	15
IQSL 180H	18
IQSL 220H	22
IQSL 320H	32



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Festo screwed connections can be found in our Online Shop

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L push in connectors with long push in nipple — Standard

Type	D
IQSLL 40H	4
IQSLL 60H	6
IQSLL 80H	8
IQSLL 100H	10

Type	D
IQSLL 120H	12
IQSLL 140H	14
IQSLL 160H	16

assembly example using IQSG ...

type IQSLL

type IQSL

Push in connectors 45° with long push in nipple — Standard

Type	D
IQSW 40H	4
IQSW 60H	6
IQSW 80H	8

Type	D
IQSW 100H	10
IQSW 120H	12

T push in connectors with push in nipple* — Standard

Type	D
IQST 40H	4
IQST 60H	6
IQST 80H	8

Type	D
IQST 100H	10
IQST 120H	12
IQST 160H	16

* operating pressure: 10 bar, 60°C max., plastic body made of PBT

Y push in connectors with push in nipple (also reducing) — Standard

Type	D	D_1
IQSY 40H	4	4
IQSY 60H40	6 reduced	4
IQSY 60H	6	6

Type	D	D_1
IQSY 80H60	8 reduced	6
IQSY 80H	8	8
IQSY 100H80	10 reduced	8

Type	D	D_1
IQSY 100H	10	10
IQSY 120H100	12 reduced	10
IQSY 120H	12	12

T-multi-distributor with push in nipple and 3 outlets — Standard

Type	D	D_1
IQST3 60H40	6	4
IQST3 80H40	8	4
IQST3 80H60	8	6
IQST3 100H80	10	8

Multi-distributor with push in nipple and 4 outlets — Standard

Type	D	D_1
IQSQ 60H40	6	4
IQSQ 80H60	8	6

Push-in fitting screw in nozzles (G-threads/metric nipple) — Standard

Type	G	D
IQSG M54H	M 5	4
IQSG M56H	M 5	6
IQSG 184H G	G 1/8"	4
IQSG 186H G	G 1/8"	6
IQSG 188H G	G 1/8"	8
IQSG 144H G	G 1/4"	4
IQSG 146H G	G 1/4"	6

Type	G	D
IQSG 148H G	G 1/4"	8
IQSG 1410H G	G 1/4"	10
IQSG 1412H G	G 1/4"	12
IQSG 386H G	G 3/8"	6
IQSG 388H G	G 3/8"	8
IQSG 3810H G	G 3/8"	10
IQSG 3812H G	G 3/8"	12

Type	G	D
IQSG 3814H G	G 3/8"	14
IQSG 3816H G	G 3/8"	16
IQSG 1210H G	G 1/2"	10
IQSG 1212H G	G 1/2"	12
IQSG 1214H G	G 1/2"	14
IQSG 1216H G	G 1/2"	16

Push-in fitting screw in nozzles (G and R threads/metric nipple) — Big

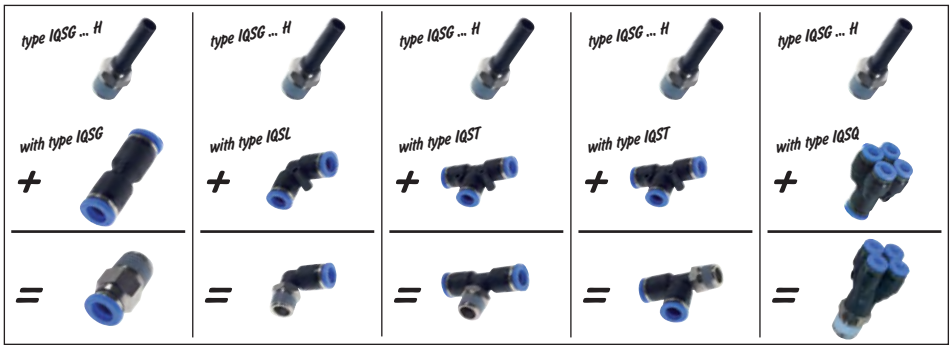
Type **plastic**	G	D
IQSG 3815H G	G 3/8"	15
IQSG 1215H G	G 1/2"	15
IQSG 1218H G	G 1/2"	18
IQSG 1222H G	G 1/2"	22
IQSG 3422H G	G 3/4"	22

Type **brass**	G	D
IQSG 1215H MS	R 1/2"	15
IQSG 3422H MS	R 3/4"	22
IQSG 3428H G MS	G 3/4"	28
IQSG 1028H G MS	G 1"	28

plastic type

type brass

Combination options:



Tube cutters on page 595

PU, PA, PTFE and PE hoses from page 192

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IQS push in connections - Standard & Big

Silencers with push in nipple* — Standard

Type	D	Type	D
IQSSD 40	4	IQSSD 100	10
IQSSD 60	6	IQSSD 120	12
IQSSD 80	8		

* operating pressure: 10 bar, max. 80°C, material: PE

Plugs for closing push in fittings — Standard/Mini

Type	D	Type	D	Type	D
IQSMC 30H	3	IQSC 80H	8	IQSC 140H	14
IQSC 40H	4	IQSC 100H	10	IQSC 160H	16
IQSC 60H	6	IQSC 120H	12		

Plugs for closing push in fittings — Big

Type	D	Type	D
IQSC 150H	15	IQSC 280H	28
IQSC 180H	18	IQSC 320H	32
IQSC 220H	22		

Caps for closing hose lines — Standard/Mini

Type	D	Type	D
IQSMC 30*	3	IQSC 80	8
IQSC 40	4	IQSC 100	10
IQSC 60	6	IQSC 120	12

* operating pressure: 10 bar, 60°C max., plastic body made of PBT

Cap for closing hose lines — Big

Type	D
IQSC 150	15
IQSC 180	18
IQSC 220	22

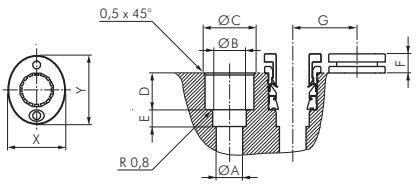
Safety rings for push in connectors — Standard

Type	D	Type	D
IQSES 40	4	IQSES 100	10
IQSES 60	6	IQSES 120	12
IQSES 80	8		

Cartridges* — Standard

Advantages:
- Extremely small dimensions
- No thread lock required
- Machine installation possible
- Cartridge consists of only one part

Work steps:
- Manufacture of stepped holes using a stepped drill or injection moulding
- Pressing the cartridge in
- Lateral removal of the installation guard



Supply volume: Cartridges with the installation guard (safety rings IQSES ...) are assembled completely and are ready for use.

Type brass nickel-plated	Ø D	Ø A	Ø B +0.1 0	Ø C 0 -0.05	D +0.1 0	E +0.1 0	F	G	X	Y
IQSE 40 MSV	4	3.0	4.2	8.0	7.8	3.5	4.7	11	10	12
IQSE 60 MSV	6	4.0	6.2	10.0	8.2	4.0	5.0	13	12	14
IQSE 80 MSV	8	6.0	8.2	12.0	9.2	4.5	4.8	15	14	16
IQSE 100 MSV	10	8.0	10.2	15.1	10.2	5.0	5.8	18	17	19
IQSE 120 MSV	12	10.0	12.2	17.7	12.2	5.0	5.2	22	21	23

Dimensions are for POM material. Use in metal bodies only possible after carrying out trials.
* operating pressure: 10 bar, max. 60°C

You will find push in connectors from other manufacturers in our Online Shop!

Many additional products and sizes are available in our **Online Shop!**

Simply search using the manufacturer's item numbers.

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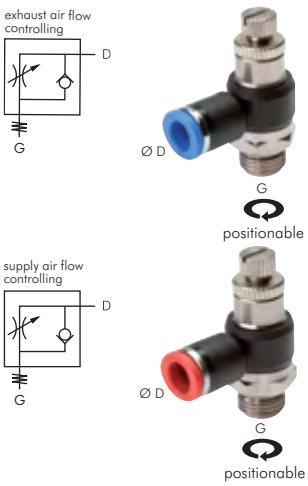
One-way control valves, cylindrical threads — Standard

Materials: Body: Nickel-plated brass/PA 66, sleeve: PA 66, seal: NBR, holding claws: Stainless steel, cartridge: Zinc-plated ZnDC (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: -0.95 to 20 bar

Advantages: • Compact design
• Can be easily adjusted without tools

Type exhaust air flow controlling	Type supply air flow controlling	G	D
GRLAIQS M54	GRLBIQS M54	M 5	4
GRLAIQS M56	GRLBIQS M56	M 5	6
GRLAIQS 184 G	GRLBIQS 184 G	G 1/8"	4
GRLAIQS 186 G	GRLBIQS 186 G	G 1/8"	6
GRLAIQS 188 G	GRLBIQS 188 G	G 1/8"	8
GRLAIQS 144 G	GRLBIQS 144 G	G 1/4"	4
GRLAIQS 146 G	GRLBIQS 146 G	G 1/4"	6
GRLAIQS 148 G	GRLBIQS 148 G	G 1/4"	8

Type exhaust air flow controlling	Type supply air flow controlling	G	D
GRLAIQS 1410 G	GRLBIQS 1410 G	G 1/4"	10
GRLAIQS 386 G	GRLBIQS 386 G	G 3/8"	6
GRLAIQS 388 G	GRLBIQS 388 G	G 3/8"	8
GRLAIQS 3810 G	GRLBIQS 3810 G	G 3/8"	10
GRLAIQS 3812 G	GRLBIQS 3812 G	G 3/8"	12
GRLAIQS 128 G	GRLBIQS 128 G	G 1/2"	8
GRLAIQS 1210 G	GRLBIQS 1210 G	G 1/2"	10
GRLAIQS 1212 G	GRLBIQS 1212 G	G 1/2"	12



One-way control valves with slotted screw — Standard

Materials: Body: Nickel-plated brass/PA 66, sleeve: PA 66, seal: NBR, holding claws: Stainless steel, cartridge: Zinc-plated ZnDC (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: -0.95 to 20 bar

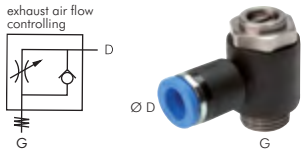
Advantages: • Compact design
• Can be easily adjusted without tools

Can only be adjusted using screwdriver

Type exhaust air flow controlling	G	D
GRLAIQS M54 S	M 5	4
GRLAIQS M56 S	M 5	6
GRLAIQS 184 G S	G 1/8"	4
GRLAIQS 186 G S	G 1/8"	6
GRLAIQS 188 G S	G 1/8"	8
GRLAIQS 144 G S	G 1/4"	4

Type exhaust air flow controlling	G	D
GRLAIQS 146 G S	G 1/4"	6
GRLAIQS 148 G S	G 1/4"	8
GRLAIQS 1410 G S	G 1/4"	10
GRLAIQS 386 G S	G 3/8"	6
GRLAIQS 388 G S	G 3/8"	8
GRLAIQS 3810 G S	G 3/8"	10

Type exhaust air flow controlling	G	D
GRLAIQS 3812 G S	G 3/8"	12
GRLAIQS 128 G S	G 1/2"	8
GRLAIQS 1210 G S	G 1/2"	10
GRLAIQS 1212 G S	G 1/2"	12



One-way control valves - straight form — Standard

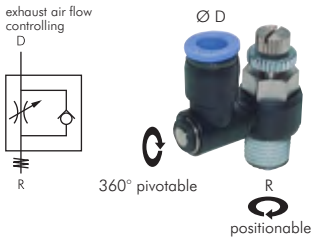
Materials: Body: Nickel-plated brass/PBT, seal: NBR, holding claw: Stainless steel, cartridge: Nickel-plated ZnDC, sleeve: PBT (only silicone-free seals and lubricants are used during assembly)
Operating pressure: -0.95 to 10 bar
Temperature range: 0°C to max. +60°C

Advantages: • Very compact design
• Can be easily adjusted without tools

Type exhaust air flow controlling	R	D
GRAIQS M54	M 5	4
GRAIQS M56	M 5	6
GRAIQS 184	R 1/8"	4
GRAIQS 186	R 1/8"	6

Type exhaust air flow controlling	R	D
GRAIQS 188	R 1/8"	8
GRAIQS 146	R 1/4"	6
GRAIQS 148	R 1/4"	8
GRAIQS 1410	R 1/4"	10

Type exhaust air flow controlling	R	D
GRAIQS 388	R 3/8"	8
GRAIQS 3810	R 3/8"	10
GRAIQS 1210	R 1/2"	10
GRAIQS 1212	R 1/2"	12



Line one-way control valves — Standard/Mini

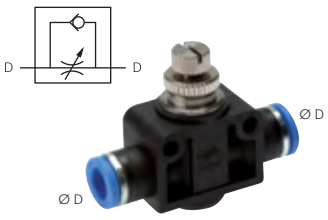
Materials: Body: Nickel-plated brass/PA 66, sleeve: PA 66, seal: NBR, holding claws: Stainless steel, cartridge: Zinc-plated ZnDC (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: -0.95 to 20 bar

Advantages: • Compact design
• Can be easily adjusted without tools

Type	D
IQSDRV 30*	3
IQSDRV 40	4
IQSDRV 60	6

Type	D
IQSDRV 80	8
IQSDRV 100	10
IQSDRV 120	12

* mini design, 0°C to max. +60°C, -0,95 to 10 bar



Tube cutters on page 595

ACE Shock absorbers from page 502

FESTO Festo cylinders can be found in our Online Shop

FESTO Festo valves can be found in our Online Shop

One-way control valves made of nickel-plated brass from page 52

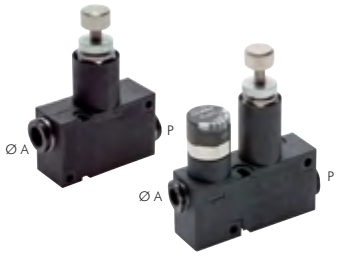
PU, PA, PTFE and PE hoses from page 192

Solenoid-valves from page 414

Cylinders from page 460

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

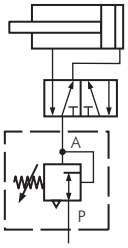
IQS pressure regulators and stop cocks



Pressure regulators — Standard

Operating pressure: 0 - 9 bar
Setting pressure: 1- 8 bar (pressure gauge display: 0.1 - 0.8 MPa)
Media: Compressed air, neutral gases
Function:
- If the primary pressure flows from P, reduced pressure escapes at the connection side.
- The compact construction with integrated quick connector permits a flexible assembly.
- The regulator is provided with overpressure protection, which especially simplifies the installation of pneumatic equipment.

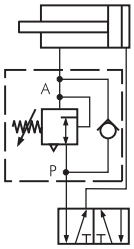
Type **without pressure gauge**	Type **with pressure gauge**	P	A
Thread-hose			
LRIQS M54	LRMAIQS M54	M 5	4
LRIQS 184	LRMAIQS 184	R 1/8"	4
LRIQS 186	LRMAIQS 186	R 1/8"	6
LRIQS 146	LRMAIQS 146	R 1/4"	6
LRIQS 148	LRMAIQS 148	R 1/4"	8
Hose-hose			
LRIQS 40	LRMAIQS 40	4	4
LRIQS 60	LRMAIQS 60	6	6
LRIQS 80	LRMAIQS 80	8	8



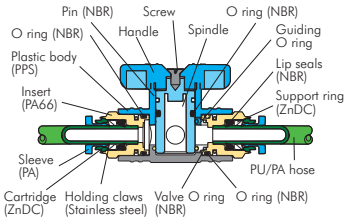
Pre-pressure dependent differential pressure regulator — Standard

Operating pressure: 0 - 9 bar
Setting pressure: 2 - 6 bar
Media: Compressed air, neutral gases
Function:
- If the primary pressure is applied from the thread side, reduced pressure appears on the connection side in accordance with the pressure difference. The compressed air can flow through a bypass in the opposing direction without a throttle. The pressure regulator can also be inserted behind a valve.

Type	P	A
LRLLIQS M54	M 5	4
LRLLIQS 184	R 1/8"	4
LRLLIQS 186	R 1/8"	6
LRLLIQS 146	R 1/4"	6
LRLLIQS 148	R 1/4"	8



IQS stop cocks (2/2-way) — Standard

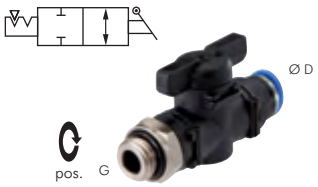


Materials: Body: Nickel-plated brass/PPS, seal: NBR, holding claw: Stainless steel, cartridge: ZnDC/nickel-plated brass, sleeve: PA (only silicone-free seals and lubricants are used during assembly)
Operating pressure: -0.95 to 20 bar
Temperature range: 0°C to max. +80°C
Media: Compressed air, neutral media
Functional principle: The stop cocks shut off the airflow, thus separating the 2 systems from one another. No venting occurs.

✓ **Advantages:** • Very compact design

Sang-A

Dimensions can be found in the item details in our Online Shop!



Stop cocks with cylindrical male threads and push in fitting — Standard

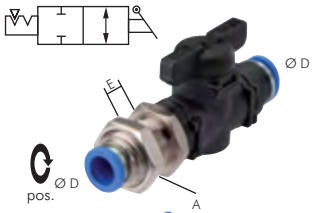
Type	G	D
IQSKH 186 G	G 1/8"	6
IQSKH 188 G	G 1/8"	8
IQSKH 146 G	G 1/4"	6
IQSKH 148 G	G 1/4"	8

Type	G	D
IQSKH 1410 G	G 1/4"	10
IQSKH 1412 G	G 1/4"	12
IQSKH 386 G	G 3/8"	6
IQSKH 388 G	G 3/8"	8

Type	G	D
IQSKH 3810 G	G 3/8"	10
IQSKH 3812 G	G 3/8"	12
IQSKH 1210 G	G 1/2"	10
IQSKH 1212 G	G 1/2"	12

Stop cocks with push in fitting — Standard

Type	D
IQSKH 60	6
IQSKH 80	8
IQSKH 100	10
IQSKH 120	12



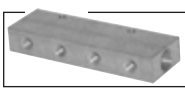
Bulkhead stop cocks with push in fitting — Standard

Type	D	A	Emax
IQSKHS 60	6	M 16 x 1	10
IQSKHS 80	8	M 16 x 1	10
IQSKHS 100	10	M 22 x 1	10
IQSKHS 120	12	M 22 x 1	10

Tube cutters on page 595

Pressure regulator series FUTURA from page 322

PU, PA, PTFE and PE hoses from page 192



Distributor bars from page 132

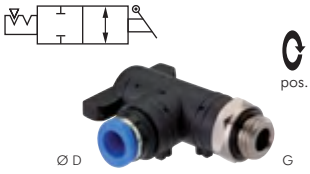
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Angle stop cocks with cylindrical male threads and push in fitting — Standard

Type	G	D
IQSKHW 186 G	G 1/8"	6
IQSKHW 188 G	G 1/8"	8
IQSKHW 146 G	G 1/4"	6
IQSKHW 148 G	G 1/4"	8

Type	G	D
IQSKHW 1410 G	G 1/4"	10
IQSKHW 1412 G	G 1/4"	12
IQSKHW 386 G	G 3/8"	6
IQSKHW 388 G	G 3/8"	8

Type	G	D
IQSKHW 3810 G	G 3/8"	10
IQSKHW 3812 G	G 3/8"	12
IQSKHW 1210 G	G 1/2"	10
IQSKHW 1212 G	G 1/2"	12

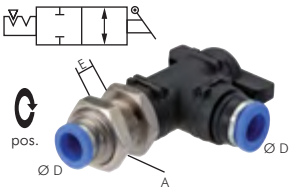


Angle stop cocks with push in fitting — Standard

Type	D
IQSKHW 60	6
IQSKHW 80	8
IQSKHW 100	10
IQSKHW 120	12

Bulkhead angle stop cocks with push in fitting — Standard

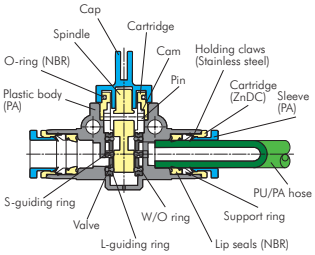
Type	D	A	Emax
IQSKHSW 60	6	M 16 x 1	10
IQSKHSW 80	8	M 16 x 1	10
IQSKHSW 100	10	M 22 x 1	10
IQSKHSW 120	12	M 22 x 1	10



IQS stop cocks with venting (3/2-way) — Standard

Materials: Body: Nickel-plated brass/PA 66, sleeve: PA 66, seal: NBR, holding claws: Stainless steel, cartridge: Zinc-plated ZnDC (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: -0.95 to 20 bar
Functional principle: The 3/2-way valves shut off the air-flow and vent the secondary side.
Media: Compressed air, neutral gases
Application example: To control single-acting small cylinders or to shut off small pneumatic assemblies.

Advantages: • Very compact design

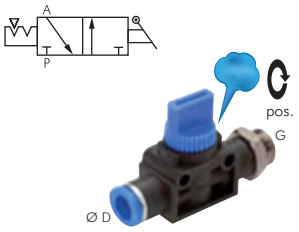


Sang-A

Dimensions can be found in the item details in our Online Shop!

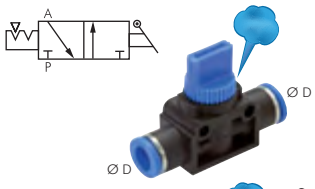
3/2-way valves with cylindrical male thread and push in fitting — Standard

Type thread-side venting	Type hose-side venting	G	D
IQSHA 3186 G	IQSHE 3186 G	G 1/8"	6
IQSHA 3188 G	IQSHE 3188 G	G 1/8"	8
IQSHA 3146 G	IQSHE 3146 G	G 1/4"	6
IQSHA 3148 G	IQSHE 3148 G	G 1/4"	8
IQSHA 31410 G	IQSHE 31410 G	G 1/4"	10
IQSHA 31412 G	IQSHE 31412 G	G 1/4"	12
IQSHA 3386 G	IQSHE 3386 G	G 3/8"	6
IQSHA 3388 G	IQSHE 3388 G	G 3/8"	8
IQSHA 33810 G	IQSHE 33810 G	G 3/8"	10
IQSHA 33812 G	IQSHE 33812 G	G 3/8"	12
IQSHA 31210 G	IQSHE 31210 G	G 1/2"	10
IQSHA 31212 G	IQSHE 31212 G	G 1/2"	12



3/2-way valves with push in fitting — Standard

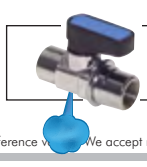
Type	D
IQSH 360	6
IQSH 380	8
IQSH 3100	10
IQSH 3120	12



3/2-way valves with cylindrical male thread — Standard

Type	G
IQSH 31818 G	G 1/8"
IQSH 31414 G	G 1/4"
IQSH 33838 G	G 3/8"
IQSH 31212 G	G 1/2"

Ball valves from page 280

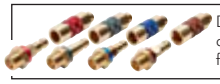

Ball valves with venting from page 287

FESTO Festo screwed connections can be found in our Online Shop

Cylinders from page 460

All data are considered to be unbinding reference v... We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

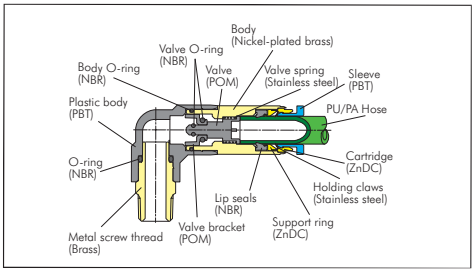
IQS stop fittings



Distinctive couplings from page 162

IQS stop fittings - couplings — Standard

Materials: Body: Nickel-plated brass/PBT, seal: NBR, holding claws: Stainless steel, cartridge: Nickel-plated ZnDC, sleeve: PBT (only silicone-free seals and lubricants are used during assembly)
Operating pressure: -0.95 to 10 bar
Temperature range: 0°C to max. +60°C
Functional principle: The fitted lock blocks the airflow the moment the hose is disassembled. After pushing a hose in, the airflow is released again.
Media: Compressed air, neutral gases



✓ **Advantages:**
- More economical than a coupling
- Connects like a coupling

Push in fittings, self-locking, cylindrical threads — Standard

Type	G	D
IQSK M54	M 5	4
IQSK 184 G	G 1/8"	4
IQSK 186 G	G 1/8"	6
IQSK 146 G	G 1/4"	6

Type	G	D
IQSK 148 G	G 1/4"	8
IQSK 1410 G	G 1/4"	10
IQSK 388 G	G 3/8"	8
IQSK 3810 G	G 3/8"	10

Type	G	D
IQSK 3812 G	G 3/8"	12
IQSK 1210 G	G 1/2"	10
IQSK 1212 G	G 1/2"	12

L push in fittings, self-locking, cylindrical threads — Standard

Type	G	D
IQSKL M54	M 5	4
IQSKL M56	M 5	6
IQSKL 184 G	G 1/8"	4
IQSKL 186 G	G 1/8"	6
IQSKL 188 G	G 1/8"	8

Type	G	D
IQSKL 146 G	G 1/4"	6
IQSKL 148 G	G 1/4"	8
IQSKL 1410 G	G 1/4"	10
IQSKL 388 G	G 3/8"	8
IQSKL 3810 G	G 3/8"	10

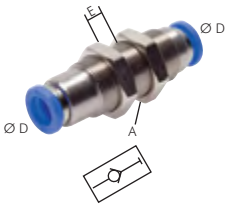
Type	G	D
IQSKL 3812 G	G 3/8"	12
IQSKL 1210 G	G 1/2"	10
IQSKL 1212 G	G 1/2"	12

Push in connectors, self-locking — Standard

Type	D
IQSK 40	4
IQSK 60	6
IQSK 80	8

Type	D
IQSK 100	10
IQSK 120	12

Push in connectors with bulkhead threads, self-locking — Standard

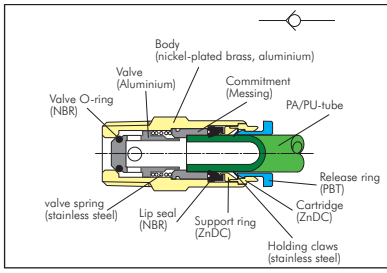


Type	D	A	Emax
IQSKS 40	4	M 12 x 1	10
IQSKS 60	6	M 14 x 1	13
IQSKS 80	8	M 16 x 1	16

Type	D	A	Emax
IQSKS 100	10	M 20 x 1	17
IQSKS 120	12	M 22 x 1	28

IQS check valves — Standard

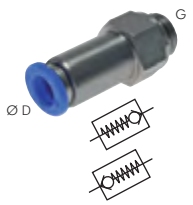
Check valves from page 446



Materials: Body: Nickel-plated brass/PBT/aluminium, valve: Aluminium, seal: NBR, holding claws: Stainless steel, cartridge: Nickel-plated ZnDC, sleeve: PBT (only silicone-free seals and lubricants are used during assembly)
Operating pressure: -0.95 to 10 bar
Opening pressure: < 0.2 bar
Temperature range: 0°C to max. +60°C
Functional principle: The check valves prevent a backflow of the airflow.
Media: Compressed air, neutral gases

✓ **Advantages:**
- Very compact design
- Economical price

Check valves, cylindrical thread — Standard



Type flow from the thread to the hose	Type flow from the thread to the hose	G	D
HAIQS M54	HBIQS M54	M 5	4
HAIQS 184 G	HBIQS 184 G	G 1/8"	4
HAIQS 186 G	HBIQS 186 G	G 1/8"	6
HAIQS 188 G	HBIQS 188 G	G 1/8"	8
HAIQS 146 G	HBIQS 146 G	G 1/4"	6
HAIQS 148 G	HBIQS 148 G	G 1/4"	8
HAIQS 3810 G*	HBIQS 3810 G*	G 3/8"	10
HAIQS 3812 G*	HBIQS 3812 G*	G 3/8"	12
HAIQS 1212 G*	HBIQS 1212 G*	G 1/2"	12

* aluminium material

Check valves — Standard

Type	D
HIQS 40	4
HIQS 60	6
HIQS 80	8

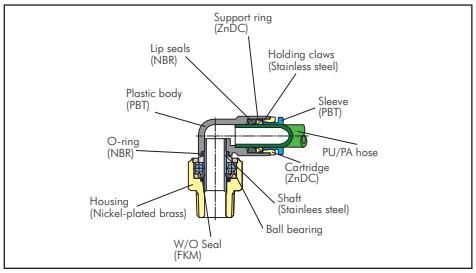
Type	D
HIQS 100*	10
HIQS 120*	12

* aluminium material

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

IQS swivel joints up to 500 rpm. — Standard

Materials: Body: Nickel-plated brass/PBT, seal: NBR, holding claws: Stainless steel, cartridge: Nickel-plated ZnDC, sleeve: PBT (only silicone-free seals and lubricants are used during assembly)
Operating pressure: -0.95 to 10 bar
Temperature range: 0°C to max. +60°C
Functional principle: The swivel joints (with a ball bearing) prevent the hose from getting twisted during swiveling movements.
Media: Compressed air, neutral gases



Advantages:
- Economical price
- Using holding pliers in the case of frequent rotations effectively prevents the hose from being cut

Push in fittings with a ball bearing, cylindrical threads — Standard

Type	U_{max}*	G	D	Type	U_{max}*	G	D
IQSR M54	500	M 5	4	IQSR 148 G	400	G 1/4"	8
IQSR M56	500	M 5	6	IQSR 388 G	400	G 3/8"	8
IQSR 184 G	500	G 1/8"	4	IQSR 3810 G	300	G 3/8"	10
IQSR 186 G	500	G 1/8"	6	IQSR 3812 G	250	G 3/8"	12
IQSR 188 G	400	G 1/8"	8	IQSR 1210 G	300	G 1/2"	10
IQSR 146 G	500	G 1/4"	6	IQSR 1212 G	250	G 1/2"	12

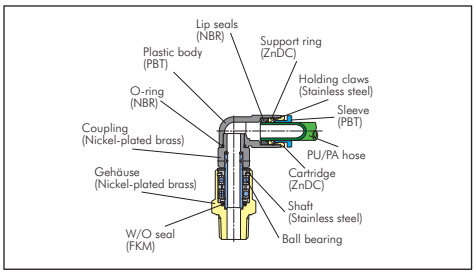
* depends on operating time

L push in fittings with a ball bearing, cylindrical threads — Standard

Type	U_{max}*	G	D	Type	U_{max}*	G	D
IQSRL M54	500	M 5	4	IQSRL 148 G	400	G 1/4"	8
IQSRL M56	500	M 5	6	IQSRL 388 G	400	G 3/8"	8
IQSRL 184 G	500	G 1/8"	4	IQSRL 3810 G	300	G 3/8"	10
IQSRL 186 G	500	G 1/8"	6	IQSRL 3812 G	250	G 3/8"	12
IQSRL 188 G	400	G 1/8"	8	IQSRL 1210 G	300	G 1/2"	10
IQSRL 146 G	500	G 1/4"	6	IQSRL 1212 G	250	G 1/2"	12

* depends on operating time

IQS swivel joints up to 1500 rpm. — Standard



Materials: Body: Nickel-plated brass/PBT, seal: NBR, holding claws: Stainless steel, cartridge: Nickel-plated ZnDC, Sleeve: PBT (only silicone-free seals and lubricants are used during assembly)
Operating pressure: -0.95 to 10 bar
Temperature range: 0°C to max. +60°C
Functional principle: The swivel joints (with two ball bearings) can be used when the airflow is to be guided to a shaft rotating rapidly.
Media: Compressed air, neutral gases

Advantages:
- Economical price
- Using holding pliers in the case of frequent rotations effectively prevents the hose from being cut
- Very fast rotational speed possible

Thread rotary distributor for compressed air and vacuum on page 139

Push in fittings with two ball bearings, cylindrical threads — Standard

Type	U_{max}*	G	D	Type	U_{max}*	G	D
IQSRH M54	1500	M 5	4	IQSRH 148 G	1200	G 1/4"	8
IQSRH 184 G	1500	G 1/8"	4	IQSRH 3810 G	1000	G 3/8"	10
IQSRH 186 G	1200	G 1/8"	6	IQSRH 3812 G	1000	G 3/8"	12
IQSRH 188 G	1200	G 1/8"	8	IQSRH 1210 G	1000	G 1/2"	10
IQSRH 146 G	1200	G 1/4"	6	IQSRH 1212 G	1000	G 1/2"	12

* depends on operating time

L push in fittings with two ball bearings, cylindrical threads — Standard

Type	U_{max}*	G	D	Type	U_{max}*	G	D
IQSRHL M54	1500	M 5	4	IQSRHL 148 G	1200	G 1/4"	8
IQSRHL 184 G	1500	G 1/8"	4	IQSRHL 3810 G	1000	G 3/8"	10
IQSRHL 186 G	1200	G 1/8"	6	IQSRHL 3812 G	1000	G 3/8"	12
IQSRHL 188 G	1200	G 1/8"	8	IQSRHL 1210 G	1000	G 1/2"	10
IQSRHL 146 G	1200	G 1/4"	6	IQSRHL 1212 G	1000	G 1/2"	12

* depends on operating time

Swivel joints with two ball bearings — Standard

Type	U_{max}*	G
GFS 18	1500	G 1/8"
GFS 14	1200	G 1/4"
GFS 38	1000	G 3/8"
GFS 12	1000	G 1/2"

* depends on operating time

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

IQS push in connections - Inch

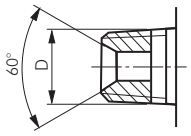
Dimensions can be found in the item details in our Online Shop!

Imperial hoses on page 193

IQS push in connections for imperial hoses — Inch

Materials: Body: Nickel-plated brass/PBT, seal: NBR, holding claws: Stainless steel, cartridge: Zinc-plated ZnDC (only silicone-free seals and lubricants are used during assembly)
Temperature range: 0°C to max. +60°C
Operating pressure: -0.95 to 10 bar
Media: Compressed air, neutral gases. Water may be used only after we approve the performance specifications.

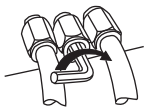
Thread	D
UNF 10-32	4.83*
NPT 1/16"	8.10
NPT 1/8"	10.30
NPT 1/4"	13.70
NPT 3/8"	17.20
NPT 1/2"	21.30



* cylindrical

Hose dimension Inch	External Ø mm
1/8"	3.17
5/32"	3.97
3/16"	4.76
1/4"	6.35
5/16"	7.94
3/8"	9.52
1/2"	12.70

Push in fittings — Inch



Type	R	D
IQSG U10-1/8	UNF 10-32	1/8"
IQSG U10-5/32	UNF 10-32	5/32"
IQSG U10-3/16	UNF 10-32	3/16"
IQSG U10-1/4	UNF 10-32	1/4"
IQSG 116-1/8 NPT	1/16" NPT	1/8"
IQSG 116-5/32 NPT	1/16" NPT	5/32"
IQSG 18-5/32 NPT	1/8" NPT	5/32"
IQSG 18-3/16 NPT	1/8" NPT	3/16"
IQSG 18-1/4 NPT	1/8" NPT	1/4"
IQSG 18-5/16 NPT	1/8" NPT	5/16"
IQSG 18-3/8 NPT	1/8" NPT	3/8"
IQSG 14-5/32 NPT	1/4" NPT	5/32"

Type	R	D
IQSG 14-3/16 NPT	1/4" NPT	3/16"
IQSG 14-1/4 NPT	1/4" NPT	1/4"
IQSG 14-5/16 NPT	1/4" NPT	5/16"
IQSG 14-3/8 NPT	1/4" NPT	3/8"
IQSG 14-1/2 NPT	1/4" NPT	1/2"
IQSG 38-1/4 NPT	3/8" NPT	1/4"
IQSG 38-5/16 NPT	3/8" NPT	5/16"
IQSG 38-3/8 NPT	3/8" NPT	3/8"
IQSG 38-1/2 NPT	3/8" NPT	1/2"
IQSG 12-3/8 NPT	1/2" NPT	3/8"
IQSG 12-1/2 NPT	1/2" NPT	1/2"

L push in fittings — Inch

Type	R	D
IQSL U10-1/8	UNF 10-32	1/8"
IQSL U10-5/32	UNF 10-32	5/32"
IQSL U10-3/16	UNF 10-32	3/16"
IQSL U10-1/4	UNF 10-32	1/4"
IQSL 116-1/8 NPT	1/16" NPT	1/8"
IQSL 116-5/32 NPT	1/16" NPT	5/32"
IQSL 18-1/8 NPT	1/8" NPT	1/8"
IQSL 18-5/32 NPT	1/8" NPT	5/32"
IQSL 18-3/16 NPT	1/8" NPT	3/16"
IQSL 18-1/4 NPT	1/8" NPT	1/4"
IQSL 18-5/16 NPT	1/8" NPT	5/16"
IQSL 18-3/8 NPT	1/8" NPT	3/8"

Type	R	D
IQSL 14-5/32 NPT	1/4" NPT	5/32"
IQSL 14-3/16 NPT	1/4" NPT	3/16"
IQSL 14-1/4 NPT	1/4" NPT	1/4"
IQSL 14-5/16 NPT	1/4" NPT	5/16"
IQSL 14-3/8 NPT	1/4" NPT	3/8"
IQSL 14-1/2 NPT	1/4" NPT	1/2"
IQSL 38-1/4 NPT	3/8" NPT	1/4"
IQSL 38-5/16 NPT	3/8" NPT	5/16"
IQSL 38-3/8 NPT	3/8" NPT	3/8"
IQSL 38-1/2 NPT	3/8" NPT	1/2"
IQSL 12-3/8 NPT	1/2" NPT	3/8"
IQSL 12-1/2 NPT	1/2" NPT	1/2"

T push in fittings — Inch

Type	R	D
IQST U10-1/8	UNF 10-32	1/8"
IQST U10-5/32	UNF 10-32	5/32"
IQST U10-3/16	UNF 10-32	3/16"
IQST U10-1/4	UNF 10-32	1/4"
IQST 116-1/8 NPT	1/16" NPT	1/8"
IQST 116-5/32 NPT	1/16" NPT	5/32"
IQST 18-1/8 NPT	1/8" NPT	1/8"
IQST 18-5/32 NPT	1/8" NPT	5/32"
IQST 18-3/16 NPT	1/8" NPT	3/16"
IQST 18-1/4 NPT	1/8" NPT	1/4"
IQST 18-5/16 NPT	1/8" NPT	5/16"
IQST 18-3/8 NPT	1/8" NPT	3/8"

Type	R	D
IQST 14-5/32 NPT	1/4" NPT	5/32"
IQST 14-3/16 NPT	1/4" NPT	3/16"
IQST 14-1/4 NPT	1/4" NPT	1/4"
IQST 14-5/16 NPT	1/4" NPT	5/16"
IQST 14-3/8 NPT	1/4" NPT	3/8"
IQST 14-1/2 NPT	1/4" NPT	1/2"
IQST 38-1/4 NPT	3/8" NPT	1/4"
IQST 38-5/16 NPT	3/8" NPT	5/16"
IQST 38-3/8 NPT	3/8" NPT	3/8"
IQST 38-1/2 NPT	3/8" NPT	1/2"
IQST 12-3/8 NPT	1/2" NPT	3/8"
IQST 12-1/2 NPT	1/2" NPT	1/2"

Push in connectors (also reducing) — Inch

Type	D	D1
IQSG 1/8	1/8"	1/8"
IQSG 5/32	5/32"	5/32"
IQSG 3/16-5/32	3/16" reduced	5/32"
IQSG 3/16	3/16"	3/16"
IQSG 1/4-5/32	1/4" reduced	5/32"
IQSG 1/4-3/16	1/4" reduced	3/16"
IQSG 1/4	1/4"	1/4"

Type	D	D1
IQSG 5/16-1/4	5/16" reduced	1/4"
IQSG 5/16	5/16"	5/16"
IQSG 3/8-5/16	3/8" reduced	5/16"
IQSG 3/8	3/8"	3/8"
IQSG 1/2-3/8	1/2" reduced	3/8"
IQSG 1/2	1/2"	1/2"

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Bulkhead push in fittings made of nickel-plated brass — Inch

Type	D	A	Emax
IQSS 1/8	1/8"	M 8 x 0.75	7
IQSS 5/32*	5/32"	UNF 1/2"	9
IQSS 3/16*	3/16"	UNF 9/16"	12
IQSS 1/4*	1/4"	UNF 9/16"	12
IQSS 5/16*	5/16"	UNF 5/8"	10
IQSS 3/8*	3/8"	UNF 7/8"	12
IQSS 1/2*	1/2"	UNF 7/8"	17

* round sleeve

Elbow push in fittings — Inch

Type	D
IQSL 1/8	1/8"
IQSL 5/32	5/32"
IQSL 3/16	3/16"
IQSL 1/4	1/4"
IQSL 5/16	5/16"
IQSL 3/8	3/8"
IQSL 1/2	1/2"

T push in connectors — Inch

Type	D
IQST 1/8	1/8"
IQST 5/32	5/32"
IQST 3/16	3/16"
IQST 1/4	1/4"
IQST 5/16	5/16"
IQST 3/8	3/8"
IQST 1/2	1/2"

Push in connectors, reducing, with push in nipple — Inch

Type	D	D_1
IQSG 1/4H-5/32	1/4"	5/32"
IQSG 5/16H-5/32	5/16"	5/32"
IQSG 5/16H-1/4	5/16"	1/4"
IQSG 3/8H-1/4	3/8"	1/4"
IQSG 3/8H-5/16	3/8"	5/16"
IQSG 1/2H-1/4	1/2"	1/4"
IQSG 1/2H-5/16	1/2"	5/16"
IQSG 1/2H-3/8	1/2"	3/8"

Push in adapter with imperial push in nipple for metric hoses — Standard

Type	D	D_1
IQSG 5/32H-40	5/32"	4
IQSG 3/16H-40	3/16"	4
IQSG 1/4H-60	1/4"	6
IQSG 5/16H-80	5/16"	8
IQSG 3/8H-100	3/8"	10
IQSG 1/2H-120	1/2"	12

Push in fitting screw in nozzles — Inch

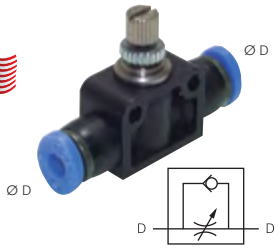
Type	R	D
IQSG U10-5/32H	UNF 10-32	5/32"
IQSG U10-3/16H	UNF 10-32	3/16"
IQSG U10-1/4H	UNF 10-32	1/4"
IQSG 18-5/32H NPT	1/8" NPT	5/32"
IQSG 18-3/16H NPT	1/8" NPT	3/16"
IQSG 18-1/4H NPT	1/8" NPT	1/4"
IQSG 14-5/32H NPT	1/4" NPT	5/32"
IQSG 14-3/16H NPT	1/4" NPT	3/16"
IQSG 14-1/4H NPT	1/4" NPT	1/4"
IQSG 14-5/16H NPT	1/4" NPT	5/16"
IQSG 14-3/8H NPT	1/4" NPT	3/8"
IQSG 14-1/2H NPT	1/4" NPT	1/2"
IQSG 38-1/4H NPT	3/8" NPT	1/4"
IQSG 38-5/16H NPT	3/8" NPT	5/16"
IQSG 38-3/8H NPT	3/8" NPT	3/8"
IQSG 38-1/2H NPT	3/8" NPT	1/2"
IQSG 12-3/8H NPT	1/2" NPT	3/8"
IQSG 12-1/2H NPT	1/2" NPT	1/2"

Plugs for closing push in fittings — Inch

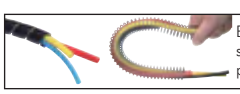
Type	D
IQSC 1/8H	1/8"
IQSC 5/32H	5/32"
IQSC 3/16H	3/16"
IQSC 1/4H	1/4"
IQSC 5/16H	5/16"
IQSC 3/8H	3/8"
IQSC 1/2H	1/2"

One-way control valves, straight form — Inch

Type	D
IQSDRV 5/32	5/32"
IQSDRV 3/16	3/16"
IQSDRV 1/4	1/4"
IQSDRV 5/16	5/16"
IQSDRV 3/8	3/8"
IQSDRV 1/2	1/2"



Imperial polyurethane hoses on page 193



Bundle & steel spirals from page 247

JIC-, NPT-, UNF- and metric double nipples from page 104

JIC-, NPT-, UNF- and metric reducing nipples from page 116

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

IQS push in connections - FDA

FDA

IQS push in connections for liquids and food — FDA

Dimensions can be found in the item details in our Online Shop!

Materials: Body and sleeve: POM (FDA approved), holding claw: Stainless steel, seals: NBR (FDA approved)
Temperature range: -20°C to max. +70°C (water min. 1°C)
Operating pressure: -0.95 to 16 bar (Ø 12 mm: max. 10 bar)
Media: Compressed air, water, liquid foodstuffs, non-hazardous gases and liquids, mild chemicals
Approvals: FDA, NSF, WRC, ACS and KTW

Push in fittings — FDA

Type	G	D
IQSG 184 G FDA	G 1/8"	4
IQSG 185 G FDA	G 1/8"	5
IQSG 186 G FDA	G 1/8"	6
IQSG 188 G FDA	G 1/8"	8
IQSG 144 G FDA	G 1/4"	4

Type	G	D
IQSG 145 G FDA	G 1/4"	5
IQSG 146 G FDA	G 1/4"	6
IQSG 148 G FDA	G 1/4"	8
IQSG 1410 G FDA	G 1/4"	10
IQSG 388 G FDA	G 3/8"	8

Type	G	D
IQSG 3810 G FDA	G 3/8"	10
IQSG 3812 G FDA	G 3/8"	12
IQSG 1210 G FDA	G 1/2"	10
IQSG 1212 G FDA	G 1/2"	12

L push in fittings — FDA

Type	G	D
IQSL 184 G FDA	G 1/8"	4
IQSL 186 G FDA	G 1/8"	6
IQSL 188 G FDA	G 1/8"	8
IQSL 144 G FDA	G 1/4"	4

Type	G	D
IQSL 146 G FDA	G 1/4"	6
IQSL 148 G FDA	G 1/4"	8
IQSL 1410 G FDA	G 1/4"	10
IQSL 388 G FDA	G 3/8"	8

Type	G	D
IQSL 3810 G FDA	G 3/8"	10
IQSL 3812 G FDA	G 3/8"	12
IQSL 1210 G FDA	G 1/2"	10
IQSL 1212 G FDA	G 1/2"	12

T push in fittings — FDA

Type	G	D
IQST 184 G FDA	G 1/8"	4
IQST 186 G FDA	G 1/8"	6
IQST 188 G FDA	G 1/8"	8
IQST 144 G FDA	G 1/4"	4

Type	G	D
IQST 146 G FDA	G 1/4"	6
IQST 148 G FDA	G 1/4"	8
IQST 1410 G FDA	G 1/4"	10
IQST 388 G FDA	G 3/8"	8

Type	G	D
IQST 3810 G FDA	G 3/8"	10
IQST 3812 G FDA	G 3/8"	12
IQST 1210 G FDA	G 1/2"	10
IQST 1212 G FDA	G 1/2"	12

Push in connectors — FDA

Type	D
IQSG 40 FDA	4
IQSG 50 FDA	5
IQSG 60 FDA	6

Type	D
IQSG 80 FDA	8
IQSG 100 FDA	10
IQSG 120 FDA	12

Bulkhead push in connectors — FDA

Type	D	A	Emax
IQSS 40 FDA	4	G 3/8"	13.5
IQSS 60 FDA	6	G 3/8"	13.5
IQSS 80 FDA	8	G 1/2"	16.0

Type	D	A	Emax
IQSS 100 FDA	10	G 1/2"	16.0
IQSS 120 FDA	12	G 3/4"	22.5

Elbow push in fittings — FDA

Type	D
IQSL 40 FDA	4
IQSL 50 FDA	5
IQSL 60 FDA	6

Type	D
IQSL 80 FDA	8
IQSL 100 FDA	10
IQSL 120 FDA	12

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

T push in connectors — FDA

Type	D
IQST 40 FDA	4
IQST 50 FDA	5
IQST 60 FDA	6

Type	D
IQST 80 FDA	8
IQST 100 FDA	10
IQST 120 FDA	12

Push in connectors, reducing, with push in nipple — FDA

Type	D	D1
IQSG 60H40 FDA	6	4
IQSG 80H60 FDA	8	6
IQSG 100H80 FDA	10	8

Type	D	D1
IQSG 120H80 FDA	12	8
IQSG 120H100 FDA	12	10

L push in connectors with push in nipple — FDA

Type	D
IQSL 40H FDA	4
IQSL 50H FDA	5
IQSL 60H FDA	6

Type	D
IQSL 80H FDA	8
IQSL 100H FDA	10
IQSL 120H FDA	12

Plugs for closing push in fittings — FDA

Type	D
IQSC 40H FDA	4
IQSC 50H FDA	5
IQSC 60H FDA	6

Type	D
IQSC 80H FDA	8
IQSC 100H FDA	10
IQSC 120H FDA	12

Multiple couplings — up to 15 bar

Application: For a quick and high safety standard coupling of several pneumatic hoses and multiple hoses.
Materials: Housing and plug plate: Technopolymer, seal: NBR, push in connectors: Brass
Temperature range: -20°C bis +70°C
Note: Plugs and sleeves can only be coupled together if they are the same size and same number of lines.

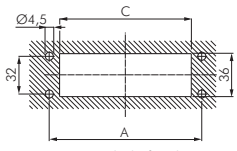
Type **complete** plug + sleeve	Typ **plug**	Typ **sleeve**	A	B	C	size	Hose Ø external	Number of plugs
Non-sealing, max. 15 bar								
MFK 412	MFK 412 ST	MFK 412 MU-S	103	116	86	1	4	12
MFK 420	MFK 420 ST	MFK 420 MU-S	130	143	113	2	4	20
MFK 610	MFK 610 ST	MFK 610 MU-S	103	116	86	1	6	10
MFK 614	MFK 614 ST	MFK 614 MU-S	130	143	113	2	6	14
MFK 88	MFK 88 ST	MFK 88 MU-S	103	116	86	1	8	8
MFK 810	MFK 810 ST	MFK 810 MU-S	130	143	113	2	8	10
Both sides sealing, max. 7 bar								
MFK 66 BA	MFK 66 ST BA	MFK 66 MU BA-S	83	96	66	0	6	6
MFK 84 BA	MFK 84 ST BA	MFK 84 MU BA-S	83	96	66	0	8	4

Replacement dust cover for plug	For size
MFK STAUB 0	0
MFK STAUB 1	1
MFK STAUB 2	2

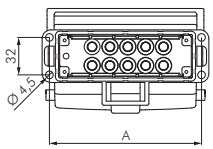
Replacement O-Ring	For type
MFK 4 OR	MFK 4... MU-S
MFK 6 OR	MFK 6... MU-S
MFK 8 OR	MFK 8... MU-S
MFK 6 OR BA	MFK 66 MU BA-S
MFK 8 OR BA	MFK 84 MU BA-S

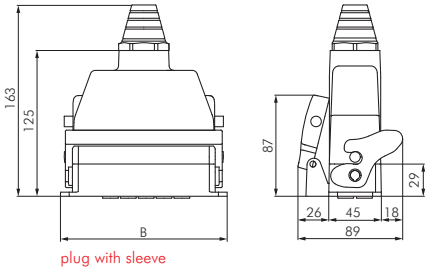
plug with dust cover

sleeve with dust cover



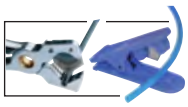
mounting hole for sleeve

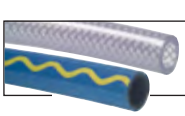




plug with sleeve

Stainless steel tube from page 253


Tube cutters on page 595


Compressed air and water hoses from page 208

PU, PA, PTFE and PE hoses from page 192

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

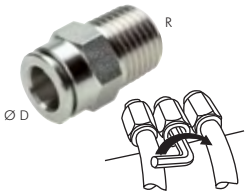
IQS push in connections - ES

Dimensions can be found in the item details in our Online Shop!

IQS push in connections made of stainless steel — ES

Materials: Body and sleeve: AISI 316L, seals: FKM (cylindrical thread with captive FKM O-ring, FDA approved), (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +150°C (Ø 16mm: -15°C to max. +120°C)
Operating pressure: -0.95 to 15 bar (Ø 16mm: max. 10 bar)
Media: Compressed air, harmless gases and liquids

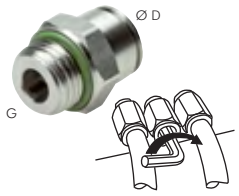
Push in fittings — ES



Type	R	D	Type	R	D
IQSG 184 ES	R 1/8"	4	IQSG 1410 ES	R 1/4"	10
IQSG 186 ES	R 1/8"	6	IQSG 388 ES	R 3/8"	8
IQSG 188 ES	R 1/8"	8	IQSG 3810 ES	R 3/8"	10
IQSG 144 ES	R 1/4"	4	IQSG 3812 ES	R 3/8"	12
IQSG 146 ES	R 1/4"	6	IQSG 1212 ES	R 1/2"	12
IQSG 148 ES	R 1/4"	8	IQSG 1216 ES	R 1/2"	16

* exterior hexagon only

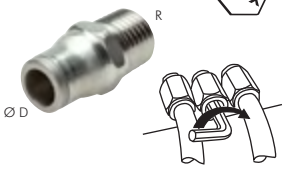
Push in fittings, cylindrical threads — ES



Type	G	D	Type	G	D
IQSG M54 ES*	M 5	4	IQSG 148 G ES	G 1/4"	8
IQSG 184 G ES	G 1/8"	4	IQSG 1410 G ES	G 1/4"	10
IQSG 186 G ES	G 1/8"	6	IQSG 3810 G ES	G 3/8"	10
IQSG 188 G ES	G 1/8"	8	IQSG 3812 G ES	G 3/8"	12
IQSG 144 G ES	G 1/4"	4	IQSG 1212 G ES	G 1/2"	12
IQSG 146 G ES	G 1/4"	6			

* exterior hexagon only

Push in fittings with NPT thread — ES



Type	R	D	Type	R	D
IQSG 184 ES NPT	NPT 1/8"	4	IQSG 1410 ES NPT	NPT 1/4"	10
IQSG 186 ES NPT	NPT 1/8"	6	IQSG 1412 ES NPT	NPT 1/4"	12
IQSG 188 ES NPT	NPT 1/8"	8	IQSG 3810 ES NPT	NPT 3/8"	10
IQSG 146 ES NPT	NPT 1/4"	6	IQSG 3812 ES NPT	NPT 3/8"	12
IQSG 148 ES NPT	NPT 1/4"	8	IQSG 1212 ES NPT	NPT 1/2"	12

Outstanding value!

L push in fittings (fixed) — ES

Type	R	D	Type	R	D
IQSL 184 ES B	R 1/8"	4	IQSL 146 ES B	R 1/4"	6
IQSL 186 ES B	R 1/8"	6	IQSL 148 ES B	R 1/4"	8
IQSL 188 ES B	R 1/8"	8	IQSL 1410 ES B	R 1/4"	10

L push in fittings (positionable) — ES

Type	R	D	Type	R	D
IQSL 184 ES	R 1/8"	4	IQSL 1410 ES	R 1/4"	10
IQSL 186 ES	R 1/8"	6	IQSL 3810 ES	R 3/8"	10
IQSL 188 ES	R 1/8"	8	IQSL 3812 ES	R 3/8"	12
IQSL 144 ES	R 1/4"	4	IQSL 1212 ES	R 1/2"	12
IQSL 146 ES	R 1/4"	6	IQSL 1216 ES	R 1/2"	16
IQSL 148 ES	R 1/4"	8			

L push in fittings, cylindrical thread (positionable) — ES

Type	G	D	Type	G	D
IQSL M54 ES	M 5	4	IQSL 148 G ES	G 1/4"	8
IQSL M56 ES	M 5	6	IQSL 1410 G ES	G 1/4"	10
IQSL 184 G ES	G 1/8"	4	IQSL 3810 G ES	G 3/8"	10
IQSL 186 G ES	G 1/8"	6	IQSL 3812 G ES	G 3/8"	12
IQSL 188 G ES	G 1/8"	8	IQSL 1210 G ES	G 1/2"	10
IQSL 144 G ES	G 1/4"	4	IQSL 1212 G ES	G 1/2"	12
IQSL 146 G ES	G 1/4"	6			

L push in fittings with NPT thread (positionable) — ES

Type	R	D	Type	R	D
IQSL 184 ES NPT	NPT 1/8"	4	IQSL 1410 ES NPT	NPT 1/4"	10
IQSL 186 ES NPT	NPT 1/8"	6	IQSL 1412 ES NPT	NPT 1/4"	12
IQSL 188 ES NPT	NPT 1/8"	8	IQSL 3810 ES NPT	NPT 3/8"	10
IQSL 146 ES NPT	NPT 1/4"	6	IQSL 3812 ES NPT	NPT 3/8"	12
IQSL 148 ES NPT	NPT 1/4"	8	IQSL 1212 ES NPT	NPT 1/2"	12

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

T push in fittings (positionable) ES

Type	R	D
IQST 184 ES	R 1/8"	4
IQST 186 ES	R 1/8"	6
IQST 188 ES	R 1/8"	8
IQST 144 ES	R 1/4"	4
IQST 146 ES	R 1/4"	6
IQST 148 ES	R 1/4"	8

Type	R	D
IQST 1410 ES	R 1/4"	10
IQST 3810 ES	R 3/8"	10
IQST 3812 ES	R 3/8"	12
IQST 1210 ES	R 1/2"	10
IQST 1212 ES	R 1/2"	12
IQST 1216 ES	R 1/2"	16

T push in fittings, cylindrical thread (positionable) ES

Type	G	D
IQST M54 ES	M 5	4
IQST 184 G ES	G 1/8"	4
IQST 186 G ES	G 1/8"	6
IQST 188 G ES	G 1/8"	8
IQST 144 G ES	G 1/4"	4
IQST 146 G ES	G 1/4"	6

Type	G	D
IQST 148 G ES	G 1/4"	8
IQST 1410 G ES	G 1/4"	10
IQST 3810 G ES	G 3/8"	10
IQST 3812 G ES	G 3/8"	12
IQST 1210 G ES	G 1/2"	10
IQST 1212 G ES	G 1/2"	12

T push in fittings with NPT thread (positionable) ES

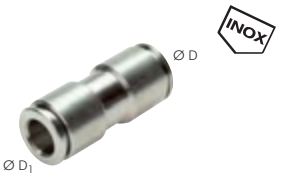
Type	R	D
IQST 184 ES NPT	NPT 1/8"	4
IQST 186 ES NPT	NPT 1/8"	6
IQST 188 ES NPT	NPT 1/8"	8
IQST 146 ES NPT	NPT 1/4"	6

Type	R	D
IQST 148 ES NPT	NPT 1/4"	8
IQST 1410 ES NPT	NPT 1/4"	10
IQST 3810 ES NPT	NPT 3/8"	10

Push in connectors ES

Type	D		D_1
IQSG 40 ES	4		4
IQSG 6040 ES	6	reduced	4
IQSG 60 ES	6		6
IQSG 8060 ES	8	reduced	6

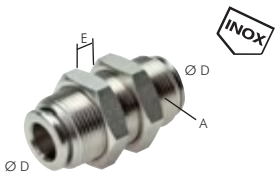
Type	D	D_1
IQSG 80 ES	8	8
IQSG 100 ES	10	10
IQSG 120 ES	12	12
IQSG 160 ES	16	16



Bulkhead push in connectors ES

Type	D	A	Emax
IQSS 40 ES	4	M 12 x 1	11
IQSS 60 ES	6	M 14 x 1	16
IQSS 80 ES	8	M 16 x 1	17

Type	D	A	Emax
IQSS 100 ES	10	M 18 x 1	19
IQSS 120 ES	12	M 20 x 1	20
IQSS 160 ES	16	M 27 x 1.5	5



Elbow push in fittings ES

Type	D
IQSL 40 ES	4
IQSL 60 ES	6
IQSL 80 ES	8

Type	D
IQSL 100 ES	10
IQSL 120 ES	12
IQSL 160 ES	16

T push in connectors ES

Type	D
IQST 40 ES	4
IQST 60 ES	6
IQST 80 ES	8

Type	D
IQST 100 ES	10
IQST 120 ES	12
IQST 160 ES	16

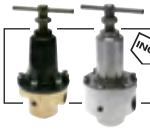
Push in connectors, reducing, with push in nipple ES

Type	D	D_1
IQSG 60H40 ES	6	4
IQSG 80H60 ES	8	6
IQSG 100H80 ES	10	8

PTFE/PFA hoses page 198

Stainless steel ball valves from page 284

Strainers made of stainless steel on page 359



Pressure regulators made of stainless steel & brass from page 355

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

IQS push in connections - PP

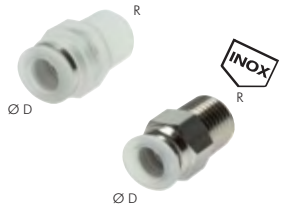
Dimensions can be found in the item details in our Online Shop!

IQS push in connections made of polypropylene — PP

Materials: Body and sleeve: Polypropylene, threaded part: Polypropylene or stainless steel AISI 304, cartridge: Stainless steel AISI 304, seals: EPDM with PTFE coating (cylindrical thread with captive EPDM O-ring), holding claws: Stainless steel AISI 301, plastics and seals used are FDA approved (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: -0.95 to 9 bar (-20°C to max. +20°C), 30°C: < 6 bar, 40°C: < 5 bar, 50°C: < 4 bar, 60°C: < 3,4 bar, 80°C: < 3 bar
Media: Unoiled compressed air, water (also demineralised), harmless gases and liquids (no mineral oils)

Advantages:
- Lighter and more economical than push in stainless steel connections
- Resistance to hydrolysis
- Cleaned, assembled and individually packaged in clean room (US FED 209D, class 10 000 - ISO 14664-1 class 7)
- Produced free of oil and silicone
- Threaded pieces made of polypropylene or stainless steel
- Transparent body allows view to the medium inside the connection
- Plastics used and seals have FDA approval

Push in fittings — PP



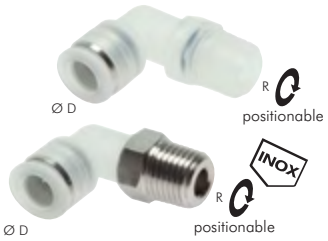
Type polypropylene thread*	Type stainless steel thread INOX	R	D	Type polypropylene thread*	Type stainless steel thread INOX	R	D
IQSG 184 PP	IQSG 184 PP ES	R 1/8"	4	IQSG 1410 PP	IQSG 1410 PP ES	R 1/4"	10
IQSG 186 PP	IQSG 186 PP ES	R 1/8"	6	IQSG 3810 PP	IQSG 3810 PP ES	R 3/8"	10
IQSG 188 PP	IQSG 188 PP ES	R 1/8"	8	IQSG 3812 PP	IQSG 3812 PP ES	R 3/8"	12
IQSG 144 PP	IQSG 144 PP ES	R 1/4"	4	IQSG 1210 PP	IQSG 1210 PP ES	R 1/2"	10
IQSG 146 PP	IQSG 146 PP ES	R 1/4"	6	IQSG 1212 PP	IQSG 1212 PP ES	R 1/2"	12
IQSG 148 PP	IQSG 148 PP ES	R 1/4"	8				

* Due to the high expansion coefficients of polypropylene, large fluctuations in temperature can cause leaks. We recommend using Loctite sealing strip 55 as a sealant (page 556).

Push in fittings with female threads — PP

Type stainless steel thread INOX	G	D	Type stainless steel thread INOX	G	D
IQSF M54 PP ES	M 5	4	IQSF 148 PP ES	G 1/4"	8
IQSF 184 PP ES	G 1/8"	4	IQSF 1410 PP ES	G 1/4"	10
IQSF 186 PP ES	G 1/8"	6	IQSF 3810 PP ES	G 3/8"	10
IQSF 188 PP ES	G 1/8"	8	IQSF 3812 PP ES	G 3/8"	12
IQSF 144 PP ES	G 1/4"	4	IQSF 1210 PP ES	G 1/2"	10
IQSF 146 PP ES	G 1/4"	6	IQSF 1212 PP ES	G 1/2"	12

L push in fittings — PP



Type polypropylene thread*	Type stainless steel thread INOX	R	D	Type polypropylene thread*	Type stainless steel thread INOX	R	D
IQSL 184 PP	IQSL 184 PP ES	R 1/8"	4	IQSL 1410 PP	IQSL 1410 PP ES	R 1/4"	10
IQSL 186 PP	IQSL 186 PP ES	R 1/8"	6	IQSL 3810 PP	IQSL 3810 PP ES	R 3/8"	10
IQSL 188 PP	IQSL 188 PP ES	R 1/8"	8	IQSL 3812 PP	IQSL 3812 PP ES	R 3/8"	12
IQSL 144 PP	IQSL 144 PP ES	R 1/4"	4	IQSL 1210 PP	IQSL 1210 PP ES	R 1/2"	10
IQSL 146 PP	IQSL 146 PP ES	R 1/4"	6	IQSL 1212 PP	IQSL 1212 PP ES	R 1/2"	12
IQSL 148 PP	IQSL 148 PP ES	R 1/4"	8				

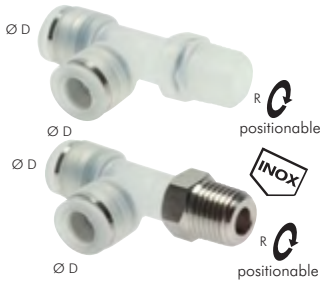
* Due to the high expansion coefficients of polypropylene, large fluctuations in temperature can cause leaks. We recommend using Loctite sealing strip 55 as a sealant (page 556).

T push in fittings — PP

Type polypropylene thread*	Type stainless steel thread INOX	R	D	Type polypropylene thread*	Type stainless steel thread INOX	R	D
IQST 184 PP	IQST 184 PP ES	R 1/8"	4	IQST 1410 PP	IQST 1410 PP ES	R 1/4"	10
IQST 186 PP	IQST 186 PP ES	R 1/8"	6	IQST 3810 PP	IQST 3810 PP ES	R 3/8"	10
IQST 188 PP	IQST 188 PP ES	R 1/8"	8	IQST 3812 PP	IQST 3812 PP ES	R 3/8"	12
IQST 144 PP	IQST 144 PP ES	R 1/4"	4	IQST 1210 PP	IQST 1210 PP ES	R 1/2"	10
IQST 146 PP	IQST 146 PP ES	R 1/4"	6	IQST 1212 PP	IQST 1212 PP ES	R 1/2"	12
IQST 148 PP	IQST 148 PP ES	R 1/4"	8				

* Due to the high expansion coefficients of polypropylene, large fluctuations in temperature can cause leaks. We recommend using Loctite sealing strip 55 as a sealant (page 556).

T push in fittings — PP



Type polypropylene thread*	Type stainless steel thread INOX	R	D	Type polypropylene thread*	Type stainless steel thread INOX	R	D
IQSTL 184 PP	IQSTL 184 PP ES	R 1/8"	4	IQSTL 1410 PP	IQSTL 1410 PP ES	R 1/4"	10
IQSTL 186 PP	IQSTL 186 PP ES	R 1/8"	6	IQSTL 3810 PP	IQSTL 3810 PP ES	R 3/8"	10
IQSTL 188 PP	IQSTL 188 PP ES	R 1/8"	8	IQSTL 3812 PP	IQSTL 3812 PP ES	R 3/8"	12
IQSTL 144 PP	IQSTL 144 PP ES	R 1/4"	4	IQSTL 1210 PP	IQSTL 1210 PP ES	R 1/2"	10
IQSTL 146 PP	IQSTL 146 PP ES	R 1/4"	6	IQSTL 1212 PP	IQSTL 1212 PP ES	R 1/2"	12
IQSTL 148 PP	IQSTL 148 PP ES	R 1/4"	8				

* Due to the high expansion coefficients of polypropylene, large fluctuations in temperature can cause leaks. We recommend using Loctite sealing strip 55 as a sealant (page 556).

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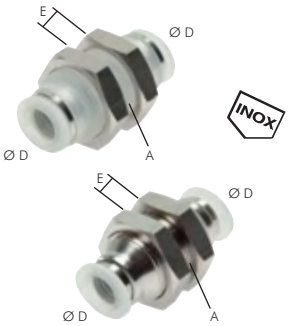
Push in connectors PP

Type polypropylene	D	Type polypropylene	D
IQSG 40 PP	4	IQSG 100 PP	10
IQSG 60 PP	6	IQSG 120 PP	12
IQSG 80 PP	8		

Bulkhead push in connectors PP

Type polypropylene	Emax	Type stainless steel	Emax	D	A
IQSS 40 PP	8.5	IQSS 40 PP ES	9.5	4	M 12 x 1
IQSS 60 PP	7.5	IQSS 60 PP ES	8.5	6	M 15 x 1
IQSS 80 PP	6.0	IQSS 80 PP ES	9.0	8	M 17 x 1
IQSS 100 PP	8.5	IQSS 100 PP ES	13.5	10	M 20 x 1
IQSS 120 PP	12.0	IQSS 120 PP ES	15.0	12	M 24 x 1



Elbow push in fittings PP

Type polypropylene	D	Type polypropylene	D
IQSL 40 PP	4	IQSL 100 PP	10
IQSL 60 PP	6	IQSL 120 PP	12
IQSL 80 PP	8		

T push in connectors PP

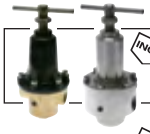
Type polypropylene	D	Type polypropylene	D
IQST 40 PP	4	IQST 100 PP	10
IQST 60 PP	6	IQST 120 PP	12
IQST 80 PP	8		

Y push in connectors PP

Type polypropylene	D	Type polypropylene	D
IQSY 40 PP	4	IQSY 100 PP	10
IQSY 60 PP	6	IQSY 120 PP	12
IQSY 80 PP	8		

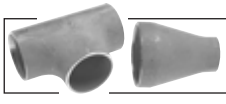
Push in connectors, reducing, with push in nipple PP

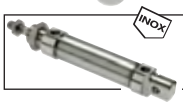
Type polypropylene	D	D_1	Type polypropylene	D	D_1
IQSG 60H40 PP	6	4	IQSG 100H80 PP	10	8
IQSG 80H40 PP	8	4	IQSG 120H80 PP	12	8
IQSG 80H60 PP	8	6	IQSG 120H100 PP	12	10
IQSG 100H60 PP	10	6			


Pressure regulators made of stainless steel & brass from page 355

Stainless steel ball valves from page 284

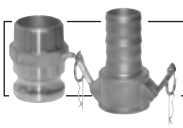
Stainless steel tube from page 253


Butt weld fittings from page 254


Stainless steel cylinders from page 461 + 471

PU, PA, PTFE and PE hoses from page 192

Dairy thread screw connections can be found in the Online Shop


Kamlock couplings from page 186

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

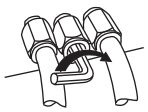
IQS push in connections - MSV

IQS push in connectors made of nickel-plated brass — MSV

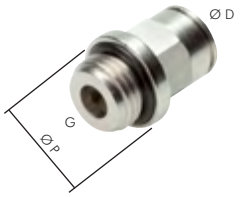
Materials: Body and sleeve: Nickel-plated brass, seals: NBR (high temperature version: FKM), holding claws: Stainless steel (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C up to max. +80°C (high temperature version: -20°C to max. +150°C)
Operating pressure: -0.98 to 16 bar
Media: Oiled and unoiled compressed air, neutral and non-hazardous gasses

Dimensions can be found in the item details in our Online Shop!

Advantages:
- Large product variety
- Stable design due to total metallic version
- Also threads M 7, M 8 x 1, M 10 x 1 and M 12 x 1.5 available
- Cylindrical screw in threads sealed by captive O-ring

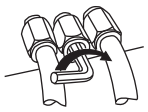


Push in fittings — MSV



Type standard	Type high temperature	G	D	P
IQSG M33 MSV*	---	M 3	3	6.5
IQSG M53 MSV*	---	M 5	3	8.0
IQSG M54 MSV*	IQSG M54 MSV-V*	M 5	4	9.0
IQSG M56 MSV*	IQSG M56 MSV-V*	M 5	6	11.0
IQSG M74 MSV	---	M 7	4	10.5
IQSG M76 MSV*	---	M 7	6	11.0
IQSG M84 MSV	IQSG M84 MSV-V	M 8 x 1	4	12.0
IQSG M104 MSV	IQSG M104 MSV-V	M 10 x 1	4	13.5
IQSG M106 MSV	IQSG M106 MSV-V	M 10 x 1	6	13.5
IQSG M126 MSV	IQSG M126 MSV-V	M 12 x 1.5	6	16.0
IQSG 184 G MSV	IQSG 184 G MSV-V	G 1/8"	4	13.5
IQSG 186 G MSV	IQSG 186 G MSV-V	G 1/8"	6	13.5
IQSG 188 G MSV	IQSG 188 G MSV-V	G 1/8"	8	15.0
IQSG 1810 G MSV	IQSG 1810 G MSV-V	G 1/8"	10	18.5
IQSG 144 G MSV	IQSG 144 G MSV-V	G 1/4"	4	17.0
IQSG 146 G MSV	IQSG 146 G MSV-V	G 1/4"	6	17.0
IQSG 148 G MSV	IQSG 148 G MSV-V	G 1/4"	8	17.0
IQSG 1410 G MSV	IQSG 1410 G MSV-V	G 1/4"	10	18.5
IQSG 1412 G MSV	IQSG 1412 G MSV-V	G 1/4"	12	21.0
IQSG 388 G MSV	IQSG 388 G MSV-V	G 3/8"	8	20.0
IQSG 3810 G MSV	IQSG 3810 G MSV-V	G 3/8"	10	21.0
IQSG 3812 G MSV	IQSG 3812 G MSV-V	G 3/8"	12	21.0
IQSG 3814 G MSV	IQSG 3814 G MSV-V	G 3/8"	14	24.5
IQSG 3816 G MSV	IQSG 3816 G MSV-V	G 3/8"	16	28.0
IQSG 1210 G MSV	IQSG 1210 G MSV-V	G 1/2"	10	24.0
IQSG 1212 G MSV	IQSG 1212 G MSV-V	G 1/2"	12	24.0
IQSG 1214 G MSV	IQSG 1214 G MSV-V	G 1/2"	14	25.0
IQSG 1216 G MSV	IQSG 1216 G MSV-V	G 1/2"	16	28.0

* without exterior hexagon



Push in fittings with conical threads — MSV

Type standard	Type high temperature	R	D	P
IQSG 184 MSV	IQSG 184 MSV-V	R 1/8"	4	11.5
IQSG 186 MSV	IQSG 186 MSV-V	R 1/8"	6	13.0
IQSG 188 MSV	IQSG 188 MSV-V	R 1/8"	8	15.0
IQSG 144 MSV	IQSG 144 MSV-V	R 1/4"	4	16.5
IQSG 146 MSV	IQSG 146 MSV-V	R 1/4"	6	16.5
IQSG 148 MSV	IQSG 148 MSV-V	R 1/4"	8	15.0
IQSG 1410 MSV	IQSG 1410 MSV-V	R 1/4"	10	18.5
IQSG 1412 MSV	IQSG 1412 MSV-V	R 1/4"	12	20.0
IQSG 388 MSV	IQSG 388 MSV-V	R 3/8"	8	20.0
IQSG 3810 MSV	IQSG 3810 MSV-V	R 3/8"	10	20.0
IQSG 3812 MSV	IQSG 3812 MSV-V	R 3/8"	12	20.0
IQSG 3814 MSV	IQSG 3814 MSV-V	R 3/8"	14	23.1
IQSG 1212 MSV	IQSG 1212 MSV-V	R 1/2"	12	25.5
IQSG 1214 MSV	IQSG 1214 MSV-V	R 1/2"	14	25.5

Push in fittings fittings with female threads — MSV

Type standard	Type high temperature	G	D	P
IQSF M54 MSV	---	M 5	4	10.5
IQSF 184 MSV	IQSF 184 MSV-V	G 1/8"	4	12.0
IQSF 186 MSV	IQSF 186 MSV-V	G 1/8"	6	13.0
IQSF 188 MSV	IQSF 188 MSV-V	G 1/8"	8	15.0
IQSF 144 MSV	IQSF 144 MSV-V	G 1/4"	4	17.0
IQSF 146 MSV	IQSF 146 MSV-V	G 1/4"	6	16.0
IQSF 148 MSV	IQSF 148 MSV-V	G 1/4"	8	17.0
IQSF 1410 MSV	IQSF 1410 MSV-V	G 1/4"	10	18.5
IQSF 1412 MSV	IQSF 1412 MSV-V	G 1/4"	12	23.5
IQSF 1414 MSV	---	G 1/4"	14	23.5
IQSF 3810 MSV	IQSF 3810 MSV-V	G 3/8"	10	23.5
IQSF 3812 MSV	IQSF 3812 MSV-V	G 3/8"	12	23.5
IQSF 1216 MSV	IQSF 1216 MSV-V	G 1/2"	16	28.0

FESTO
Festo screwed connections can be found in our Online Shop

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Bulkhead push in fittings with female threads — MSV

Type standard	G	D	A	Emax
IQSSF 184 MSV	G 1/8"	4	M 10 x 1	6
IQSSF 186 MSV	G 1/8"	6	M 14 x 1	6
IQSSF 188 MSV	G 1/8"	8	M 16 x 1	11
IQSSF 146 MSV	G 1/4"	6	M 14 x 1	6
IQSSF 148 MSV	G 1/4"	8	M 16 x 1	6

L push in fittings — MSV

Type standard	Type high temperature	G	D
IQSL M33 MSV	---	M 3	3
IQSL M53 MSV	---	M 5	3
IQSL M54 MSV	IQSL M54 MSV-V	M 5	4
IQSL M56 MSV	IQSL M56 MSV-V	M 5	6
IQSL M74 MSV	IQSL M74 MSV-V	M 7	4
IQSL M76 MSV	IQSL M76 MSV-V	M 7	6
IQSL 184 G MSV	IQSL 184 G MSV-V	G 1/8"	4
IQSL 186 G MSV	IQSL 186 G MSV-V	G 1/8"	6
IQSL 188 G MSV	IQSL 188 G MSV-V	G 1/8"	8
IQSL 1810 G MSV	IQSL 1810 G MSV-V	G 1/8"	10
IQSL 144 G MSV	IQSL 144 G MSV-V	G 1/4"	4
IQSL 146 G MSV	IQSL 146 G MSV-V	G 1/4"	6
IQSL 148 G MSV	IQSL 148 G MSV-V	G 1/4"	8
IQSL 1410 G MSV	IQSL 1410 G MSV-V	G 1/4"	10
IQSL 1412 G MSV	IQSL 1412 G MSV-V	G 1/4"	12
IQSL 388 G MSV	IQSL 388 G MSV-V	G 3/8"	8
IQSL 3810 G MSV	IQSL 3810 G MSV-V	G 3/8"	10
IQSL 3812 G MSV	IQSL 3812 G MSV-V	G 3/8"	12
IQSL 3814 G MSV	IQSL 3814 G MSV-V	G 3/8"	14
IQSL 3816 G MSV	IQSL 3816 G MSV-V	G 3/8"	16
IQSL 1210 G MSV	IQSL 1210 G MSV-V	G 1/2"	10
IQSL 1212 G MSV	IQSL 1212 G MSV-V	G 1/2"	12
IQSL 1214 G MSV	IQSL 1214 G MSV-V	G 1/2"	14
IQSL 1216 G MSV	IQSL 1216 G MSV-V	G 1/2"	16

PU, PA, PTFE and PE hoses from page 192

L push in fittings with conical threads (fixed) — MSV

Type standard	R	D
IQSL 184 B MSV	R 1/8"	4
IQSL 186 B MSV	R 1/8"	6
IQSL 188 B MSV	R 1/8"	8
IQSL 146 B MSV	R 1/4"	6
IQSL 148 B MSV	R 1/4"	8
IQSL 1410 B MSV	R 1/4"	10

L push in fittings with conical threads (positionable) — MSV

Type standard	Type high temperature	R	D
IQSL 184 MSV	IQSL 184 MSV-V	R 1/8"	4
IQSL 186 MSV	IQSL 186 MSV-V	R 1/8"	6
IQSL 188 MSV	IQSL 188 MSV-V	R 1/8"	8
IQSL 144 MSV	IQSL 144 MSV-V	R 1/4"	4
IQSL 146 MSV	IQSL 146 MSV-V	R 1/4"	6
IQSL 148 MSV	IQSL 148 MSV-V	R 1/4"	8
IQSL 1410 MSV	IQSL 1410 MSV-V	R 1/4"	10
IQSL 388 MSV	IQSL 388 MSV-V	R 3/8"	8
IQSL 3810 MSV	IQSL 3810 MSV-V	R 3/8"	10
IQSL 3812 MSV	IQSL 3812 MSV-V	R 3/8"	12
IQSL 3814 MSV	IQSL 3814 MSV-V	R 3/8"	14
IQSL 1212 MSV	IQSL 1212 MSV-V	R 1/2"	12
IQSL 1214 MSV	IQSL 1214 MSV-V	R 1/2"	14

L push in fittings, long — MSV

Type standard	Type high temperature	G	D
IQSLL M54 MSV	---	M 5	4
IQSLL M56 MSV	---	M 5	6
IQSLL 184 G MSV	---	G 1/8"	4
IQSLL 186 G MSV	IQSLL 186 G MSV-V	G 1/8"	6
IQSLL 188 G MSV	IQSLL 188 G MSV-V	G 1/8"	8
IQSLL 144 G MSV	---	G 1/4"	4
IQSLL 146 G MSV	IQSLL 146 G MSV-V	G 1/4"	6
IQSLL 148 G MSV	IQSLL 148 G MSV-V	G 1/4"	8
IQSLL 1410 G MSV	---	G 1/4"	10
IQSLL 388 G MSV	---	G 3/8"	8
IQSLL 3810 G MSV	---	G 3/8"	10

LOCTITE Liquid seals, gaskets & tapes from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

IQS push in connections - MSV

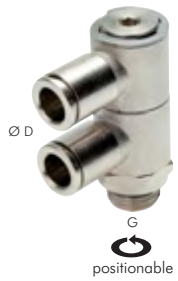
L push in fittings with female threads — MSV

Type standard	G	D
IQSLF 184 MSV	G 1/8"	4
IQSLF 186 MSV	G 1/8"	6
IQSLF 188 MSV	G 1/8"	8
IQSLF 144 MSV	G 1/4"	4
IQSLF 146 MSV	G 1/4"	6
IQSLF 148 MSV	G 1/4"	8
IQSLF 1410 MSV	G 1/4"	10

L push in fittings, compact design — MSV

Advantages: • Assembly and disassembly also possible with hose pushed in
• Assembly done through an Allen wrench from above

Type standard	G	D
IQSLV M33 I MSV	M 3	3
IQSLV M53 I MSV	M 5	3
IQSLV M54 I MSV	M 5	4
IQSLV 184 IG MSV	G 1/8"	4
IQSLV 186 IG MSV	G 1/8"	6
IQSLV 188 IG MSV	G 1/8"	8
IQSLV 146 IG MSV	G 1/4"	6
IQSLV 148 IG MSV	G 1/4"	8
IQSLV 1410 IG MSV	G 1/4"	10
IQSLV 1412 IG MSV	G 1/4"	12
IQSLV 388 IG MSV	G 3/8"	8
IQSLV 3810 IG MSV	G 3/8"	10
IQSLV 3812 IG MSV	G 3/8"	12



L push in fittings (2-way), compact design — MSV

Advantages: • Assembly and disassembly also possible with hose pushed in
• Assembly done through an Allen wrench from above

Type standard	G	D
IQSLV2 184 IG MSV	G 1/8"	4
IQSLV2 186 IG MSV	G 1/8"	6
IQSLV2 188 IG MSV	G 1/8"	8
IQSLV2 146 IG MSV	G 1/4"	6
IQSLV2 148 IG MSV	G 1/4"	8
IQSLV2 1410 IG MSV	G 1/4"	10
IQSLV2 1412 IG MSV	G 1/4"	12

L push in fittings (3-way), compact design — MSV

Advantages: • Assembly and disassembly also possible with hose pushed in
• Assembly done through an Allen wrench from above

Type standard	G	D
IQSLV3 184 IG MSV	G 1/8"	4
IQSLV3 186 IG MSV	G 1/8"	6
IQSLV3 188 IG MSV	G 1/8"	8
IQSLV3 146 IG MSV	G 1/4"	6
IQSLV3 148 IG MSV	G 1/4"	8
IQSLV3 1410 IG MSV	G 1/4"	10
IQSLV3 1412 IG MSV	G 1/4"	12

T push in fittings — MSV

Type standard	Type high temperature	G	D
IQST M54 MSV	---	M 5	4
IQST 184 G MSV	IQST 184 G MSV-V	G 1/8"	4
IQST 186 G MSV	IQST 186 G MSV-V	G 1/8"	6
IQST 188 G MSV	IQST 188 G MSV-V	G 1/8"	8
IQST 144 G MSV	---	G 1/4"	4
IQST 146 G MSV	IQST 146 G MSV-V	G 1/4"	6
IQST 148 G MSV	IQST 148 G MSV-V	G 1/4"	8
IQST 1410 G MSV	IQST 1410 G MSV-V	G 1/4"	10
IQST 1412 G MSV	IQST 1412 G MSV-V	G 1/4"	12
IQST 388 G MSV	IQST 388 G MSV-V	G 3/8"	8
IQST 3810 G MSV	IQST 3810 G MSV-V	G 3/8"	10
IQST 3812 G MSV	IQST 3812 G MSV-V	G 3/8"	12
IQST 3814 G MSV	IQST 3814 G MSV-V	G 3/8"	14
IQST 1212 G MSV	IQST 1212 G MSV-V	G 1/2"	12
IQST 1214 G MSV	IQST 1214 G MSV-V	G 1/2"	14

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

T push in fittings with female threads — MSV

Type standard	G	D
IQSTFF 184 MSV	G 1/8"	4
IQSTFF 186 MSV	G 1/8"	6
IQSTFF 188 MSV	G 1/8"	8
IQSTFF 144 MSV	G 1/4"	4
IQSTFF 146 MSV	G 1/4"	6
IQSTFF 148 MSV	G 1/4"	8
IQSTFF 1410 MSV	G 1/4"	10

T push in fittings — MSV

Type standard	Type high temperature	G	D
IQSTL M54 MSV	---	M 5	4
IQSTL 184 G MSV	IQSTL 184 G MSV-V	G 1/8"	4
IQSTL 186 G MSV	IQSTL 186 G MSV-V	G 1/8"	6
IQSTL 188 G MSV	IQSTL 188 G MSV-V	G 1/8"	8
IQSTL 144 G MSV	---	G 1/4"	4
IQSTL 146 G MSV	IQSTL 146 G MSV-V	G 1/4"	6
IQSTL 148 G MSV	IQSTL 148 G MSV-V	G 1/4"	8
IQSTL 1410 G MSV	IQSTL 1410 G MSV-V	G 1/4"	10
IQSTL 1412 G MSV	---	G 1/4"	12
IQSTL 388 G MSV	IQSTL 388 G MSV-V	G 3/8"	8
IQSTL 3810 G MSV	IQSTL 3810 G MSV-V	G 3/8"	10
IQSTL 3812 G MSV	IQSTL 3812 G MSV-V	G 3/8"	12
IQSTL 3814 G MSV	---	G 3/8"	14
IQSTL 1212 G MSV	---	G 1/2"	12
IQSTL 1214 G MSV	IQSTL 1214 G MSV-V	G 1/2"	14

Push in connectors (also reducing) — MSV

Type standard	Type high temperature	D		D_1
IQSG 30 MSV	---	3		3
IQSG 40 MSV	IQSG 40 MSV-V	4		4
IQSG 6040 MSV	IQSG 6040 MSV-V	6	reduced	4
IQSG 60 MSV	IQSG 60 MSV-V	6		6
IQSG 8060 MSV	IQSG 8060 MSV-V	8	reduced	6
IQSG 80 MSV	IQSG 80 MSV-V	8		8
IQSG 10080 MSV	IQSG 10080 MSV-V	10	reduced	8
IQSG 100 MSV	IQSG 100 MSV-V	10		10
IQSG 120100 MSV	IQSG 120100 MSV-V	12	reduced	10
IQSG 120 MSV	IQSG 120 MSV-V	12		12
IQSG 140120 MSV	IQSG 140120 MSV-V	14	reduced	12
IQSG 140 MSV	IQSG 140 MSV-V	14		14
IQSG 160 MSV	IQSG 160 MSV-V	16		16

Bulkhead push in connectors — MSV

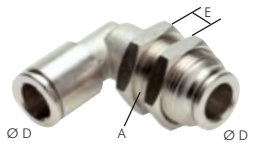
Type standard	Type high temperature	D	A	Emax
IQSS 40 MSV	IQSS 40 MSV-V	4	M 10 x 1	15
IQSS 60 MSV	IQSS 60 MSV-V	6	M 14 x 1	11
IQSS 80 MSV	IQSS 80 MSV-V	8	M 16 x 1	16
IQSS 100 MSV	IQSS 100 MSV-V	10	M 17 x 1	19
IQSS 120 MSV	IQSS 120 MSV-V	12	M 20 x 1	17
IQSS 140 MSV	IQSS 140 MSV-V	14	M 22 x 1	21
IQSS 160 MSV	IQSS 160 MSV-V	16	M 28 x 1.5	22

Elbow push in fittings — MSV

Type standard	Type high temperature	D
IQSL 30 MSV	---	3
IQSL 40 MSV	IQSL 40 MSV-V	4
IQSL 60 MSV	IQSL 60 MSV-V	6
IQSL 80 MSV	IQSL 80 MSV-V	8
IQSL 100 MSV	IQSL 100 MSV-V	10
IQSL 120 MSV	IQSL 120 MSV-V	12
IQSL 140 MSV	IQSL 140 MSV-V	14
IQSL 160 MSV	IQSL 160 MSV-V	16

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

IQS push in connections - MSV



Elbow bulkhead push in connectors — MSV

Type standard	D	A	Emax
IQSLS 40 MSV	4	M 10 x 1	4.0
IQSLS 60 MSV	6	M 14 x 1	5.5
IQSLS 80 MSV	8	M 16 x 1	7.5
IQSLS 100 MSV	10	M 17 x 1	8.0
IQSLS 120 MSV	12	M 20 x 1	10.0

T push in connectors (also reducing) — MSV

Type standard	Type high temperature	D		D_1
IQST 30 MSV	---	3		3
IQST 40 MSV	IQST 40 MSV-V	4		4
IQST 604060 MSV	---	6	reduced	4
IQST 60 MSV	IQST 60 MSV-V	6		6
IQST 806080 MSV	---	8	reduced	6
IQST 80 MSV	IQST 80 MSV-V	8		8
IQST 10080100 MSV	---	10	reduced	8
IQST 100 MSV	IQST 100 MSV-V	10		10
IQST 120 MSV	IQST 120 MSV-V	12		12
IQST 140 MSV	IQST 140 MSV-V	14		14
IQST 160 MSV	IQST 160 MSV-V	16		16

Y push in connectors — MSV

Type standard	Type high temperature	D
IQSY 40 MSV	IQSY 40 MSV-V	4
IQSY 60 MSV	IQSY 60 MSV-V	6
IQSY 80 MSV	IQSY 80 MSV-V	8
IQSY 100 MSV	IQSY 100 MSV-V	10
IQSY 120 MSV	IQSY 120 MSV-V	12

Push in nipple — MSV

Type standard/high temperature	D
IQSH 40 MSV	4
IQSH 60 MSV	6
IQSH 80 MSV	8
IQSH 100 MSV	10
IQSH 120 MSV	12
IQSH 140 MSV	14

Push in nipple for PVC hose — MSV

Type standard/high temperature	D	For hose Ø internal
IQSGT 60H6 MSV	6	6
IQSGT 80H6 MSV	8	6
IQSGT 80H8 MSV	8	8
IQSGT 12H13 MSV	12	13
IQSGT 14H13 MSV	14	13

Push in connectors, reducing, with push in nipple — MSV

Type standard	Type high temperature	D	D_1
IQSG 40H60 MSV	---	4	6
IQSG 50H40 MSV	---	5	4
IQSG 60H40 MSV	IQSG 60H40 MSV-V	6	4
IQSG 60H50 MSV	---	6	5
IQSG 60H80 MSV	---	6	8
IQSG 80H40 MSV	---	8	4
IQSG 80H50 MSV	---	8	5
IQSG 80H60 MSV	IQSG 80H60 MSV-V	8	6
IQSG 100H60 MSV	---	10	6
IQSG 100H80 MSV	IQSG 100H80 MSV-V	10	8
IQSG 120H60 MSV	---	12	6
IQSG 120H80 MSV	---	12	8
IQSG 120H100 MSV	IQSG 120H100 MSV-V	12	10
IQSG 140H60 MSV	---	14	6
IQSG 140H80 MSV	---	14	8
IQSG 140H100 MSV	---	14	10
IQSG 140H120 MSV	IQSG 140H120 MSV-V	14	12
IQSG 160H120 MSV	---	16	12
IQSG 160H140 MSV	---	16	14

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

L push in connectors with push in nipple (also reducing) MSV

Type standard	D		D_1
IQSL 40H MSV	4		4
IQSL 60H40 MSV	6	reduced	4
IQSL 60H MSV	6		6
IQSL 80H60 MSV	8	reduced	6
IQSL 80H MSV	8		8
IQSL 100H MSV	10		10
IQSL 120H MSV	12		12

L push in connectors with long push in nipple MSV

Type standard	D
IQSLL 40H MSV	4
IQSLL 60H MSV	6

Push in fittings screw in sockets (G-threads/metric nipple) MSV

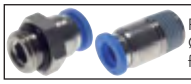
Type standard/high temperature	G	D
IQSG M54H MSV	M 5	4
IQSG M56H MSV	M 5	6
IQSG 184H G MSV	G 1/8"	4
IQSG 186H G MSV	G 1/8"	6
IQSG 188H G MSV	G 1/8"	8
IQSG 144H G MSV	G 1/4"	4
IQSG 146H G MSV	G 1/4"	6
IQSG 148H G MSV	G 1/4"	8
IQSG 1410H G MSV	G 1/4"	10
IQSG 1412H G MSV	G 1/4"	12
IQSG 388H G MSV	G 3/8"	8
IQSG 3810H G MSV	G 3/8"	10
IQSG 3812H G MSV	G 3/8"	12
IQSG 3814H G MSV	G 3/8"	14
IQSG 1212H G MSV	G 1/2"	12
IQSG 1214H G MSV	G 1/2"	14

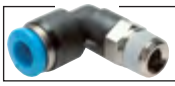
Plugs for closing push in fittings MSV

Type standard/high temperature	D
IQSC 40H MSV	4
IQSC 60H MSV	6
IQSC 80H MSV	8
IQSC 100H MSV	10
IQSC 120H MSV	12
IQSC 140H MSV	14

Caps for closing hose lines MSV

Type standard	D
IQSC 40 MSV	4
IQSC 60 MSV	6
IQSC 80 MSV	8
IQSC 100 MSV	10
IQSC 120 MSV	12


Push in connections Ø 3 - 32 mm from page 24


FESTO Festo screwed connections can be found in our Online Shop

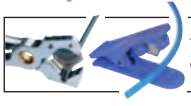
Valves from page 404

Cylinders from page 460

Distinctive couplings from page 162

Multi-link distributor systems from page 157

PU, PA, PTFE and PE hoses from page 192


Tube cutters on page 595

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

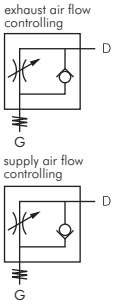
IQS push in connections - MSV

Dimensions can be found in the item details in our Online Shop!

IQS one-way control valves made of nickel-plated brass — MSV

Materials: Body and sleeve: Nickel-plated brass, seals: NBR/plastic, holding claws: Stainless steel (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C. **Operating pressure:** 0.2 to 10 bar
Media: Oiled and unoiled compressed air, neutral, non-hazardous gasses
Functional principle: Flow control silencers choke the flow in one direction, while the flow remains unrestricted in the other direction. The standard construction of the flow control silencers is "exhaust air flow controlling". If they are screwed into a cylinder, for example, then they provide for an even flow without causing a slip-stick effect. In the case of cylinders with small volumes (a small diameter/low stroke rate), flow control silencers are utilised with the special "supply air flow controlling" construction.

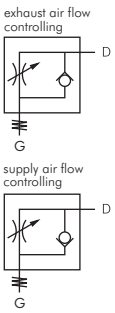
One-way control valves with slotted screw, banjo bolt design — MSV



Advantages: • Stable design • Can only be adjusted using screwdriver • Outstanding value • Largest variety

Type **exhaust air flow controlling**	Type **supply air flow controlling**	G	D
GRLAIQS M54 H MSV	GRLBIQS M54 H MSV	M 5	4
GRLAIQS M56 H MSV	GRLBIQS M56 H MSV	M 5	6
GRLAIQS 184 H MSV	GRLBIQS 184 H MSV	G 1/8"	4
GRLAIQS 186 H MSV	GRLBIQS 186 H MSV	G 1/8"	6
GRLAIQS 188 H MSV	GRLBIQS 188 H MSV	G 1/8"	8
GRLAIQS 146 H MSV	GRLBIQS 146 H MSV	G 1/4"	6
GRLAIQS 148 H MSV	GRLBIQS 148 H MSV	G 1/4"	8
GRLAIQS 1410 H MSV	GRLBIQS 1410 H MSV	G 1/4"	10
GRLAIQS 388 H MSV	GRLBIQS 388 H MSV	G 3/8"	8
GRLAIQS 3810 H MSV	GRLBIQS 3810 H MSV	G 3/8"	10

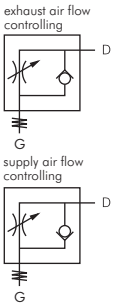
One-way control valves with slotted screw — MSV



Advantages: • Stable, compact design • Cylindrical screw in threads sealed by captive O-ring
• Can only be adjusted using screwdriver

Type **exhaust air flow controlling**	Type **supply air flow controlling**	G	D
GRLAIQS 184 S MSV	GRLBIQS 184 S MSV	G 1/8"	4
GRLAIQS 186 S MSV	GRLBIQS 186 S MSV	G 1/8"	6
GRLAIQS 188 S MSV	GRLBIQS 188 S MSV	G 1/8"	8
GRLAIQS 146 S MSV	GRLBIQS 146 S MSV	G 1/4"	6
GRLAIQS 148 S MSV	GRLBIQS 148 S MSV	G 1/4"	8
GRLAIQS 1410 S MSV	GRLBIQS 1410 S MSV	G 1/4"	10
GRLAIQS 1412 S MSV	GRLBIQS 1412 S MSV	G 1/4"	12

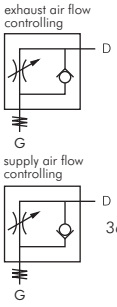
One-way control valves with knurled screw — MSV



Advantages: • Stable, compact design • Cylindrical screw in threads sealed by captive O-ring
• Can be easily adjusted without tools

Type **exhaust air flow controlling**	Type **supply air flow controlling**	G	D
GRLAIQS M54 MSV	GRLBIQS M54 MSV	M 5	4
GRLAIQS M56 MSV	GRLBIQS M56 MSV	M 5	6
GRLAIQS 184 MSV	GRLBIQS 184 MSV	G 1/8"	4
GRLAIQS 186 MSV	GRLBIQS 186 MSV	G 1/8"	6
GRLAIQS 188 MSV	GRLBIQS 188 MSV	G 1/8"	8
GRLAIQS 146 MSV	GRLBIQS 146 MSV	G 1/4"	6
GRLAIQS 148 MSV	GRLBIQS 148 MSV	G 1/4"	8
GRLAIQS 1410 MSV	GRLBIQS 1410 MSV	G 1/4"	10

One-way control valves with slotted screw - straight form — MSV



Advantages: • Stable, compact design • Cylindrical screw in threads sealed by captive O-ring
• Can be easily adjusted without tools

Type **exhaust air flow controlling**	Type **supply air flow controlling**	G	D
GRAIQS 184 MSV	GRBIQS 184 MSV	G 1/8"	4
GRAIQS 186 MSV	GRBIQS 186 MSV	G 1/8"	6
GRAIQS 188 MSV	GRBIQS 188 MSV	G 1/8"	8
GRAIQS 146 MSV	GRBIQS 146 MSV	G 1/4"	6
GRAIQS 148 MSV	GRBIQS 148 MSV	G 1/4"	8

Check valves — MSV

Materials: Body and sleeve: Nickel-plated brass, seals: NBR, holding claws: Stainless steel (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: 0.2 to 10 bar
Media: Oiled and unoiled compressed air, neutral and non-hazardous gasses

Type	D
HIQS 40 MSV	4
HIQS 60 MSV	6
HIQS 80 MSV	8

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Straight screw connections with cylindrical threads

Type **brass** nickel-plated	Type aluminium	Type plastic	Screw-in thread	Hose Ø ext. x int.
CK 52 MSV	---	---	M 5	4 x 2
CK 53 MSV	CK 53 A*	---	M 5	4.3 x 3
CK 553 MSV	---	---	M 5	5 x 3
CK 54 MSV	CK 54 A*	---	M 5	6 x 4
CK 183 MSV	CK 183 A	---	G 1/8"	4.3 x 3
CK 1853 MSV	---	---	G 1/8"	5 x 3
CK 184 MSV	CK 184 A	CK 184 K	G 1/8"	6 x 4
CK 186 MSV	CK 186 A	CK 186 K	G 1/8"	8 x 6
CK 188 MSV	---	---	G 1/8"	10 x 8
CK 144 MSV	CK 144 A	CK 144 K	G 1/4"	6 x 4
CK 146 MSV	CK 146 A	CK 146 K	G 1/4"	8 x 6
CK 148 MSV	CK 148 A	CK 148 K	G 1/4"	10 x 8
CK 149 MSV**	CK 149 A	CK 149 K	G 1/4"	11.6 x 9
CK 384 MSV	---	---	G 3/8"	6 x 4
CK 386 MSV	CK 386 A	CK 386 K	G 3/8"	8 x 6
CK 388 MSV	---	CK 388 K	G 3/8"	10 x 8
CK 389 MSV**	CK 389 A	CK 389 K	G 3/8"	11.6 x 9
CK 3810 MSV	---	---	G 3/8"	12 x 10
---	CK 3813 A	---	G 3/8"	17.6 x 13
CK 124 MSV	---	---	G 1/2"	6 x 4
CK 126 MSV	---	---	G 1/2"	8 x 6
CK 128 MSV	CK 128 A	---	G 1/2"	10 x 8
---	CK 129 A	---	G 1/2"	11.6 x 9
CK 1210 MSV	---	---	G 1/2"	12 x 10
---	CK 1213 A	---	G 1/2"	17.6 x 13

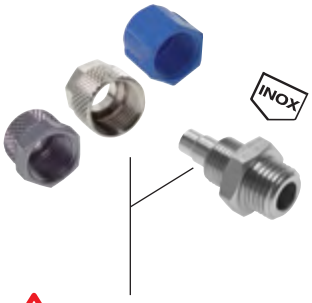
* threaded body in galvanised steel, union nuts in aluminium, ** without O-ring

Plastic screw connections made of PA, PP, PVDF can be found in the Online Shop

Straight screw connections with cylindrical threads

Type **AISI 316Ti** INOX	Screw-in thread	Hose Ø ext. x int.	Thread for union nut
K 54 ES	M 5	6 x 4	M 8 x 1
K 184 ES	G 1/8"	6 x 4	M 10 x 1
K 186 ES	G 1/8"	8 x 6	M 12 x 1
K 188 ES	G 1/8"	10 x 8	M 14 x 1
K 144 ES	G 1/4"	6 x 4	M 10 x 1
K 146 ES	G 1/4"	8 x 6	M 12 x 1
K 148 ES	G 1/4"	10 x 8	M 14 x 1
K 386 ES	G 3/8"	8 x 6	M 12 x 1
K 388 ES	G 3/8"	10 x 8	M 16 x 1
K 3810 ES	G 3/8"	12 x 10	M 16 x 1
K 126 ES	G 1/2"	8 x 6	M 12 x 1
K 128 ES	G 1/2"	10 x 8	M 16 x 1
K 1210 ES	G 1/2"	12 x 10	M 16 x 1

Nuts **AISI 316Ti** INOX	Nuts **brass** nickel-plated	Nuts **POM**
MCK 4M5 ES	---	---
MCK 4 ES	MCK 4 MSV	MCK 4 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8 ES	MCK 8 MSV	MCK 8 K
MCK 4 ES	MCK 4 MSV	MCK 4 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8 ES	MCK 8 MSV	MCK 8 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8M16 ES	---	---
MCK 10 ES	MCK 10 MSV	---
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8M16 ES	---	---
MCK 10 ES	MCK 10 MSV	---



Order accessories at the same time!

1 piece union nut
(found in the adjacent table)

Straight swivel joints 360° rotatable

Suitable: For slow rotary movements, e.g. to avoid the twisting of hoses

Type **brass** nickel-plated	Screw-in thread	Hose Ø ext. x int.
CK 184 DR MSV	G 1/8"	6 x 4
CK 186 DR MSV	G 1/8"	8 x 6
CK 144 DR MSV	G 1/4"	6 x 4
CK 146 DR MSV	G 1/4"	8 x 6
CK 148 DR MSV	G 1/4"	10 x 8
CK 388 DR MSV*	G 3/8"	10 x 8
CK 38128 DR MSV	G 3/8"	12 x 8
CK 3810 DR MSV	G 3/8"	12 x 10

* are delivered with PTFE seal

TIP *Prevents twisting of the hose!*

360° rotatable

Straight swivel joints with bend protection spirals 360° rotatable for coil tubes

Suitable: For slow rotary movements, e.g. to avoid the twisting of hoses

Type **brass** nickel-plated	Screw-in thread	Hose Ø ext. x int.
CK 184 DR KS MSV	G 1/8"	6 x 4
CK 186 DR KS MSV	G 1/8"	8 x 6
CK 144 DR KS MSV	G 1/4"	6 x 4
CK 145 DR KS MSV	G 1/4"	8 x 5
CK 146 DR KS MSV	G 1/4"	8 x 6
CK 147 DR KS MSV	G 1/4"	10 x 6.5
CK 148 DR KS MSV	G 1/4"	10 x 8
CK 388 DR KS MSV	G 3/8"	10 x 8
CK 38128 DR KS MSV	G 3/8"	12 x 8
CK 3810 DR KS MSV	G 3/8"	12 x 10

360° rotatable

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

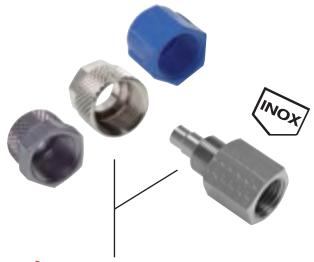
CK quick screw connectors

Plastic screw connections made of PA, PP, PVDF can be found in the Online Shop

Screwed-on screw connections with female threads (pressure gauge coupling)

Type **brass** nickel-plated	Type aluminium	Thread female	Hose Ø ext. x int.
ACK 183 MSV	ACK 183 A	G 1/8"	4.3 x 3
ACK 184 MSV	ACK 184 A	G 1/8"	6 x 4
ACK 186 MSV	ACK 186 A	G 1/8"	8 x 6
ACK 144 MSV	ACK 144 A	G 1/4"	6 x 4
ACK 146 MSV	ACK 146 A	G 1/4"	8 x 6
ACK 148 MSV	ACK 148 A*	G 1/4"	10 x 8
ACK 384 MSV	ACK 384 A*	G 3/8"	6 x 4
ACK 386 MSV	ACK 386 A	G 3/8"	8 x 6
ACK 388 MSV	ACK 388 A*	G 3/8"	10 x 8
---	ACK 389 A	G 3/8"	11.6 x 9
ACK 3810 MSV	---	G 3/8"	12 x 10
---	ACK 124 A*	G 1/2"	6 x 4
ACK 126 MSV	ACK 126 A*	G 1/2"	8 x 6
ACK 128 MSV	ACK 128 A*	G 1/2"	10 x 8
---	ACK 1213 A	G 1/2"	17.6 x 13

* in colour black



Order accessories at the same time!

1 piece union nut
(found in the adjacent table)

Screwed-on screw connections with female threads (pressure gauge coupling)

Type AISI 316Ti	Thread female	Hose Ø ext. x int.	Thread for union nut
AK 184 ES	G 1/8"	6 x 4	M 10 x 1
AK 186 ES	G 1/8"	8 x 6	M 12 x 1
AK 144 ES	G 1/4"	6 x 4	M 10 x 1
AK 146 ES	G 1/4"	8 x 6	M 12 x 1
AK 148 ES	G 1/4"	10 x 8	M 14 x 1
AK 386 ES	G 3/8"	8 x 6	M 12 x 1
AK 388 ES	G 3/8"	10 x 8	M 16 x 1

Nuts AISI 316Ti	Nuts **brass** nickel-plated	Nuts **POM**
MCK 4 ES	MCK 4 MSV	MCK 4 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 4 ES	MCK 4 MSV	MCK 4 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8 ES	MCK 8 MSV	MCK 8 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8M16 ES	---	---

Screwed-on screw connections with bulkhead threads

Type aluminium	Thread female	Bulkhead thread	E max.	Hose Ø ext. x int.
QCK 53 A	M 5	M 7 x 0.5	7	4.3 x 3
QCK 54 A	M 5	M 8 x 0.5	7	6 x 4
QCK 184 A	G 1/8"	M 10 x 1	8	6 x 4
QCK 186 A	G 1/8"	M 12 x 1	8	8 x 6
QCK 146 A	G 1/4"	M 12 x 1	8	8 x 6
QCK 148 A	G 1/4"	M 14 x 1	8	10 x 8
QCK 386 A	G 3/8"	M 12 x 1	9	8 x 6
QCK 388 A	G 3/8"	M 14 x 1	9	10 x 8
QCK 389 A	G 3/8"	M 16 x 1	9	11.6 x 9

Elbow joints

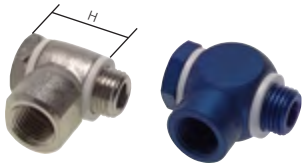
Type **brass** nickel-plated	H	Type aluminium	H	Type plastic	H	Screw-in thread	Hose Ø ext. x int.	Packing unit
LCK 53 MSV	14	LCK 53 A*	16	---	---	M 5	4.3 x 3	10
LCK 553 MSV	13.5	---	---	---	---	M 5	5 x 3	10
LCK 54 MSV	14	LCK 54 A*	16	---	---	M 5	6 x 4	10
LCK 183 MSV	22.6	LCK 183 A	22.8	---	---	G 1/8"	4.3 x 3	10
LCK 1853 MSV	20.5	---	---	---	---	G 1/8"	5 x 3	10
LCK 184 MSV	22.6	LCK 184 A	22.8	LCK 184 K	20.4	G 1/8"	6 x 4	10
LCK 186 MSV	22.6	LCK 186 A	22.8	LCK 186 K	20.4	G 1/8"	8 x 6	10
LCK 188 MSV	22.6	LCK 188 A**	24.7	---	---	G 1/8"	10 x 8	10
LCK 144 MSV	22.8	LCK 144 A	23	LCK 144 K	20.4	G 1/4"	6 x 4	10
LCK 146 MSV	22.8	LCK 146 A	23	LCK 146 K	20.4	G 1/4"	8 x 6	10
LCK 148 MSV	22.8	LCK 148 A	23	---	---	G 1/4"	10 x 8	10
---	---	LCK 149 A	28	---	---	G 1/4"	11.6 x 9	10
LCK 384 MSV	23.6	---	---	---	---	G 3/8"	6 x 4	10
LCK 386 MSV	23.6	LCK 386 A	24.1	---	---	G 3/8"	8 x 6	10
LCK 388 MSV	29	LCK 388 A	23.5	---	---	G 3/8"	10 x 8	10
LCK 389 MSV	26	LCK 389 A	28.6	---	---	G 3/8"	11.6 x 9	10
LCK 3810 MSV	28	---	---	---	---	G 3/8"	12 x 10	10
LCK 126 MSV	33.5	---	---	---	---	G 1/2"	8 x 6	5
LCK 128 MSV	33.5	LCK 128 A**	25	---	---	G 1/2"	10 x 8	5
LCK 1210 MSV	33.5	---	---	---	---	G 1/2"	12 x 10	5
---	---	LCK 1213 A	39	---	---	G 1/2"	17.6 x 13	5

* zinc-plated steel banjo bolt, ** colour black

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Elbow screw connections female threads

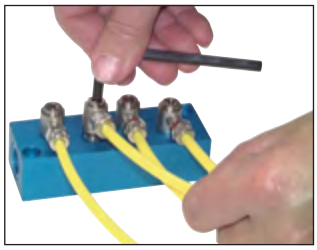
Type brass nickel-plated	H	Type aluminium	H	Thread	Packing unit
LJK 50 MSV	15	---	---	M 5	10
LJK 18 MSV	23	LJK18 A	23	G 1/8"	10
LJK 14 MSV	25	LJK 14 A	28	G 1/4"	10
LJK 38 MSV	28	LJK 38 A	35	G 3/8"	10
LJK 12 MSV	38	LJK 12 A	38	G 1/2"	5



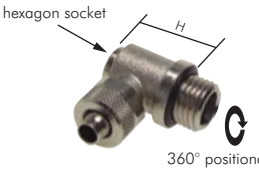
Elbow screw connections, cylindrical, 360° positionable

Advantages: • Can be fitted in the smallest of spaces

Type brass nickel-plated	Screw-in thread	Hose Ø ext. x int.	H
LCK 184 DRi MSV	G 1/8"	6 x 4	20.5
LCK 186 DRi MSV	G 1/8"	8 x 6	20.5
LCK 144 DRi MSV	G 1/4"	6 x 4	23.0
LCK 146 DRi MSV	G 1/4"	8 x 6	23.0
LCK 148 DRi MSV	G 1/4"	10 x 8	23.0
LCK 388 DRi MSV	G 3/8"	10 x 8	25.5



TIP For assembly free positioning!



360° positionable

Elbow screw connections, conical

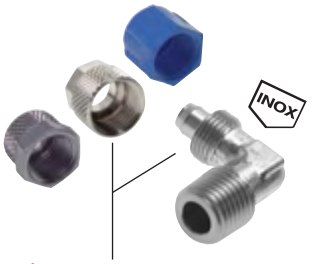
Type brass nickel-plated	Type plastic	Screw-in thread	Hose Ø ext. x int.
GCK 553 MSV	---	M 5	5 x 3
GCK 182 MSV*	---	R 1/8"	4 x 2
GCK 1853 MSV	---	R 1/8"	5 x 3
GCK 184 MSV	GCK 184 K	R 1/8"	6 x 4
GCK 186 MSV	GCK 186 K	R 1/8"	8 x 6
GCK 188 MSV	---	R 1/8"	10 x 8
GCK 144 MSV	GCK 144 K	R 1/4"	6 x 4
GCK 146 MSV	GCK 146 K	R 1/4"	8 x 6
GCK 148 MSV	---	R 1/4"	10 x 8
---	GCK 149 K	R 1/4"	11.6 x 9
GCK 384 MSV	---	R 3/8"	6 x 4
GCK 386 MSV	---	R 3/8"	8 x 6
GCK 388 MSV	---	R 3/8"	10 x 8
---	GCK 389 K	R 3/8"	11.6 x 9
GCK 3810 MSV	---	R 3/8"	12 x 10
GCK 126 MSV	---	R 1/2"	8 x 6
GCK 128 MSV	---	R 1/2"	10 x 8
GCK 1210 MSV	---	R 1/2"	12 x 10

* removable hose nipple

Elbow screw connections, conical

Type AISI 316L (INOX)	Screw-in thread	Hose Ø ext. x int.	Thread for union nut
GK 184 ES	R 1/8"	6 x 4	M 10 x 1
GK 186 ES	R 1/8"	8 x 6	M 12 x 1
GK 188 ES	R 1/8"	10 x 8	M 14 x 1
GK 144 ES	R 1/4"	6 x 4	M 10 x 1
GK 146 ES	R 1/4"	8 x 6	M 12 x 1
GK 148 ES	R 1/4"	10 x 8	M 14 x 1

Nuts AISI 316Ti (INOX)	Nuts brass nickel-plated	Nuts POM
MCK 4 ES	MCK 4 MSV	MCK 4 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8 ES	MCK 8 MSV	MCK 8 K
MCK 4 ES	MCK 4 MSV	MCK 4 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8 ES	MCK 8 MSV	MCK 8 K



Order accessories at the same time!

1 piece union nut
(found in the adjacent table)

Elbow swivel joints 360° rotatable

Suitable: For slow rotary movements, e.g. to avoid the twisting of hoses

Type brass nickel-plated	Screw-in thread	Hose Ø ext. x int.
GCK 184 DR MSV	G 1/8"	6 x 4
GCK 186 DR MSV	G 1/8"	8 x 6
GCK 144 DR MSV	G 1/4"	6 x 4
GCK 146 DR MSV	G 1/4"	8 x 6
GCK 148 DR MSV	G 1/4"	10 x 8

360° rotatable

PU, PA, PTFE and PE hoses from page 192

Tube cutters on page 595

LOCTITE Liquid seals, gaskets & tapes from page 549

Plastic screw connections made of PA, PP, PVDF can be found in the Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

CK quick screw connectors

360° rotatable

Elbow swivel joints with bend protection spiral, 360° rotatable

Suitable: For slow rotary movements, e.g. to avoid the twisting of hoses

Type **brass nickel-plated**	Screw-in thread	Hose Ø ext. x int.
GCK 184 DR KS MSV	G 1/8"	6 x 4
GCK 186 DR KS MSV	G 1/8"	8 x 6
GCK 144 DR KS MSV	G 1/4"	6 x 4
GCK 146 DR KS MSV	G 1/4"	8 x 6
GCK 148 DR KS MSV	G 1/4"	10 x 8

Elbow screw connections with female threads

Type **brass nickel-plated**	Thread female	Hose Ø ext. x int.
GCKi 1853 MSV	G 1/8"	5 x 3
GCKi 184 MSV	G 1/8"	6 x 4
GCKi 186 MSV	G 1/8"	8 x 6
GCKi 144 MSV	G 1/4"	6 x 4
GCKi 146 MSV	G 1/4"	8 x 6
GCKi 148 MSV	G 1/4"	10 x 8
GCKi 388 MSV	G 3/8"	10 x 8
GCKi 3810 MSV	G 3/8"	12 x 10

T-screw connections

Type **brass nickel-plated**	H	Type **aluminium**	H	Type **plastic**	H	Screw-in thread	Hose Ø ext. x int.	Packing unit
TCK 53 MSV	14	TCK 53 A*	15	---	---	M 5	4.3 x 3	10
TCK 553 MSV	14	---	---	---	---	M 5	5 x 3	10
TCK 54 MSV	14	TCK 54 A*	15	---	---	M 5	6 x 4	10
TCK 183 MSV	23	TCK 183 A	23	---	---	G 1/8"	4.3 x 3	10
TCK 1853 MSV	24	---	---	---	---	G 1/8"	5 x 3	10
TCK 184 MSV	23	TCK 184 A	23	TCK 184 K	21	G 1/8"	6 x 4	10
TCK 186 MSV	23	TCK 186 A	23	TCK 186 K	21	G 1/8"	8 x 6	10
TCK 188 MSV	23	---	---	---	---	G 1/8"	10 x 8	10
TCK 144 MSV	23	TCK 144 A	23	TCK 144 K	21	G 1/4"	6 x 4	10
TCK 146 MSV	23	TCK 146 A	23	TCK 146 K	21	G 1/4"	8 x 6	10
TCK 148 MSV	23	---	---	---	---	G 1/4"	10 x 8	10
---	---	TCK 149 A	29	---	---	G 1/4"	11.6 x 9	10
TCK 384 MSV	24	---	---	---	---	G 3/8"	6 x 4	10
TCK 386 MSV	24	---	---	---	---	G 3/8"	8 x 6	10
TCK 388 MSV	24	---	---	---	---	G 3/8"	10 x 8	10
---	---	TCK 389 A**	29	---	---	G 3/8"	11.6 x 9	10
TCK 126 MSV	23	---	---	---	---	G 1/2"	8 x 6	5
TCK 128 MSV	23	---	---	---	---	G 1/2"	10 x 8	5
TCK 1210 MSV	32	---	---	---	---	G 1/2"	12 x 10	5
---	---	TCK 1213 A	40	---	---	G 1/2"	17.6 x 13	5

* zinc-plated steel banjo bolt, ** colour black

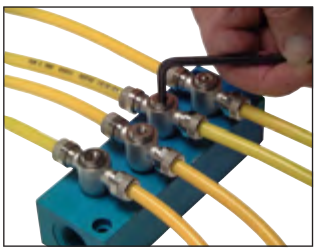
T-screw connections female threads

Type **brass nickel-plated**	H	Type **aluminium**	H	Thread	Packing unit
TJK 50 MSV	14.5	---	---	M 5	10
TJK 18 MSV	22.0	TJK 18 A	23	G 1/8"	10

TIP *For assembly free positioning!*

T-screw connections 360° positionable

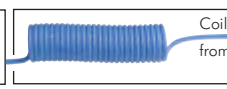
Advantages: • Can be fitted in the smallest of spaces

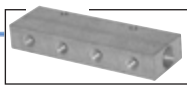


Type **brass nickel-plated**	Screw-in thread	Hose Ø ext. x int.	H
TCK 184 DRi MSV	G 1/8"	6 x 4	19.0
TCK 186 DRi MSV	G 1/8"	8 x 6	19.0
TCK 144 DRi MSV	G 1/4"	6 x 4	19.5
TCK 146 DRi MSV	G 1/4"	8 x 6	19.5
TCK 148 DRi MSV	G 1/4"	10 x 8	25.0
TCK 388 DRi MSV	G 3/8"	10 x 8	25.5

360° positionable

PU, PA, PTFE and PE hoses from page 192


Coil tubes from page 200


Distributor bars from page 132

FESTO Festo screwed connections can be found in our Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

T-screw connections, 360° rotatable

Suitable: For slow rotary movements, e.g. to avoid the twisting of hoses

Type **brass nickel-plated**	Screw-in thread	Hose Ø ext. x int.
TE 184 DR MSV	G 1/8"	6 x 4
TE 186 DR MSV	G 1/8"	8 x 6
TE 144 DR MSV	G 1/4"	6 x 4
TE 146 DR MSV	G 1/4"	8 x 6
TE 148 DR MSV	G 1/4"	10 x 8

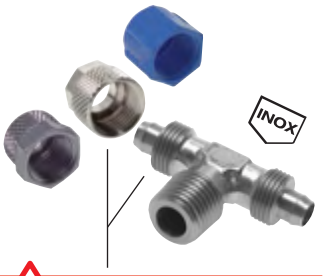
360° rotatable

T-screwed in screw connection, conical

Type **brass nickel-plated**	Screw-in thread	Hose Ø ext. x int.
TE 553 MSV	M 5	5 x 3
TE 182 MSV	R 1/8"	4 x 2
TE 1853 MSV	R 1/8"	5 x 3
TE 184 MSV	R 1/8"	6 x 4
TE 186 MSV	R 1/8"	8 x 6
TE 188 MSV	R 1/8"	10 x 8
TE 144 MSV	R 1/4"	6 x 4
TE 146 MSV	R 1/4"	8 x 6
TE 148 MSV	R 1/4"	10 x 8
TE 386 MSV	R 3/8"	8 x 6
TE 388 MSV	R 3/8"	10 x 8
TE 3810 MSV	R 3/8"	12 x 10
TE 128 MSV	R 1/2"	10 x 8
TE 1210 MSV	R 1/2"	12 x 10

T-screwed in screw connections

Type **AISI 316L** INOX	Screw-in thread	Hose Ø ext. x int.	Thread for union nut	Nuts **AISI 316Ti** INOX	Nuts **brass nickel-plated**	Nuts **POM**
TEK 184 ES	R 1/8"	6 x 4	M 10 x 1	MCK 4 ES	MCK 4 MSV	MCK 4 K
TEK 186 ES	R 1/8"	8 x 6	M 12 x 1	MCK 6 ES	MCK 6 MSV	MCK 6 K
TEK 144 ES	R 1/4"	6 x 4	M 10 x 1	MCK 4 ES	MCK 4 MSV	MCK 4 K
TEK 146 ES	R 1/4"	8 x 6	M 12 x 1	MCK 6 ES	MCK 6 MSV	MCK 6 K
TEK 148 ES	R 1/4"	10 x 8	M 14 x 1	MCK 8 ES	MCK 8 MSV	MCK 8 K



Order accessories at the same time!

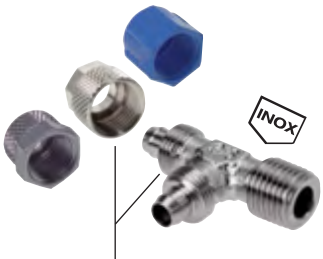
2 x union nuts
(found in the adjacent table)

T-screwed in screw connections

Type **brass nickel-plated**	Screw-in thread	Hose Ø ext. x int.
LE 1853 MSV	R 1/8"	5 x 3
LE 184 MSV	R 1/8"	6 x 4
LE 186 MSV	R 1/8"	8 x 6
LE 188 MSV	R 1/8"	10 x 8
LE 144 MSV	R 1/4"	6 x 4
LE 146 MSV	R 1/4"	8 x 6
LE 148 MSV	R 1/4"	10 x 8
LE 386 MSV	R 3/8"	8 x 6
LE 388 MSV	R 3/8"	10 x 8
LE 3810 MSV	R 3/8"	12 x 10
LE 128 MSV	R 1/2"	10 x 8
LE 1210 MSV	R 1/2"	12 x 10

T-screwed in screw connections

Type **AISI 303** INOX	Screw-in thread	Hose Ø ext. x int.	Thread for union nut	Nuts **AISI 316Ti** INOX	Nuts **brass nickel-plated**	Nuts **POM**
LEK 184 ES	R 1/8"	6 x 4	M 10 x 1	MCK 4 ES	MCK 4 MSV	---
LEK 186 ES	R 1/8"	8 x 6	M 12 x 1	MCK 6 ES	MCK 6 MSV	MCK 6 K
LEK 188 ES	R 1/8"	10 x 8	M 14 x 1	MCK 8 ES	MCK 8 MSV	MCK 8 K
LEK 144 ES	R 1/4"	6 x 4	M 10 x 1	MCK 4 ES	MCK 4 MSV	---
LEK 146 ES	R 1/4"	8 x 6	M 12 x 1	MCK 6 ES	MCK 6 MSV	MCK 6 K
LEK 148 ES	R 1/4"	10 x 8	M 14 x 1	MCK 8 ES	MCK 8 MSV	MCK 8 K



Order accessories at the same time!

2 x union nuts
(found in the adjacent table)

LOCTITE Liquid seals, gaskets & tapes from page 549

PU, PA, PTFE and PE hoses from page 192

Tube cutters on page 595

Push in connections Ø 3 - 32 mm from page 24

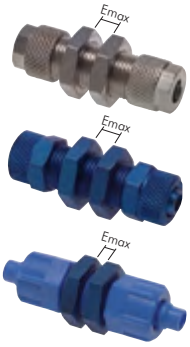
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

CK quick screw connectors

Double screw joints and reduction screw connections

Type **brass** nickel-plated	Type plastic	Hose 1 Ø ext. x int.	Hose 2 Ø ext. x int.
DCK 22 MSV*		4 x 2	4 x 2
DCK 33 MSV		4.3 x 3	4.3 x 3
DCK 5353 MSV		5 x 3	5 x 3
DCK 44 MSV	DCK 44 K	6 x 4	6 x 4
DCK 64 MSV		8 x 6 reduced	6 x 4
DCK 66 MSV	DCK 66 K	8 x 6	8 x 6
DCK 86 MSV		10 x 8 reduced	8 x 6
DCK 88 MSV		10 x 8	10 x 8
DCK 1010 MSV		12 x 10	12 x 10

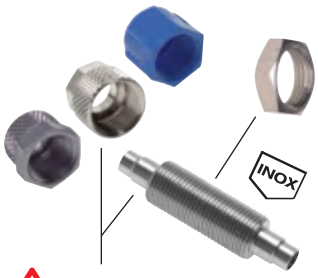
* removable hose nipple



Bulkhead screw connections

Type **brass** nickel-plated	Type aluminium	Type plastic*	Bulkhead thread	Hose Ø ext. x int.
SCK 3 MSV	---	---	M 7 x 0.75	4.3 x 3
SCK 53 MSV	---	---	M 7 x 0.75	5 x 3
SCK 4 MSV	SCK 4 A	SCK 4 K	M 10 x 1	6 x 4
SCK 6/4 MSV	---	---	M 12 x 1 reduced	8 x 6/6 x 4
SCK 6 MSV	SCK 6 A	SCK 6 K	M 12 x 1	8 x 6
SCK 8/4 MSV	---	---	M 14 x 1 reduced	10 x 8/6 x 4
SCK 8/6 MSV	---	---	M 14 x 1 reduced	10 x 8/8 x 6
SCK 8 MSV	---	---	M 14 x 1	10 x 8
SCK 9 MSV	SCK 9 A**	SCK 9 K	M 16 x 1	11.6 x 9
SCK 10 MSV	---	---	M 16 x 1	12 x 10

* locking nuts made of aluminium, ** black



Order accessories at the same time!

2 x union nuts
2 locking nuts
(found in the adjacent table)

Bulkhead screw connections

Warning: Order 2 x union nuts and 2 x locking nuts as well!

Type **AISI 316Ti** INOX	Hose ext. x int.	Thread for union nut
SK 4 ES	6 x 4	M 10 x 1
SK 6 ES	8 x 6	M 12 x 1
SK 8 ES	10 x 8	M 14 x 1

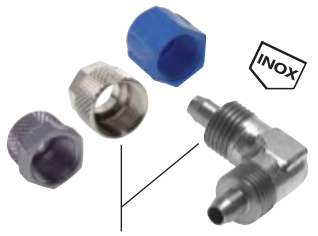
Locking nuts **AISI 316Ti**
KOMUTT 4 ES
KOMUTT 6 ES
KOMUTT 8 ES

Nuts **AISI 316Ti** INOX	Nuts **brass** nickel-plated	Nuts **POM**
MCK 4 ES	MCK 4 MSV	MCK 4 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8 ES	MCK 8 MSV	MCK 8 K

Elbow joints

Type **brass** nickel-plated	Hose Ø ext. x int.
WCK 2 MSV*	4 x 2
WCK 53 MSV	5 x 3
WCK 4 MSV	6 x 4
WCK 6 MSV	8 x 6
WCK 8 MSV	10 x 8
WCK 10 MSV	12 x 10

* removable hose nipple



Order accessories at the same time!

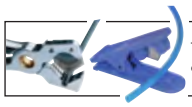
2 x union nuts
(found in the adjacent table)

Elbow joints

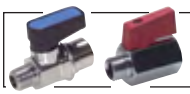
Type **AISI 316L** INOX	Hose Ø ext. x int.	Thread for union nut
WK 4 ES	6 x 4	M 10 x 1
WK 6 ES	8 x 6	M 12 x 1
WK 8 ES	10 x 8	M 14 x 1

Nuts **AISI 316Ti** INOX	Nuts **brass** nickel-plated	Nuts **POM**
MCK 4 ES	MCK 4 MSV	---
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8 ES	MCK 8 MSV	MCK 8 K

Plastic screw connections made of PA, PP, PVDF can be found in the Online Shop


Tube cutters on page 595

PU, PA, PTFE and PE hoses from page 192


Mini ball valves from page 288

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

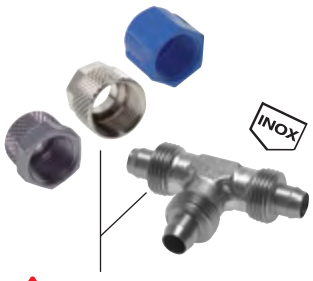
T-screw connection and T-reduction screw connections

Type **brass nickel-plated**	Type **plastic**		Hose Ø ext. x int.
FCK 2 MSV*	FCK 6 K		4 x 2
FCK 3 MSV	---		4.3 x 3
FCK 53 MSV	FCK 6 K		5 x 3
FCK 4 MSV	FCK 4 K		6 x 4
FCK 64 MSV	---	reduced	8 x 6 (middle: 6 x 4)
FCK 6 MSV	FCK 6 K		8 x 6
FCK 8 MSV	---		10 x 8
---	FCK 9 K		11.6 x 9
FCK 10 MSV	---		12 x 10

* removable hose nipple

T-screw connections

Type **AISI 316L** INOX	Hose Ø ext. x int.	Thread for union nut	Nuts **AISI 316Ti** INOX	Nuts **brass nickel-plated**	Nuts **POM**
FK 4 ES	6 x 4	M 10 x 1	MCK 4 ES	MCK 4 MSV	---
FK 6 ES	8 x 6	M 12 x 1	MCK 6 ES	MCK 6 MSV	MCK 6 K
FK 8 ES	10 x 8	M 14 x 1	MCK 8 ES	MCK 8 MSV	MCK 8 K



Order accessories at the same time!

3 x union nuts
(found in the adjacent table)

Cross-piece screw connections

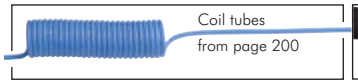
Type **brass nickel-plated**	Hose Ø ext. x int.
KCK 53 MSV	5 x 3
KCK 4 MSV	6 x 4
KCK 6 MSV	8 x 6
KCK 8 MSV	10 x 8
KCK 10 MSV	12 x 10

Locking nuts

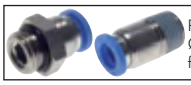
Type **brass nickel-plated**	Type **aluminium**	Type **AISI 316Ti** INOX	Type **plastic**	Thread	Hose Ø ext. x int.
---	MCK 33 A	---	---	M 6 x 0.75	4.3 x 3
MCK 3 MSV	---	---	---	M 7 x 0.75	4.3 x 3
MCK 4M5 MSV	---	---	---	M 8 x 0.75	6 x 4
---	MCK 4M5 A	MCK 4M5 ES	---	M 8 x 1	6 x 4
MCK 4 MSV	MCK 4 A	MCK 4 ES	MCK 4 K	M 10 x 1	6 x 4
MCK 6 MSV	MCK 6 A	MCK 6 ES	MCK 6 K	M 12 x 1	8 x 6
MCK 8 MSV	MCK 8 A	MCK 8 ES	MCK 8 K	M 14 x 1	10 x 8
---	---	MCK 8M16 ES	---	M 16 x 1	10 x 8
MCK 9 MSV	MCK 9 A	---	MCK 9 K	M 16 x 1	11.6 x 9
MCK 10 MSV	---	MCK 10 ES	---	M 16 x 1	12 x 10
---	MCK 13 A	---	---	M 22 x 1	17.6 x 13

Union nuts with bend protection

Type **brass nickel-plated**	Thread	Hose Ø ext. x int.
MCK 4 KS MSV	M 10 x 1	6 x 4
MCK 6 KS MSV	M 12 x 1	8 x 6
MCK 8 KS MSV	M 14 x 1	10 x 8
MCK 10 KS MSV	M 16 x 1	12 x 10


Coil tubes
from page 200

Parker
Push in hoses
on page 228


Push in connections
Ø 3 - 32 mm
from page 24

Service units
from page 330

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hose connector PK push in nipple

TIP *The hose holds even without clamps!*

Push in nipple with cylindrical threads - internal cone — PN 10

Assembly: Push the hose on until it reaches the stop. **Dismounting:** Cut hose.

Type brass	Thread	Hose Ø internal	SW
GPK 32 MS	M 3	2	4.5
GPK 33 MS	M 3	3	4.5
GPK 52 MS	M 5	2	7
GPK 53 MS	M 5	3	7
GPK 54 MS	M 5	4	7
GPK 183 MS	G 1/8"	3	13
GPK 184 MS	G 1/8"	4	13
GPK 186 MS	G 1/8"	6	13
GPK 144 MS	G 1/4"	4	17
GPK 146 MS	G 1/4"	6	17
GPK 386 MS	G 3/8"	6	19

Straight push in connectors for PUR, PUN and PA hose — PN 10

Assembly: Push the hose on until it reaches the stop. **Dismounting:** Cut hose.

Type brass	Hose 1 Ø internal		Hose 2 Ø internal
RTU 2/2	2		2
RTU 3/2	3	reduced	2
RTU 3/3	3		3
RTU 4/3	4	reduced	3
RTU 4/4	4		4
RTU 6/4	6	reduced	4
RTU 6/6	6		6

T-push in connectors for PUR, PUN and PA hose — PN 10

Materials: Brass and plastic
Temperature range: -10°C to max. +60°C
Assembly: Push the hose on until it reaches the stop. **Dismounting:** Cut hose.

Type	Hose Ø internal
TPK 300	3
TPK 400	4
TPK 600	6

Y-push in connectors for PUR, PUN and PA hose — PN 10

Materials: Brass and plastic
Temperature range: -10°C to max. +60°C
Assembly: Push the hose on until it reaches the stop. **Dismounting:** Cut hose.

Type	Hose Ø internal
YPK 300	3
YPK 400	4
YPK 600	6

L-push in connectors for PUR, PUN and PA hose — PN 10

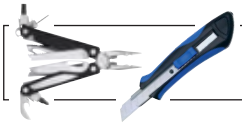
Materials: Brass and plastic
Temperature range: -10°C to max. +60°C
Assembly: Push the hose on until it reaches the stop. **Dismounting:** Cut hose.

Type	Hose Ø internal
LPK 300	3
LPK 400	4
LPK 600	6

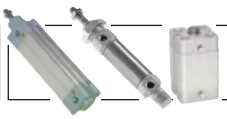
V-push in connectors for PUR, PUN and PA hose — PN 10

Materials: Brass and plastic
Temperature range: -10°C to max. +60°C
Assembly: Push the hose on until it reaches the stop. **Dismounting:** Cut hose.

Type	Hose Ø internal
VPK 300	3
VPK 400	4
VPK 600	6


Knives on page 595

PU, PA, PTFE and PE hoses from page 192


Cylinders from page 460

Manual tools can be found in the Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pivotable L-push in nipple screw fittings for PU, PUN and PA hose

Materials: Body: Brass, seal: NBR
Temperature range: -20°C to max. +60°C
Assembly: Push the hose on until it reaches the stop. **Dismounting:** Remove PU/cut open PA.
Operating pressure: PA hose: 10 bar, PU hose: 6 bar (without load).

Pivotable L-push in nipple screw fittings for PU, PUN and PA hose

Type	Thread	Hose Ø internal	Height H	SW
LCN 53 MS	M 5	3	8.5	8
LCN 54 MS	M 5	4	8.5	8
LCN 183 MS	G 1/8"	3	10.5	13
LCN 184 MS	G 1/8"	4	11.2	13
LCN 186 MS	G 1/8"	6	13.4	14
LCN 144 MS	G 1/4"	4	11.7	17
LCN 146 MS	G 1/4"	6	13.9	17

Pivotable T-push in nipple screw fittings for PU, PUN and PA hose

Type	Thread	Hose Ø internal	Height H	SW
TCN 53 MS	M 5	3	8.5	8
TCN 54 MS	M 5	4	8.5	8
TCN 183 MS	G 1/8"	3	10.5	13
TCN 184 MS	G 1/8"	4	11.2	13
TCN 186 MS	G 1/8"	6	13.4	14
TCN 144 MS	G 1/4"	4	11.7	17
TCN 146 MS	G 1/4"	6	13.9	17

Hose connection tubes, reducing hose connection tubes — PN 16

Type brass	Type AISI 304 (INOX)	Type AISI 316Ti (INOX)	Type zinc-plated steel	Hose 1 Ø internal	Hose 2 Ø internal
SVR 5 MS	---	---	---	5	5
SVR 6 MS*	---	SVR 6 ES4A	---	6	6
SVR 8 MS	---	---	---	8	8
SVR 9/6 MS	---	---	---	9 reduced	6
SVR 9 MS*	---	SVR 9 ES4A	---	9	9
SVR 13 MS	SVR 13 ES	SVR 13 ES4A	SVR 13 ST	13	13
SVR 16 MS	---	---	--	16	16
SVR 19 MS	SVR 19 ES	SVR 19 ES4A	SVR 19 ST	19	19
SVR 25 MS	SVR 25 ES	SVR 25 ES4A	SVR 25 ST	25	25
---	SVR 30 ES	---	---	30	30
---	SVR 32 ES	---	SVR 32 ST	32	32
---	SVR 38 ES	---	SVR 38 ST	38	38
---	SVR 45 ES	---	---	45	45
---	SVR 50 ES	---	SVR 50 ST	50	50
---	---	---	SVR 53 ST	53	53
---	SVR 55 ES	---	---	55	55
---	SVR 75 ES	---	SVR 75 ST	75	75
---	---	---	SVR 80 ST**	80	80
---	SVR 100 ES	---	SVR 100 ST	100	100
---	---	---	SVR 125 ST**	125	125
---	---	---	SVR 150 ST**	150	150
---	---	---	SVR 175 ST**	175	175
---	---	---	SVR 200 ST**	200	200
---	---	---	SVR 250 ST**	250	250
---	---	---	SVR 300 ST**	300	300
---	---	---	SVR 355 ST**	355	355
---	---	---	SVR 400 ST**	400	400
---	---	---	SVR 450 ST**	450	450
---	---	---	SVR 500 ST**	500	500

*manufactured according to DIN EN 560, plugging in the hose may therefore take more effort. Please choose the next smaller dimension, if necessary. ** to approx. 2 bar, since made from zinc-plated sheet metal.

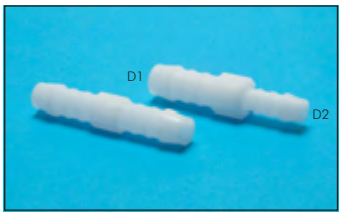
Hose connection tubes, short — Eco-Line / PN 16

Type brass	Hose Ø internal	Installation length
SVR 5 MS E	5	50
SVR 6 MS E	6	50
SVR 8 MS E	8	50
SVR 9 MS E	9	50

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hose connector

Hose connection tubes made of plastic — PN 8



Temperature range: POM*: 0°C to max. +80°C, PVDF: -40°C to max. +140°C

Type **POM***	Type **PVDF**	Previous item no.	Hose Ø internal
SVR 3 K	---		3
SVR 4 K	SVR 4 PVDF		4
SVR 5 K	---		5
SVR 6 K	SVR 6 PVDF		6
SVR 8 K	---	SVR 9 K	8
SVR 9 K	SVR 9 PVDF		9
SVR 10 K	SVR 10 PVDF		10
SVR 12 K	---	SVR 13 K	12
SVR 13 K	SVR 13 PVDF		13
SVR 16 K	---		16
SVR 19 K	---		19
SVR 25 K	---		25

Type **POM*** **reducing**	Previous item no.	D1		D2
SVR 4/3 K		4	reduced	3
SVR 6/4 K		6	reduced	4
SVR 8/4 K	SVR 9/4 K	8	reduced	4
SVR 8/6 K	SVR 9/6 K	8	reduced	6
SVR 9/4 K		9	reduced	4
SVR 9/6 K		9	reduced	6
SVR 10/6 K		10	reduced	6
SVR 10/8 K	SVR 10/9 K	10	reduced	8
SVR 10/9 K		10	reduced	9
SVR 12/8 K	SVR 13/9 K	12	reduced	8
SVR 13/9 K		13	reduced	9
SVR 12/10 K	SVR 13/10 K	12	reduced	10
SVR 13/10 K		13	reduced	10

* resistance against hydrocarbons, petrol, diesel, oils, fats, chlorinated hydrocarbons, alkalis and salt solutions (neutral).
Not resistant to acids, oxidisers, phenols, glycerine and glycol.

Universal hose connection tubes made of plastic — PN 8

Temperature range: 0°C to max. +80°C

Type **polypropylene**	Hose Ø internal
SVR 35 PP	3 to 5
SVR 57 PP	5 to 7
SVR 710 PP	7 to 10
SVR 912 PP	9 to 12
SVR 1114 PP	11 to 14
SVR 1315 PP	13 to 15

Type **polypropy-lene reducing**	Hose 1 Ø internal		Hose 2 Ø internal
SVR 81048 PP	8 to 10	reduced	4 to 8
SVR 121648 PP	12 to 16	reduced	4 to 8
SVR 1216812 PP	12 to 16	reduced	8 to 12

Angle hose connectors made of plastic — PN 8

Temperature range: POM*: 0°C to max. +80°C, PVDF: -40°C to max. +140°C

Type **POM***	Type **PVDF**	Previous item no.	Hose Ø internal
W 3 K	---		3
W 4 K	W 4 PVDF		4
W 5 K	---		5
W 6 K	W 6 PVDF		6
W 8 K	---	W 9 K	8
W 9 K	W 9 PVDF		9

Type **POM***	Type **PVDF**	Previous item no.	Hose Ø internal
W 10 K	W 10 PVDF		10
W 12 K	---	W 13 K	12
W 13 K	W 13 PVDF		13
W 16 K	---		16
W 19 K	---		19
W 25 K	---		25

* resistance against hydrocarbons, petrol, diesel, oils, fats, chlorinated hydrocarbons, alkalis and salt solutions (neutral).
Not resistant to acids, oxidisers, phenols, glycerine and glycol.

T-hose connectors made of plastic — PN 8

Temperature range: POM*: 0°C to max. +80°C, PVDF: -40°C to max. +140°C

Type **POM***	Type **PVDF**	Previous item no.	Hose Ø internal
T 3 K	---		3
T 4 K	T 4 PVDF		4
T 5 K	---		5
T 6 K	T 6 PVDF		6
T 8 K	---	T 9 K	8
T 9 K	T 9 PVDF		9

Type **POM***	Type **PVDF**	Previous item no.	Hose Ø internal
T 10 K	T 10 PVDF		10
T 12 K	---	T 13 K	12
T 13 K	T 13 PVDF		13
T 16 K	---		16
T 19 K	---		19
T 25 K	---		25

* resistance against hydrocarbons, petrol, diesel, oils, fats, chlorinated hydrocarbons, alkalis and salt solutions (neutral).
Not resistant to acids, oxidisers, phenols, glycerine and glycol.

T-hose connectors made of brass — PN 16

Type	Hose Ø internal
T 5 MS	5
T 6 MS	6
T 8 MS	8
T 9 MS	9

Type	Hose Ø internal
T 13 MS	13
T 16 MS	16
T 19 MS	19
T 25 MS	25

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

T-hose connectors reduced made of plastic — PN 8

Temperature range: 0°C to max. +80°C

Type POM*	Previous item no.	D1	D2
T 343 K		3	4
T 464 K		4	6
T 646 K		6	4
T 868 K	T 969 K	8	6
T 949 K		9	4
T 969 K		9	6
T 10610 K		10	6
T 10910 K		10	9

Type POM*	Previous item no.	D1	D2
T 12612 K	T 13613 K	12	6
T 12812 K	T 13913 K	12	8
T 13613 K		13	6
T 13913 K		13	9
T 131013 K		13	10
T 181018 K		18	10
T 181518 K		18	15

* resistance against hydrocarbons, petrol, diesel, oils, fats, chlorinated hydrocarbons, alkalis and salt solutions (neutral).
Not resistant to acids, oxidisers, phenols, glycerine and glycol.

Y-hose connectors made of plastic — PN 8

Temperature range: POM*: 0°C to max. +80°C, PVDF: -40°C to max. +140°C

Type POM*	Type PVDF	Previous item no.	Hose Ø internal
Y 3 K	---		3
Y 4 K	Y 4 PVDF		4
Y 5 K	---		5
Y 6 K	Y 6 PVDF		6
Y 8 K	---	Y 9 K	8
Y 9 K	Y 9 PVDF		9

Type POM*	Type PVDF	Previous item no.	Hose Ø internal
Y 10 K	Y 10 PVDF		10
Y 12 K	---	Y 13 K	12
Y 13 K	Y 13 PVDF		13
Y 16 K	---		16
Y 19 K	---		19

* resistance against hydrocarbons, petrol, diesel, oils, fats, chlorinated hydrocarbons, alkalis and salt solutions (neutral).
Not resistant to acids, oxidisers, phenols, glycerine and glycol.

Y-hose connectors made of brass — PN 16

Type	Hose Ø internal
Y 5 MS	5
Y 6 MS	6
Y 8 MS	8

Type	Hose Ø internal
Y 9 MS	9
Y 13 MS	13

Cross hose connectors made of plastic — PN 8

Temperature range: 0°C to max. +80°C

Type POM*	Previous item no.	Hose Ø internal
K 4 K		4
K 6 K		6
K 12 K	K 13 K	12
K 13 K		13

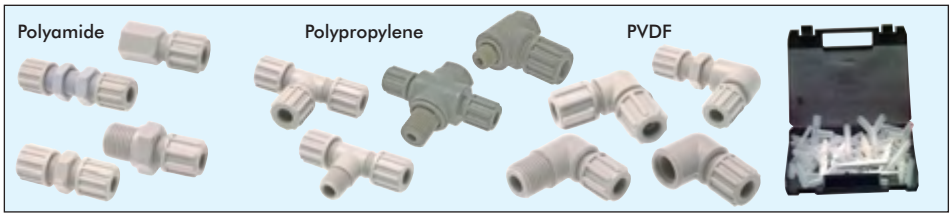
* resistance against hydrocarbons, petrol, diesel, oils, fats, chlorinated hydrocarbons, alkalis and salt solutions (neutral).
Not resistant to acids, oxidisers, phenols, glycerine and glycol.

Cross hose connectors made of brass — PN 16

Type	Hose Ø internal
K 5 MS	5
K 6 MS	6
K 8 MS	8

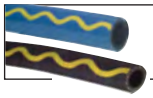
Type	Hose Ø internal
K 9 MS	9
K 13 MS	13

Hose screw connections made of plastic (PA, PP, PVDF)



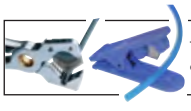
Many additional products and sizes are available in our **Online Shop!**

Hose clamps from page 234



Industrial hoses from page 213

PVC fabric hoses on page 208



Tube cutters on page 595

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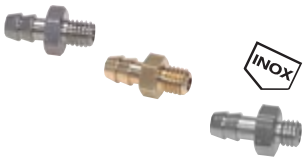
Threaded nozzles

The Maxi-Program

Thread: M 3 - G 3“
Hose: 2 - 76 mm



PP Ø 4 - 12 mm

PP Ø 13 - 76 mm

360° rotatable

Threaded nozzles with cylindrical threads - internal cone — PN 10/16/40

Type **16 bar** brass nickel-pl.	Type **16 bar** brass	Type **40 bar** AISI 316Ti	Type **10 bar** PP*	Type **25 bar** zinc-plated st.*	Thread	Hose Ø internal	SW[1]
GT 32 MSV*	GPK 32 MS	GT 32 ES	---	---	M 3	2	4.5
---	GPK 33 MS	GT 33 ES	---	---	M 3	3	4.5
---	GPK 52 MS	---	---	---	M 5	2	7
GT 53 MSV*	GT 53 MS	---	---	---	M 5	3	7
GT 54 MSV*	GT 54 MS	GT 54 ES	---	---	M 5	4	7
GT 56 MSV*	GT 56 MS	GT 56 ES	---	---	M 5	6	7
GT 184 MSV	GT 184 MS	GT 184 ES	GT 184 PP	---	G 1/8“	4	14
GT 186 MSV	GT 186 MS	GT 186 ES	GT 186 PP	---	G 1/8“	6	14
GT 188 MSV	GT 188 MS	GT 188 ES	GT 188 PP	---	G 1/8“	8	14
GT 189 MSV*	GT 189 MS	GT 189 ES	---	---	G 1/8“	9	14
GT 144 MSV	GT 144 MS	GT 144 ES	GT 144 PP	---	G 1/4“	4	17
GT 146 MSV	GT 146 MS	GT 146 ES	GT 146 PP	---	G 1/4“	6	17
GT 148 MSV	GT 148 MS	GT 148 ES	GT 148 PP	---	G 1/4“	8	17
GT 149 MSV	GT 149 MS	GT 149 ES	---	GT 149 ST	G 1/4“	9	17
GT 1410 MSV	GT 1410 MS	GT 1410 ES	GT 1410 PP	---	G 1/4“	10	17
GT 1412 MSV[3]*	---	---	GT 1412 PP	---	G 1/4“	12	17
GT 1413 MSV[2]*	GT 1413 MS	GT 1413 ES	---	GT 1413 ST	G 1/4“	13	17
---	GT 384 MS	GT 384 ES	GT 384 PP	---	G 3/8“	4	19
---	GT 386 MS	GT 386 ES	GT 386 PP	---	G 3/8“	6	19
GT 388 MSV	GT 388 MS	GT 388 ES	GT 388 PP	---	G 3/8“	8	19
GT 389 MSV*	GT 389 MS	GT 389 ES	---	---	G 3/8“	9	19
GT 3810 MSV	GT 3810 MS	GT 3810 ES	GT 3810 PP	---	G 3/8“	10	19
---	---	---	GT 3812 PP	---	G 3/8“	12	--
GT 3813 MSV	GT 3813 MS	GT 3813 ES	---	GT 3813 ST	G 3/8“	13	19
---	---	---	GT 124 PP	---	G 1/2“	4	--
---	GT 126 MS	GT 126 ES	GT 126 PP	---	G 1/2“	6	24
GT 128 MSV	GT 128 MS	GT 128 ES	GT 128 PP	---	G 1/2“	8	24
GT 129 MSV	GT 129 MS	GT 129 ES	---	---	G 1/2“	9	24
GT 1210 MSV	GT 1210 MS	GT 1210 ES	GT 1210 PP	---	G 1/2“	10	24
---	---	---	GT 1212 PP	---	G 1/2“	12	--
GT 1213 MSV	GT 1213 MS	GT 1213 ES	GT 1213 PP	GT 1213 ST	G 1/2“	13	24
GT 1216 MSV*	GT 1216 MS	GT 1216 ES	---	---	G 1/2“	16	24
GT 1219 MSV*	GT 1219 MS*	GT 1219 ES	---	GT 1219 ST	G 1/2“	19	24
---	GT 349 MS	GT 349 ES	---	---	G 3/4“	9	30
GT 3413 MSV	GT 3413 MS	GT 3413 ES	---	GT 3413 ST	G 3/4“	13	30
GT 3416 MSV	GT 3416 MS	GT 3416 ES	---	---	G 3/4“	16	30
GT 3419 MSV	GT 3419 MS	GT 3419 ES	GT 3419 PP	GT 3419 ST	G 3/4“	19	30
GT 3425 MSV	GT 3425 MS	GT 3425 ES*	---	GT 3425 ST	G 3/4“	25	30
GT 1019 MSV	GT 1019 MS	GT 1019 ES	---	---	G 1“	19	36
GT 1025 MSV	GT 1025 MS	GT 1025 ES	GT 1025 PP	---	G 1“	25	36
GT 1032 MSV	GT 1032 MS	GT 1032 ES	---	---	G 1“	32	36
---	GT 11432 MS*	GT 11432 ES*	GT 11432 PP	---	G 1 1/4“	32	42
---	GT 11438 MS*	GT 11438 ES*	---	---	G 1 1/4“	38	42
---	GT 11232 MS*	GT 11232 ES*	---	---	G 1 1/2“	32	48
---	GT 11238 MS*	GT 11238 ES*	GT 11238 PP	---	G 1 1/2“	38	48
---	GT 11250 MS*	GT 11250 ES*	---	---	G 1 1/2“	50	52
---	GT 2050 MS*	GT 2050 ES*	GT 2050 PP	---	G 2“	50	70
---	GT 21263 MS*	---	---	---	G 2 1/2“	63	80
---	GT 3076 MS*	---	GT 3076 PP	---	G 3“	76	95

[1] Details apply for the brass type. For all other types, please ask. [2] Total length: 42 mm, [3] Total length: 33 mm
* without internal cone, : base material FDA approved

Threaded nozzles with cylindrical threads, with NBR O-ring — up to PN 30

Type **brass** nickel-plated	Thread	Hose Ø internal	SW
GT 186 MSV ED	G 1/8“	6	14
GT 188 MSV ED	G 1/8“	8	14
GT 189 MSV ED	G 1/8“	9	14
GT 146 MSV ED	G 1/4“	6	17
GT 148 MSV ED	G 1/4“	8	17
GT 149 MSV ED	G 1/4“	9	17
GT 1410 MSV ED	G 1/4“	10	17
GT 1412 MSV ED	G 1/4“	12	17
GT 388 MSV ED	G 3/8“	8	20
GT 389 MSV ED	G 3/8“	9	20

Type **brass** nickel-plated	Thread	Hose Ø internal	SW
GT 3810 MSV ED	G 3/8“	10	20
GT 3812 MSV ED	G 3/8“	12	20
GT 3813 MSV ED	G 3/8“	13	20
GT 3812 MSV ED	G 3/8“	12	20
GT 3816 MSV ED	G 3/8“	16	20
GT 129 MSV ED	G 1/2“	9	25
GT 1212 MSV ED*	G 1/2“	12	24
GT 1213 MSV ED	G 1/2“	13	25
GT 1216 MSV ED*	G 1/2“	16	24
GT 1219 MSV ED	G 1/2“	19	25

* PN 15

Threaded nozzles rotatable — PN 12

Type **brass**	Thread	Hose Ø internal	SW
GT 146 DR MS	R 1/4“	6	17
GT 149 DR MS	R 1/4“	9	17
GT 386 DR MS	R 3/8“	6	19
GT 389 DR MS	R 3/8“	9	19

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Threaded nozzles with conical threads — up to 16 bar

Type 16 bar brass nickel-plated	Type 16 bar AISI 316 (INOX)	Type 8 bar plastic PA 6	Thread	Hose Ø internal	SW[1]
---	---	GT 53 K	M 5	3	---
---	---	GT 184 K	R 1/8"	4	---
GT 186 K MSV	---	GT 186 K	R 1/8"	6	12
GT 188 K MSV	---	---	R 1/8"	8	12
GT 189 K MSV	---	GT 189 K	R 1/8"	9	12
GT 1810 K MSV	---	---	R 1/8"	10	12
---	---	GT 144 K	R 1/4"	4	---
GT 145 K MSV	---	GT 145 K	R 1/4"	5	14
GT 146 K MSV	---	GT 146 K	R 1/4"	6	14
GT 148 K MSV	---	---	R 1/4"	8	14
GT 149 K MSV	GT 149 K ES*	GT 149 K	R 1/4"	9	14
GT 1410 K MSV	---	GT 1410 K	R 1/4"	10	14
GT 1412 K MSV	---	---	R 1/4"	12	14
---	---	GT 386 K	R 3/8"	6	---
GT 389 K MSV	GT 389 K ES*	GT 389 K	R 3/8"	9	17
GT 3810 K MSV	---	GT 3810 K	R 3/8"	10	17
GT 3812 K MSV	---	---	R 3/8"	12	17
GT 3813 K MSV	GT 3813 K ES*	GT 3813 K	R 3/8"	13	17
GT 3816 K MSV	---	---	R 3/8"	16	17
GT 129 K MSV	---	GT 129 K	R 1/2"	9	22
GT 1210 K MSV	---	---	R 1/2"	10	22
GT 1212 K MSV	---	---	R 1/2"	12	22
GT 1213 K MSV	GT 1213 K ES*	GT 1213 K	R 1/2"	13	22
GT 1216 K MSV	---	GT 1216 K	R 1/2"	16	22
GT 1219 K MSV	GT 1219 K ES*	---	R 1/2"	19	22
---	---	GT 3416 K	R 3/4"	16	---
---	GT 3419 K ES*	GT 3419 K	R 3/4"	19	---
---	GT 1025 K ES*	GT 1025 K	R 1"	25	---
---	GT 11432 K ES*	---	R 1 1/4"	32	---
---	GT 11238 K ES*	---	R 1 1/2"	38	---
---	GT 2050 K ES*	---	R 2"	50	---
---	GT 21260 K ES	---	R 2 1/2"	60	---
---	GT 3075 K ES	---	R 3"	75	---

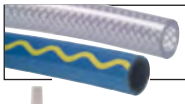
[1] Details apply for the brass type. For all other types, please ask. * optional: NPT thread **-NPT**

Dairy fittings are found in the Online Shop

☞ **Order example:** GT 149 K ES **

Standard type

Designation for the options:
NPT thread . . . . . **-NPT**



Compressed air and water hoses from page 208

LOCTITE Liquid seals, gaskets & tapes from page 549

Threaded nozzles PVC-U (for plastic threads only) — PN 10

Warning: Not suitable for compressed air or other gases under pressure!

Type	Thread	Hose Ø internal	Installation length
GT 1412 PVC	Rp 1/4"	12	52
GT 3816 PVC	Rp 3/8"	16	54
GT 1220 PVC	Rp 1/2"	20	60
GT 3425 PVC	Rp 3/4"	25	67
GT 1032 PVC	Rp 1"	32	80
GT 11440 PVC	Rp 1 1/4"	40	84
GT 11240 PVC	Rp 1 1/2"	40	89
GT 11250 PVC	Rp 1 1/2"	50	99
GT 2060 PVC	Rp 2"	60	100

Threaded nozzles with cylindrical left-hand threads - internal cone — PN 16

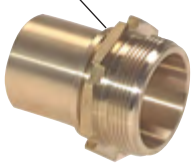
Type brass	Thread	Hose Ø internal	SW
GT 146 MS LH	G 1/4" LH	6	17
GT 386 MS LH	G 3/8" LH	6	19
GT 389 MS LH	G 3/8" LH	9	19

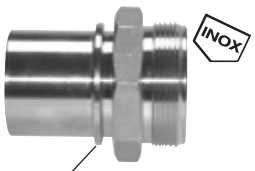
Threaded nozzles with metric threads — PN 16

Type brass	Thread	Hose Ø internal	SW
GT M86 MS	M 8 x 0.75	6	11
GT M89 MS	M 8 x 0.75	9	11
GT M109 MS	M 10 x 1	9	11
GT M1213 MS	M 12 x 1.5	13	15
GT M1413 MS	M 14 x 1.5	13	15
GT M1613 MS	M 16 x 1.5	13	17
GT M2419 MS	M 24 x 1.5	19	27

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Threaded nozzles





with safety collar

Threaded nozzles with male threads and safety collar

Dimensions acc. to EN 14420-5 (DIN 2817)

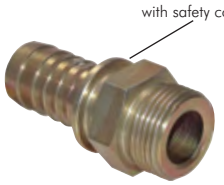
Version: Hose connections smooth with safety collar
The hose assembly is carried out using shell hose clamps to EN 14420-3 (DIN 2817) (Page 239)

Type **brass**	Type **AISI 316** INOX	Thread	Hose Ø internal
GTTW 1213 MS	GTTW 1213 ES	G 1/2"	13
GTTW 3419 MS	GTTW 3419 ES	G 3/4"	19
GTTW 1025 MS	GTTW 1025 ES	G 1"	25
GTTW 11432 MS	GTTW 11432 ES	G 1 1/4"	32
GTTW 11238 MS	GTTW 11238 ES	G 1 1/2"	38
GTTW 2038 MS	---	G 2"	38
GTTW 2050 MS	GTTW 2050 ES	G 2"	50
GTTW 21263 MS	GTTW 21263 ES	G 2 1/2"	63
GTTW 3075 MS	GTTW 3075 ES	G 3"	75
GTTW 40100 MS	GTTW 40100 ES	G 4"	100

Accessories **hose clamps**
SSA 24
SSA 33
SSA 39/SSA 43
SSA 46/SSA 50
SSA 52/SSA 56/SSA 60
SSA 52/SSA 56/SSA 60
SSA 67/SSA 71
SSA 76/SSA 82/SSA 87
SSA 93/SSA 97
SSA 119/SSA 122

Male threaded nozzles with safety collar

Additional mechanical connection between hose fittings and clamps only in conjunction with hose clamp SL ... ... SB (see page 239).
Temperature range: -40°C to max. +95°C
Operating pressure: Up to 25 bar



Type **zinc-plated steel**	Thread	Hose Ø internal	Safety collar Ø	DN
GT 1213 ST SB	G 1/2"	13	22	10
GT 3419 ST SB	G 3/4"	19	32	15
GT 1019 ST SB	G 1"	19	32	15
GT 1025 ST SB	G 1"	25	36	20
GT 11425 ST SB	G 1 1/4"	25	39	20
GT 11432 ST SB	G 1 1/4"	32	45	25
GT 11238 ST SB	G 1 1/2"	38	53	33
GT 2050 ST SB	G 2"	50	64	42

Threaded nozzles

Dimensions acc. to DIN EN 14423/DIN 2826

Temperature range: Up to max. +210°C (for saturated steam) up to max. +120°C (for hot water)
Operating pressure: 18 bar

Type **zinc-plated steel**	Type **brass**	Type **AISI 304** INOX	Thread	Hose Ø int. x ext.
GTD 1213 ST	GTD 1213 MS	GTD 1213 ES	R 1/2"	13 x 25
GTD 3419 ST	GTD 3419 MS	GTD 3419 ES	R 3/4"	19 x 33
GTD 1025 ST	GTD 1025 MS	GTD 1025 ES	R 1"	25 x 40
GTD 11432 ST	GTD 11432 MS	GTD 11432 ES	R 1 1/4"	32 x 48
GTD 11238 ST	GTD 11238 MS	GTD 11238 ES	R 1 1/2"	38 x 54
GTD 2050 ST	GTD 2050 MS	GTD 2050 ES	R 2"	50 x 68

Clamps **brass**	Clamps **AISI 316** INOX
SSA 25 HD MS	SSA 25 HD ES
SSA 33 HD MS	SSA 33 HD ES
SSA 40 HD MS	SSA 40 HD ES
SSA 48 HD MS	SSA 48 HD ES
SSA 54 HD MS	SSA 54 HD ES
SSA 68 HD MS	SSA 68 HD ES

Angle threaded nozzles, pivoting

PN 16

type 1

type 2

(The Banjo bolt is held strongly in the ring piece by the elastomer seal)

Type 1 **brass with plastic seal**	Type 2 **brass with elastic seal**	Thread	Hose Ø internal
LGT 184 MS	LGT 184 EL MS	G 1/8"	4
LGT 186 MS	LGT 186 EL MS	G 1/8"	6
LGT 146 MS	LGT 146 EL MS	G 1/4"	6
LGT 149 MS	LGT 149 EL MS	G 1/4"	9
LGT 386 MS	LGT 386 EL MS	G 3/8"	6
LGT 389 MS	LGT 389 EL MS	G 3/8"	9

Angle threaded nozzles made of Polyamide

PN 8

Temperature range: 0°C to max. +80°C

Type **PA 6**	Thread	Hose Ø internal
WE 184 K	R 1/8"	4
WE 186 K	R 1/8"	6
WE 189 K	R 1/8"	9
WE 144 K	R 1/4"	4
WE 146 K	R 1/4"	6

Type **PA 6**	Thread	Hose Ø internal
WE 149 K	R 1/4"	9
WE 1410 K	R 1/4"	10
WE 386 K	R 3/8"	6
WE 389 K	R 3/8"	9
WE 3810 K	R 3/8"	10

Type **PA 6**	Thread	Hose Ø internal
WE 3813 K	R 3/8"	13
WE 129 K	R 1/2"	9
WE 1213 K	R 1/2"	13
WE 3419 K	R 3/4"	19

T-threaded nozzles made of Polyamide

PN 8

Temperature range: 0°C to max. +80°C

Type **PA 6**	Thread	Hose Ø internal
TE 184 K	R 1/8"	4
TE 186 K	R 1/8"	6
TE 144 K	R 1/4"	4
TE 146 K	R 1/4"	6
TE 149 K	R 1/4"	9
TE 3810 K	R 3/8"	10

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Screw-on hose nozzles (fixed female threads) — up to 40 bar

Type 16 bar brass	Type 16 bar brass nickel-pl.	Type 40 bar AISI 316Ti (INOX)	Thread	Hose Ø internal	SW[1]
AST 186 MS	AST 186 MSV	AST 186 ES	G 1/8"	6	12
AST 188 MS	AST 188 MSV	AST 188 ES	G 1/8"	8	12
AST 189 MS	AST 189 MSV	AST 189 ES	G 1/8"	9	12
AST 146 MS	AST 146 MSV	AST 146 ES	G 1/4"	6	17
AST 148 MS	AST 148 MSV	AST 148 ES	G 1/4"	8	17
AST 149 MS	AST 149 MSV	AST 149 ES	G 1/4"	9	17
AST 1410 MS	AST 1410 MSV	AST 1410 ES	G 1/4"	10	17
AST 1413 MS	AST 1413 MSV	AST 1413 ES	G 1/4"	13	17
AST 386 MS	---	AST 386 ES	G 3/8"	6	19
AST 388 MS	AST 388 MSV	AST 388 ES	G 3/8"	8	19
AST 389 MS	AST 389 MSV	AST 389 ES	G 3/8"	9	19
AST 3810 MS	AST 3810 MSV	AST 3810 ES	G 3/8"	10	19
AST 3813 MS	AST 3813 MSV	AST 3813 ES	G 3/8"	13	19
AST 126 MS	---	AST 126 ES	G 1/2"	6	24
AST 128 MS	---	AST 128 ES	G 1/2"	8	24
AST 129 MS	AST 129 MSV	AST 129 ES	G 1/2"	9	24
AST 1210 MS	AST 1210 MSV	AST 1210 ES	G 1/2"	10	24
AST 1213 MS	AST 1213 MSV	AST 1213 ES	G 1/2"	13	24
AST 3413 MS	---	AST 3413 ES	G 3/4"	13	30
AST 3419 MS	---	AST 3419 ES	G 3/4"	19	30
AST 1019 MS	---	AST 1019 ES	G 1"	19	41
AST 1025 MS	---	AST 1025 ES	G 1"	25	36
---	---	AST 11425 ES	G 1 1/4"	25	--
AST 11432 MS	---	AST 11432 ES	G 1 1/4"	32	46
---	---	AST 11232 ES	G 1 1/2"	32	--
AST 11238 MS	---	AST 11238 ES	G 1 1/2"	38	52
---	---	AST 2038 ES	G 2"	38	--

[1] Details apply for the brass type. For all other types, please ask.

solid threaded piece, flat sealing

solid threaded piece, flat sealing

Screw-on hose nozzles with metric threads (fixed) — PN 16

Metric thread

Type brass	Thread	Hose Ø internal	SW
AST M89 MS	M 8	9	12
AST M149 MS	M 14 x 1.5	9	17
AST M1613 MS	M 16 x 1.5	13	22
AST M2419 MS	M 24 x 1.5	19	30

Screw-on hose nozzles with safety collar (fixed female threads)

Additional mechanical connection between hose fittings and clamps only in conjunction with hose clamp SL ... SB (see page 239)
Temperature range: -40°C to max. +95°C
Operating pressure: Up to 25 bar

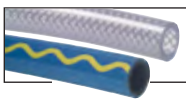
Type zinc-plated steel	Thread	Hose Ø internal	Safety collar Ø	DN
AST 3419 ST SB	G 3/4"	19	32	15
AST 1019 ST SB	G 1"	19	32	15
AST 1025 ST SB	G 1"	25	36	20
AST 11425 ST SB	G 1 1/4"	25	36	20
AST 11432 ST SB	G 1 1/4"	32	45	25

Hose nozzles with union nut and safety collar — Dimensions acc. to EN 14420-5 (DIN 2817)

Materials: Seal: Polyurethane (stainless steel: PTFE)
Version: Flat sealing hose connections smooth with safety collar
The hose assembly is carried out using shell hose clamps to EN 14420-3 (DIN 2817) (Page 239)

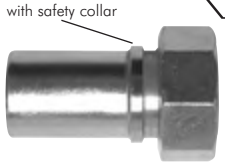
Type brass	Type AISI 316 (INOX)	Thread	Hose Ø internal	Accessories hose clamps
STTW 1213 MS	STTW 1213 ES	G 1/2"	13	SSA 24
STTW 3419 MS	STTW 3419 ES	G 3/4"	19	SSA 33
STTW 1025 MS	STTW 1025 ES	G 1"	25	SSA 39/SSA 43
STTW 11432 MS	STTW 11432 ES	G 1 1/4"	32	SSA 46/SSA 50
STTW 11238 MS	STTW 11238 ES	G 1 1/2"	38	SSA 52/SSA 56/SSA 60
STTW 2038 MS	---	G 2"	38	SSA 52/SSA 56/SSA 60
STTW 2050 MS	STTW 2050 ES	G 2"	50	SSA 67/SSA 71
STTW 21263 MS	STTW 21263 ES	G 2 1/2"	63	SSA 76/SSA 82/SSA 87
STTW 3075 MS	STTW 3075 ES	G 3"	75	SSA 93/SSA 97
STTW 40100 MS	STTW 40100 ES	G 4"	100	SSA 119/SSA 122

Replacement seal for brass type	Replacement seal for type AISI 316
STTW DR 12	STTW DR 12 PTFE
STTW DR 34	STTW DR 34 PTFE
STTW DR 10	STTW DR 10 PTFE
STTW DR 114	STTW DR 114 PTFE
STTW DR 112	STTW DR 112 PTFE
STTW DR 20	STTW DR 20 PTFE
STTW DR 212	STTW DR 212 PTFE
STTW DR 30	STTW DR 30 PTFE
STTW DR 40	STTW DR 40 PTFE



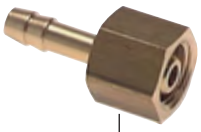
Compressed air and water hoses from page 208

Hose clamps from page 234

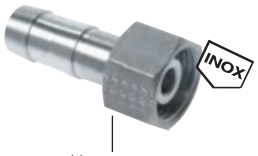


All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hose nozzles



rotatable union nut



rotatable union nut

Hose nozzles with union nut — PN 16/40

Type 16 bar brass	Type 16 bar brass nickel-pl.	Type 40 bar AISI 316Ti (INOX)	Thread	Hose Ø internal	SW[1)]
ST 184 MS	ST 184 MSV	ST 184 ES	G 1/8"	4	12
ST 186 MS	ST 186 MSV	ST 186 ES	G 1/8"	6	12
ST 144 MS	ST 144 MSV	ST 144 ES	G 1/4"	4	17
ST 146 MS	ST 146 MSV	ST 146 ES	G 1/4"	6	17
ST 149 MS	ST 149 MSV	ST 149 ES	G 1/4"	9	17
ST 384 MS	ST 384 MSV	ST 384 ES	G 3/8"	4	19
ST 386 MS	ST 386 MSV	ST 386 ES	G 3/8"	6	19
ST 389 MS	ST 389 MSV	ST 389 ES	G 3/8"	9	19
ST 126 MS	---	ST 126 ES	G 1/2"	6	24
ST 129 MS	ST 129 MSV	ST 129 ES	G 1/2"	9	24
ST 1213 MS	ST 1213 MSV	ST 1213 ES	G 1/2"	13	24
ST 3413 MS	---	ST 3413 ES	G 3/4"	13	30
ST 3419 MS	---	ST 3419 ES	G 3/4"	19	30
ST 1019 MS	---	ST 1019 ES	G 1"	19	37
ST 1025 MS	---	ST 1025 ES	G 1"	25	37

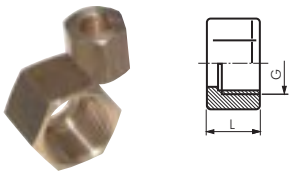
[1)] Details apply for the brass type. For all other types, please ask.

Left-hand thread

rotatable union nut

Hose nozzles with union nut (left-hand threads) — PN 16/40

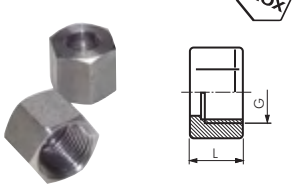
Type 16 bar brass	Type 40 bar AISI 316Ti (INOX)	Thread	Hose Ø internal	SW
ST 144 MS LH	ST 144 ES LH	G 1/4" LH	4	17
ST 146 MS LH	ST 146 ES LH	G 1/4" LH	6	17
ST 149 MS LH	ST 149 ES LH	G 1/4" LH	9	17
ST 384 MS LH	ST 384 ES LH	G 3/8" LH	4	19
ST 386 MS LH	ST 386 ES LH	G 3/8" LH	6	19
ST 389 MS LH	ST 389 ES LH	G 3/8" LH	9	19
ST 126 MS ILH	ST 126 ES LH	G 1/2" LH	6	24
ST 129 MS LH	ST 129 ES LH	G 1/2" LH	9	24
ST 1213 MS LH	ST 1213 ES LH	G 1/2" LH	13	24



Sleeves for hose nozzles — PN 16

Type sleeve brass	Hose Ø internal	Type union nut brass	Thread G	Type brass union nut with left-hand thread	Thread G	L	SW
S 184 MS	4	UM 18 MS	G 1/8"	---	---	11.0	12
S 186 MS	6	UM 18 MS	G 1/8"	---	---	11.0	12
S 144 MS	4	UM 14 MS	G 1/4"	UM 14 MS LH	G 1/4" LH	15.5	17
S 146 MS	6	UM 14 MS	G 1/4"	UM 14 MS LH	G 1/4" LH	15.5	17
S 149 MS	9	UM 14-9 MS	G 1/4"	UM 14-9 MS LH	G 1/4" LH	15.5	17
S 384 MS	4	UM 38 MS	G 3/8"	UM 38 MS LH	G 3/8" LH	14.5	19
S 386 MS	6	UM 38 MS	G 3/8"	UM 38 MS LH	G 3/8" LH	14.5	19
S 389 MS	9	UM 38 MS	G 3/8"	UM 38 MS LH	G 3/8" LH	14.5	19
S 126 MS	6	UM 12 MS*	G 1/2"	UM 12 MS LH	G 1/2" LH	20.5	24
S 129 MS	9	UM 12 MS*	G 1/2"	UM 12 MS LH	G 1/2" LH	20.5	24
S 1213 MS	13	UM 12 MS*	G 1/2"	UM 12 MS LH	G 1/2" LH	20.5	24
S 3413 MS	13	UM 34-13 MS	G 3/4"	---	---	13.5	30
S 3419 MS	19	UM 34 MS	G 3/4"	---	---	13.5	30
S 1019 MS	19	UM 10-19 MS	G 1"	---	---	17.0	37
S 1025 MS	25	UM 10 MS	G 1"	---	---	16.0	37

* also in L = 16 mm suppliable, item number UM 12 MS K



Sleeves for hose nozzles — PN 40

Type sleeve AISI 316Ti (INOX)	Hose Ø internal	Type union nut AISI 316Ti (INOX)	Thread G	Type union nut with left-hand thread 316Ti (INOX)	Thread G	L	SW
S 184 ES	4	UM 18 ES	G 1/8"	---	---	12.0	14
S 186 ES	6	UM 18 ES	G 1/8"	---	---	12.0	14
S 144 ES	4	UM 14 ES	G 1/4"	UM 14 ES LH	G 1/4" LH	14.5**	17
S 146 ES	6	UM 14 ES	G 1/4"	UM 14 ES LH	G 1/4" LH	14.5**	17
S 149 ES	9	UM 14 ES	G 1/4"	UM 14 ES LH	G 1/4" LH	14.5**	17
S 384 ES	4	UM 38 ES	G 3/8"	UM 38 ES LH	G 3/8" LH	15.5**	19
S 386 ES	6	UM 38 ES	G 3/8"	UM 38 ES LH	G 3/8" LH	15.5**	19
S 389 ES	9	UM 38 ES	G 3/8"	UM 38 ES LH	G 3/8" LH	15.5**	19
S 126 ES	6	UM 12 ES*	G 1/2"	UM 12 ES LH	G 1/2" LH	20.0	24
S 129 ES	9	UM 12 ES*	G 1/2"	UM 12 ES LH	G 1/2" LH	20.0	24
S 1213 ES	13	UM 12 ES*	G 1/2"	UM 12 ES LH	G 1/2" LH	20.0	24
S 3413 ES	13	UM 34 ES	G 3/4"	---	---	16.0	32
S 3419 ES	19	UM 34 ES	G 3/4"	---	---	16.0	32
S 1019 ES	19	UM 10 ES	G 1"	---	---	18.0	41
S 1025 ES	25	UM 10 ES	G 1"	---	---	18.0	41

* also in L = 16 mm suppliable, item number UM 12 ES K, ** left-hand thread 0.5 mm longer

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

2/3 hose nozzles, with wing union nut, flat sealing — PN 16

Materials: Body: Brass, seal: NBR

Type straight	Type elbow	Thread	Hose Ø internal	Replacement seal NBR
ST 3810 F MS	---	G 3/8"	10	ST 38 Di
ST 1210 F MS	STW 1210 F MS	G 1/2"	10	ST 12 Di
ST 1213 F MS	STW 1213 F MS	G 1/2"	13	ST 12 Di
ST 3410 F MS	STW 3410 F MS	G 3/4"	10	ST 34 Di
ST 3413 F MS	STW 3413 F MS	G 3/4"	13	ST 34 Di
ST 3416 F MS	---	G 3/4"	16	ST 34 Di
ST 3419 F MS	---	G 3/4"	19	ST 34 Di
ST 1013 F MS	---	G 1"	13	ST 10 Di
ST 1019 F MS	STW 1019 F MS	G 1"	19	ST 10 Di
ST 1025 F MS	---	G 1"	25	ST 10 Di
ST 11425 F MS	---	G 1 1/4"	25	ST 114-25 Di
ST 11432 F MS	---	G 1 1/4"	32	ST 114 Di
ST 11232 F MS	---	G 1 1/2"	32	ST 112-32 Di
ST 11238 F MS	---	G 1 1/2"	38	ST 112 Di
ST 2050 F MS	---	G 2"	50	ST 20 Di

Complete screw connections with safety collar — DIN 8537/20033

Additional mechanical connection between hose fittings and clamps only in conjunction with hose clamp SL ... SB (see page 239).

Temperature range: -40°C to max. +95°C

Operating pressure: Up to 16 bar

Warning: Seals only in connection with the internal cone 1:4 or 1:3, not with a 60°-cone. Please use the double nipple DN 34 K 1/3 ST or DN 10 K 1/4 ST as the counterpart (see table below).

with safety collar

complete screw connection

double nipple

Type steel/ malleable cast iron	Sealing cone/ cone	Thread	Hose Ø internal	Safety collar Ø	DN
Complete screw connection					
ST 3413 ST SB	1:4	G 3/4"	13	21	10
ST 3415 ST SB	1:4	G 3/4"	15	26	12
ST 3419 ST SB	1:4	G 3/4"	19	33	13
ST 1013 ST SB	1:3	G 1"	13	22	10
ST 1015 ST SB	1:3	G 1"	15	26	12
ST 1019 ST SB	1:3	G 1"	19	33	15
ST 1025 ST SB	1:3	G 1"	25	38	16
Double nipple (according to DIN 8537/20036)					
DN 34 K 1/4 ST	1:4	G 3/4"			
DN 10 K 1/3 ST	1:3	G 1"			

Hose nozzles with rotatable union nut — Dimensions acc. to DIN EN 14423/DIN 2826

Temperature range: Up to max. +210°C (for saturated steam) up to max. +120°C (for hot water)

Operating pressure: 18 bar

Supply volume: Incl. flat seal, heat resistant seal (type AISI 304: PTFE)

Type zinc-plated steel	Type brass	Type AISI 304 (INOX)	Thread	Hose Ø int. x ext.	Clamps brass	Clamps AISI 316 (INOX)
STD 1213 ST	STD 1213 MS	STD 1213 ES	G 1/2"	13 x 25	SSA 25 HD MS	SSA 25 HD ES
STD 3419 ST	STD 3419 MS	STD 3419 ES	G 3/4"	19 x 33	SSA 33 HD MS	SSA 33 HD ES
STD 1025 ST	STD 1025 MS	STD 1025 ES	G 1"	25 x 40	SSA 40 HD MS	SSA 40 HD ES
STD 11432 ST	STD 11432 MS	STD 11432 ES	G 1 1/4"	32 x 48	SSA 48 HD MS	SSA 48 HD ES
STD 11238 ST	STD 11238 MS	STD 11238 ES	G 1 1/2"	38 x 54	SSA 54 HD MS	SSA 54 HD ES
STD 2050 ST	STD 2050 MS	STD 2050 ES	G 2"	50 x 68	SSA 68 HD MS	SSA 68 HD ES

Replacement seal for steel/brass type	Replacement seal for type AISI 304
STD DR 12	STD DR 12 PTFE
STD DR 34	STD DR 34 PTFE
STD DR 10	STD DR 10 PTFE
STD DR 114	STD DR 114 PTFE
STD DR 112	STD DR 112 PTFE
STD DR 20	STD DR 20 PTFE

Hose clamps from page 234

Sealing flax and other sealing materials from page 556

Hoses from page 192

Steam hoses from page 214

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Brass compression ring fittings DIN EN 1254-2

Brass compression ring fittings — DIN EN 1254-2

Materials: Body: Brass, seal: Polymer
Temperature range: -40°C to max. +100°C (with polymer seal: -20°C to max. +80°C)
☞ **Note:** The brass compression ring fittings cannot be combined with the cutting ring pipe screw connectors ISO 8434-1 (DIN 2353).

Operating pressure for total connection incl. tube

Tube Ø external	Tube Ø internal	Hard copper tube (page 251)	With flexible polyamide tube* (page 196)
4	2.0	150 bar	40 bar
4	2.7	---	23 bar
5	3.0	150 bar	34 bar
6	4.0	150 bar	27 bar
8	6.0	135 bar	19 bar
10	8.0	95 bar	15 bar
12	9.0	---	19 bar
12	10.0	75 bar	12 bar
14	11.0	---	16 bar
14	12.0	85 bar	10 bar
15	12.0	---	15 bar
15	13.0	82 bar	---
16	12.0	---	18 bar
16	14.0	76 bar	---
18	14.0	---	17 bar
18	16.0	67 bar	---
22	18.0	---	13 bar
22	20.0	54 bar	---

* in connection with reinforcing ring

When using soft copper tube a correction factor of 0.65 must be used (pressure x 0.65).
The given values for polyamide tube are understood at temperatures from -15°C to +30°C.
Use the following multipliers for other temperatures: +31°C to +50°C: pressure x 0.68
+51°C to +70°C: pressure x 0.55

Straight screw-in connections with polymer seal

Type	Tube Ø external	Screw-in thread
KGE 184 MS	4	G 1/8"
KGE 185 MS	5	G 1/8"
KGE 186 MS	6	G 1/8"
KGE 146 MS	6	G 1/4"
KGE 188 MS	8	G 1/8"
KGE 148 MS	8	G 1/4"
KGE 388 MS	8	G 3/8"
KGE 1410 MS	10	G 1/4"
KGE 3810 MS	10	G 3/8"
KGE 1412 MS	12	G 1/4"

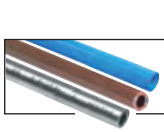
Type	Tube Ø external	Screw-in thread
KGE 3812 MS	12	G 3/8"
KGE 1212 MS	12	G 1/2"
KGE 3814 MS	14	G 3/8"
KGE 1214 MS	14	G 1/2"
KGE 3815 MS	15	G 3/8"
KGE 1215 MS	15	G 1/2"
KGE 3816 MS	16	G 3/8"
KGE 1216 MS	16	G 1/2"
KGE 3422 MS	22	G 3/4"
KGE 1022 MS	22	G 1"

Straight screw-in connections with conical male threads

Type	Tube Ø external	Screw-in thread
KGE 184 KON MS	4	R 1/8"
KGE 185 KON MS	5	R 1/8"
KGE 145 KON MS	5	R 1/4"
KGE 186 KON MS	6	R 1/8"
KGE 146 KON MS	6	R 1/4"
KGE 386 KON MS	6	R 3/8"
KGE 188 KON MS	8	R 1/8"
KGE 148 KON MS	8	R 1/4"
KGE 388 KON MS	8	R 3/8"
KGE 1810 KON MS	10	R 1/8"
KGE 1410 KON MS	10	R 1/4"
KGE 3810 KON MS	10	R 3/8"
KGE 1210 KON MS	10	R 1/2"
KGE 1412 KON MS	12	R 1/4"

Type	Tube Ø external	Screw-in thread
KGE 3812 KON MS	12	R 3/8"
KGE 1212 KON MS	12	R 1/2"
KGE 3814 KON MS	14	R 3/8"
KGE 1214 KON MS	14	R 1/2"
KGE 3815 KON MS	15	R 3/8"
KGE 1215 KON MS	15	R 1/2"
KGE 1416 KON MS	16	R 1/4"
KGE 3816 KON MS	16	R 3/8"
KGE 1216 KON MS	16	R 1/2"
KGE 3416 KON MS	16	R 3/4"
KGE 1218 KON MS	18	R 1/2"
KGE 3418 KON MS	18	R 3/4"
KGE 1222 KON MS	22	R 1/2"
KGE 3422 KON MS	22	R 3/4"

Safety valves from page 518



Aluminium, copper and steel pipes from page 250

LOCTITE Liquid seals, gaskets & tapes from page 549

Ball valves from page 280

Electronic pressure switches from page 391

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Straight screw-on connections with cylindrical female threads

Type	Tube Ø external	Female thread
KGAI 184 MS	4	G 1/8"
KGAI 144 MS	4	G 1/4"
KGAI 185 MS	5	G 1/8"
KGAI 145 MS	5	G 1/4"
KGAI 186 MS	6	G 1/8"
KGAI 146 MS	6	G 1/4"
KGAI 188 MS	8	G 1/8"
KGAI 148 MS	8	G 1/4"
KGAI 388 MS	8	G 3/8"
KGAI 1410 MS	10	G 1/4"
KGAI 3810 MS	10	G 3/8"
KGAI 1210 MS	10	G 1/2"
KGAI 1412 MS	12	G 1/4"
KGAI 3812 MS	12	G 3/8"
KGAI 1212 MS	12	G 1/2"
KGAI 3814 MS	14	G 3/8"
KGAI 1214 MS	14	G 1/2"
KGAI 3815 MS	15	G 3/8"
KGAI 1215 MS	15	G 1/2"
KGAI 3816 MS	16	G 3/8"
KGAI 1216 MS	16	G 1/2"
KGAI 3416 MS	16	G 3/4"
KGAI 1218 MS	18	G 1/2"
KGAI 3418 MS	18	G 3/4"
KGAI 3422 MS	22	G 3/4"

Angle screw-in connections with conical male threads

Type	Tube Ø external	Screw-in thread
KWE 184 MS	4	R 1/8"
KWE 185 MS	5	R 1/8"
KWE 145 MS	5	R 1/4"
KWE 186 MS	6	R 1/8"
KWE 146 MS	6	R 1/4"
KWE 188 MS	8	R 1/8"
KWE 148 MS	8	R 1/4"
KWE 388 MS	8	R 3/8"
KWE 1410 MS	10	R 1/4"
KWE 3810 MS	10	R 3/8"
KWE 1210 MS	10	R 1/2"
KWE 1412 MS	12	R 1/4"
KWE 3812 MS	12	R 3/8"
KWE 1212 MS	12	R 1/2"
KWE 3814 MS	14	R 3/8"
KWE 1214 MS	14	R 1/2"
KWE 3815 MS	15	R 3/8"
KWE 1215 MS	15	R 1/2"
KWE 3816 MS	16	R 3/8"
KWE 1216 MS	16	R 1/2"
KWE 3416 MS	16	R 3/4"
KWE 1218 MS	18	R 1/2"
KWE 3418 MS	18	R 3/4"
KWE 3422 MS	22	R 3/4"

Elbow pivot joints, positionable with polymer seal

Type	Tube Ø external	Screw-in thread
KWH 184 MS	4	G 1/8"
KWH 186 MS	6	G 1/8"
KWH 146 MS	6	G 1/4"
KWH 188 MS	8	G 1/8"
KWH 148 MS	8	G 1/4"
KWH 388 MS	8	G 3/8"
KWH 1410 MS	10	G 1/4"
KWH 3810 MS	10	G 3/8"
KWH 1412 MS	12	G 1/4"
KWH 3812 MS	12	G 3/8"
KWH 1414 MS	14	G 1/4"
KWH 3814 MS	14	G 3/8"
KWH 1214 MS	14	G 1/2"
KWH 3422 MS	22	G 3/4"

Angle screw connections with cylindrical female threads

Type	Tube Ø external	Female thread
KWAI 184 MS	4	G 1/8"
KWAI 186 MS	6	G 1/8"
KWAI 146 MS	6	G 1/4"
KWAI 188 MS	8	G 1/8"
KWAI 148 MS	8	G 1/4"
KWAI 388 MS	8	G 3/8"
KWAI 1410 MS	10	G 1/4"
KWAI 3810 MS	10	G 3/8"
KWAI 1210 MS	10	G 1/2"
KWAI 1412 MS	12	G 1/4"
KWAI 3812 MS	12	G 3/8"
KWAI 1212 MS	12	G 1/2"
KWAI 1214 MS	14	G 1/2"
KWAI 1215 MS	15	G 1/2"
KWAI 1216 MS	16	G 1/2"
KWAI 1218 MS	18	G 1/2"
KWAI 3418 MS	18	G 3/4"

T-screw-in connections with conical male threads

Type	Tube Ø external	Screw-in thread
KTE 184 MS	4	R 1/8"
KTE 186 MS	6	R 1/8"
KTE 146 MS	6	R 1/4"
KTE 188 MS	8	R 1/8"
KTE 148 MS	8	R 1/4"
KTE 388 MS	8	R 3/8"
KTE 1410 MS	10	R 1/4"
KTE 3810 MS	10	R 3/8"
KTE 1210 MS	10	R 1/2"
KTE 1412 MS	12	R 1/4"
KTE 3812 MS	12	R 3/8"
KTE 1212 MS	12	R 1/2"
KTE 3814 MS	14	R 3/8"
KTE 1214 MS	14	R 1/2"
KTE 1215 MS	15	R 1/2"
KTE 1216 MS	16	R 1/2"
KTE 1218 MS	18	R 1/2"
KTE 3418 MS	18	R 3/4"
KTE 3422 MS	22	R 3/4"

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Brass compression ring fittings DIN EN 1254-2

Elbow pivot joints, positionable with polymer seal

Type	Tube Ø external	Screw-in thread
KTH 184 MS	4	G 1/8"
KTH 186 MS	6	G 1/8"
KTH 148 MS	8	G 1/4"
KTH 3810 MS	10	G 3/8"

Type	Tube Ø external	Screw-in thread
KTH 1412 MS	12	G 1/4"
KTH 3812 MS	12	G 3/8"
KTH 3814 MS	14	G 3/8"
KTH 1214 MS	14	G 1/2"

T-screw-in connections with conical male threads

Type	Tube Ø external	Screw-in thread
KLE 184 MS	4	R 1/8"
KLE 186 MS	6	R 1/8"
KLE 146 MS	6	R 1/4"
KLE 188 MS	8	R 1/8"
KLE 148 MS	8	R 1/4"
KLE 388 MS	8	R 3/8"

Type	Tube Ø external	Screw-in thread
KLE 1410 MS	10	R 1/4"
KLE 3810 MS	10	R 3/8"
KLE 3812 MS	12	R 3/8"
KLE 1212 MS	12	R 1/2"
KLE 1214 MS	14	R 1/2"

Straight screw connections

Type	Tube Ø external
KG 4 MS	4
KG 5 MS	5
KG 6 MS	6
KG 8 MS	8
KG 10 MS	10
KG 12 MS	12

Type	Tube Ø external
KG 14 MS	14
KG 15 MS	15
KG 16 MS	16
KG 18 MS	18
KG 22 MS	22

Bulkhead screw connections

Type	Tube Ø external	Mounting thread
KSV 4 MS	4	M 8 x 1
KSV 5 MS	5	M 10 x 1
KSV 6 MS	6	M 10 x 1
KSV 8 MS	8	M 12 x 1
KSV 10 MS	10	M 16 x 1.5

Type	Tube Ø external	Mounting thread
KSV 12 MS	12	M 18 x 1.5
KSV 14 MS	14	M 20 x 1.5
KSV 15 MS	15	M 20 x 1.5
KSV 16 MS	16	M 22 x 1.5

Angle screw connections

Type	Tube Ø external
KW 4 MS	4
KW 5 MS	5
KW 6 MS	6
KW 8 MS	8
KW 10 MS	10
KW 12 MS	12

Type	Tube Ø external
KW 14 MS	14
KW 15 MS	15
KW 16 MS	16
KW 18 MS	18
KW 22 MS	22

T-screw connections

Type	Tube Ø external
KT 4 MS	4
KT 5 MS	5
KT 6 MS	6
KT 8 MS	8
KT 10 MS	10
KT 12 MS	12

Type	Tube Ø external
KT 14 MS	14
KT 15 MS	15
KT 16 MS	16
KT 18 MS	18
KT 22 MS	22

Cross-piece screw connections

Type	Tube Ø external
KK 4 MS	4
KK 6 MS	6
KK 8 MS	8
KK 10 MS	10
KK 12 MS	12
KK 14 MS	14

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Reducers for brass screw connections

Application: With the use of reducers you can use screw connections with different hose diameters, e.g. a 10 mm Ø KG 10 MS straight screw connection can be connected on one side to a 10 mm hose. On the other side you can use a KRED 106 MS reducer to fit a 6 mm hose. In this way you achieve a reduction from 10 mm to 6 mm. The reducers can be used with all brass compression ring fittings.

TIP *With this you can assemble different hose diameters!*

Type	Nominal Ø of screw connection	Reducer for hose Ø
KRED 54 MS	5	4
KRED 64 MS	6	4
KRED 65 MS	6	5
KRED 84 MS	8	4
KRED 85 MS	8	5
KRED 86 MS	8	6
KRED 104 MS	10	4
KRED 106 MS	10	6
KRED 108 MS	10	8
KRED 126 MS	12	6
KRED 128 MS	12	8
KRED 1210 MS	12	10
KRED 144 MS	14	4
KRED 146 MS	14	6

Type	Nominal Ø of screw connection	Reducer for hose Ø
KRED 148 MS	14	8
KRED 1410 MS	14	10
KRED 1412 MS	14	12
KRED 156 MS	15	6
KRED 158 MS	15	8
KRED 1510 MS	15	10
KRED 1512 MS	15	12
KRED 166 MS	16	6
KRED 168 MS	16	8
KRED 1610 MS	16	10
KRED 1612 MS	16	12
KRED 1614 MS	16	14
KRED 1615 MS	16	15

Closing plugs for brass screw connections

Type	Tube Ø external
KBUZ 4 MS	4
KBUZ 5 MS	5
KBUZ 6 MS	6
KBUZ 8 MS	8
KBUZ 10 MS	10
KBUZ 12 MS	12

Type	Tube Ø external
KBUZ 14 MS	14
KBUZ 15 MS	15
KBUZ 16 MS	16
KBUZ 18 MS	18
KBUZ 22 MS	22

Compression rings for brass screw connections

Type	Tube Ø external
KR 4 MS	4
KR 5 MS	5
KR 6 MS	6
KR 8 MS	8
KR 10 MS	10
KR 12 MS	12

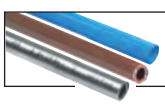
Type	Tube Ø external
KR 14 MS	14
KR 15 MS	15
KR 16 MS	16
KR 18 MS	18
KR 22 MS	22

Union nuts for brass screw connections

Type	Tube Ø external	Female thread
KM 4 MS	4	M 8 x 1
KM 5 MS	5	M 10 x 1
KM 6 MS	6	M 10 x 1
KM 8 MS	8	M 12 x 1
KM 10 MS	10	M 16 x 1.5
KM 12 MS	12	M 18 x 1.5

Type	Tube Ø external	Female thread
KM 14 MS	14	M 20 x 1.5
KM 15 MS	15	M 20 x 1.5
KM 16 MS	16	M 22 x 1.5
KM 18 MS	18	M 24 x 1,5
KM 22 MS	22	M 30 x 1.5

Parker
Push in hoses on page 228


Aluminium, copper and steel pipes from page 250

Ball valves from 280

Electronic pressure switches from page 391

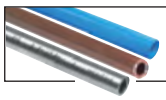
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Brass cutting ring fittings ISO 8434-1

Brass cutting ring fittings — ISO 8434-1 (DIN 2353)

Materials: Body: Nickel-plated brass, cutting ring: Brass
Temperature range: -40°C to max. +250°C (pivot joint: -20°C to max. +90°C)

LOCTITE
Liquid seals, gaskets & tapes from page 549



Aluminium, copper and steel pipes from page 250

Operating pressure for total connection incl. tube

Tube Ø external	Tube Ø internal	Hard copper tube (page 251)	With flexible polyamide tube* (page 196)
4	2.0	100 bar	40 bar
4	2.7	---	23 bar
6	4.0	100 bar	27 bar
8	6.0	100 bar	19 bar
10	8.0	115 bar	15 bar
12	9.0	---	19 bar
12	10.0	75 bar	12 bar
15	12.0	---	15 bar
15	13.0	70 bar	---
16	14.0	70 bar	---
18	14.0	---	17 bar
18	16.0	65 bar	---

*in connection with reinforcing ring

When using soft copper tube a correction factor of 0.65 must be used (pressure x 0,65).
The given values for polyamide tube are understood at temperatures from -15°C to +30°C.
Use the following multipliers for other temperatures: +31°C to +50°C: pressure x 0.68
+51°C to +70°C: pressure x 0.55

Straight screw-in connections

Type	Tube Ø external	Screw-in thread
Very light model series		
GE 4 LLR MSV	4 LL	R 1/8"
GE 6 LLR MSV	6 LL	R 1/8"
GE 6 LLR 1/4 MSV	6 LL	R 1/4"
GE 8 LLR MSV	8 LL	R 1/8"
GE 8 LLR 1/4 MSV	8 LL	R 1/4"
GE 8 LLR 3/8 MSV	8 LL	R 3/8"

Type	Tube Ø external	Screw-in thread
Light model series		
GE 10 LR MSV	10 L	R 1/4"
GE 10 LR 3/8 MSV	10 L	R 3/8"
GE 12 LR MSV	12 L	R 3/8"
GE 12 LR 1/2 MSV	12 L	R 1/2"
GE 15 LR MSV	15 L	R 1/2"
GE 18 LR MSV	18 L	R 1/2"

Straight screw-on connections, with female threads

Type	Tube Ø external	Screw-in thread
Very light model series		
GAI 4 LLR MSV	4 LL	G 1/8"
GAI 6 LLR MSV	6 LL	G 1/8"
GAI 6 LLR 1/4 MSV	6 LL	G 1/4"
GAI 8 LLR MSV	8 LL	G 1/8"
GAI 8 LLR 1/4 MSV	8 LL	G 1/4"
GAI 8 LLR 3/8 MSV	8 LL	G 3/8"

Type	Tube Ø external	Screw-in thread
Light model series		
GAI 10 LR MSV	10 L	G 1/4"
GAI 10 LR 3/8 MSV	10 L	G 3/8"
GAI 12 LR MSV	12 L	G 3/8"
GAI 12 LR 1/2 MSV	12 L	G 1/2"
GAI 15 LR MSV	15 L	G 1/2"
GAI 18 LR MSV	18 L	G 1/2"

Straight screw connections

Type	Tube Ø external	Union nut thread
Very light model series		
G 4 LL MSV	4 LL	M 8 x 1
G 6 LL MSV	6 LL	M 10 x 1
G 8 LL MSV	8 LL	M 12 x 1

Type	Tube Ø external	Union nut thread
Light model series		
G 10 L MSV	10 L	M 16 x 1.5
G 12 L MSV	12 L	M 18 x 1.5
G 15 L MSV	15 L	M 22 x 1.5
G 18 L MSV	18 L	M 26 x 1.5

Angle screw-in connections

Type	Tube Ø external	Screw-in thread
Very light model series		
WE 4 LLR MSV	4 LL	R 1/8"
WE 6 LLR MSV	6 LL	R 1/8"
WE 6 LLR 1/4 MSV	6 LL	R 1/4"
WE 8 LLR MSV	8 LL	R 1/8"
WE 8 LLR 1/4 MSV	8 LL	R 1/4"
WE 8 LLR 3/8 MSV	8 LL	R 3/8"

Type	Tube Ø external	Screw-in thread
Light model series		
WE 10 LR MSV	10 L	R 1/4"
WE 10 LR 3/8 MSV	10 L	R 3/8"
WE 12 LR MSV	12 L	R 3/8"
WE 12 LR 1/2 MSV	12 L	R 1/2"
WE 15 LR MSV	15 L	R 1/2"
WE 18 LR MSV	18 L	R 1/2"

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Pivot joints

Type	Tube Ø external	Screw-in thread
Very light model series		
SWVE 6 LLR MSV	6 LL	G 1/8"
SWVE 6 LLR 1/4 MSV	6 LL	G 1/4"
SWVE 8 LLR MSV	8 LL	G 1/8"
SWVE 8 LLR 1/4 MSV	8 LL	G 1/4"

Type	Tube Ø external	Screw-in thread
Light model series		
SWVE 10 LR MSV	10 L	G 1/4"
SWVE 12 LR MSV	12 L	G 3/8"

Angle screw connections

Type	Tube Ø external	Union nut thread
Very light model series		
W 4 LL MSV	4 LL	M 8 x 1
W 6 LL MSV	6 LL	M 10 x 1
W 8 LL MSV	8 LL	M 12 x 1

Type	Tube Ø external	Union nut thread
Light model series		
W 10 L MSV	10 L	M 16 x 1.5
W 12 L MSV	12 L	M 18 x 1.5
W 15 L MSV	15 L	M 22 x 1.5
W 18 L MSV	18 L	M 26 x 1.5

T-screw-in connections

Type	Tube Ø external	Screw-in thread
Very light model series		
TE 4 LLR MSV	4 LL	R 1/8"
TE 6 LLR MSV	6 LL	R 1/8"
TE 6 LLR 1/4 MSV	6 LL	R 1/4"
TE 8 LLR MSV	8 LL	R 1/8"
TE 8 LLR 1/4 MSV	8 LL	R 1/4"
TE 8 LLR 3/8 MSV	8 LL	R 3/8"

Type	Tube Ø external	Screw-in thread
Light model series		
TE 10 LR MSV	10 L	R 1/4"
TE 10 LR 3/8 MSV	10 L	R 3/8"
TE 12 LR MSV	12 L	R 3/8"
TE 12 LR 1/2 MSV	12 L	R 1/2"
TE 15 LR MSV	15 L	R 1/2"
TE 18 LR MSV	18 L	R 1/2"

T-screw connections

Type	Tube Ø external	Union nut thread
Very light model series		
T 4 LL MSV	4 LL	M 8 x 1
T 6 LL MSV	6 LL	M 10 x 1
T 8 LL MSV	8 LL	M 12 x 1

Type	Tube Ø external	Union nut thread
Light model series		
T 10 L MSV	10 L	M 16 x 1.5
T 12 L MSV	12 L	M 18 x 1.5
T 15 L MSV	15 L	M 22 x 1.5
T 18 L MSV	18 L	M 26 x 1.5

Cutting rings

Type	Tube Ø external	Union nut thread
Very light model series		
D 4 LL MS	4 LL	M 8 x 1
D 6 LL MS	6 LL	M 10 x 1
D 8 LL MS	8 LL	M 12 x 1

Type	Tube Ø external	Union nut thread
Light model series		
D 10 L MS	10 L	M 16 x 1.5
D 12 L MS	12 L	M 18 x 1.5
D 15 L MS	15 L	M 22 x 1.5
D 18 L MS	18 L	M 26 x 1.5

Union nuts

Type	Tube Ø external	Union nut thread
Very light model series		
M 4 LL MSV	4 LL	M 8 x 1
M 6 LL MSV	6 LL	M 10 x 1
M 8 LL MSV	8 LL	M 12 x 1

Type	Tube Ø external	Union nut thread
Light model series		
M 10 L MSV	10 L	M 16 x 1.5
M 12 L MSV	12 L	M 18 x 1.5
M 15 L MSV	15 L	M 22 x 1.5
M 18 L MSV	18 L	M 26 x 1.5

Distributor bars up to 315 bar on page 133

Hydraulic couplings from page 170

Ready-made washing and hydraulic hoses on page 231

Manual tools can be found in the Online Shop

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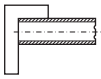
Steel & stainless steel cutting ring fittings ISO 8434-1

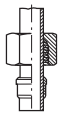
Assembly of stainless steel fittings only with the aid of suitable lubricant, see below on this page

Assembly DIN cutting ring fittings and NC- screw connections

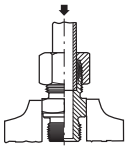


① Cut the tube away at a right angle and lightly deburr and clean the inside and outside. Do not use a tube cutter. In the case of thin-walled or soft pipes a reinforcing ring must be used.

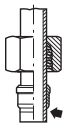
② Thoroughly oil the socket threads and cone, inner union nuts and cutting ring. For stainless steel cutting ring fittings PASTE ES must be used (optional for NC screw connections).



③ Push the union nut and cutting ring onto the tube. Ensure the correct position of the cutting ring/NC compression ring - otherwise the assembly will be incorrect.



④ Loosen the union nut as far as possible by hand. Attach the marking of the union nut for checking the specified rotations. Press the tube to stop in the cone - otherwise no cutting process can be carried out. Tighten the union nut by approx. 1 rotation (DIN cutting ring fittings), or. approx. 11/4 rotations (NC compression ring fittings) using the screw wrench. The tube must not be rotated.



⑤ Loosen the union nut to check the assembly.
Cutting ring: The raised tube material must cover the front cutting ring area. If not, re-tighten slightly. Due to the spring effect of the cutting ring, this can still be rotated - no functional error.
NC compression ring: The compression ring can no longer be displaced.
Endmontage: Assemble the union nuts on sockets until there is a noticeable increase in force. Then, tigthen with 1/2 rotation (DIN cutting ring fittings), or 1/4 rotation (NC compression ring fitting).

NC compression ring connections compatible with ISO 8434-1 (DIN 2353)

Advantages:
- Compatible with all cutting ring fittings according to ISO 8434-1 (DIN 2353).
- Also resistant to dynamic loads such as vibrations and pulsations.
- It can be loosened and screwed back in as often as is necessary.
- In contrast to a cutting ring the NC compression ring is not hardened, therefore it cannot rust.
- Lubrication of the nut thread for initial assembly is not necessary, but recommended.
- Incorrect assembly is ruled out in the face of a cutting ring or clamp wedge ring screw connection, as only **one** compression ring is used, which can be fitted in one direction only. An overmounting of the screw connection is not possible.
- The correct assembly can be checked at any time.

Processing: The screw connections must be processed with heat treated, seamless stainless steel tubes (AISI 316Ti) according to DIN EN ISO 1127. The tolerance category should be D4/T3, the surface must not show any damage and its hardness should not be more than Rockwel HRB 90.

- *Rust-free*
- *Corrosion-resistant in salt water*

INOX

Resistant to salt water

NC-ring

chemical resistance: very well

Cutting ring

chemical resistance: faulty

Clamp wedge ring

chemical resistance: insufficient

FOX 180514

Perfect dosing, even at the most difficult to reach places!

Assembly paste for stainless steel cutting ring fittings

Info: For the error free assembly of ES cutting ring fittings, it is very important to grease the cutting ring as well as the thread of the union nut. PASTE ES would be most suited for this application.
PASTE ES is a white paste on the basis of synthetic lubricant. It contains high pressure and high temperature resistant ceramic components through which even under extreme operating conditions, metal parts under pressure (e.g. threads) can easily be separated again.

Advantages:
- Prevents corrosion and seizing
- Resistant to acids, alkalis, chemicals, fresh-and seawater, at temperatures from -20°C to +1400°C
- Seals threads, flanges and housings
- Saves costs by loosening joined parts (even after years), less time expenditure and less breakage

Tip: For food industry applications, we recommend Loctite product 8014 (see page 559)

Type	Packing
PASTE ES	500 g brush tin
PASTE ES PP	200 ml press pack with elbow dispenser and brush

200 ml press pack

Warning: Not to be used for oxygen!

500g container

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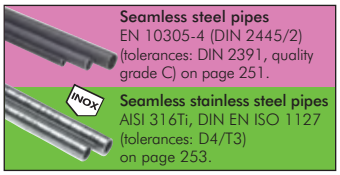
Cutting ring fittings — ISO 8434-1 (DIN 2353)

Zinc-plated steel
Materials: Body: Zinc-plated steel, any existing elastomer seal: NBR
Temperature range: -40°C to max. +120°C (with an elastomer seal: -35°C to max. +100°C)

Stainless steel and NC-screw connections
Materials: Body: AISI 316Ti, any existing elastomer seal: FKM
Temperature range: -60°C to max. +400°C (with an elastomer seal: -20°C to max. +200°C, NC screw connections on request up to +550°C)

Our pipe recommendation



Seamless steel pipes
EN 10305-4 (DIN 2445/2) (tolerances: DIN 2391, quality grade C) on page 251.

Seamless stainless steel pipes
AISI 316Ti, DIN EN ISO 1127 (tolerances: D4/T3) on page 253.

Thread table for pipe screw connectors (standard design)*

Tube Ø external	Union nut thread	Screw-in thread metric*	Screw-in thread imperial*	Screw-in thread NPT*	Operating pressure steel/ stainl. steel PN***	Operating pressure NC stainl. steel PN***
Very light model series						
4 LL	M 8 x 1	M 8 x 1 (con.)	R 1/8"	NPT 1/8"	100 bar	---
5 LL	M 10 x 1	M 8 x 1 (con.)	R 1/8"	NPT 1/8"	100 bar	---
6 LL	M 10 x 1	M 10 x 1 (con.)	R 1/8"	NPT 1/8"	100 bar	---
8 LL	M 12 x 1	M 10 x 1 (con.)	R 1/8"	NPT 1/8"	100 bar	---
10 LL	M 14 x 1	M 14 x 1.5 (con.)	R 1/4"	---	100 bar	---
12 LL	M 16 x 1	M 14 x 1.5 (con.)	R 1/4"	---	100 bar	---
Light model series						
6 L	M 12 x 1.5	M 10 x 1	G 1/8"	NPT 1/8"	315 bar	315 bar
8 L	M 14 x 1.5	M 12 x 1.5	G 1/4"	NPT 1/4"	315 bar	315 bar
10 L	M 16 x 1.5	M 14 x 1.5	G 1/4"	NPT 1/4"	315 bar	315 bar
12 L	M 18 x 1.5	M 16 x 1.5	G 3/8"	NPT 3/8"	315 bar	315 bar
15 L	M 22 x 1.5	M 18 x 1.5	G 1/2"	NPT 1/2"	315 bar	315 bar
18 L	M 26 x 1.5	M 22 x 1.5	G 1/2"	NPT 1/2"	315 bar	315 bar
22 L	M 30 x 2	M 26 x 1.5	G 3/4"	NPT 3/4"	160 bar	160 bar
28 L	M 36 x 2	M 33 x 2	G 1"	NPT 1"	160 bar	---
35 L	M 45 x 2	M 42 x 2	G 1 1/4"	NPT 1 1/4"	160 bar	---
42 L	M 52 x 2	M 48 x 2	G 1 1/2"	NPT 1 1/2"	160 bar	---
Heavy model series						
6 S	M 14 x 1.5	M 12 x 1.5	G 1/4"	NPT 1/4"	630 bar**	500 bar
8 S	M 16 x 1.5	M 14 x 1.5	G 1/4"	NPT 1/4"	630 bar**	500 bar
10 S	M 18 x 1.5	M 16 x 1.5	G 3/8"	NPT 3/8"	630 bar**	450 bar
12 S	M 20 x 1.5	M 18 x 1.5	G 3/8"	NPT 3/8"	630 bar**	400 bar
14 S	M 22 x 1.5	M 20 x 1.5	G 1/2"	NPT 1/2"	630 bar**	400 bar
16 S	M 24 x 1.5	M 22 x 1.5	G 1/2"	NPT 1/2"	400 bar	400 bar
20 S	M 30 x 2	M 27 x 2	G 3/4"	NPT 3/4"	400 bar	250 bar
25 S	M 36 x 2	M 33 x 2	G 1"	NPT 1"	400 bar	250 bar
30 S	M 42 x 2	M 42 x 2	G 1 1/4"	NPT 1 1/4"	400 bar	---
38 S	M 52 x 2	M 48 x 2	G 1 1/2"	NPT 1 1/2"	315 bar	---

* Many other screw-in threads are available.
** Warning: For conical male or female threads, PN 630 only applies in conjunction with a conical counter threads - i.e. an opposing male or female thread. Otherwise PN 400 applies for conical female or male threads.
*** Pressure data for static loading with a) zinc-plated steel 120°C, b) stainless steel 20°C. With stainless steel at temperatures above 20°C, a correction factor should be applied based on the table below.
Example:
20°C, tube Ø 22 = 160 bar
100°C, tube Ø 22 = 160 bar x 0.89 = 142 bar

Press. reductions f. stainless steel

Temperature	Correction factor
- 60°C to +20°C	1
+60°C	0.95
+100°C	0.89
+200°C	0.80
+300°C	0.71
+400°C	0.67

Prefitting tool for cutting ring and NC compression ring connections

Type	Tube connection
Very light model series	
VOMO 4 LL	4 LL
VOMO 5 LL	5 LL
VOMO 6 LL	6 LL
VOMO 8 LL	8 LL
Light model series	
VOMO 6 L	6 L
VOMO 8 L	8 L
VOMO 10 L	10 L
VOMO 12 L	12 L
VOMO 15 L	15 L
VOMO 18 L	18 L
VOMO 22 L	22 L
VOMO 28 L	28 L
VOMO 35 L	35 L
VOMO 42 L	42 L

Type	Tube connection
Heavy model series	
VOMO 6 S	6 S
VOMO 8 S	8 S
VOMO 10 S	10 S
VOMO 12 S	12 S
VOMO 14 S	14 S
VOMO 16 S	16 S
VOMO 20 S	20 S
VOMO 25 S	25 S
VOMO 30 S	30 S
VOMO 38 S	38 S

Test couplings from page 388

LOCTITE Liquid seals, gaskets & tapes from page 549

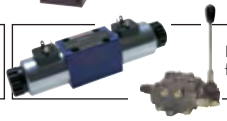
One-way control and needle valves for hydraulics from page 445

Rexroth Bosch Group Hydraulic pressure limiting valves from page 455

Abrasion protection hoses on page 249

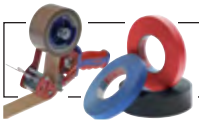
HYDAC Pipe clamps from page 244

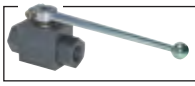
Seamless precision hydraulic pipes from page 252


Hydraulic valves from page 452

Manual tools can be found in the Online Shop

Oil binding agents & oil binding cloths from page 581


tesa tesa®-adhesive technology from page 585


High pressure ball valves from page 292

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Steel & stainless steel cutting ring fittings ISO 8434-1

Thread: **METRIC**

imperial on page 80

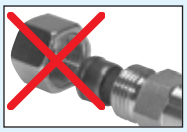
Straight screw-in connections (metric)

Type zinc-plated steel	Type AISI 316Ti INOX	Type compr. ring AISI 316Ti (NC) INOX	Tube Ø external	Screw-in thread
Very light model series				
GE 4 LLM	GE 4 LLM ES	---	4 LL	M 8 x 1 (con.)
GE 4 LLM M6	---	---	4 LL	M 6 x 1 (con.)
GE 5 LLM	---	---	5 LL	M 8 x 1 (con.)
GE 6 LLM	GE 6 LLM ES	---	6 LL	M 10 x 1 (con.)
GE 6 LLM M6	---	---	6 LL	M 6 x 1 (con.)
GE 6 LLM M8	---	---	6 LL	M 8 x 1 (con.)
GE 8 LLM	GE 8 LLM ES	---	8 LL	M 10 x 1 (con.)
Light model series				
GE 6 LM	GE 6 LM ES	GE 6 LM NC	6 L	M 10 x 1
GE 6 LM M12	---	---	6 L	M 12 x 1.5
GE 6 LM M14	---	---	6 L	M 14 x 1.5
GE 6 LM M16	---	---	6 L	M 16 x 1.5
GE 8 LM	GE 8 LM ES	GE 8 LM NC	8 L	M 12 x 1.5
GE 8 LM M14	---	---	8 L	M 14 x 1.5
GE 8 LM M16	---	---	8 L	M 16 x 1.5
GE 8 LM M18	---	---	8 L	M 18 x 1.5
GE 8 LM M22	---	---	8 L	M 22 x 1.5
GE 10 LM	GE 10 LM ES	GE 10 LM NC	10 L	M 14 x 1.5
GE 10 LM M12	GE 10 LM M12 ES	GE 10 LM M12 NC	10 L	M 12 x 1.5
GE 10 LM M16	GE 10 LM M16 ES	GE 10 LM M16 NC	10 L	M 16 x 1.5
GE 10 LM M18	GE 10 LM M18 ES	GE 10 LM M18 NC	10 L	M 18 x 1.5
GE 10 LM M22	---	---	10 L	M 22 x 1.5
GE 12 LM	GE 12 LM ES	GE 12 LM NC	12 L	M 16 x 1.5
GE 12 LM M12	---	---	12 L	M 12 x 1.5
GE 12 LM M14	GE 12 LM M14 ES	GE 12 LM M14 NC	12 L	M 14 x 1.5
GE 12 LM M18	GE 12 LM M18 ES	GE 12 LM M18 NC	12 L	M 18 x 1.5
GE 12 LM M22	GE 12 LM M22 ES	GE 12 LM M22 NC	12 L	M 22 x 1.5
GE 12 LM M26	---	---	12 L	M 26 x 1.5
GE 15 LM	GE 15 LM ES	GE 15 LM NC	15 L	M 18 x 1.5
GE 15 LM M16	---	---	15 L	M 16 x 1.5
GE 15 LM M22	GE 15 LM M22 ES	GE 15 LM M22 NC	15 L	M 22 x 1.5
GE 15 LM M26	---	---	15 L	M 26 x 1.5
GE 18 LM	GE 18 LM ES	GE 18 LM NC	18 L	M 22 x 1.5
GE 18 LM M18	GE 18 LM M18 ES	GE 18 LM M18 NC	18 L	M 18 x 1.5
GE 22 LM	GE 22 LM ES	GE 22 LM NC	22 L	M 26 x 1.5
GE 22 LM M18	---	---	22 L	M 18 x 1.5
GE 22 LM M22	---	---	22 L	M 22 x 1.5
GE 22 LM M33	---	---	22 L	M 33 x 2
GE 28 LM	GE 28 LM ES	---	28 L	M 33 x 2
GE 28 LM M22	---	---	28 L	M 22 x 1.5
GE 28 LM M26	---	---	28 L	M 26 x 1.5
GE 35 LM	GE 35 LM ES	---	35 L	M 42 x 2
GE 42 LM	GE 42 LM ES	---	42 L	M 48 x 2
Heavy model series				
GE 6 SM	GE 6 SM ES	GE 6 SM NC	6 S	M 12 x 1.5
---	GE 6 SM M14 ES	GE 6 SM M14 NC	6 S	M 14 x 1.5
GE 8 SM	GE 8 SM ES	GE 8 SM NC	8 S	M 14 x 1.5
GE 10 SM	GE 10 SM ES	GE 10 SM NC	10 S	M 16 x 1.5
GE 10 SM M18	---	---	10 S	M 18 x 1.5
GE 10 SM M22	---	---	10 S	M 22 x 1.5
GE 12 SM	GE 12 SM ES	GE 12 SM NC	12 S	M 18 x 1.5
---	GE 12 SM M14 ES	GE 12 SM M14 NC	12 S	M 14 x 1.5
GE 12 SM M16	---	---	12 S	M 16 x 1.5
GE 12 SM M22	---	---	12 S	M 22 x 1.5
GE 14 SM	GE 14 SM ES	GE 14 SM NC	14 S	M 20 x 1.5
GE 16 SM	GE 16 SM ES	GE 16 SM NC	16 S	M 22 x 1.5
GE 16 SM M16	---	---	16 S	M 16 x 1.5
GE 16 SM M18	---	---	16 S	M 18 x 1.5
GE 20 SM	GE 20 SM ES	GE 20 SM NC	20 S	M 27 x 2
GE 20 SM M22	---	---	20 S	M 22 x 1.5
GE 25 SM	GE 25 SM ES	GE 25 SM NC	25 S	M 33 x 2
GE 30 SM	GE 30 SM ES	---	30 S	M 42 x 2
GE 38 SM	GE 38 SM ES	---	38 S	M 48 x 2

INOX

For the assembly of stainless steel screw connections please use **PASTE ES** from page 580

Many additional products and sizes are available in our **Online Shop!**



If you want a screwed connection without nut and cutting ring, then please put an "X" in front of the order number.

Order example: X GE 6 LR

Standard type

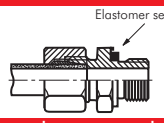
Designation for the options
Delivery without nut and cutting ring
e.g.: X GE 6 LR

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Straight screw-in connections with elastomer seal (metric)

Type zinc-plated steel	Type AISI 316Ti INOX	Type compr. ring AISI 316Ti (NC) INOX	Tube Ø external	Screw-in thread
Light model series				
GE 6 LM ED	GE 6 LM ES ED	GE 6 LM NC ED	6 L	M 10 x 1
GE 8 LM ED	GE 8 LM ES ED	GE 8 LM NC ED	8 L	M 12 x 1.5
GE 10 LM ED	GE 10 LM ES ED	GE 10 LM NC ED	10 L	M 14 x 1.5
---	GE 10 LM M12 ES ED	GE 10 LM M12 NC ED	10 L	M 12 x 1.5
GE 10 LM M16 ED	GE 10 LM M16 ES ED	GE 10 LM M16 NC ED	10 L	M 16 x 1.5
GE 10 LM M18 ED	---	---	10 L	M 18 x 1.5
GE 10 LM M22 ED	---	---	10 L	M 22 x 1.5
GE 12 LM ED	GE 12 LM ES ED	GE 12 LM NC ED	12 L	M 16 x 1.5
GE 12 LM M14 ED	---	---	12 L	M 14 x 1.5
GE 12 LM M18 ED	---	---	12 L	M 18 x 1.5
GE 12 LM M22 ED	---	---	12 L	M 22 x 1.5
GE 15 LM ED	GE 15 LM ES ED	GE 15 LM NC ED	15 L	M 18 x 1.5
GE 15 LM M16 ED	---	---	15 L	M 16 x 1.5
GE 15 LM M22 ED	---	---	15 L	M 22 x 1.5
GE 18 LM ED	GE 18 LM ES ED	GE 18 LM NC ED	18 L	M 22 x 1.5
GE 18 LM M18 ED	---	---	18 L	M 18 x 1.5
GE 22 LM ED	GE 22 LM ES ED	GE 22 LM NC ED	22 L	M 26 x 1.5
GE 22 LM M22 ED	---	---	22 L	M 22 x 1.5
GE 28 LM ED	GE 28 LM ES ED	---	28 L	M 33 x 2
GE 35 LM ED	GE 35 LM ES ED	---	35 L	M 42 x 2
GE 42 LM ED	GE 42 LM ES ED	---	42 L	M 48 x 2
Heavy model series				
GE 6 SM ED	GE 6 SM ES ED	GE 6 SM NC ED	6 S	M 12 x 1.5
---	GE 6 SM M14 ES ED	GE 6 SM M14 NC ED	6 S	M 14 x 1.5
GE 8 SM ED	GE 8 SM ES ED	GE 8 SM NC ED	8 S	M 14 x 1.5
GE 10 SM ED	GE 10 SM ES ED	GE 10 SM NC ED	10 S	M 16 x 1.5
GE 12 SM ED	GE 12 SM ES ED	GE 12 SM NC ED	12 S	M 18 x 1.5
---	GE 12 SM M14 ES ED	GE 12 SM M14 NC ED	12 S	M 14 x 1.5
GE 14 SM ED	GE 14 SM ES ED	GE 14 SM NC ED	14 S	M 20 x 1.5
GE 16 SM ED	GE 16 SM ES ED	GE 16 SM NC ED	16 S	M 22 x 1.5
GE 20 SM ED	GE 20 SM ES ED	GE 20 SM NC ED	20 S	M 27 x 2
GE 25 SM ED	GE 25 SM ES ED	GE 25 SM NC ED	25 S	M 33 x 2
GE 30 SM ED	GE 30 SM ES ED	---	30 S	M 42 x 2
GE 38 SM ED	GE 38 SM ES ED	---	38 S	M 48 x 2

Thread: **METRIC**



elastomer seal

imperial on page 80

Profiled gaskets made of NBR/FKM for cutting ring fittings — DIN 3869

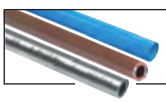
Type **NBR** (-35°C up to max. +100°C)	Type **FKM** (-15°C up to max. +200°C)	For threads	D1	D2	s
Metric					
DR M10 ED NBR	DR M10 ED V	M 10 x 1	11.9	8.4	1.0
DR M12 ED NBR	DR M12 ED V	M 12 x 1.5	14.4	9.8	1.5
DR M14 ED NBR	DR M14 ED V	M 14 x 1.5	16.5	11.6	1.5
DR M16 ED NBR	DR M16 ED V	M 16 x 1.5	18.9	13.8	1.5
DR M18 ED NBR	DR M18 ED V	M 18 x 1.5	20.9	15.7	1.5
DR M20 ED NBR	DR M20 ED V	M 20 x 1.5	22.9	17.8	1.5
DR M22 ED NBR	DR M22 ED V	M 22 x 1.5	24.3	19.6	1.5
DR M26 ED NBR	DR M26 ED V	M 26 x 1.5	29.2	23.9	1.5
DR M27 ED NBR	DR M27 ED V	M 27 x 2	29.2	23.9	1.5
DR M33 ED NBR	DR M33 ED V	M 33 x 2	35.7	29.7	2.0
DR M42 ED NBR	DR M42 ED V	M 42 x 2	45.8	38.8	2.0
DR M48 ED NBR	DR M48 ED V	M 48 x 2	50.7	44.7	2.0
Imperial					
DR 18 ED NBR	DR 18 ED V	G 1/8"	11.9	8.4	1.0
DR 14 ED NBR	DR 14 ED V	G 1/4"	16.5	11.6	1.5
DR 38 ED NBR	DR 38 ED V	G 3/8"	18.9	14.7	1.5
DR 12 ED NBR	DR 12 ED V	G 1/2"	23.9	18.5	1.5
DR 34 ED NBR	DR 34 ED V	G 3/4"	29.2	23.9	1.5
DR 10 ED NBR	DR 10 ED V	G 1"	35.7	29.7	2.0
DR 114 ED NBR	DR 114 ED V	G 1 1/4"	45.8	38.8	2.0
DR 112 ED NBR	DR 112 ED V	G 1 1/2"	50.7	44.7	2.0

Ready-made washing and hydraulic hoses on page 231

LOCTITE Liquid seals, gaskets & tapes from page 549

Hydraulic couplings from page 170

HYDAC Pipe clamps from page 244



Aluminium, copper and steel pipes from page 250

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Steel & stainless steel cutting ring fittings ISO 8434-1

Thread: **IMPERIAL**

metric on page 78

Straight screw-in connections, Whitworth pipe threads (imperial)

Type zinc-plated steel	Type AISI 316Ti INOX	Type compr. ring AISI 316Ti NC INOX	Tube Ø external	Screw-in thread
Very light model series				
GE 4 LLR	GE 4 LLR ES	---	4 LL	R 1/8"
GE 5 LLR	---	---	5 LL	R 1/8"
GE 6 LLR	GE 6 LLR ES	---	6 LL	R 1/8"
GE 8 LLR	GE 8 LLR ES	---	8 LL	R 1/8"
GE 8 LLR ZYL	---	---	8 LL	G 1/8"
GE 8 LLR 1/4	---	---	8 LL	R 1/4"
GE 10 LLR	---	---	10 LL	R 1/4"
GE 12 LLR	---	---	12 LL	R 1/4"
Light model series				
GE 6 LR	GE 6 LR ES	GE 6 LR NC	6 L	G 1/8"
GE 6 LR 1/4	GE 6 LR 1/4 ES	GE 6 LR 1/4 NC	6 L	G 1/4"
GE 6 LR 3/8	GE 6 LR 3/8 ES	GE 6 LR 3/8 NC	6 L	G 3/8"
GE 6 LR 1/2	---	---	6 L	G 1/2"
GE 8 LR	GE 8 LR ES	GE 8 LR NC	8 L	G 1/4"
GE 8 LR 1/8	GE 8 LR 1/8 ES	GE 8 LR 1/8 NC	8 L	G 1/8"
GE 8 LR 3/8	GE 8 LR 3/8 ES	GE 8 LR 3/8 NC	8 L	G 3/8"
GE 8 LR 1/2	GE 8 LR 1/2 ES	GE 8 LR 1/2 NC	8 L	G 1/2"
GE 10 LR	GE 10 LR ES	GE 10 LR NC	10 L	G 1/4"
GE 10 LR 1/8	---	---	10 L	G 1/8"
GE 10 LR 3/8	GE 10 LR 3/8 ES	GE 10 LR 3/8 NC	10 L	G 3/8"
GE 10 LR 1/2	GE 10 LR 1/2 ES	GE 10 LR 1/2 NC	10 L	G 1/2"
GE 12 LR	GE 12 LR ES	GE 12 LR NC	12 L	G 3/8"
---	GE 12 LR 1/8 ES	GE 12 LR 1/8 NC	12 L	G 1/8"
GE 12 LR 1/4	GE 12 LR 1/4 ES	GE 12 LR 1/4 NC	12 L	G 1/4"
GE 12 LR 1/2	GE 12 LR 1/2 ES	GE 12 LR 1/2 NC	12 L	G 1/2"
GE 12 LR 3/4	GE 12 LR 3/4 ES	GE 12 LR 3/4 NC	12 L	G 3/4"
GE 15 LR	GE 15 LR ES	GE 15 LR NC	15 L	G 1/2"
GE 15 LR 1/4	---	---	15 L	G 1/4"
GE 15 LR 3/8	GE 15 LR 3/8 ES	GE 15 LR 3/8 NC	15 L	G 3/8"
GE 15 LR 3/4	GE 15 LR 3/4 ES	GE 15 LR 3/4 NC	15 L	G 3/4"
GE 18 LR	GE 18 LR ES	GE 18 LR NC	18 L	G 1/2"
GE 18 LR 3/8	GE 18 LR 3/8 ES	GE 18 LR 3/8 NC	18 L	G 3/8"
GE 18 LR 3/4	GE 18 LR 3/4 ES	GE 18 LR 3/4 NC	18 L	G 3/4"
GE 18 LR 1	---	---	18 L	G 1"
GE 22 LR	GE 22 LR ES	GE 22 LR NC	22 L	G 3/4"
---	GE 22 LR 3/8 ES	GE 22 LR 3/8 NC	22 L	G 3/8"
GE 22 LR 1/2	GE 22 LR 1/2 ES	GE 22 LR 1/2 NC	22 L	G 1/2"
GE 22 LR 1	GE 22 LR 1 ES	GE 22 LR 1 NC	22 L	G 1"
GE 28 LR	GE 28 LR ES	---	28 L	G 1"
GE 28 LR 3/4	GE 28 LR 3/4 ES	---	28 L	G 3/4"
GE 35 LR	GE 35 LR ES	---	35 L	G 1 1/4"
GE 35 LR 3/4	GE 35 LR 3/4 ES	---	35 L	G 3/4"
GE 35 LR 1	GE 35 LR 1 ES	---	35 L	G 1"
GE 42 LR	GE 42 LR ES	---	42 L	G 1 1/2"
Heavy model series				
GE 6 SR	GE 6 SR ES	GE 6 SR NC	6 S	G 1/4"
GE 6 SR 1/2	---	---	6 S	G 1/2"
GE 8 SR	GE 8 SR ES	GE 8 SR NC	8 S	G 1/4"
GE 8 SR 3/8	GE 8 SR 3/8 ES	GE 8 SR 3/8 NC	8 S	G 3/8"
GE 10 SR	GE 10 SR ES	GE 10 SR NC	10 S	G 3/8"
GE 10 SR 1/4	GE 10 SR 1/4 ES	GE 10 SR 1/4 NC	10 S	G 1/4"
GE 10 SR 1/2	GE 10 SR 1/2 ES	GE 10 SR 1/2 NC	10 S	G 1/2"
GE 12 SR	GE 12 SR ES	GE 12 SR NC	12 S	G 3/8"
GE 12 SR 1/4	GE 12 SR 1/4 ES	GE 12 SR 1/4 NC	12 S	G 1/4"
GE 12 SR 1/2	GE 12 SR 1/2 ES	GE 12 SR 1/2 NC	12 S	G 1/2"
GE 14 SR	GE 14 SR ES	GE 14 SR NC	14 S	G 1/2"
GE 14 SR 3/8	---	---	14 S	G 3/8"
GE 16 SR	GE 16 SR ES	GE 16 SR NC	16 S	G 1/2"
GE 16 SR 3/8	GE 16 SR 3/8 ES	GE 16 SR 3/8 NC	16 S	G 3/8"
GE 16 SR 3/4	GE 16 SR 3/4 ES	GE 16 SR 3/4 NC	16 S	G 3/4"
GE 20 SR	GE 20 SR ES	GE 20 SR NC	20 S	G 3/4"
GE 20 SR 1/2	GE 20 SR 1/2 ES	GE 20 SR 1/2 NC	20 S	G 1/2"
GE 20 SR 1	---	---	20 S	G 1"
GE 25 SR	GE 25 SR ES	GE 25 SR NC	25 S	G 1"
GE 25 SR 3/4	GE 25 SR 3/4 ES	GE 25 SR 3/4 NC	25 S	G 3/4"
GE 30 SR	GE 30 SR ES	---	30 S	G 1 1/4"
GE 30 SR 1	GE 30 SR 1 ES	---	30 S	G 1"
GE 38 SR	GE 38 SR ES	---	38 S	G 1 1/2"
GE 38 SR 1	---	---	38 S	G 1"
GE 38 SR 1 1/4	GE 38 SR 1 1/4 ES	---	38 S	G 1 1/4"

INOX

Many additional products and sizes are available in our **Online Shop!**

Design with elastomer seals are found under:

☞ Order example: GE 12 LR **

Standard type

Designation for the options: With an elastomer seal . .-ED

Parker Push in hoses on page 228

HYDAC Pipe clamps from page 244

Seamless precision hydraulic pipes from page 252

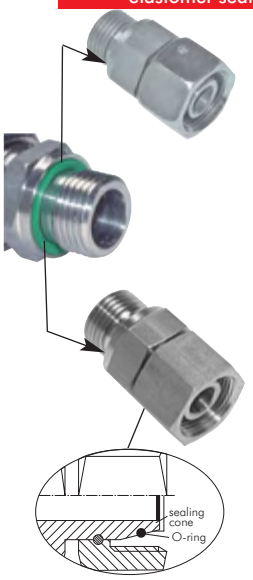
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Adjustable ball screw-in connections (metric) with sealing cone + O-ring

Type zinc-plated steel	Type AISI 316Ti (INOX)	Tube Ø external	Screw-in thread
Light model series			
EGE 6 LM	EGE 6 LM ES	6 L	M 10 x 1
EGE 8 LM	EGE 8 LM ES	8 L	M 12 x 1.5
EGE 10 LM	EGE 10 LM ES	10 L	M 14 x 1.5
EGE 12 LM	EGE 12 LM ES	12 L	M 16 x 1.5
EGE 15 LM	EGE 15 LM ES	15 L	M 18 x 1.5
EGE 18 LM	EGE 18 LM ES	18 L	M 22 x 1.5
EGE 22 LM	EGE 22 LM ES	22 L	M 26 x 1.5
EGE 28 LM	EGE 28 LM ES	28 L	M 33 x 2
EGE 35 LM	EGE 35 LM ES	35 L	M 42 x 2
EGE 42 LM	EGE 42 LM ES	42 L	M 48 x 2
Heavy model series			
EGE 6 SM	EGE 6 SM ES	6 S	M 12 x 1.5
EGE 8 SM	EGE 8 SM ES	8 S	M 14 x 1.5
EGE 10 SM	EGE 10 SM ES	10 S	M 16 x 1.5
EGE 12 SM	EGE 12 SM ES	12 S	M 18 x 1.5
EGE 14 SM	EGE 14 SM ES	14 S	M 20 x 1.5
EGE 16 SM	EGE 16 SM ES	16 S	M 22 x 1.5
EGE 20 SM	EGE 20 SM ES	20 S	M 27 x 2
EGE 25 SM	EGE 25 SM ES	25 S	M 33 x 2
EGE 30 SM	EGE 30 SM ES	30 S	M 42 x 2
EGE 38 SM	EGE 38 SM ES	38 S	M 48 x 2

Thread: **METRIC**

elastomer seal



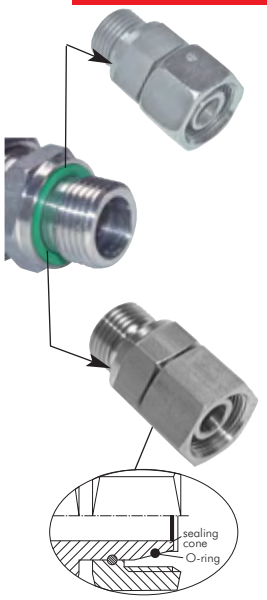
Replacement O-rings made of FKM/NBR are found below.

Adjustable ball screw-in connections (imperial) with sealing cone + O-ring

Type zinc-plated steel	Type AISI 316Ti (INOX)	Tube Ø external	Screw-in thread
Light model series			
EGE 6 LR	EGE 6 LR ES	6 L	G 1/8"
EGE 8 LR	EGE 8 LR ES	8 L	G 1/4"
---	EGE 8 LR 3/8 ES	8 L	G 3/8"
EGE 10 LR	EGE 10 LR ES	10 L	G 1/4"
EGE 10 LR 3/8	---	10 L	G 3/8"
EGE 12 LR	EGE 12 LR ES	12 L	G 3/8"
EGE 12 LR 1/2	---	12 L	G 1/2"
EGE 15 LR	EGE 15 LR ES	15 L	G 1/2"
EGE 15 LR 3/4	---	15 L	G 3/4"
EGE 18 LR	EGE 18 LR ES	18 L	G 1/2"
EGE 18 LR 3/4	---	18 L	G 3/4"
EGE 22 LR	EGE 22 LR ES	22 L	G 3/4"
EGE 28 LR	EGE 28 LR ES	28 L	G 1"
EGE 28 LR 3/4	---	28 L	G 3/4"
EGE 35 LR	EGE 35 LR ES	35 L	G 1 1/4"
EGE 42 LR	EGE 42 LR ES	42 L	G 1 1/2"
Heavy model series			
EGE 6 SR	EGE 6 SR ES	6 S	G 1/4"
EGE 8 SR	EGE 8 SR ES	8 S	G 1/4"
EGE 10 SR	EGE 10 SR ES	10 S	G 3/8"
EGE 12 SR	EGE 12 SR ES	12 S	G 3/8"
EGE 12 SR 1/2	---	12 S	G 1/2"
EGE 14 SR	EGE 14 SR ES	14 S	G 1/2"
EGE 16 SR	EGE 16 SR ES	16 S	G 1/2"
EGE 20 SR	EGE 20 SR ES	20 S	G 3/4"
EGE 25 SR	EGE 25 SR ES	25 S	G 1"
EGE 30 SR	EGE 30 SR ES	30 S	G 1 1/4"
EGE 38 SR	EGE 38 SR ES	38 S	G 1 1/2"

Thread: **IMPERIAL**

elastomer seal



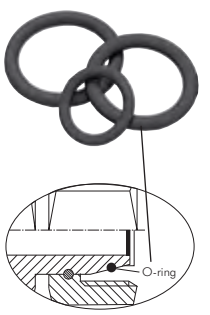
Replacement O-rings made of FKM/NBR are found below.

O-rings for sealing cone screw connections and welding nipple

Temperature range: NBR: -20°C to max. +80°C, FKM: -20°C to max. +200°C

Type NBR	Type FKM	For pipe screw connection
ORING 6 P	ORING 6 V	6 L / 6 S
ORING 8 P	ORING 8 V	8 L / 8 S
ORING 10 P	ORING 10 V	10 L / 10 S
ORING 12 P	ORING 12 V	12 L / 12 S
ORING 14 P	ORING 14 V	14 S
ORING 15 P	ORING 15 V	15 L
ORING 16 P	ORING 16 V	16 S
ORING 18 P	ORING 18 V	18 L

Type NBR	Type FKM	For pipe screw connection
ORING 20 P	ORING 20 V	20 S
ORING 22 P	ORING 22 V	22 L
ORING 25 P	ORING 25 V	25 S
ORING 28 P	ORING 28 V	28 L
ORING 30 P	ORING 30 V	30 S
ORING 35 P	ORING 35 V	35 L
ORING 38 P	ORING 38 V	38 S
ORING 42 P	ORING 42 V	42 L



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Steel & stainless steel cutting ring fittings ISO 8434-1

WARNING!

Please note: When using different model series, the screw connection must only be loaded with the operating pressure of the lighter model series. Please take the values from the pressure table on page 77.

Reducers with hexagon socket

Type zinc-plated steel	Type AISI 316Ti (INOX)	Pipe nozzles Ø (1)	Tube Ø external (2)
Light model series			
KOR 8/6 L*	KOR 8/6 L ES	8 L	6 L
KOR 10/6 L*	KOR 10/6 L ES	10 L	6 L
KOR 10/8 L*	KOR 10/8 L ES	10 L	8 L
KOR 12/6 L*	KOR 12/6 L ES	12 L	6 L
KOR 12/8 L*	KOR 12/8 L ES	12 L	8 L
KOR 12/10 L*	KOR 12/10 L ES	12 L	10 L
KOR 15/6 L	KOR 15/6 L ES	15 L	6 L
KOR 15/8 L	KOR 15/8 L ES	15 L	8 L
KOR 15/10 L	KOR 15/10 L ES	15 L	10 L
KOR 15/12 L	KOR 15/12 L ES	15 L	12 L
KOR 18/6 L	KOR 18/6 L ES	18 L	6 L
KOR 18/8 L	KOR 18/8 L ES	18 L	8 L
KOR 18/10 L	KOR 18/10 L ES	18 L	10 L
KOR 18/12 L	KOR 18/12 L ES	18 L	12 L
KOR 18/15 L	KOR 18/15 L ES	18 L	15 L
KOR 22/8 L	KOR 22/8 L ES	22 L	8 L
KOR 22/10 L	KOR 22/10 L ES	22 L	10 L
KOR 22/12 L	KOR 22/12 L ES	22 L	12 L
KOR 22/15 L	KOR 22/15 L ES	22 L	15 L
KOR 22/18 L	KOR 22/18 L ES	22 L	18 L
KOR 28/12 L	KOR 28/12 L ES	28 L	12 L
KOR 28/15 L	KOR 28/15 L ES	28 L	15 L
KOR 28/18 L	KOR 28/18 L ES	28 L	18 L
KOR 28/22 L	KOR 28/22 L ES	28 L	22 L
KOR 35/15 L	KOR 35/15 L ES	35 L	15 L
KOR 35/18 L	KOR 35/18 L ES	35 L	18 L
KOR 35/22 L	KOR 35/22 L ES	35 L	22 L
KOR 35/28 L	KOR 35/28 L ES	35 L	28 L
KOR 42/18 L	KOR 42/18 L ES	42 L	18 L
KOR 42/22 L	KOR 42/22 L ES	42 L	22 L
KOR 42/28 L	KOR 42/28 L ES	42 L	28 L
KOR 42/35 L	KOR 42/35 L ES	42 L	35 L
Heavy model series			
KOR 8/6 S*	KOR 8/6 S ES	8 S	6 S
KOR 10/6 S*	KOR 10/6 S ES	10 S	6 S
KOR 10/8 S*	KOR 10/8 S ES	10 S	8 S
KOR 12/6 S*	KOR 12/6 S ES	12 S	6 S
KOR 12/8 S*	KOR 12/8 S ES	12 S	8 S
KOR 12/10 S*	KOR 12/10 S ES	12 S	10 S
KOR 14/8 S	KOR 14/8 S ES	14 S	8 S
KOR 14/10 S	KOR 14/10 S ES	14 S	10 S
KOR 14/12 S	KOR 14/12 S ES	14 S	12 S
KOR 16/6 S	KOR 16/6 S ES	16 S	6 S
KOR 16/8 S	KOR 16/8 S ES	16 S	8 S
KOR 16/10 S	KOR 16/10 S ES	16 S	10 S
KOR 16/12 S	KOR 16/12 S ES	16 S	12 S
KOR 16/14 S	KOR 16/14 S ES	16 S	14 S
KOR 20/8 S	KOR 20/8 S ES	20 S	8 S
KOR 20/10 S	KOR 20/10 S ES	20 S	10 S
KOR 20/12 S	KOR 20/12 S ES	20 S	12 S
KOR 20/14 S	KOR 20/14 S ES	20 S	14 S
KOR 20/16 S	KOR 20/16 S ES	20 S	16 S
KOR 25/10 S	KOR 25/10 S ES	25 S	10 S
KOR 25/12 S	KOR 25/12 S ES	25 S	12 S
KOR 25/14 S	KOR 25/14 S ES	25 S	14 S
KOR 25/16 S	KOR 25/16 S ES	25 S	16 S
KOR 25/20 S	KOR 25/20 S ES	25 S	20 S
KOR 30/12 S	KOR 30/12 S ES	30 S	12 S
KOR 30/14 S	KOR 30/14 S ES	30 S	14 S
KOR 30/16 S	KOR 30/16 S ES	30 S	16 S
KOR 30/20 S	KOR 30/20 S ES	30 S	20 S
KOR 30/25 S	KOR 30/25 S ES	30 S	25 S
KOR 38/16 S	KOR 38/16 S ES	38 S	16 S
KOR 38/20 S	KOR 38/20 S ES	38 S	20 S
KOR 38/25 S	KOR 38/25 S ES	38 S	25 S
KOR 38/30 S	KOR 38/30 S ES	38 S	30 S
Special reductions from lighter to heavier model series			
KOR 18L/16S	---	18 L	16 S
Special reductions from heavier to lighter model series			
KOR 16S/15L	---	16 S	15 L
KOR 16S/18L	---	16 S	18 L
KOR 25S/18L	---	25 S	18 L

Ready-made washing and hydraulic hoses on page 231

Seamless precision hydraulic pipes from page 252

Parker
Push in hoses on page 228

One-way control and needle valves for hydraulics from page 445

Hydraulic valves from page 452

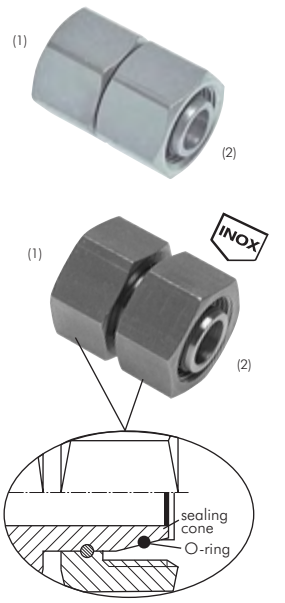
Hydraulic couplings from page 170

HYDAC
Pipe clamps from page 244

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Straight connections with sealing cone and O-ring

Type zinc-plated steel	Type AISI 316Ti	Tube Ø external (1)	Tube Ø external (2)
Light model series			
GV 6 L	GV 6 L ES	6 L	6 L
GV 8/6 L	GV 8/6 L ES	8 L	6 L
GV 8 L	GV 8 L ES	8 L	8 L
GV 10/8 L	GV 10/8 L ES	10 L	8 L
GV 10 L	GV 10 L ES	10 L	10 L
GV 12/10 L	GV 12/10 L ES	12 L	10 L
GV 12 L	GV 12 L ES	12 L	12 L
GV 15/12 L	GV 15/12 L ES	15 L	12 L
GV 15 L	GV 15 L ES	15 L	15 L
GV 18/15 L	GV 18/15 L ES	18 L	15 L
GV 18 L	GV 18 L ES	18 L	18 L
GV 22/18 L	GV 22/18 L ES	22 L	18 L
GV 22 L	GV 22 L ES	22 L	22 L
GV 28/22 L	GV 28/22 L ES	28 L	22 L
GV 28 L	GV 28 L ES	28 L	28 L
GV 35/28 L	GV 35/28 L ES	35 L	28 L
GV 35 L	GV 35 L ES	35 L	35 L
GV 42/35 L	GV 42/35 L ES	42 L	35 L
GV 42 L	GV 42 L ES	42 L	42 L
Heavy model series			
GV 6 S	GV 6 S ES	6 S	6 S
GV 8/6 S	GV 8/6 S ES	8 S	6 S
GV 8 S	GV 8 S ES	8 S	8 S
GV 10/8 S	GV 10/8 S ES	10 S	8 S
GV 10 S	GV 10 S ES	10 S	10 S
GV 12/10 S	GV 12/10 S ES	12 S	10 S
GV 12 S	GV 12 S ES	12 S	12 S
GV 14 S	GV 14 S ES	14 S	14 S
GV 16/12 S NEW	---	16 S	12 S
GV 16 S	GV 16 S ES	16 S	16 S
GV 20/16 S	GV 20/16 S ES	20 S	16 S
GV 20 S	GV 20 S ES	20 S	20 S
GV 25/20 S	GV 25/20 S ES	25 S	20 S
GV 25 S	GV 25 S ES	25 S	25 S
GV 30/25 S	GV 30/25 S ES	30 S	25 S
GV 30 S	GV 30 S ES	30 S	30 S
GV 38/30 S	GV 38/30 S ES	38 S	30 S
GV 38 S	GV 38 S ES	38 S	38 S



Replacement O-rings made of FKM/NBR are found on page 95.

Thread table for pipe screw connectors (standard design)*

Tube Ø external	Union nut thread	Screw-in thread metric*	Screw-in thread imperial*	Screw-in thread NPT*	Operating pressure steel/ stainl. steel PN***	Operating pressure NC stainl. steel PN***
Very light model series						
4 LL	M 8 x 1	M 8 x 1 (con.)	R 1/8"	NPT 1/8"	100 bar	---
5 LL	M 10 x 1	M 8 x 1 (con.)	R 1/8"	NPT 1/8"	100 bar	---
6 LL	M 10 x 1	M 10 x 1 (con.)	R 1/8"	NPT 1/8"	100 bar	---
8 LL	M 12 x 1	M 10 x 1 (con.)	R 1/8"	NPT 1/8"	100 bar	---
10 LL	M 14 x 1	M 14 x 1.5 (con.)	R 1/4"	---	100 bar	---
12 LL	M 16 x 1	M 14 x 1.5 (con.)	R 1/4"	---	100 bar	---
Light model series						
6 L	M 12 x 1.5	M 10 x 1	G 1/8"	NPT 1/8"	315 bar	315 bar
8 L	M 14 x 1.5	M 12 x 1.5	G 1/4"	NPT 1/4"	315 bar	315 bar
10 L	M 16 x 1.5	M 14 x 1.5	G 1/4"	NPT 1/4"	315 bar	315 bar
12 L	M 18 x 1.5	M 16 x 1.5	G 3/8"	NPT 3/8"	315 bar	315 bar
15 L	M 22 x 1.5	M 18 x 1.5	G 1/2"	NPT 1/2"	315 bar	315 bar
18 L	M 26 x 1.5	M 22 x 1.5	G 1/2"	NPT 1/2"	315 bar	315 bar
22 L	M 30 x 2	M 26 x 1.5	G 3/4"	NPT 3/4"	160 bar	160 bar
28 L	M 36 x 2	M 33 x 2	G 1"	NPT 1"	160 bar	---
35 L	M 45 x 2	M 42 x 2	G 1 1/4"	NPT 1 1/4"	160 bar	---
42 L	M 52 x 2	M 48 x 2	G 1 1/2"	NPT 1 1/2"	160 bar	---
Heavy model series						
6 S	M 14 x 1.5	M 12 x 1.5	G 1/4"	NPT 1/4"	630 bar**	500 bar
8 S	M 16 x 1.5	M 14 x 1.5	G 1/4"	NPT 1/4"	630 bar**	500 bar
10 S	M 18 x 1.5	M 16 x 1.5	G 3/8"	NPT 3/8"	630 bar**	450 bar
12 S	M 20 x 1.5	M 18 x 1.5	G 3/8"	NPT 3/8"	630 bar**	400 bar
14 S	M 22 x 1.5	M 20 x 1.5	G 1/2"	NPT 1/2"	630 bar**	400 bar
16 S	M 24 x 1.5	M 22 x 1.5	G 1/2"	NPT 1/2"	400 bar	400 bar
20 S	M 30 x 2	M 27 x 2	G 3/4"	NPT 3/4"	400 bar	250 bar
25 S	M 36 x 2	M 33 x 2	G 1"	NPT 1"	400 bar	250 bar
30 S	M 42 x 2	M 42 x 2	G 1 1/4"	NPT 1 1/4"	400 bar	---
38 S	M 52 x 2	M 48 x 2	G 1 1/2"	NPT 1 1/2"	315 bar	---

Rexroth Bosch Group Hydraulic pressure limiting valves from page 455

Pressure gauges from page 366

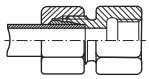
Manual tools can be found in the Online Shop

Electrical pipe bending devices on page 545

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Steel & stainless steel cutting ring fittings ISO 8434-1

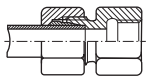
Thread: **METRIC**



Straight screw-on connections, with female threads (metric)

Type zinc-plated steel	Type AISI 316Ti INOX	Type compr. ring AISI 316Ti (NC) INOX	Tube Ø external	Female thread
Light model series				
GAI 6 LM	GAI 6 LM ES	GAI 6 LM NC	6 L	M 10 x 1
GAI 8 LM	GAI 8 LM ES	GAI 8 LM NC	8 L	M 12 x 1.5
GAI 10 LM	GAI 10 LM ES	GAI 10 LM NC	10 L	M 14 x 1.5
GAI 12 LM	GAI 12 LM ES	GAI 12 LM NC	12 L	M 16 x 1.5
---	GAI 12 LM M20 ES	GAI 12 LM M20 NC	12 L	M 20 x 1.5
GAI 15 LM	GAI 15 LM ES	GAI 15 LM NC	15 L	M 18 x 1.5
GAI 18 LM	GAI 18 LM ES	GAI 18 LM NC	18 L	M 22 x 1.5
GAI 22 LM	GAI 22 LM ES	GAI 22 LM NC	22 L	M 26 x 1.5
GAI 28 LM	GAI 28 LM ES	---	28 L	M 33x 2
GAI 35 LM	GAI 35 LM ES	---	35 L	M 42 x 2
GAI 42 LM	GAI 42 LM ES	---	42 L	M 48 x 2
Heavy model series				
GAI 6 SM	GAI 6 SM ES	GAI 6 SM NC	6 S	M 12 x 1.5
GAI 8 SM	GAI 8 SM ES	GAI 8 SM NC	8 S	M 14 x 1.5
GAI 10 SM	GAI 10 SM ES	GAI 10 SM NC	10 S	M 16 x 1.5
GAI 12 SM	GAI 12 SM ES	GAI 12 SM NC	12 S	M 18 x 1.5
---	GAI 12 SM M20 ES	GAI 12 SM M20 NC	12 S	M 20 x 1.5
GAI 14 SM	GAI 14 SM ES	GAI 14 SM NC	14 S	M 20 x 1.5
GAI 16 SM	GAI 16 SM ES	GAI 16 SM NC	16 S	M 22 x 1.5
GAI 20 SM	GAI 20 SM ES	GAI 20 SM NC	20 S	M 27 x 2
GAI 25 SM	GAI 25 SM ES	GAI 25 SM NC	25 S	M 33 x 2
GAI 30 SM	GAI 30 SM ES	---	30 S	M 42 x 2
GAI 38 SM	GAI 38 SM ES	---	38 S	M 48 x 2

Thread: **IMPERIAL**

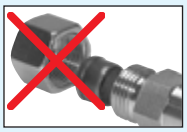


Straight screw-on connections, with female threads (imperial)

Type zinc-plated steel	Type AISI 316Ti INOX	Type compr. ring AISI 316Ti (NC) INOX	Tube Ø external	Female thread
Light model series				
GAI 6 LR	GAI 6 LR ES	GAI 6 LR NC	6 L	G 1/8"
---	GAI 6 LR 1/4 ES	GAI 6 LR 1/4 NC	6 L	G 1/4"
GAI 8 LR	GAI 8 LR ES	GAI 8 LR NC	8 L	G 1/4"
GAI 8 LR 3/8	GAI 8 LR 3/8 ES	GAI 8 LR 3/8 NC	8 L	G 3/8"
GAI 8 LR 1/2	---	---	8 L	G 1/2"
GAI 10 LR	GAI 10 LR ES	GAI 10 LR NC	10 L	G 1/4"
GAI 10 LR 3/8	GAI 10 LR 3/8 ES	GAI 10 LR 3/8 NC	10 L	G 3/8"
GAI 10 LR 1/2	GAI 10 LR 1/2 ES	GAI 10 LR 1/2 NC	10 L	G 1/2"
GAI 12 LR	GAI 12 LR ES	GAI 12 LR NC	12 L	G 3/8"
GAI 12 LR 1/2	GAI 12 LR 1/2 ES	GAI 12 LR 1/2 NC	12 L	G 1/2"
GAI 15 LR	GAI 15 LR ES	GAI 15 LR NC	15 L	G 1/2"
---	GAI 15 LR 3/8 ES	GAI 15 LR 3/8 NC	15 L	G 3/8"
GAI 18 LR	GAI 18 LR ES	GAI 18 LR NC	18 L	G 1/2"
---	GAI 18 LR 3/8 ES	GAI 18 LR 3/8 NC	18 L	G 3/8"
GAI 22 LR	GAI 22 LR ES	GAI 22 LR NC	22 L	G 3/4"
GAI 28 LR	GAI 28 LR ES	---	28 L	G 1"
GAI 35 LR	GAI 35 LR ES	---	35 L	G 1 1/4"
GAI 42 LR	GAI 42 LR ES	---	42 L	G 1 1/2"
Heavy model series				
GAI 6 SR	GAI 6 SR ES	GAI 6 SR NC	6 S	G 1/4"
---	GAI 6 SR 1/8 ES	GAI 6 SR 1/8 NC	6 S	G 1/8"
GAI 8 SR	GAI 8 SR ES	GAI 8 SR NC	8 S	G 1/4"
GAI 10 SR	GAI 10 SR ES	GAI 10 SR NC	10 S	G 3/8"
GAI 12 SR	GAI 12 SR ES	GAI 12 SR NC	12 S	G 3/8"
---	GAI 12 SR 1/4 ES	GAI 12 SR 1/4 NC	12 S	G 1/4"
---	GAI 12 SR 1/2 ES	GAI 12 SR 1/2 NC	12 S	G 1/2"
GAI 14 SR	GAI 14 SR ES	GAI 14 SR NC	14 S	G 1/2"
GAI 16 SR	GAI 16 SR ES	GAI 16 SR NC	16 S	G 1/2"
GAI 20 SR	GAI 20 SR ES	GAI 20 SR NC	20 S	G 3/4"
---	GAI 20 SR 3/8 ES	GAI 20 SR 3/8 NC	20 S	G 3/8"
---	GAI 20 SR 1/2 ES	GAI 20 SR 1/2 NC	20 S	G 1/2"
GAI 25 SR	GAI 25 SR ES	GAI 25 SR NC	25 S	G 1"
GAI 30 SR	GAI 30 SR ES	---	30 S	G 1 1/4"
GAI 38 SR	GAI 38 SR ES	---	38 S	G 1 1/2"

Ready-made washing and hydraulic hoses on page 231

Many additional products and sizes are available in our **Online Shop!**



If you want a screwed connection without nut and cutting ring, then please put an "X" in front of the order number.

☞Order example: X GAI 6 LR

Standard type

Designation for the options
Delivery without nut and cutting ring
e.g.: X GAI 6 LR

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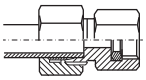
Pressure gauge couplings (screwed connection for pipe)

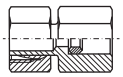
Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Female thread
Very light model series				
MAV 4 LLR	---	---	4 LL	G 1/4"
Light model series				
MAV 6 LR	MAV 6 LR ES	MAV 6 LR NC	6 L	G 1/4"
MAV 8 LR	MAV 8 LR ES	MAV 8 LR NC	8 L	G 1/4"
MAV 10 LR	MAV 10 LR ES	MAV 10 LR NC	10 L	G 1/4"
MAV 12 LR	MAV 12 LR ES	MAV 12 LR NC	12 L	G 1/4"
Heavy model series				
MAV 6 SR	MAV 6 SR ES	MAV 6 SR NC	6 S	G 1/2"
MAV 8 SR	MAV 8 SR ES	MAV 8 SR NC	8 S	G 1/2"
MAV 10 SR	MAV 10 SR ES	MAV 10 SR NC	10 S	G 1/2"
MAV 12 SR	MAV 12 SR ES	MAV 12 SR NC	12 S	G 1/2"

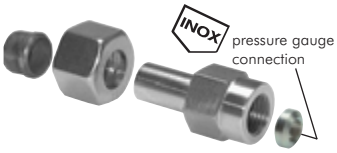


Sealing edge rings as replacement part on page 384

Pressure gauge couplings (to screw on a screw connection)

Type zinc-plated steel	Type AISI 316Ti (INOX)	Tube Ø external	Female thread
Light model series			
MAV EV 6 LR	MAV EV 6 LR ES	6 L	G 1/4"
MAV EV 8 LR	MAV EV 8 LR ES	8 L	G 1/4"
MAV EV 10 LR	MAV EV 10 LR ES	10 L	G 1/4"
MAV EV 12 LR	MAV EV 12 LR ES	12 L	G 1/4"
Heavy model series			
MAV EV 6 SR	MAV EV 6 SR ES	6 S	G 1/2"
MAV EV 8 SR	MAV EV 8 SR ES	8 S	G 1/2"
MAV EV 10 SR	MAV EV 10 SR ES	10 S	G 1/2"
MAV EV 12 SR	MAV EV 12 SR ES	12 S	G 1/2"

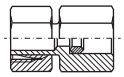


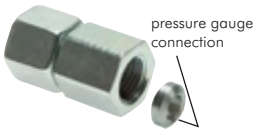


Sealing edge rings as replacement part on page 384

Pressure gauge coupling with sealing cone (to screw on a screw connection)

Type zinc-plated steel	Type AISI 316Ti (INOX)	Tube Ø external	Female thread
Light model series			
MAVE 6 LR	MAVE 6 LR ES	6 L	G 1/4"
MAVE 8 LR	MAVE 8 LR ES	8 L	G 1/4"
MAVE 10 LR	MAVE 10 LR ES	10 L	G 1/4"
MAVE 12 LR	MAVE 12 LR ES	12 L	G 1/4"
Heavy model series			
MAVE 6 SR	MAVE 6 SR ES	6 S	G 1/2"
MAVE 8 SR	MAVE 8 SR ES	8 S	G 1/2"
MAVE 10 SR	MAVE 10 SR ES	10 S	G 1/2"
MAVE 12 SR	MAVE 12 SR ES	12 S	G 1/2"



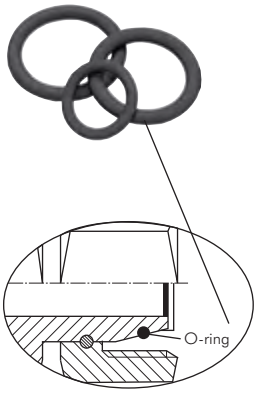


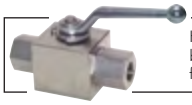
Sealing edge rings as replacement part on page 384

O-rings for sealing cone screw connections and welding nipple

Temperature range: NBR: -20°C to max. +80°C, FKM: -20°C to max. +200°C

Type NBR	Type FKM	For pipe screw connection	Type NBR	Type FKM	For pipe screw connection
ORING 6 P	ORING 6 V	6 L / 6 S	ORING 20 P	ORING 20 V	20 S
ORING 8 P	ORING 8 V	8 L / 8 S	ORING 22 P	ORING 22 V	22 L
ORING 10 P	ORING 10 V	10 L / 10 S	ORING 25 P	ORING 25 V	25 S
ORING 12 P	ORING 12 V	12 L / 12 S	ORING 28 P	ORING 28 V	28 L
ORING 14 P	ORING 14 V	14 S	ORING 30 P	ORING 30 V	30 S
ORING 15 P	ORING 15 V	15 L	ORING 35 P	ORING 35 V	35 L
ORING 16 P	ORING 16 V	16 S	ORING 38 P	ORING 38 V	38 S
ORING 18 P	ORING 18 V	18 L	ORING 42 P	ORING 42 V	42 L





High pressure ball valves from page 292

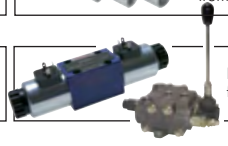
HYDAC Pipe clamps from page 244

Seamless precision hydraulic pipes from page 252

Pressure gauges from page 366

Assembly paste for stainless steel cutting ring fittings from page 580

Oil binding agents & oil binding cloths from page 581



Hydraulic valves from page 452

Rexroth Bosch Group Hydraulic pressure limiting valves from page 455

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Steel & stainless steel cutting ring fittings ISO 8434-1

Straight screw connections

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread
Very light model series				
G 4 LL	G 4 LL ES	---	4 LL	M 8 x 1
G 5 LL	---	---	5 LL	M 10 x 1
G 6 LL	G 6 LL ES	---	6 LL	M 10 x 1
G 8 LL	G 8 LL ES	---	8 LL	M 12 x 1
G 10 LL	---	---	10 LL	M 14 x 1
G 12 LL	---	---	12 LL	M 16 x 1
Light model series				
G 6 L	G 6 L ES	G 6 L NC	6 L	M 12 x 1.5
G 8 L	G 8 L ES	G 8 L NC	8 L	M 14 x 1.5
G 10 L	G 10 L ES	G 10 L NC	10 L	M 16 x 1.5
G 12 L	G 12 L ES	G 12 L NC	12 L	M 18 x 1.5
G 15 L	G 15 L ES	G 15 L NC	15 L	M 22 x 1.5
G 18 L	G 18 L ES	G 18 L NC	18 L	M 26 x 1.5
G 22 L	G 22 L ES	G 22 L NC	22 L	M 30 x 2
G 28 L	G 28 L ES	---	28 L	M 36 x 2
G 35 L	G 35 L ES	---	35 L	M 45 x 2
G 42 L	G 42 L ES	---	42 L	M 52 x 2
Heavy model series				
G 6 S	G 6 S ES	G 6 S NC	6 S	M 14 x 1.5
G 8 S	G 8 S ES	G 8 S NC	8 S	M 16 x 1.5
G 10 S	G 10 S ES	G 10 S NC	10 S	M 18 x 1.5
G 12 S	G 12 S ES	G 12 S NC	12 S	M 20 x 1.5
G 14 S	G 14 S ES	G 14 S NC	14 S	M 22 x 1.5
G 16 S	G 16 S ES	G 16 S NC	16 S	M 24 x 1.5
G 20 S	G 20 S ES	G 20 S NC	20 S	M 30 x 2
G 25 S	G 25 S ES	G 25 S NC	25 S	M 36 x 2
G 30 S	G 30 S ES	---	30 S	M 42 x 2
G 38 S	G 38 S ES	---	38 S	M 52 x 2

Straight bulkhead screw connections

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread	Locking nuts zinc-plated steel*
Light model series					**Light model series**
SV 6 L	SV 6 L ES	SV 6 L NC	6 L	M 12 x 1.5	KOMUTT 6L
SV 8 L	SV 8 L ES	SV 8 L NC	8 L	M 14 x 1.5	KOMUTT 8L/6S
SV 10 L	SV 10 L ES	SV 10 L NC	10 L	M 16 x 1.5	KOMUTT 10L/8S
SV 12 L	SV 12 L ES	SV 12 L NC	12 L	M 18 x 1.5	KOMUTT 12L/10S
SV 15 L	SV 15 L ES	SV 15 L NC	15 L	M 22 x 1.5	KOMUTT 15L/14S
SV 18 L	SV 18 L ES	SV 18 L NC	18 L	M 26 x 1.5	KOMUTT 18L
SV 22 L	SV 22 L ES	SV 22 L NC	22 L	M 30 x 2	KOMUTT 22L/20S
SV 28 L	SV 28 L ES	---	28 L	M 36 x 2	KOMUTT 28L/25S
SV 35 L	SV 35 L ES	---	35 L	M 45 x 2	KOMUTT 35L
SV 42 L	SV 42 L ES	---	42 L	M 52 x 2	KOMUTT 42L/38S
Heavy model series					**Heavy model series**
SV 6 S	SV 6 S ES	SV 6 S NC	6 S	M 14 x 1.5	KOMUTT 8L/6S
SV 8 S	SV 8 S ES	SV 8 S NC	8 S	M 16 x 1.5	KOMUTT 10L/8S
SV 10 S	SV 10 S ES	SV 10 S NC	10 S	M 18 x 1.5	KOMUTT 12L/10S
SV 12 S	SV 12 S ES	SV 12 S NC	12 S	M 20 x 1.5	KOMUTT 12S
SV 14 S	SV 14 S ES	SV 14 S NC	14 S	M 22 x 1.5	KOMUTT 15L/14S
SV 16 S	SV 16 S ES	SV 16 S NC	16 S	M 24 x 1.5	KOMUTT 16S
SV 20 S	SV 20 S ES	SV 20 S NC	20 S	M 30 x 2	KOMUTT 22L/20S
SV 25 S	SV 25 S ES	SV 25 S NC	25 S	M 36 x 2	KOMUTT 28L/25S
SV 30 S	SV 30 S ES	---	30 S	M 42 x 2	KOMUTT 30S
SV 38 S	SV 38 S ES	---	38 S	M 52 x 2	KOMUTT 42L/38S

* For locking nuts of types AISI 316Ti and AISI 316Ti (NC) please attach "ES" to the order number.

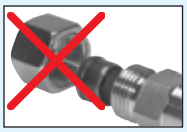
If you require stainless steel locking nuts, please attach an "ES" on the order number in the table!

Order example: KOMUTT 6L ES

- KOMUTT 6L: Type zinc-plated steel
- ES: Order supplement for stainless steel design

Ready-made washing and hydraulic hoses on page 231

Many additional products and sizes are available in our **Online Shop!**



If you want a screwed connection without nut and cutting ring, then please put an "X" in front of the order number.

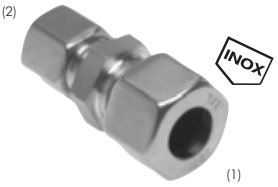
Order example: X G 6 L

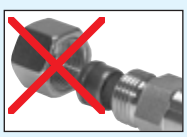
- G 6 L: Standard type
- X: **Designation for the options** Delivery without nut and cutting ring e.g.: X G 6 L

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Straight reduction screw connections

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external (1)	Tube Ø external (2)
Very light model series				
GR 6/4 LL	GR 6/4 LL ES	---	6 LL	4 LL
GR 8/4 LL	---	---	8 LL	4 LL
GR 8/6 LL	---	---	8 LL	6 LL
Light model series				
GR 8/6 L	GR 8/6 L ES	GR 8/6 L NC	8 L	6 L
GR 10/6 L	GR 10/6 L ES	GR 10/6 L NC	10 L	6 L
GR 10/8 L	GR 10/8 L ES	GR 10/8 L NC	10 L	8 L
GR 12/6 L	GR 12/6 L ES	GR 12/6 L NC	12 L	6 L
GR 12/8 L	GR 12/8 L ES	GR 12/8 L NC	12 L	8 L
GR 12/10 L	GR 12/10 L ES	GR 12/10 L NC	12 L	10 L
GR 15/6 L	GR 15/6 L ES	GR 15/6 L NC	15 L	6 L
GR 15/8 L	GR 15/8 L ES	GR 15/8 L NC	15 L	8 L
GR 15/10 L	GR 15/10 L ES	GR 15/10 L NC	15 L	10 L
GR 15/12 L	GR 15/12 L ES	GR 15/12 L NC	15 L	12 L
---	GR 18/8 L ES	GR 18/8 L NC	18 L	8 L
GR 18/10 L	GR 18/10 L ES	GR 18/10 L NC	18 L	10 L
GR 18/12 L	GR 18/12 L ES	GR 18/12 L NC	18 L	12 L
GR 18/15 L	GR 18/15 L ES	GR 18/15 L NC	18 L	15 L
---	GR 22/10 L ES	GR 22/10 L NC	22 L	10 L
GR 22/12 L	GR 22/12 L ES	GR 22/12 L NC	22 L	12 L
GR 22/15 L	GR 22/15 L ES	GR 22/15 L NC	22 L	15 L
GR 22/18 L	GR 22/18 L ES	GR 22/18 L NC	22 L	18 L
---	GR 28/10 L ES	---	28 L	10 L
---	GR 28/15 L ES	---	28 L	15 L
GR 28/18 L	GR 28/18 L ES	---	28 L	18 L
GR 28/22 L	GR 28/22 L ES	---	28 L	22 L
GR 35/28 L	GR 35/28 L ES	---	35 L	28 L
GR 42/28 L	GR 42/28 L ES	---	42 L	28 L
---	GR 42/35 L ES	---	42 L	35 L
Heavy model series				
GR 8/6 S	GR 8/6 S ES	GR 8/6 S NC	8 S	6 S
GR 10/6 S	GR 10/6 S ES	GR 10/6 S NC	10 S	6 S
GR 10/8 S	GR 10/8 S ES	GR 10/8 S NC	10 S	8 S
GR 12/6 S	GR 12/6 S ES	GR 12/6 S NC	12 S	6 S
GR 12/8 S	GR 12/8 S ES	GR 12/8 S NC	12 S	8 S
GR 12/10 S	GR 12/10 S ES	GR 12/10 S NC	12 S	10 S
GR 14/8 S	---	---	14 S	8 S
---	GR 14/10 S ES	GR 14/10 S NC	14 S	10 S
GR 14/12 S	GR 14/12 S ES	GR 14/12 S NC	14 S	12 S
GR 16/8 S	---	---	16 S	8 S
GR 16/10 S	GR 16/10 S ES	GR 16/10 S NC	16 S	10 S
GR 16/12 S	GR 16/12 S ES	GR 16/12 S NC	16 S	12 S
GR 16/14 S	GR 16/14 S ES	GR 16/14 S NC	16 S	14 S
GR 20/10 S	GR 20/10 S ES	GR 20/10 S NC	20 S	10 S
GR 20/12 S	GR 20/12 S ES	GR 20/12 S NC	20 S	12 S
GR 20/14 S	GR 20/14 S ES	GR 20/14 S NC	20 S	14 S
GR 20/16 S	GR 20/16 S ES	GR 20/16 S NC	20 S	16 S
GR 25/16 S	GR 25/16 S ES	GR 25/16 S NC	25 S	16 S
GR 25/20 S	GR 25/20 S ES	GR 25/20 S NC	25 S	20 S
GR 30/20 S	GR 30/20 S ES	---	30 S	20 S
GR 30/25 S	GR 30/25 S ES	---	30 S	25 S
GR 38/30 S	GR 38/30 S ES	---	38 S	30 S





If you want a screwed connection without nut and cutting ring, then please put an "X" in front of the order number.

☞Order example: X GR 8/6 L

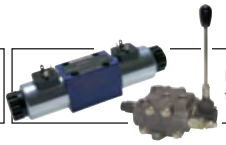
Standard type

Designation for the options
Delivery without nut and cutting ring
e.g.: X GR 8/6 L

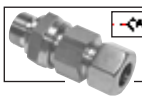
Many additional products and sizes are available in our **Online Shop!**

Pressure gauges from page 366

Electronic pressure switches from page 391

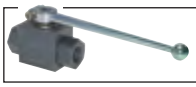

Hydraulic valves from page 452

Ready-made washing and hydraulic hoses on page 231


HP check valves of various shapes from page 450

HYDAC Pipe clamps from page 244

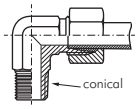
Seamless precision hydraulic pipes from page 252


High pressure ball valves from page 292

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Steel & stainless steel cutting ring fittings ISO 8434-1

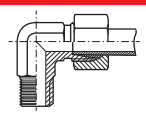
Thread: METRIC



Angle screw-in connections (metric)

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Screw-in thread
Very light model series				
WE 4 LLM	WE 4 LLM ES	---	4 LL	M 8 x 1 (con.)
WE 4 LLM M6	---	---	4 LL	M 6 x 1 (con.)
WE 6 LLM	WE 6 LLM ES	---	6 LL	M 10 x 1 (con.)
WE 6 LLM M6	---	---	6 LL	M 6 x 1 (con.)
WE 6 LLM M8	---	---	6 LL	M 8 x 1 (con.)
WE 8 LLM	WE 8 LLM ES	---	8 LL	M 10 x 1 (con.)
Light model series				
WE 6 LM	WE 6 LM ES	WE 6 LM NC	6 L	M 10 x 1 (con.)
WE 8 LM	WE 8 LM ES	WE 8 LM NC	8 L	M 12 x 1.5 (con.)
WE 10 LM	WE 10 LM ES	WE 10 LM NC	10 L	M 14 x 1.5 (con.)
WE 12 LM	WE 12 LM ES	WE 12 LM NC	12 L	M 16 x 1.5 (con.)
WE 15 LM	WE 15 LM ES	WE 15 LM NC	15 L	M 18 x 1.5 (con.)
WE 18 LM	WE 18 LM ES	WE 18 LM NC	18 L	M 22 x 1.5 (con.)
Heavy model series				
WE 6 SM	WE 6 SM ES	WE 6 SM NC	6 S	M 12 x 1.5 (con.)
WE 8 SM	WE 8 SM ES	WE 8 SM NC	8 S	M 14 x 1.5 (con.)
WE 10 SM	WE 10 SM ES	WE 10 SM NC	10 S	M 16 x 1.5 (con.)
WE 12 SM	WE 12 SM ES	WE 12 SM NC	12 S	M 18 x 1.5 (con.)
WE 14 SM	WE 14 SM ES	WE 14 SM NC	14 S	M 20 x 1.5 (con.)
WE 16 SM	WE 16 SM ES	WE 16 SM NC	16 S	M 22 x 1.5 (con.)

Thread: IMPERIAL

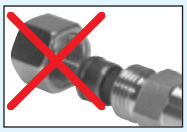


Angle screw-in connections, Whitworth pipe threads (imperial)

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Screw-in thread
Very light model series				
WE 4 LLR	WE 4 LLR ES	---	4 LL	R 1/8"
WE 5 LLR	---	---	5 LL	R 1/8"
WE 6 LLR	WE 6 LLR ES	---	6 LL	R 1/8"
WE 8 LLR	WE 8 LLR ES	---	8 LL	R 1/8"
WE 10 LLR	---	---	10 LL	R 1/4"
WE 12 LLR	---	---	12 LL	R 1/4"
Light model series				
WE 6 LR	WE 6 LR ES	WE 6 LR NC	6 L	R 1/8"
WE 6 LR 1/4	WE 6 LR 1/4 ES	WE 6 LR 1/4 NC	6 L	R 1/4"
WE 8 LR	WE 8 LR ES	WE 8 LR NC	8 L	R 1/4"
WE 8 LR 1/8	WE 8 LR 1/8 ES	WE 8 LR 1/8 NC	8 L	R 1/8"
WE 8 LR 3/8	WE 8 LR 3/8 ES	WE 8 LR 3/8 NC	8 L	R 3/8"
---	WE 8 LR 1/2 ES	WE 8 LR 1/2 NC	8 L	R 1/2"
WE 10 LR	WE 10 LR ES	WE 10 LR NC	10 L	R 1/4"
WE 10 LR 3/8	WE 10 LR 3/8 ES	WE 10 LR 3/8 NC	10 L	R 3/8"
WE 10 LR 1/2	WE 10 LR 1/2 ES	WE 10 LR 1/2 NC	10 L	R 1/2"
WE 12 LR	WE 12 LR ES	WE 12 LR NC	12 L	R 3/8"
WE 12 LR 1/4	WE 12 LR 1/4 ES	WE 12 LR 1/4 NC	12 L	R 1/4"
WE 12 LR 1/2	WE 12 LR 1/2 ES	WE 12 LR 1/2 NC	12 L	R 1/2"
WE 15 LR	WE 15 LR ES	WE 15 LR NC	15 L	R 1/2"
WE 15 LR 3/8	WE 15 LR 3/8 ES	WE 15 LR 3/8 NC	15 L	R 3/8"
WE 18 LR	WE 18 LR ES	WE 18 LR NC	18 L	R 1/2"
WE 22 LR	WE 22 LR ES	WE 22 LR NC	22 L	G 3/4"
WE 28 LR	WE 28 LR ES	---	28 L	G 1"
WE 35 LR	WE 35 LR ES	---	35 L	G 1 1/4"
WE 42 LR	WE 42 LR ES	---	42 L	G 1 1/2"
Heavy model series				
WE 6 SR	WE 6 SR ES	WE 6 SR NC	6 S	R 1/4"
WE 8 SR	WE 8 SR ES	WE 8 SR NC	8 S	R 1/4"
WE 10 SR	WE 10 SR ES	WE 10 SR NC	10 S	R 3/8"
WE 12 SR	WE 12 SR ES	WE 12 SR NC	12 S	R 3/8"
WE 14 SR	WE 14 SR ES	WE 14 SR NC	14 S	R 1/2"
WE 16 SR	WE 16 SR ES	WE 16 SR NC	16 S	R 1/2"
WE 20 SR	WE 20 SR ES	WE 20 SR NC	20 S	G 3/4"
WE 25 SR	WE 25 SR ES	WE 25 SR NC	25 S	G 1"
WE 30 SR	WE 30 SR ES	---	30 S	G 1 1/4"
WE 38 SR	WE 38 SR ES	---	38 S	G 1 1/2"

Ready-made washing and hydraulic hoses on page 231

Many additional products and sizes are available in our **Online Shop!**



If you want a screwed connection without nut and cutting ring, then please put an "X" in front of the order number.

Order example: X WE 6 LR

Standard type

Designation for the options
Delivery without nut and cutting ring
e.g.: X WE 6 LR

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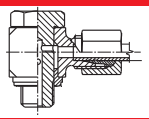
Flow control pivot joints (metric)

Thread: **METRIC**



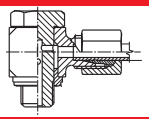
Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Screw-in thread	PN	For ES/NC type sealing edge rings
Very light model series						Very light model series
SWVE 4 LLM**	---	---	4 LL	M 8 x 1	100	---
SWVE 6 LLM**	---	---	6 LL	M 10 x 1	100	---
SWVE 8 LLM**	WH 8 LLM ES	---	8 LL	M 10 x 1	100	---
Light model series						Light model series
WH 6 LM	WH 6 LM ES	WH 6 LM NC	6 L	M 10 x 1	315	DKA 1/8-10 ES
WH 8 LM	WH 8 LM ES	WH 8 LM NC	8 L	M 12 x 1.5	315	DKA 12 ES
WH 10 LM	WH 10 LM ES	WH 10 LM NC	10 L	M 14 x 1.5	315	DKA 14 ES
WH 12 LM	WH 12 LM ES	WH 12 LM NC	12 L	M 16 x 1.5	315	DKA 16 ES
WH 15 LM	WH 15 LM ES	WH 15 LM NC	15 L	M 18 x 1.5	315	DKA 18 ES
WH 18 LM	WH 18 LM ES	WH 18 LM NC	18 L	M 22 x 1.5	315	DKA 22 ES
WH 22 LM	WH 22 LM ES	WH 22 LM NC	22 L	M 26 x 1.5	160	DKA 26 ES
WH 28 LM	WH 28 LM ES	---	28 L	M 33 x 2	160	DKA 1-33 ES
WH 35 LM	WH 35 LM ES	---	35 L	M 42 x 2	160	DKA 1 1/4-42 ES
WH 42 LM	WH 42 LM ES	---	42 L	M 48 x 2	160	DKA 1 1/2-48 ES
Heavy model series						Heavy model series
WH 6 SM	WH 6 SM ES	WH 6 SM NC	6 S	M 12 x 1.5	400	DKA 12 ES
WH 8 SM	WH 8 SM ES	WH 8 SM NC	8 S	M 14 x 1.5	400	DKA 14 ES
WH 10 SM	WH 10 SM ES	WH 10 SM NC	10 S	M 16 x 1.5	400	DKA 16 ES
WH 12 SM	WH 12 SM ES	WH 12 SM NC	12 S	M 18 x 1.5	400	DKA 18 ES
WH 14 SM	WH 14 SM ES	WH 14 SM NC	14 S	M 20 x 1.5	400	DKA 20 ES
WH 16 SM	WH 16 SM ES	WH 16 SM NC	16 S	M 22 x 1.5	400	DKA 22 ES
WH 20 SM	WH 20 SM ES	WH 20 SM NC	20 S	M 27 x 2	400	DKA 27 ES
WH 25 SM	WH 25 SM ES	WH 25 SM NC	25 S	M 33 x 2	250	DKA 1-33 ES
WH 30 SM	WH 30 SM ES	---	30 S	M 42 x 2	250	DKA 1 1/4-42 ES
WH 38 SM	WH 38 SM ES	---	38 S	M 48 x 2	250	DKA 1 1/2-48 ES

** has flow control valve

sealing edge ring

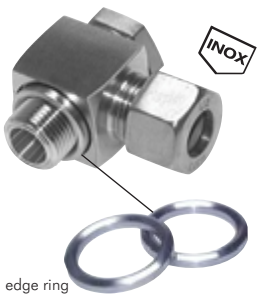
Flow control swivel joints, Whitworth pipe threads (imperial)

Thread: **IMPERIAL**



Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Screw-in thread	PN	For ES/NC type sealing edge rings
Very light model series						Very light model series
SWVE 4 LLR**	---	---	4 LL	G 1/8"	100	---
SWVE 6 LLR**	WH 6 LLR ES	---	6 LL	G 1/8"	100	---
SWVE 8 LLR**	WH 8 LLR ES	---	8 LL	G 1/8"	100	---
Light model series						Light model series
WH 6 LR	WH 6 LR ES	WH 6 LR NC	6 L	G 1/8"	315	DKA 1/8 -10 ES
WH 8 LR	WH 8 LR ES	WH 8 LR NC	8 L	G 1/4"	315	DKA 1/4 ES
WH 10 LR	WH 10 LR ES	WH 10 LR NC	10 L	G 1/4"	315	DKA 1/4 ES
WH 12 LR	WH 12 LR ES	WH 12 LR NC	12 L	G 3/8"	315	DKA 3/8 ES
WH 15 LR	WH 15 LR ES	WH 15 LR NC	15 L	G 1/2"	315	DKA 1/2 ES
WH 18 LR	WH 18 LR ES	WH 18 LR NC	18 L	G 1/2"	315	DKA 1/2 ES
WH 22 LR	WH 22 LR ES	WH 22 LR NC	22 L	G 3/4"	160	DKA 3/4 ES
WH 28 LR	WH 28 LR ES	---	28 L	G 1"	160	DKA 1-33 ES
WH 35 LR	WH 35 LR ES	---	35 L	G 1 1/4"	160	DKA 1 1/4-42 ES
WH 42 LR	WH 42 LR ES	---	42 L	G 1 1/2"	160	DKA 1 1/2-48 ES
Heavy model series						Heavy model series
WH 6 SR	WH 6 SR ES	WH 6 SR NC	6 S	G 1/4"	400	DKA 1/4 ES
WH 8 SR	WH 8 SR ES	WH 8 SR NC	8 S	G 1/4"	400	DKA 1/4 ES
WH 10 SR	WH 10 SR ES	WH 10 SR NC	10 S	G 3/8"	400	DKA 3/8 ES
WH 12 SR	WH 12 SR ES	WH 12 SR NC	12 S	G 3/8"	400	DKA 3/8 ES
WH 14 SR	WH 14 SR ES	WH 14 SR NC	14 S	G 1/2"	400	DKA 1/2 ES
WH 16 SR	WH 16 SR ES	WH 16 SR NC	16 S	G 1/2"	400	DKA 1/2 ES
WH 20 SR	WH 20 SR ES	WH 20 SR NC	20 S	G 3/4"	400	DKA 3/4 ES
WH 25 SR	WH 25 SR ES	WH 25 SR NC	25 S	G 1"	250	DKA 1-33 ES
WH 30 SR	WH 30 SR ES	---	30 S	G 1 1/4"	250	DKA 1 1/4-42 ES
WH 38 SR	WH 38 SR ES	---	38 S	G 1 1/2"	250	DKA 1 1/2-48 ES

** has flow control valve



sealing edge ring

Flow control pivot joints with O-ring seal

These screw connections can also be found in our Online Shop with an O-ring seal.
Simply insert an "O" on the order number after the designation WH.

☞ Order example: WHO 12 LR

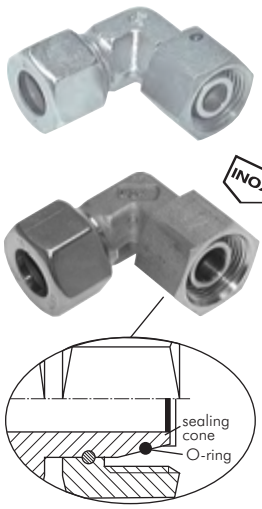
Standard type | Designation for the options: O-ring seal . . . . . -O

Many additional products and sizes are available in our **Online Shop!**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Steel & stainless steel cutting ring fittings ISO 8434-1

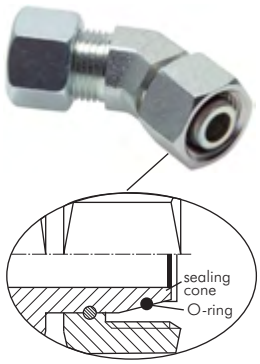
Adjustable angle screwed connections with sealing cone and O-ring



Replacement O-rings made of FKM/NBR are found below.

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread
Light model series				
EW 6 L	EW 6 L ES	EW 6 L NC	6 L	M 12 x 1.5
EW 8 L	EW 8 L ES	EW 8 L NC	8 L	M 14 x 1.5
EW 10 L	EW 10 L ES	EW 10 L NC	10 L	M 16 x 1.5
EW 12 L	EW 12 L ES	EW 12 L NC	12 L	M 18 x 1.5
EW 15 L	EW 15 L ES	EW 15 L NC	15 L	M 22 x 1.5
EW 18 L	EW 18 L ES	EW 18 L NC	18 L	M 26 x 1.5
EW 22 L	EW 22 L ES	EW 22 L NC	22 L	M 30 x 2
EW 28 L	EW 28 L ES	---	28 L	M 36 x 2
EW 35 L	EW 35 L ES	---	35 L	M 45 x 2
EW 42 L	EW 42 L ES	---	42 L	M 52 x 2
Heavy model series				
EW 6 S	EW 6 S ES	EW 6 S NC	6 S	M 14 x 1.5
EW 8 S	EW 8 S ES	EW 8 S NC	8 S	M 16 x 1.5
EW 10 S	EW 10 S ES	EW 10 S NC	10 S	M 18 x 1.5
EW 12 S	EW 12 S ES	EW 12 S NC	12 S	M 20 x 1.5
EW 14 S	EW 14 S ES	EW 14 S NC	14 S	M 22 x 1.5
EW 16 S	EW 16 S ES	EW 16 S NC	16 S	M 24 x 1.5
EW 20 S	EW 20 S ES	EW 20 S NC	20 S	M 30 x 2
EW 25 S	EW 25 S ES	EW 25 S NC	25 S	M 36 x 2
EW 30 S	EW 30 S ES	---	30 S	M 42 x 2
EW 38 S	EW 38 S ES	---	38 S	M 52 x 2

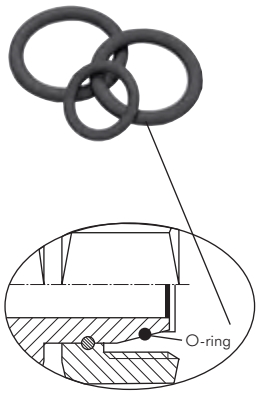
Adjustable 45° screwed connections with sealing cone and O-ring



Replacement O-rings made of FKM/NBR are found below.

Type zinc-plated steel	Tube Ø external	Union nut thread
Light model series		
EV 6 L	6 L	M 12 x 1.5
EV 8 L	8 L	M 14 x 1.5
EV 10 L	10 L	M 16 x 1.5
EV 12 L	12 L	M 18 x 1.5
EV 15 L	15 L	M 22 x 1.5
EV 18 L	18 L	M 26 x 1.5
EV 22 L	22 L	M 30 x 2
EV 28 L	28 L	M 36 x 2
EV 35 L	35 L	M 45 x 2
EV 42 L	42 L	M 52 x 2
Heavy model series		
EV 6 S	6 S	M 14 x 1.5
EV 8 S	8 S	M 16 x 1.5
EV 10 S	10 S	M 18 x 1.5
EV 12 S	12 S	M 20 x 1.5
EV 16 S	16 S	M 24 x 1.5
EV 20 S	20 S	M 30 x 2
EV 25 S	25 S	M 36 x 2
EV 30 S	30 S	M 42 x 2
EV 38 S	38 S	M 52 x 2

O-rings for sealing cone screw connections and welding nipple



Temperature range: NBR: -20°C to max. +80°C, FKM: -20°C to max. +200°C

Type NBR	Type FKM	For pipe screw connection	Type NBR	Type FKM	For pipe screw connection
ORING 6 P	ORING 6 V	6 L / 6 S	ORING 20 P	ORING 20 V	20 S
ORING 8 P	ORING 8 V	8 L / 8 S	ORING 22 P	ORING 22 V	22 L
ORING 10 P	ORING 10 V	10 L / 10 S	ORING 25 P	ORING 25 V	25 S
ORING 12 P	ORING 12 V	12 L / 12 S	ORING 28 P	ORING 28 V	28 L
ORING 14 P	ORING 14 V	14 S	ORING 30 P	ORING 30 V	30 S
ORING 15 P	ORING 15 V	15 L	ORING 35 P	ORING 35 V	35 L
ORING 16 P	ORING 16 V	16 S	ORING 38 P	ORING 38 V	38 S
ORING 18 P	ORING 18 V	18 L	ORING 42 P	ORING 42 V	42 L

LOCTITE Liquid seals, gaskets & tapes from 549

Seamless precision hydraulic pipes from page 252

Hydraulic hoses from page 231

HYDAC Pipe clamps from page 244

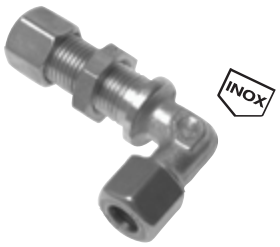
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Angle screw connections

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread
Very light model series				
W 4 LL	W 4 LL ES	---	4 LL	M 8 x 1
W 5 LL	---	---	5 LL	M 10 x 1
W 6 LL	W 6 LL ES	---	6 LL	M 10 x 1
W 8 LL	W 8 LL ES	---	8 LL	M 12 x 1
W10 LL	---	---	10 LL	M 14 x 1
W 12 LL	---	---	12 LL	M 16 x 1
Light model series				
W 6 L	W 6 L ES	W 6 L NC	6 L	M 12 x 1.5
W 8 L	W 8 L ES	W 8 L NC	8 L	M 14 x 1.5
W 10 L	W 10 L ES	W 10 L NC	10 L	M 16 x 1.5
W 12 L	W 12 L ES	W 12 L NC	12 L	M 18 x 1.5
W 15 L	W 15 L ES	W 15 L NC	15 L	M 22 x 1.5
W 18 L	W 18 L ES	W 18 L NC	18 L	M 26 x 1.5
W 22 L	W 22 L ES	W 22 L NC	22 L	M 30 x 2
W 28 L	W 28 L ES	---	28 L	M 36 x 2
W 35 L	W 35 L ES	---	35 L	M 45 x 2
W 42 L	W 42 L ES	---	42 L	M 52 x 2
Heavy model series				
W 6 S	W 6 S ES	W 6 S NC	6 S	M 14 x 1.5
W 8 S	W 8 S ES	W 8 S NC	8 S	M 16 x 1.5
W 10 S	W 10 S ES	W 10 S NC	10 S	M 18 x 1.5
W 12 S	W 12 S ES	W 12 S NC	12 S	M 20 x 1.5
W 14 S	W 14 S ES	W 14 S NC	14 S	M 22 x 1.5
W 16 S	W 16 S ES	W 16 S NC	16 S	M 24 x 1.5
W 20 S	W 20 S ES	W 20 S NC	20 S	M 30 x 2
W 25 S	W 25 S ES	W 25 S NC	25 S	M 36 x 2
W 30 S	W 30 S ES	---	30 S	M 42 x 2
W 38 S	W 38 S ES	---	38 S	M 52 x 2

Angle bulkhead screw connections

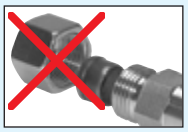
Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread	Locking nuts zinc-plated steel*
Light model series					**Light model series**
WSV 6 L	WSV 6 L ES	WSV 6 L NC	6 L	M 12 x 1.5	KOMUTT 6L
WSV 8 L	WSV 8 L ES	WSV 8 L NC	8 L	M 14 x 1.5	KOMUTT 8L/6S
WSV 10 L	WSV 10 L ES	WSV 10 L NC	10 L	M 16 x 1.5	KOMUTT 10L/8S
WSV 12 L	WSV 12 L ES	WSV 12 L NC	12 L	M 18 x 1.5	KOMUTT 12L/10S
WSV 15 L	WSV 15 L ES	WSV 15 L NC	15 L	M 22 x 1.5	KOMUTT 15L/14S
WSV 18 L	WSV 18 L ES	WSV 18 L NC	18 L	M 26 x 1.5	KOMUTT 18L
WSV 22 L	WSV 22 L ES	WSV 22 L NC	22 L	M 30 x 2	KOMUTT 22L/20S
WSV 28 L	WSV 28 L ES	---	28 L	M 36 x 2	KOMUTT 28L/25S
WSV 35 L	WSV 35 L ES	---	35 L	M 45 x 2	KOMUTT 35L
WSV 42 L	WSV 42 L ES	---	42 L	M 52 x 2	KOMUTT 42L/38S
Heavy model series					**Heavy model series**
WSV 6 S	WSV 6 S ES	WSV 6 S NC	6 S	M 14 x 1.5	KOMUTT 8L/6S
WSV 8 S	WSV 8 S ES	WSV 8 S NC	8 S	M 16 x 1.5	KOMUTT 10L/8S
WSV 10 S	WSV 10 S ES	WSV 10 S NC	10 S	M 18 x 1.5	KOMUTT 12L/10S
WSV 12 S	WSV 12 S ES	WSV 12 S NC	12 S	M 20 x 1.5	KOMUTT 12S
WSV 14 S	WSV 14 S ES	WSV 14 S NC	14 S	M 22 x 1.5	KOMUTT 15L/14S
WSV 16 S	WSV 16 S ES	WSV 16 S NC	16 S	M 24 x 1.5	KOMUTT 16S
WSV 20 S	WSV 20 S ES	WSV 20 S NC	20 S	M 30 x 2	KOMUTT 22L/20S
WSV 25 S	WSV 25 S ES	WSV 25 S NC	25 S	M 36 x 2	KOMUTT 28L/25S
WSV 30 S	WSV 30 S ES	---	30 S	M 42 x 2	KOMUTT 30S
WSV 38 S	WSV 38 S ES	---	38 S	M 52 x 2	KOMUTT 42L/38S



* for locking nuts of types AISI 316Ti and AISI 316Ti (NC) please attach "ES" to the order number.

If you require stainless steel locking nuts, please attach an "ES" on the order number in the table!

Order example: KOMUTT 6L ES
- Type zinc-plated steel
- Order supplement for stainless steel design



If you want a screwed connection without nut and cutting ring, then please put an "X" in front of the order number.

Order example: X W 6 L
- Standard type
- **Designation for the options** Delivery without nut and cutting ring e.g.: X W 6 L

Many additional products and sizes are available in our **Online Shop!**

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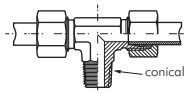
Steel & stainless steel cutting ring fittings ISO 8434-1

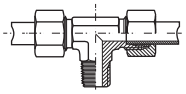
Thread: **METRIC**



T-screw-in connections (metric)

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Screw-in thread
Very light model series				
TE 4 LLM	TE 4 LLM ES	---	4 LL	M 8 x 1 (con.)
TE 6 LLM	TE 6 LLM ES	---	6 LL	M 10 x 1 (con.)
TE 8 LLM	TE 8 LLM ES	---	8 LL	M 10 x 1 (con.)
Light model series				
TE 6 LM	TE 6 LM ES	TE 6 LM NC	6 L	M 10 x 1 (con.)
TE 8 LM	TE 8 LM ES	TE 8 LM NC	8 L	M 12 x 1.5 (con.)
TE 10 LM	TE 10 LM ES	TE 10 LM NC	10 L	M 14 x 1.5 (con.)
TE 12 LM	TE 12 LM ES	TE 12 LM NC	12 L	M 16 x 1.5 (con.)
TE 15 LM	TE 15 LM ES	TE 15 LM NC	15 L	M 18 x 1.5 (con.)
TE 18 LM	TE 18 LM ES	TE 18 LM NC	18 L	M 22 x 1.5 (con.)
Heavy model series				
TE 6 SM	TE 6 SM ES	TE 6 SM NC	6 S	M 12 x 1.5 (con.)
TE 8 SM	TE 8 SM ES	TE 8 SM NC	8 S	M 14 x 1.5 (con.)
TE 10 SM	TE 10 SM ES	TE 10 SM NC	10 S	M 16 x 1.5 (con.)
TE 12 SM	TE 12 SM ES	TE 12 SM NC	12 S	M 18 x 1.5 (con.)
TE 14 SM	TE 14 SM ES	TE 14 SM NC	14 S	M 20 x 1.5 (con.)
TE 16 SM	TE 16 SM ES	TE 16 SM NC	16 S	M 22 x 1.5 (con.)

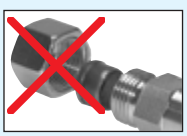
Thread: **IMPERIAL**



T-screw-in connections, Whitworth-pipe threads (imperial)

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Screw-in thread
Very light model series				
TE 4 LLR	TE 4 LLR ES	---	4 LL	R 1/8"
TE 6 LLR	TE 6 LLR ES	---	6 LL	R 1/8"
TE 8 LLR	TE 8 LLR ES	---	8 LL	R 1/8"
Light model series				
TE 6 LR	TE 6 LR ES	TE 6 LR NC	6 L	R 1/8"
---	TE 6 LR 1/4 ES	TE 6 LR 1/4 NC	6 L	R 1/4"
TE 8 LR	TE 8 LR ES	TE 8 LR NC	8 L	R 1/4"
---	TE 8 LR 3/8 ES	TE 8 LR 3/8 NC	8 L	R 3/8"
TE 10 LR	TE 10 LR ES	TE 10 LR NC	10 L	R 1/4"
TE 12 LR	TE 12 LR ES	TE 12 LR NC	12 L	R 3/8"
TE 15 LR	TE 15 LR ES	TE 15 LR NC	15 L	R 1/2"
TE 18 LR	TE 18 LR ES	TE 18 LR NC	18 L	R 1/2"
TE 22 LR	TE 22 LR ES	TE 22 LR NC	22 L	G 3/4"
TE 28 LR	TE 28 LR ES	---	28 L	G 1"
TE 35 LR	TE 35 LR ES	---	35 L	G 1 1/4"
TE 42 LR	TE 42 LR ES	---	42 L	G 1 1/2"
Heavy model series				
TE 6 SR	TE 6 SR ES	TE 6 SR NC	6 S	R 1/4"
TE 8 SR	TE 8 SR ES	TE 8 SR NC	8 S	R 1/4"
TE 10 SR	TE 10 SR ES	TE 10 SR NC	10 S	R 3/8"
TE 12 SR	TE 12 SR ES	TE 12 SR NC	12 S	R 3/8"
TE 14 SR	TE 14 SR ES	TE 14 SR NC	14 S	R 1/2"
TE 16 SR	TE 16 SR ES	TE 16 SR NC	16 S	R 1/2"
TE 20 SR	TE 20 SR ES	TE 20 SR NC	20 S	G 3/4"
TE 25 SR	TE 25 SR ES	TE 25 SR NC	25 S	G 1"
TE 30 SR	TE 30 SR ES	---	30 S	G 1 1/4"
TE 38 SR	TE 38 SR ES	---	38 S	G 1 1/2"

Many additional products and sizes are available in our **Online Shop!**



If you want a screwed connection without nut and cutting ring, then please put an "X" in front of the order number.

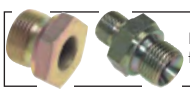
☞Order example: X TE 6 LR

Standard type

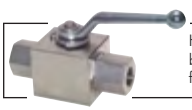
Designation for the options
Delivery without nut and cutting ring
e.g.: XTE 6 LR

Seamless precision hydraulic pipes from page 252

Functional nuts on page 99



Hydraulic adapters from page 103

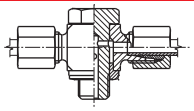


High pressure ball valves from page 292

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Non-choking T-pivot joints (metric)

Thread: **METRIC**

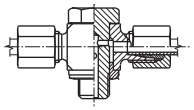


Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Screw-in thread	PN	For ES/NC type sealing edge rings
Light model series						Light model series
TH 6 LM	TH 6 LM ES	TH 6 LM NC	6 L	M 10 x 1	315	DKA 1/8-10 ES
TH 8 LM	TH 8 LM ES	TH 8 LM NC	8 L	M 12 x 1.5	315	DKA 12 ES
TH 10 LM	TH 10 LM ES	TH 10 LM NC	10 L	M 14 x 1.5	315	DKA 14 ES
TH 12 LM	TH 12 LM ES	TH 12 LM NC	12 L	M 16 x 1.5	315	DKA 16 ES
TH 15 LM	TH 15 LM ES	TH 15 LM NC	15 L	M 18 x 1.5	315	DKA 18 ES
TH 18 LM	TH 18 LM ES	TH 18 LM NC	18 L	M 22 x 1.5	315	DKA 22 ES
TH 22 LM	TH 22 LM ES	TH 22 LM NC	22 L	M 26 x 1.5	160	DKA 26 ES
TH 28 LM	TH 28 LM ES	---	28 L	M 33 x 2	160	DKA 1-33 ES
TH 35 LM	TH 35 LM ES	---	35 L	M 42 x 2	160	DKA 1 1/4"-42 ES
TH 42 LM	TH 42 LM ES	---	42 L	M 48 x 2	160	DKA 1 1/2"-48 ES
Heavy model series						Heavy model series
TH 6 SM	TH 6 SM ES	TH 6 SM NC	6 S	M 12 x 1.5	400	DKA 12 ES
TH 8 SM	TH 8 SM ES	TH 8 SM NC	8 S	M 14 x 1.5	400	DKA 14 ES
TH 10 SM	TH 10 SM ES	TH 10 SM NC	10 S	M 16 x 1.5	400	DKA 16 ES
TH 12 SM	TH 12 SM ES	TH 12 SM NC	12 S	M 18 x 1.5	400	DKA 18 ES
TH 14 SM	TH 14 SM ES	TH 14 SM NC	14 S	M 20 x 1.5	400	DKA 20 ES
TH 16 SM	TH 16 SM ES	TH 16 SM NC	16 S	M 22 x 1.5	400	DKA 22 ES
TH 20 SM	TH 20 SM ES	TH 20 SM NC	20 S	M 27 x 2	400	DKA 27 ES
TH 25 SM	TH 25 SM ES	TH 25 SM NC	25 S	M 33 x 2	250	DKA 1-33 ES
TH 30 SM	TH 30 SM ES	---	30 S	M 42 x 2	250	DKA 1 1/4"-42 ES
TH 38 SM	TH 38 SM ES	---	38 S	M 48 x 2	250	DKA 1 1/2"-48 ES

sealing edge ring

Non-choking T-pivot joints, Whitworth pipe threads (imperial)

Thread: **IMPERIAL**



Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Screw-in thread	PN	For ES/NC type sealing edge rings
Light model series						Light model series
TH 6 LR	TH 6 LR ES	TH 6 LR NC	6 L	G 1/8"	315	DKA 1/8-10 ES
TH 8 LR	TH 8 LR ES	TH 8 LR NC	8 L	G 1/4"	315	DKA 1/4 ES
TH 10 LR	TH 10 LR ES	TH 10 LR NC	10 L	G 1/4"	315	DKA 1/4 ES
TH 12 LR	TH 12 LR ES	TH 12 LR NC	12 L	G 3/8"	315	DKA 3/8 ES
TH 15 LR	TH 15 LR ES	TH 15 LR NC	15 L	G 1/2"	315	DKA 1/2 ES
TH 18 LR	TH 18 LR ES	TH 18 LR NC	18 L	G 1/2"	315	DKA 1/2 ES
TH 22 LR	TH 22 LR ES	TH 22 LR NC	22 L	G 3/4"	160	DKA 3/4 ES
TH 28 LR	TH 28 LR ES	---	28 L	G 1"	160	DKA 1-33 ES
TH 35 LR	TH 35 LR ES	---	35 L	G 1 1/4"	160	DKA 1 1/4"-42 ES
TH 42 LR	TH 42 LR ES	---	42 L	G 1 1/2"	160	DKA 1 1/2"-48 ES
Heavy model series						Heavy model series
TH 6 SR	TH 6 SR ES	TH 6 SR NC	6 S	G 1/4"	400	DKA 1/4 ES
TH 8 SR	TH 8 SR ES	TH 8 SR NC	8 S	G 1/4"	400	DKA 1/4 ES
TH 10 SR	TH 10 SR ES	TH 10 SR NC	10 S	G 3/8"	400	DKA 3/8 ES
TH 12 SR	TH 12 SR ES	TH 12 SR NC	12 S	G 3/8"	400	DKA 3/8 ES
TH 14 SR	TH 14 SR ES	TH 14 SR NC	14 S	G 1/2"	400	DKA 1/2 ES
TH 16 SR	TH 16 SR ES	TH 16 SR NC	16 S	G 1/2"	400	DKA 1/2 ES
TH 20 SR	TH 20 SR ES	TH 20 SR NC	20 S	G 3/4"	400	DKA 3/4 ES
TH 25 SR	TH 25 SR ES	TH 25 SR NC	25 S	G 1"	250	DKA 1-33 ES
TH 30 SR	TH 30 SR ES	---	30 S	G 1 1/4"	250	DKA 1 1/4"-42 ES
TH 38 SR	TH 38 SR ES	---	38 S	G 1 1/2"	250	DKA 1 1/2"-48 ES

sealing edge ring

Flow control pivot joints with O-ring seal

These screw connections can also be found in our Online Shop with an O-ring seal.
Simply insert an "O" on the order number after the designation TH.

☞ Order example: TH**O** 12 LR

Standard type | Designation for the options: O-ring seal . . . . . -O

Many additional products and sizes are available in our **Online Shop!**

Distributor bars up to 315 bar on page 133

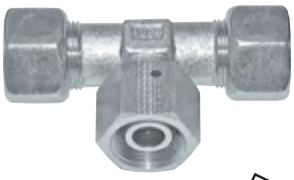
Pressure gauges from page 366

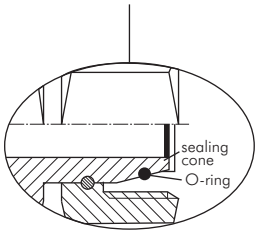
Parker Push in hoses on page 228

LOCTITE Liquid seals, gaskets & tapes from 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Steel & stainless steel cutting ring fittings ISO 8434-1



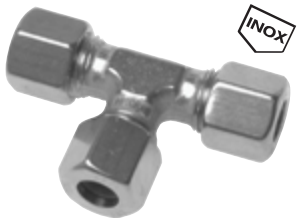


Replacement O-rings made of FKM/NBR are found on the following page.

Adjustable T-screwed connections with sealing cone and O-ring

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread
Light model series				
ET 6 L	ET 6 L ES	ET 6 L NC	6 L	M 12 x 1.5
ET 8 L	ET 8 L ES	ET 8 L NC	8 L	M 14 x 1.5
ET 10 L	ET 10 L ES	ET 10 L NC	10 L	M 16 x 1.5
ET 12 L	ET 12 L ES	ET 12 L NC	12 L	M 18 x 1.5
ET 15 L	ET 15 L ES	ET 15 L NC	15 L	M 22 x 1.5
ET 18 L	ET 18 L ES	ET 18 L NC	18 L	M 26 x 1.5
ET 22 L	ET 22 L ES	ET 22 L NC	22 L	M 30 x 2
ET 28 L	ET 28 L ES	---	28 L	M 36 x 2
ET 35 L	ET 35 L ES	---	35 L	M 45 x 2
ET 42 L	ET 42 L ES	---	42 L	M 52 x 2
Heavy model series				
ET 6 S	ET 6 S ES	ET 6 S NC	6 S	M 14 x 1.5
ET 8 S	ET 8 S ES	ET 8 S NC	8 S	M 16 x 1.5
ET 10 S	ET 10 S ES	ET 10 S NC	10 S	M 18 x 1.5
ET 12 S	ET 12 S ES	ET 12 S NC	12 S	M 20 x 1.5
ET 14 S	ET 14 S ES	ET 14 S NC	14 S	M 22 x 1.5
ET 16 S	ET 16 S ES	ET 16 S NC	16 S	M 24 x 1.5
ET 20 S	ET 20 S ES	ET 20 S NC	20 S	M 30 x 2
ET 25 S	ET 25 S ES	ET 25 S NC	25 S	M 36 x 2
ET 30 S	ET 30 S ES	---	30 S	M 42 x 2
ET 38 S	ET 38 S ES	---	38 S	M 52 x 2

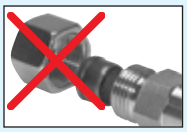
T-screw connections



Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread
Very light model series				
T 4 LL	T 4 LL ES	---	4 LL	M 8 x 1
T 5 LL	---	---	5 LL	M 10 x 1
T 6 LL	T 6 LL ES	---	6 LL	M 10 x 1
T 8 LL	T 8 LL ES	---	8 LL	M 12 x 1
T 10 LL	---	---	10 LL	M 14 x 1
T 12 LL	---	---	12 LL	M 16 x 1
Light model series				
T 6 L	T 6 L ES	T 6 L NC	6 L	M 12 x 1.5
T 8 L	T 8 L ES	T 8 L NC	8 L	M 14 x 1.5
T 10 L	T 10 L ES	T 10 L NC	10 L	M 16 x 1.5
T 12 L	T 12 L ES	T 12 L NC	12 L	M 18 x 1.5
T 15 L	T 15 L ES	T 15 L NC	15 L	M 22 x 1.5
T 18 L	T 18 L ES	T 18 L NC	18 L	M 26 x 1.5
T 22 L	T 22 L ES	T 22 L NC	22 L	M 30 x 2
T 28 L	T 28 L ES	---	28 L	M 36 x 2
T 35 L	T 35 L ES	---	35 L	M 45 x 2
T 42 L	T 42 L ES	---	42 L	M 52 x 2
Heavy model series				
T 6 S	T 6 S ES	T 6 S NC	6 S	M 14 x 1.5
T 8 S	T 8 S ES	T 8 S NC	8 S	M 16 x 1.5
T 10 S	T 10 S ES	T 10 S NC	10 S	M 18 x 1.5
T 12 S	T 12 S ES	T 12 S NC	12 S	M 20 x 1.5
T 14 S	T 14 S ES	T 14 S NC	14 S	M 22 x 1.5
T 16 S	T 16 S ES	T 16 S NC	16 S	M 24 x 1.5
T 20 S	T 20 S ES	T 20 S NC	20 S	M 30 x 2
T 25 S	T 25 S ES	T 25 S NC	25 S	M 36 x 2
T 30 S	T 30 S ES	---	30 S	M 42 x 2
T 38 S	T 38 S ES	---	38 S	M 52 x 2

Ready-made washing and hydraulic hoses on page 231

Many additional products and sizes are available in our **Online Shop!**



If you want a screwed connection without nut and cutting ring, then please put an "X" in front of the order number.

Order example: X T 6 L

Standard type

Designation for the options
Delivery without nut and cutting ring
e.g.: X T 6 L

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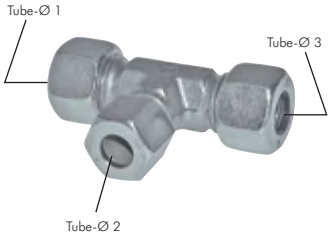
T-screw connections with reduced outlet

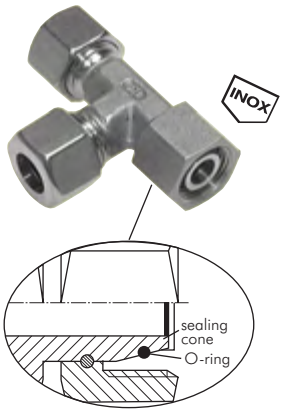
Type zinc-plated steel	Type AISI 316Ti (INOX)	Tube Ø 1 external	Tube Ø 2 external	Tube Ø 3 external
Light model series				
---	TR 6/10/6 L ES	6 L	10 L	6 L
TR 8/6/8 L	TR 8/6/8 L ES	8 L	6 L	8 L
TR 8/8/6 L	---	8 L	8 L	6 L
TR 8/10/8 L	TR 8/10/8 L ES	8 L	10 L	8 L
TR 10/6/10 L	TR 10/6/10 L ES	10 L	6 L	10 L
TR 10/8/10 L	TR 10/8/10 L ES	10 L	8 L	10 L
---	TR 10/10/8 L ES	10 L	10 L	8 L
TR 12/8/12 L	TR 12/8/12 L ES	12 L	8 L	12 L
TR 12/10/10 L	TR 12/10/10 L ES	12 L	10 L	10 L
TR 12/10/12 L	TR 12/10/12 L ES	12 L	10 L	12 L
---	TR 12/12/10 L ES	12 L	12 L	10 L
TR 12/18/12 L	TR 12/18/12 L ES	12 L	18 L	12 L
TR 15/8/15 L	TR 15/8/15 L L ES	15 L	8 L	15 L
TR 15/10/15 L	TR 15/10/15 L ES	15 L	10 L	15 L
TR 15/12/15 L	TR 15/12/15 L ES	15 L	12 L	15 L
TR 18/15/18 L	TR 18/15/18 L ES	18 L	15 L	18 L
TR 22/10/22 L	TR 22/10/22 L ES	22 L	10 L	22 L
TR 22/12/22 L	TR 22/12/22 L ES	22 L	12 L	22 L
TR 22/15/22 L	TR 22/15/22 L ES	22 L	15 L	22 L
TR 22/18/22 L	TR 22/18/22 L ES	22 L	18 L	22 L
TR 28/12/28 L	TR 28/12/28 L ES	28 L	12 L	28 L
TR 28/15/28 L	TR 28/15/28 L ES	28 L	15 L	28 L
TR 28/22/28 L	TR 28/22/28 L ES	28 L	22 L	28 L
Heavy model series				
TR 12/10/12 S	TR 12/10/12 S ES	12 S	10 S	12 S
TR 16/12/16 S	TR 16/12/16 S ES	16 S	12 S	16 S
TR 25/16/25 S	TR 25/16/25 S ES	25 S	16 S	25 S
TR 25/20/25 S	TR 25/20/25 S ES	25 S	20 S	25 S



TIP *More reducers on request!*

Adjustable 45° L-screwed connections with sealing cone and O-ring

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread
Light model series				
EL 6 L	EL 6 L ES	EL 6 L NC	6 L	M 12 x 1.5
EL 8 L	EL 8 L ES	EL 8 L NC	8 L	M 14 x 1.5
EL 10 L	EL 10 L ES	EL 10 L NC	10 L	M 16 x 1.5
EL 12 L	EL 12 L ES	EL 12 L NC	12 L	M 18 x 1.5
EL 15 L	EL 15 L ES	EL 15 L NC	15 L	M 22 x 1.5
EL 18 L	EL 18 L ES	EL 18 L NC	18 L	M 26 x 1.5
EL 22 L	EL 22 L ES	EL 22 L NC	22 L	M 30 x 2
EL 28 L	EL 28 L ES	---	28 L	M 36 x 2
EL 35 L	EL 35 L ES	---	35 L	M 45 x 2
EL 42 L	EL 42 L ES	---	42 L	M 52 x 2
Heavy model series				
EL 6 S	EL 6 S ES	EL 6 S NC	6 S	M 14 x 1.5
EL 8 S	EL 8 S ES	EL 8 S NC	8 S	M 16 x 1.5
EL 10 S	EL 10 S ES	EL 10 S NC	10 S	M 18 x 1.5
EL 12 S	EL 12 S ES	EL 12 S NC	12 S	M 20 x 1.5
EL 14 S	EL 14 S ES	EL 14 S NC	14 S	M 22 x 1.5
EL 16 S	EL 16 S ES	EL 16 S NC	16 S	M 24 x 1.5
EL 20 S	EL 20 S ES	EL 20 S NC	20 S	M 30 x 2
EL 25 S	EL 25 S ES	EL 25 S NC	25 S	M 36 x 2
EL 30 S	EL 30 S ES	---	30 S	M 42 x 2
EL 38 S	EL 38 S ES	---	38 S	M 52 x 2

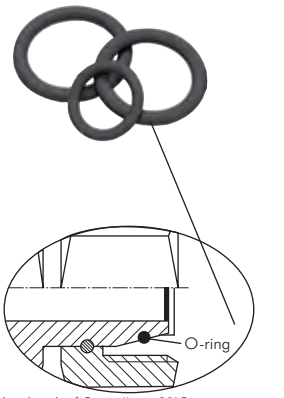


O-rings for sealing cone screw connections and welding nipple

Temperature range: NBR: -20°C to max. +80°C, FKM: -20°C to max. +200°C

Type NBR	Type FKM	For pipe screw connection
ORING 6 P	ORING 6 V	6 L / 6 S
ORING 8 P	ORING 8 V	8 L / 8 S
ORING 10 P	ORING 10 V	10 L / 10 S
ORING 12 P	ORING 12 V	12 L / 12 S
ORING 14 P	ORING 14 V	14 S
ORING 15 P	ORING 15 V	15 L
ORING 16 P	ORING 16 V	16 S
ORING 18 P	ORING 18 V	18 L

Type NBR	Type FKM	For pipe screw connection
ORING 20 P	ORING 20 V	20 S
ORING 22 P	ORING 22 V	22 L
ORING 25 P	ORING 25 V	25 S
ORING 28 P	ORING 28 V	28 L
ORING 30 P	ORING 30 V	30 S
ORING 35 P	ORING 35 V	35 L
ORING 38 P	ORING 38 V	38 S
ORING 42 P	ORING 42 V	42 L



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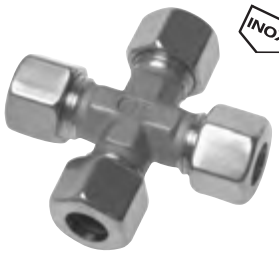
Steel & stainless steel cutting ring fittings ISO 8434-1



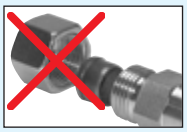
Cross-piece screw connections

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread
Very light model series				
K 4 LL	---	---	4 LL	M 8 x 1
K 6 LL	---	---	6 LL	M 10 x 1
K 8 LL	---	---	8 LL	M 12 x 1
Light model series				
K 6 L	K 6 L ES	K 6 L NC	6 L	M 12 x 1.5
K 8 L	K 8 L ES	K 8 L NC	8 L	M 14 x 1.5
K 10 L	K 10 L ES	K 10 L NC	10 L	M 16 x 1.5
K 12 L	K 12 L ES	K 12 L NC	12 L	M 18 x 1.5
K 15 L	K 15 L ES	K 15 L NC	15 L	M 22 x 1.5
K 18 L	K 18 L ES	K 18 L NC	18 L	M 26 x 1.5
K 22 L	K 22 L ES	K 22 L NC	22 L	M 30 x 2
K 28 L	K 28 L ES	---	28 L	M 36 x 2
K 35 L	K 35 L ES	---	35 L	M 45 x 2
K 42 L	K 42 L ES	---	42 L	M 52 x 2
Heavy model series				
K 6 S	K 6 S ES	K 6 S NC	6 S	M 14 x 1.5
K 8 S	K 8 S ES	K 8 S NC	8 S	M 16 x 1.5
K 10 S	K 10 S ES	K 10 S NC	10 S	M 18 x 1.5
K 12 S	K 12 S ES	K 12 S NC	12 S	M 20 x 1.5
K 14 S	K 14 S ES	K 14 S NC	14 S	M 22 x 1.5
K 16 S	K 16 S ES	K 16 S NC	16 S	M 24 x 1.5
K 20 S	K 20 S ES	K 20 S NC	20 S	M 30 x 2
K 25 S	K 25 S ES	K 25 S NC	25 S	M 36 x 2
K 30 S	K 30 S ES	---	30 S	M 42 x 2
K 38 S	K 38 S ES	---	38 S	M 52 x 2

Angle welded screw connections

Type steel phosphatised	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread
Light model series				
WAS 6 L	WAS 6 L ES	WAS 6 L NC	6 L	M 12 x 1.5
WAS 8 L	WAS 8 L ES	WAS 8 L NC	8 L	M 14 x 1.5
WAS 10 L	WAS 10 L ES	WAS 10 L NC	10 L	M 16 x 1.5
WAS 12 L	WAS 12 L ES	WAS 12 L NC	12 L	M 18 x 1.5
WAS 15 L	WAS 15 L ES	WAS 15 L NC	15 L	M 22 x 1.5
WAS 18 L	WAS 18 L ES	WAS 18 L NC	18 L	M 26 x 1.5
WAS 22 L	WAS 22 L ES	WAS 22 L NC	22 L	M 30 x 2
WAS 28 L	WAS 28 L ES	---	28 L	M 36 x 2
WAS 35 L	WAS 35 L ES	---	35 L	M 45 x 2
WAS 42 L	WAS 42 L ES	---	42 L	M 52 x 2
Heavy model series				
WAS 6 S	WAS 6 S ES	WAS 6 S NC	6 S	M 14 x 1.5
WAS 8 S	WAS 8 S ES	WAS 8 S NC	8 S	M 16 x 1.5
WAS 10 S	WAS 10 S ES	WAS 10 S NC	10 S	M 18 x 1.5
WAS 12 S	WAS 12 S ES	WAS 12 S NC	12 S	M 20 x 1.5
WAS 14 S	WAS 14 S ES	WAS 14 S NC	14 S	M 22 x 1.5
WAS 16 S	WAS 16 S ES	WAS 16 S NC	16 S	M 24 x 1.5
WAS 20 S	WAS 20 S ES	WAS 20 S NC	20 S	M 30 x 2
WAS 25 S	WAS 25 S ES	WAS 25 S NC	25 S	M 36 x 2
WAS 30 S	WAS 30 S ES	---	30 S	M 42 x 2
WAS 38 S	WAS 38 S ES	---	38 S	M 52 x 2

Many additional products and sizes are available in our **Online Shop!**

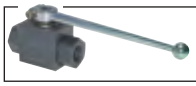


If you want a screwed connection without nut and cutting ring, then please put an "X" in front of the order.

Order example: X K 6 L

Standard type

Designation for the options
Delivery without nut and cutting ring
e.g.: X K 6 L



High pressure ball valves from page 292

Pressure gauges from page 366

Test couplings from page 388

Assembly paste for stainless steel screw connections from page 580

Hydraulic couplings from page 170

HYDAC Pipe clamps from page 244

Seamless precision hydraulic pipes from page 252

Butt weld fittings from page 254

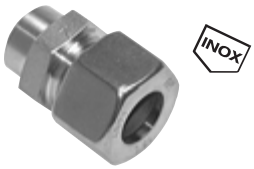
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Straight welded bulkhead screw connections

Type steel phosphatised	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Welding sockets Ø
Light model series				
SVAS 6 L	SVAS 6 L ES	SVAS 6 L NC	6 L	18
SVAS 8 L	SVAS 8 L ES	SVAS 8 L NC	8 L	20
SVAS 10 L	SVAS 10 L ES	SVAS 10 L NC	10 L	22
SVAS 12 L	SVAS 12 L ES	SVAS 12 L NC	12 L	25
SVAS 15 L	SVAS 15 L ES	SVAS 15 L NC	15 L	28
SVAS 18 L	SVAS 18 L ES	SVAS 18 L NC	18 L	32
SVAS 22 L	SVAS 22 L ES	SVAS 22 L NC	22 L	36
SVAS 28 L	SVAS 28 L ES	---	28 L	40
SVAS 35 L	SVAS 35 L ES	---	35 L	50
SVAS 42 L	SVAS 42 L ES	---	42 L	60
Heavy model series				
SVAS 6 S	SVAS 6 S ES	SVAS 6 S NC	6 S	20
SVAS 8 S	SVAS 8 S ES	SVAS 8 S NC	8 S	22
SVAS 10 S	SVAS 10 S ES	SVAS 10 S NC	10 S	25
SVAS 12 S	SVAS 12 S ES	SVAS 12 S NC	12 S	28
SVAS 14 S	SVAS 14 S ES	SVAS 14 S NC	14 S	30
SVAS 16 S	SVAS 16 S ES	SVAS 16 S NC	16 S	35
SVAS 20 S	SVAS 20 S ES	SVAS 20 S NC	20 S	38
SVAS 25 S	SVAS 25 S ES	SVAS 25 S NC	25 S	45
SVAS 30 S	SVAS 30 S ES	---	30 S	50
SVAS 38 S	SVAS 38 S ES	---	38 S	60

Straight welded screw connections

Type steel phosphatised	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread
Light model series				
AS 6 L	AS 6 L ES	AS 6 L NC	6 L	M 12 x 1.5
AS 8 L	AS 8 L ES	AS 8 L NC	8 L	M 14 x 1.5
AS 10 L	AS 10 L ES	AS 10 L NC	10 L	M 16 x 1.5
AS 12 L	AS 12 L ES	AS 12 L NC	12 L	M 18 x 1.5
AS 15 L	AS 15 L ES	AS 15 L NC	15 L	M 22 x 1.5
AS 18 L	AS 18 L ES	AS 18 L NC	18 L	M 26 x 1.5
AS 22 L	AS 22 L ES	AS 22 L NC	22 L	M 30 x 2
AS 28 L	AS 28 L ES	---	28 L	M 36 x 2
AS 35 L	AS 35 L ES	---	35 L	M 45 x 2
AS 42 L	AS 42 L ES	---	42 L	M 52 x 2
Heavy model series				
AS 6 S	AS 6 S ES	AS 6 S NC	6 S	M 14 x 1.5
AS 8 S	AS 8 S ES	AS 8 S NC	8 S	M 16 x 1.5
AS 10 S	AS 10 S ES	AS 10 S NC	10 S	M 18 x 1.5
AS 12 S	AS 12 S ES	AS 12 S NC	12 S	M 20 x 1.5
AS 14 S	AS 14 S ES	AS 14 S NC	14 S	M 22 x 1.5
AS 16 S	AS 16 S ES	AS 16 S NC	16 S	M 24 x 1.5
AS 20 S	AS 20 S ES	AS 20 S NC	20 S	M 30 x 2
AS 25 S	AS 25 S ES	AS 25 S NC	25 S	M 36 x 2
AS 30 S	AS 30 S ES	---	30 S	M 42 x 2
AS 38 S	AS 38 S ES	---	38 S	M 52 x 2



Welded nipple with O-ring seal

Type steel phosphatised	Type AISI 316Ti (INOX)	Tube Ø external x wall thickness
---	SKA 6x1,5 ES	6 x 1.5
---	SKA 8x1,5 ES	8 x 1.5
SKA 8x2	SKA 8x2 ES	8 x 2
SKA 10x1,5	---	10 x 1.5
SKA 10x2	SKA 10x2 ES	10 x 2
SKA 12x1,5	SKA 12x1,5 ES	12 x 1.5
SKA 12x2	SKA 12x2 ES	12 x 2
SKA 12x2,5	SKA 12x2,5 ES	12 x 2.5
---	SKA 14x2 ES	14 x 2
SKA 14x3	SKA 14x3 ES	14 x 3
---	SKA 15x2 ES	15 x 2
SKA 15x2,5	SKA 15x2,5 ES	15 x 2.5
SKA 16x2	SKA 16x2 ES	16 x 2
SKA 16x2,5	SKA 16x2,5 ES	16 x 2.5
SKA 16x3	SKA 16x3 ES	16 x 3
SKA 18x2,5	SKA 18x2,5 ES	18 x 2.5
SKA 20x2	SKA 20x2 ES	20 x 2
SKA 20x2,5	SKA 20x2,5 ES	20 x 2.5
SKA 20x3	SKA 20x3 ES	20 x 3
---	SKA 20x3,5 ES	20 x 3.5

Type steel phosphatised	Type AISI 316Ti (INOX)	Tube Ø external x wall thickness
SKA 20x4	SKA 20x4 ES	20 x 4
SKA 22x2,5	SKA 22x2,5 ES	22 x 2.5
SKA 25x3	SKA 25x3 ES	25 x 3
SKA 25x4	SKA 25x4 ES	25 x 4
SKA 25x5	SKA 25x5 ES	25 x 5
SKA 28x2,5	SKA 28x2,5 ES	28 x 2.5
---	SKA 28x3 ES	28 x 3
SKA 30x3	SKA 30x3 ES	30 x 3
SKA 30x4	SKA 30x4 ES	30 x 4
SKA 30x5	SKA 30x5 ES	30 x 5
SKA 30x6	SKA 30x6 ES	30 x 6
---	SKA 35x4 ES	35 x 4
SKA 38x3	SKA 38x3 ES	38 x 3
---	SKA 38x4 ES	38 x 4
SKA 38x5	SKA 38x5 ES	38 x 5
SKA 38x6	SKA 38x6 ES	38 x 6
---	SKA 38x7 ES	38 x 7
SKA 42x3	SKA 42x3 ES	42 x 3
---	SKA 42x4 ES	42 x 4

Replacement O-rings made of FKM/NBR are found on page 95.

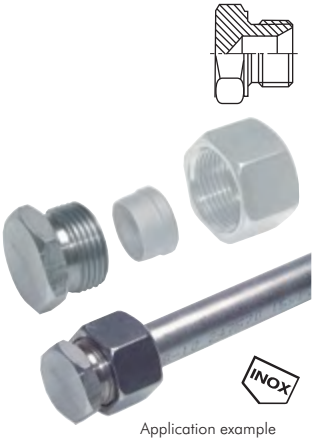
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Steel & stainless steel cutting ring fittings ISO 8434-1

Closing plugs for cutting ring fittings* — ISO 8434-1 (DIN 2353)

Type zinc-plated steel	Type AISI 316Ti (INOX)	Union nut* Heavy	Union nut* Light	For pipe screw connection
BUZ 6	BUZ 6 ES	M 6 S	M 6 L	6 L / 6 S
BUZ 8	BUZ 8 ES	M 8 S	M 8 L	8 L / 8 S
BUZ 10	BUZ 10 ES	M 10 S	M 10 L	10 L / 10 S
BUZ 12	BUZ 12 ES	M 12 S	M 12 L	12 L / 12 S
BUZ 14	BUZ 14 ES	M 14 S	---	14 S
BUZ 15	BUZ 15 ES	---	M 15 L	15 L
BUZ 16	BUZ 16 ES	M 16 S	---	16 S
BUZ 18	BUZ 18 ES	---	M 18 L	18 L
BUZ 20	BUZ 20 ES	M 20 S	---	20 S
BUZ 22	BUZ 22 ES	---	M 22 L	22 L
BUZ 25	BUZ 25 ES	M 25 S	---	25 S
BUZ 28	BUZ 28 ES	---	M 28 L	28 L
BUZ 30	BUZ 30 ES	M 30 S	---	30 S
BUZ 35	BUZ 35 ES	---	M 35 L	35 L
BUZ 38	BUZ 38 ES	M 38 S	---	38 S
BUZ 42	BUZ 42 ES	---	M 42 L	42 L

* please order union nuts separately if required. Nuts can be found on page 99.



Application example

Blind fittings for cutting ring fittings* — ISO 8434-1 (DIN 2353)

Suitable: Blind fitting for EVGE, DKO-L or DKO-S. To seal the hoses or pipe ends, on which nuts and cutting rings have been attached.

Type zinc-plated steel	Type AISI 316Ti (INOX)	Tube Ø ext.	Union nut thread
Light model series			
ROV 6 L	ROV 6 L ES	6 L	M 12 x 1.5
ROV 8 L	ROV 8 L ES	8 L	M 14 x 1.5
ROV 10 L	ROV 10 L ES	10 L	M 16 x 1.5
ROV 12 L	ROV 12 L ES	12 L	M 18 x 1.5
ROV 15 L	ROV 15 L ES	15 L	M 22 x 1.5
ROV 18 L	ROV 18 L ES	18 L	M 26 x 1.5
ROV 22 L	ROV 22 L ES	22 L	M 30 x 2
ROV 28 L	ROV 28 L ES	28 L	M 36 x 2
ROV 35 L	ROV 35 L ES	35 L	M 45 x 2
ROV 42 L	ROV 42 L ES	42 L	M 52 x 2

Type zinc-plated steel	Type AISI 316Ti (INOX)	Tube Ø ext.	Union nut thread
Heavy model series			
ROV 6 S	ROV 6 S ES	6 S	M 14 x 1.5
ROV 8 S	ROV 8 S ES	8 S	M 16 x 1.5
ROV 10 S	ROV 10 S ES	10 S	M 18 x 1.5
ROV 12 S	ROV 12 S ES	12 S	M 20 x 1.5
ROV 14 S	ROV 14 S ES	14 S	M 22 x 1.5
ROV 16 S	ROV 16 S ES	16 S	M 24 x 1.5
ROV 20 S	ROV 20 S ES	20 S	M 30 x 2
ROV 25 S	ROV 25 S ES	25 S	M 36 x 2
ROV 30 S	ROV 30 S ES	30 S	M 42 x 2
ROV 38 S	ROV 38 S ES	38 S	M 52 x 2

* please order union nuts and cutting rings separately if required. Nuts and cutting rings are found starting on page 98.

zinc-plated steel

zinc-plated steel with elastomer seal

stainless steel

NC compression ring

Cutting rings/NC-compression rings — DIN 3861

Type zinc-plated steel	Zinc plated steel with elastomer seal	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Union nut thread
Very light model series					
D 4 LL	---	D 4 LL ES	---	4 LL	M 8 x 1
D 5 LL	---	---	---	5 LL	M 10 x 1
D 6 LL	---	D 6 LL ES	---	6 LL	M 10 x 1
D 8 LL	---	D 8 LL ES	---	8 LL	M 12 x 1
D 10 LL	---	---	---	10 LL	M 14 x 1
D 12 LL	---	---	---	12 LL	M 16 x 1
Light model series					
D 6 L	D 6 L ED	D 6 L ES	D 6 L NC*	6 L	M 12 x 1.5
D 8 L	D 8 L ED	D 8 L ES	D 8 L NC*	8 L	M 14 x 1.5
D 10 L	D 10 L ED	D 10 L ES	D 10 L NC*	10 L	M 16 x 1.5
D 12 L	D 12 L ED	D 12 L ES	D 12 L NC*	12 L	M 18 x 1.5
D 15 L	D 15 L ED	D 15 L ES	D 15 L NC*	15 L	M 22 x 1.5
D 18 L	D 18 L ED	D 18 L ES	D 18 L NC*	18 L	M 26 x 1.5
D 22 L	D 22 L ED	D 22 L ES	D 22 L NC*	22 L	M 30 x 2
D 28 L	D 28 L ED	D 28 L ES	---	28 L	M 36 x 2
D 35 L	D 35 L ED	D 35 L ES	---	35 L	M 45 x 2
D 42 L	D 42 L ED	D 42 L ES	---	42 L	M 52 x 2
Heavy model series					
D 6 L	D 6 L ED	D 6 L ES	D 6 L NC*	6 S	M 14 x 1.5
D 8 L	D 8 L ED	D 8 L ES	D 8 L NC*	8 S	M 16 x 1.5
D 10 L	D 10 L ED	D 10 L ES	D 10 L NC*	10 S	M 18 x 1.5
D 12 L	D 12 L ED	D 12 L ES	D 12 L NC*	12 S	M 20 x 1.5
D 14 S	D 14 S ED	D 14 S ES	D 14 S NC*	14 S	M 22 x 1.5
D 16 S	D 16 S ED	D 16 S ES	D 16 S NC*	16 S	M 24 x 1.5
D 20 S	D 20 S ED	D 20 S ES	D 20 S NC*	20 S	M 30 x 2
D 25 S	D 25 S ED	D 25 S ES	D 25 S NC*	25 S	M 36 x 2
D 30 S	D 30 S ED	D 30 S ES	---	30 S	M 42 x 2
D 38 S	D 38 S ED	D 38 S ES	---	38 S	M 52 x 2

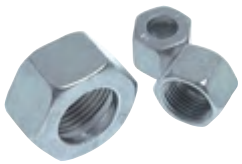
* not according to the DIN

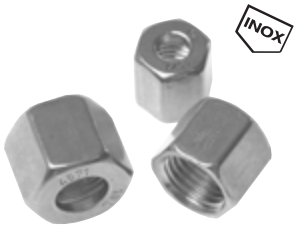
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Union nuts — DIN 3870

Type zinc-plated steel	Type AISI 316Ti (INOX)	Type compr. ring AISI 316Ti (NC) (INOX)	Tube Ø external	Thread
Very light model series				
M 4 LL	M 4 LL ES	---	4 LL	M 8 x 1
M 5 LL	---	---	5 LL	M 10 x 1
M 6 LL	M 6 LL ES	---	6 LL	M 10 x 1
M 8 LL	M 8 LL ES	---	8 LL	M 12 x 1
M 10 LL	---	---	10 LL	M 14 x 1
M 12 LL	---	---	12 LL	M 16 x 1
Light model series				
M 6 L	M 6 L ES	M 6 L NC*	6 L	M 12 x 1.5
M 8 L	M 8 L ES	M 8 L NC*	8 L	M 14 x 1.5
M 10 L	M 10 L ES	M 10 L NC*	10 L	M 16 x 1.5
M 12 L	M 12 L ES	M 12 L NC*	12 L	M 18 x 1.5
M 15 L	M 15 L ES	M 15 L NC*	15 L	M 22 x 1.5
M 18 L	M 18 L ES	M 18 L NC*	18 L	M 26 x 1.5
M 22 L	M 22 L ES	M 22 L NC*	22 L	M 30 x 2
M 28 L	M 28 L ES	---	28 L	M 36 x 2
M 35 L	M 35 L ES	---	35 L	M 45 x 2
M 42 L	M 42 L ES	---	42 L	M 52 x 2
Heavy model series				
M 6 S	M 6 S ES	M 6 S NC*	6 S	M 14 x 1.5
M 8 S	M 8 S ES	M 8 S NC*	8 S	M 16 x 1.5
M 10 S	M 10 S ES	M 10 S NC*	10 S	M 18 x 1.5
M 12 S	M 12 S ES	M 12 S NC*	12 S	M 20 x 1.5
M 14 S	M 14 S ES	M 14 S NC*	14 S	M 22 x 1.5
M 16 S	M 16 S ES	M 16 S NC*	16 S	M 24 x 1.5
M 20 S	M 20 S ES	M 20 S NC*	20 S	M 30 x 2
M 25 S	M 25 S ES	M 25 S NC*	25 S	M 36 x 2
M 30 S	M 30 S ES	---	30 S	M 42 x 2
M 38 S	M 38 S ES	---	38 S	M 52 x 2

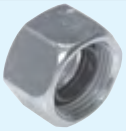
* not according to the DIN





Ready-made washing and hydraulic hoses on page 231

Functional nuts with assembled cutting ring and gasket — Parker



Functional nuts, zinc-plated steel, in lightweight and heavy-duty model series are found in the Online Shop:

☞ Order example: M 6 L EO **

Standard type | Designation for the options: With FKM seal . . . . . -V

TIP *Self-sealing union nuts, no cutting ring required!*

Many additional products and sizes are available in our **Online Shop!**

Reinforcing rings / Tube support

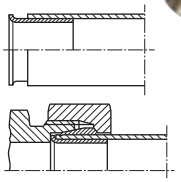
Suitable: Reinforcing rings are installed for thin-walled steel pipes, copper pipes and plastic pipes when using cutting ring fittings and compression ring fittings.

Type brass	Type AISI 316Ti (INOX)	For tubes Ø external	Internal
With collar			
VSH 4 x 2	VSH 4 x 2 ES	4	2
VSH 4 x 2,7	VSH 4 x 2,7 ES	4	2.7
VSH 5 x 3	---	5	3
VSH 6 x 4	VSH 6 x 4 ES	6	4
---	VSH 6 x 5 ES	6	5
---	VSH 8 x 5 ES	8	5
VSH 8 x 6	VSH 8 x 6 ES	8	6
VSH 10 x 7	VSH 10 x 7 ES	10	7
VSH 10 x 8	VSH 10 x 8 ES	10	8
VSH 12 x 9	VSH 12 x 9 ES	12	9
VSH 12 x 10	VSH 12 x 10 ES	12	10
VSH 14 x 11	---	14	11
VSH 14 x 12	VSH 14 x 12 ES	14	12
VSH 15 x 13	VSH 15 x 13 ES	15	13
VSH 16 x 14	VSH 16 x 14 ES	16	14
VSH 18 x 14	---	18	14
VSH 18 x 15	VSH 18 x 15 ES	18	15
VSH 18 x 16	---	18	16
VSH 20 x 16	---	20	16
VSH 20 x 18	---	20	18
VSH 22 x 18	---	22	18
VSH 22 x 20	---	22	20
VSH 28 x 25	---	28	25

Type brass	Type AISI 316Ti (INOX)	For tubes Ø internal
With knurl, without collar		
VSHR 5	---	5
---	VSHR 11 ES	11
---	VSHR 16 ES	16
---	VSHR 18 ES	18
---	VSHR 20 ES	20
VSHR 22	VSHR 22 ES	22
---	VSHR 23 ES	23
---	VSHR 25 ES	25
VSHR 31	---	31
VSHR 38	VSHR 38 ES	38

with collar

with knurl



screwed connection with reinforcing sleeve

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Chapter 2 - Threaded fittings

Double nipples, pipe nipples and adapters

Double nipples cylindrical
Page 102

PVC double nipple
Page 103

Double nipple high pressure
Page 103

Bulkhead screw connections
Page 103+119

Weld on pipe nipple
Page 104

Threads-adapters
Page 104-105

Pipe nipple
Page 106

Separable screw connections

Double nipples separable MT/MT
Page 108

Separable screw connections FT/FT
Page 108

Separable screw connections FT/MT
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Replacement seals
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Screw connections with welded ends
Page 110

Separable angle screw connections
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Reducing nipples and adapters

Reducing nipple cylindrical
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Reducing nipple conical
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PVC reducing nipple
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Reducing nipple high pressure
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Bulkhead screw connections
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Sleeves and angle fittings

Sleeves/ sleeves reduced
Page 118-119

Welding collar
Page 119

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Screw-in elbow FT/MT
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Elbows
Page 122+124

Elbow NPT/JIC
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T pieces

T pieces FT/FT/FT
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T pieces reduced
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T connector NPT/JIC
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L pieces
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T screw-in connections
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T piece MT/MT/MT
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All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Distributors and pipeline sockets

Cross piece
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Air junction
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Pipeline sockets simple
Page 130

Pipeline sockets 2-/3-way
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Pipeline sockets 2-/3-way plastic
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Pipeline sockets incl. couplings
Page 131

Pipeline socket incl. coupling
Page 131

Distributor blocks

Screw-in distributor
Page 132

Cross distributor
Page 132

Distributor pipes
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Distributor blocks
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Distributor bars, stainless steel
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Distributor bars
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High pressure distributor bars
Page 133

Closing plugs and end caps

End caps
Page 135

HP/NPT end caps
Page 135

DIN closing plugs hexagon socket
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DIN closing plugs exterior hexagon
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DIN closing plugs square
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HD closing plugs with NPT/JIC
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Pipe plugs
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Swivel joints 360° rotatable

Compressed air swivel joints
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Multiple screw connections
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Swivel joints for compressed air tools
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Pivotable swivel joints
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HP swivel joints
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Angle swivel joints
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IQS quick swivel joints
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Compression rings & cutting ring fittings made of brass, steel & stainless steel

Straight screw connections brass
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Angle screw connections brass
Page 70-75

T screw connections brass
Page 70-75

Straight screw connections
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Reduction screw connections
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L and T screw connections
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All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Double nipples

Outstanding value!

INOX

type 280/N8

Double nipples with conical threads — up to 25 bar

Type 16 bar brass nickel-plated	Type 16 bar brass/red bronze	Type 16 bar AISI 316 INOX	Type 25 bar mall. cast iron galv.	Thread	Thread	SW[1]
DN 1818 K MSV	DN 1818 K MS	DN 1818 K ES	DN 1818 K ST	R 1/8"	R 1/8"	12
DN 1418 K MSV	DN 1418 K MS	DN 1418 K ES	DN 1418 K ST	R 1/4"	R 1/8"	14
DN 1414 K MSV	DN 1414 K MS	DN 1414 K ES	DN 1414 K ST	R 1/4"	R 1/4"	14
DN 3818 K MSV	DN 3818 K MS	DN 3818 K ES	DN 3818 K ST	R 3/8"	R 1/8"	17
DN 3814 K MSV	DN 3814 K MS	DN 3814 K ES	DN 3814 K ST	R 3/8"	R 1/4"	17
DN 3838 K MSV	DN 3838 K MS	DN 3838 K ES	DN 3838 K ST	R 3/8"	R 3/8"	17
DN 1214 K MSV	DN 1214 K MS	DN 1214 K ES	DN 1214 K ST	R 1/2"	R 1/4"	22
DN 1238 K MSV	DN 1238 K MS	DN 1238 K ES	DN 1238 K ST	R 1/2"	R 3/8"	22
DN 1212 K MSV	DN 1212 K MS	DN 1212 K ES	DN 1212 K ST	R 1/2"	R 1/2"	22
---	DN 3438 K MS	DN 3438 K ES	DN 3438 K ST	R 3/4"	R 3/8"	27
DN 3412 K MSV	DN 3412 K MS	DN 3412 K ES	DN 3412 K ST	R 3/4"	R 1/2"	27
DN 3434 K MSV	DN 3434 K MS	DN 3434 K ES	DN 3434 K ST	R 3/4"	R 3/4"	27
---	---	DN 1038 K ES	---	R 1"	R 3/8"	---
---	DN 1012 K MS	DN 1012 K ES	DN 1012 K ST	R 1"	R 1/2"	36
DN 1034 K MSV	DN 1034 K MS	DN 1034 K ES	DN 1034 K ST	R 1"	R 3/4"	34
DN 1010 K MSV	DN 1010 K MS	DN 1010 K ES	DN 1010 K ST	R 1"	R 1"	34
---	---	DN 11434 K ES	DN 11434 K ST	R 1 1/4"	R 3/4"	---
---	---	DN 11410 K ES	DN 11410 K ST	R 1 1/4"	R 1"	---
---	---	DN 114114 K ES	DN 114114 K ST	R 1 1/4"	R 1 1/4"	---
---	---	DN 11234 K ES	DN 11234 K ST	R 1 1/2"	R 3/4"	---
---	---	DN 11210 K ES	DN 11210 K ST	R 1 1/2"	R 1"	---
---	---	DN 112114 K ES	DN 112114 K ST	R 1 1/2"	R 1 1/4"	---
---	---	DN 112112 K ES	DN 112112 K ST	R 1 1/2"	R 1 1/2"	---
---	---	DN 2010 K ES	---	R 2"	R 1"	---
---	---	DN 20114 K ES	DN 20114 K ST	R 2"	R 1 1/4"	---
---	---	DN 20112 K ES	DN 20112 K ST	R 2"	R 1 1/2"	---
---	---	DN 2020 K ES	DN 2020 K ST	R 2"	R 2"	---
---	---	---	DN 212112 K ST	R 2 1/2"	R 1 1/2"	---
---	---	DN 21220 K ES	DN 21220 K ST	R 2 1/2"	R 2"	---
---	---	DN 212212 K ES	DN 212212 K ST	R 2 1/2"	R 2 1/2"	---
---	---	DN 3020 K ES	DN 3020 K ST	R 3"	R 2"	---
---	---	DN 30212 K ES	DN 30212 K ST	R 3"	R 2 1/2"	---
---	---	DN 3030 K ES	DN 3030 K ST	R 3"	R 3"	---
---	---	DN 4030 K ES	DN 4030 K ST	R 4"	R 3"	---
---	---	DN 4040 K ES	DN 4040 K ST	R 4"	R 4"	---

[1] Details apply for the brass type. For all other types, please ask.

Double nipples with cylindrical threads — up to 40 bar

Type 16 bar brass nickel-pl.*	SW	Type 16 bar brass/red bronze	SW	Type 40 bar AISI 316Ti INOX	SW	Thread	Thread
---	---	DN 33 MS*	5	DN 33 ES*	8	M 3	M 3
---	---	DN 53 MS*	8	DN 53 ES*	8	M 5	M 3
DN 55 MSV	8	DN 55 MS	7	DN 55 ES	8	M 5	M 5
DN 185 MSV	14	DN 185 MS	14	DN 185 ES	14	G 1/8"	M 5
DN 1818 MSV	14	DN 1818 MS	14	DN 1818 ES	14	G 1/8"	G 1/8"
---	---	DN 145 MS	17	DN 145 ES	17	G 1/4"	M 5
DN 1418 MSV	17	DN 1418 MS	17	DN 1418 ES	17	G 1/4"	G 1/8"
DN 1414 MSV	17	DN 1414 MS	17	DN 1414 ES	17	G 1/4"	G 1/4"
DN 3818 MSV	19	DN 3818 MS	19	DN 3818 ES	19	G 3/8"	G 1/8"
DN 3814 MSV	19	DN 3814 MS	19	DN 3814 ES	19	G 3/8"	G 1/4"
DN 3838 MSV	19	DN 3838 MS	19	DN 3838 ES	19	G 3/8"	G 3/8"
DN 1214 MSV	24	DN 1214 MS	24	DN 1214 ES	24	G 1/2"	G 1/4"
DN 1238 MSV	24	DN 1238 MS	24	DN 1238 ES	24	G 1/2"	G 3/8"
DN 1212 MSV	24	DN 1212 MS	24	DN 1212 ES	24	G 1/2"	G 1/2"
DN 3438 MSV	32	DN 3438 MS	32	DN 3438 ES	32	G 3/4"	G 3/8"
DN 3412 MSV	30	DN 3412 MS	32	DN 3412 ES	32	G 3/4"	G 1/2"
DN 3434 MSV	30	DN 3434 MS	32	DN 3434 ES	32	G 3/4"	G 3/4"
DN 1012 MSV	34	DN 1012 MS	36	DN 1012 ES	36	G 1"	G 1/2"
DN 1034 MSV	36	DN 1034 MS	36	DN 1034 ES	36	G 1"	G 3/4"
DN 1010 MSV	36	DN 1010 MS	34	DN 1010 ES	36	G 1"	G 1"
DN 11412 MSV	43	DN 11412 MS*	43	---	---	G 1 1/4"	G 1/2"
DN 11434 MSV	42	DN 11434 MS*	42	---	---	G 1 1/4"	G 3/4"
DN 11410 MSV	42	DN 11410 MS*	42	DN 11410 ES	50	G 1 1/4"	G 1"
DN 114114 MSV	42	DN 114114 MS*	42	DN 114114 ES	50	G 1 1/4"	G 1 1/4"
DN 11234 MSV	50	DN 11234 MS*	50	---	---	G 1 1/2"	G 3/4"
DN 11210 MSV	50	DN 11210 MS*	50	---	---	G 1 1/2"	G 1"
DN 112114 MSV	50	DN 112114 MS*	50	DN 112114 ES	55	G 1 1/2"	G 1 1/4"
DN 112112 MSV	50	DN 112112 MS*	50	DN 112112 ES	55	G 1 1/2"	G 1 1/2"
DN 2010 MSV	60	DN 2010 MS*	60	---	---	G 2"	G 1"
DN 20114 MSV	60	DN 20114 MS*	60	---	---	G 2"	G 1 1/4"
DN 20112 MSV	60	DN 20112 MS*	60	---	---	G 2"	G 1 1/2"
DN 2020 MSV	60	DN 2020 MS*	60	DN 2020 ES	65	G 2"	G 2"
DN 21220 MSV	77	DN 21220 MS*	77	---	---	G 2 1/2"	G 2"
DN 212212 MSV	77	DN 212212 MS*	77	DN 212212 ES**	77	G 2 1/2"	G 2 1/2"
DN 3020 MSV	89	DN 3020 MS*	89	---	---	G 3"	G 2"
DN 30212 MSV	89	DN 30212 MS*	89	---	---	G 3"	G 2 1/2"
DN 3030 MSV	89	DN 3030 MS*	89	DN 3030 ES**	91	G 3"	G 3"
---	---	DN 4040 MS*	125	DN 4040 ES**	117	G 4"	G 4"

INOX

* supplied without internal cone,
** material: AISI 316 (16 bar)

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Double nipples PVC-U (for plastic threads only) — PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!

Type	Thread	Thread
DN 3838 PVC	Rp 3/8"	Rp 3/8"
DN 1238 PVC	Rp 1/2"	Rp 3/8"
DN 1212 PVC	Rp 1/2"	Rp 1/2"
DN 3412 PVC	Rp 3/4"	Rp 1/2"
DN 3434 PVC	Rp 3/4"	Rp 3/4"
DN 1034 PVC	Rp 1"	Rp 3/4"
DN 1010 PVC	Rp 1"	Rp 1"
DN 11410 PVC	Rp 1 1/4"	Rp 1"
DN 114114 PVC	Rp 1 1/4"	Rp 1 1/4"
DN 112114 PVC	Rp 1 1/2"	Rp 1 1/4"
DN 112112 PVC	Rp 1 1/2"	Rp 1 1/2"
DN 20112 PVC	Rp 2"	Rp 1 1/2"
DN 2020 PVC	Rp 2"	Rp 2"
DN 21220 PVC	Rp 2 1/2"	Rp 2"
DN 212212 PVC	Rp 2 1/2"	Rp 2 1/2"
DN 30212 PVC	Rp 3"	Rp 2 1/2"
DN 3030 PVC	Rp 3"	Rp 3"
DN 4030 PVC	Rp 4"	Rp 3"
DN 4040 PVC	Rp 4"	Rp 4"

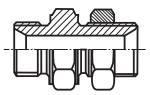
Double nipples with inch threads (60° conical hose nipples) — up to 400 bar

Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread	Thread	PN
DN 1818 HD	DN 1818 HD ES	G 1/8"	G 1/8"	400 bar
DN 1418 HD	DN 1418 HD ES	G 1/4"	G 1/8"	400 bar
DN 1414 HD	DN 1414 HD ES	G 1/4"	G 1/4"	400 bar
DN 3814 HD	DN 3814 HD ES	G 3/8"	G 1/4"	400 bar
DN 3838 HD	DN 3838 HD ES	G 3/8"	G 3/8"	400 bar
DN 1214 HD	DN 1214 HD ES	G 1/2"	G 1/4"	400 bar
DN 1238 HD	DN 1238 HD ES	G 1/2"	G 3/8"	400 bar
DN 1212 HD	DN 1212 HD ES	G 1/2"	G 1/2"	400 bar
DN 3438 HD	DN 3438 HD ES	G 3/4"	G 3/8"	400 bar
DN 3412 HD	DN 3412 HD ES	G 3/4"	G 1/2"	400 bar
DN 3434 HD	DN 3434 HD ES	G 3/4"	G 3/4"	400 bar
DN 1012 HD	DN 1012 HD ES	G 1"	G 1/2"	345 bar
DN 1034 HD	DN 1034 HD ES	G 1"	G 3/4"	345 bar
DN 1010 HD	DN 1010 HD ES	G 1"	G 1"	345 bar
DN 11410 HD	DN 11410 HD ES	G 1 1/4"	G 1"	315 bar
DN 114114 HD	DN 114114 HD ES	G 1 1/4"	G 1 1/4"	315 bar
DN 112114 HD	DN 112114 HD ES	G 1 1/2"	G 1 1/4"	315 bar
DN 112112 HD	DN 112112 HD ES	G 1 1/2"	G 1 1/2"	315 bar
DN 20112 HD	DN 20112 HD ES	G 2"	G 1 1/2"	160 bar
DN 2020 HD	DN 2020 HD ES	G 2"	G 2"	160 bar

Bulkhead nipples with inch threads (60° conical hose nipples) — up to 475 bar

Type zinc-plated steel	Type AISI 316 (INOX)	Thread	PN*
SN 1818 HD	SN 1818 HD ES	G 1/8"	475 bar
SN 1414 HD	SN 1414 HD ES	G 1/4"	350 bar
SN 3838 HD	SN 3838 HD ES	G 3/8"	325 bar
SN 1212 HD	SN 1212 HD ES	G 1/2"	350 bar
SN 3434 HD	SN 3434 HD ES	G 3/4"	325 bar
SN 1010 HD	SN 1010 HD ES	G 1"	225 bar
SN 114114 HD	SN 114114 HD ES	G 1 1/4"	190 bar
SN 112112 HD	SN 112112 HD ES	G 1 1/2"	190 bar
SN 2020 HD	SN 2020 HD ES	G 2"	175 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



TIP Angle high pressure bulkhead screw connections are found on page 125

Threaded nozzles & hose nozzles from page 64

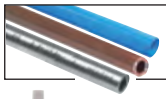
LOCTITE Liquid seals, gaskets & tapes from page 549

Push in fittings Ø 3 - 32 mm from page 24

FESTO Festo valves can be found in our Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Welding nipples/adapters



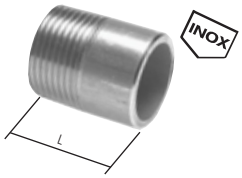
Aluminium, copper and steel pipes from page 250

LOCTITE Liquid seals, gaskets & tapes from page 549

Welding nipples similar to EN 10241/DIN 2982 — up to 50 bar

Type 20 bar AISI 316Ti (INOX)	Type 50 bar, ST 37 black steel	Thread	L
Diameter 10.2 mm (1/8")			
RONI 18/30 AS ES	---	R 1/8"	30*
RONI 18/40 AS ES	---	R 1/8"	40
RONI 18/60 AS ES	---	R 1/8"	60
RONI 18/80 AS ES	---	R 1/8"	80
RONI 18/100 AS ES	---	R 1/8"	100
Diameter 13.5 mm (1/4")			
RONI 14/30 AS ES	RONI 14/30 AS ST	R 1/4"	30*
RONI 14/40 AS ES	RONI 14/40 AS ST	R 1/4"	40
RONI 14/60 AS ES	RONI 14/60 AS ST	R 1/4"	60
RONI 14/80 AS ES	RONI 14/80 AS ST	R 1/4"	80
RONI 14/100 AS ES	RONI 14/100 AS ST	R 1/4"	100
RONI 14/120 AS ES	RONI 14/120 AS ST	R 1/4"	120
RONI 14/160 AS ES	RONI 14/160 AS ST	R 1/4"	160
RONI 14/200 AS ES	RONI 14/200 AS ST	R 1/4"	200
Diameter 17.2 mm (3/8")			
RONI 38/30 AS ES	RONI 38/30 AS ST	R 3/8"	30*
RONI 38/40 AS ES	RONI 38/40 AS ST	R 3/8"	40
RONI 38/60 AS ES	RONI 38/60 AS ST	R 3/8"	60
RONI 38/80 AS ES	RONI 38/80 AS ST	R 3/8"	80
RONI 38/100 AS ES	RONI 38/100 AS ST	R 3/8"	100
RONI 38/120 AS ES	RONI 38/120 AS ST	R 3/8"	120
RONI 38/350 AS ES	RONI 38/350 AS ST	R 3/8"	350
Diameter 21.3 mm (1/2")			
RONI 12/35 AS ES	RONI 12/35 AS ST	R 1/2"	35*
RONI 12/40 AS ES	RONI 12/40 AS ST	R 1/2"	40
RONI 12/60 AS ES	RONI 12/60 AS ST	R 1/2"	60
RONI 12/80 AS ES	RONI 12/80 AS ST	R 1/2"	80
RONI 12/100 AS ES	RONI 12/100 AS ST	R 1/2"	100
RONI 12/120 AS ES	RONI 12/120 AS ST	R 1/2"	120
Diameter 26.9 mm (3/4")			
RONI 34/30 AS ES	RONI 34/30 AS ST	R 3/4"	30
RONI 34/40 AS ES	RONI 34/40 AS ST	R 3/4"	40*
RONI 34/60 AS ES	RONI 34/60 AS ST	R 3/4"	60
RONI 34/80 AS ES	RONI 34/80 AS ST	R 3/4"	80
RONI 34/100 AS ES	RONI 34/100 AS ST	R 3/4"	100
RONI 34/120 AS ES	RONI 34/120 AS ST	R 3/4"	120
RONI 34/200 AS ES	RONI 34/200 AS ST	R 3/4"	200
Diameter 33.7 mm (1")			
RONI 10/40 AS ES	RONI 10/40 AS ST	R 1"	40*
RONI 10/60 AS ES	RONI 10/60 AS ST	R 1"	60
RONI 10/80 AS ES	RONI 10/80 AS ST	R 1"	80
RONI 10/100 AS ES	RONI 10/100 AS ST	R 1"	100
RONI 10/120 AS ES	RONI 10/120 AS ST	R 1"	120

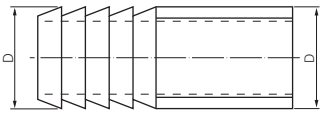
Type 20 bar AISI 316Ti (INOX)	Type 50 bar, ST 37 black steel	Thread	L
Diameter 42.4 mm (1 1/4")			
RONI 114/50 AS ES	RONI 114/50 AS ST	R 1 1/4"	50*
RONI 114/60 AS ES	RONI 114/60 AS ST	R 1 1/4"	60
RONI 114/80 AS ES	RONI 114/80 AS ST	R 1 1/4"	80
RONI 114/100 AS ES	RONI 114/100 AS ST	R 1 1/4"	100
RONI 114/120 AS ES	RONI 114/120 AS ST	R 1 1/4"	120
RONI 114/130 AS ES	RONI 114/130 AS ST	R 1 1/4"	130
Diameter 48.3 mm (1 1/2")			
RONI 112/50 AS ES	RONI 112/50 AS ST	R 1 1/2"	50*
RONI 112/60 AS ES	RONI 112/60 AS ST	R 1 1/2"	60
RONI 112/80 AS ES	RONI 112/80 AS ST	R 1 1/2"	80
RONI 112/100 AS ES	RONI 112/100 AS ST	R 1 1/2"	100
RONI 112/120 AS ES	RONI 112/120 AS ST	R 1 1/2"	120
RONI 112/150 AS ES	---	R 1 1/2"	150
RONI 112/300 AS ES	---	R 1 1/2"	300
Diameter 60.3 mm (2")			
RONI 20/50 AS ES	RONI 20/50 AS ST	R 2"	50*
RONI 20/60 AS ES	RONI 20/60 AS ST	R 2"	60
RONI 20/80 AS ES	RONI 20/80 AS ST	R 2"	80
RONI 20/100 AS ES	RONI 20/100 AS ST	R 2"	100
RONI 20/120 AS ES	RONI 20/120 AS ST	R 2"	120
RONI 20/200 AS ES	RONI 20/200 AS ST	R 2"	200
RONI 20/400 AS ES	---	R 2"	200
Diameter 76.1 mm (2 1/2")			
RONI 212/50 AS ES	RONI 212/50 AS ST	R 2 1/2"	50
RONI 212/60 AS ES	RONI 212/60 AS ST	R 2 1/2"	60*
RONI 212/80 AS ES	RONI 212/80 AS ST	R 2 1/2"	80
RONI 212/100 AS ES	RONI 212/100 AS ST	R 2 1/2"	100
RONI 212/120 AS ES	RONI 212/120 AS ST	R 2 1/2"	120
RONI 212/170 AS ES	RONI 212/170 AS ST	R 2 1/2"	170
Diameter 88.9 mm (3")			
RONI 30/50 AS ES	RONI 30/50 AS ST	R 3"	50
RONI 30/60 AS ES	RONI 30/60 AS ST	R 3"	60
RONI 30/70 AS ES	RONI 30/70 AS ST	R 3"	70*
RONI 30/80 AS ES	RONI 30/80 AS ST	R 3"	80
RONI 30/100 AS ES	RONI 30/100 AS ST	R 3"	100
RONI 30/120 AS ES	RONI 30/120 AS ST	R 3"	120
Diameter 114.3 mm (4")			
RONI 40/50 AS ES	RONI 40/50 AS ST	R 4"	50
RONI 40/60 AS ES	RONI 40/60 AS ST	R 4"	60*
RONI 40/80 AS ES	RONI 40/80 AS ST	R 4"	80
RONI 40/100 AS ES	RONI 40/100 AS ST	R 4"	100
RONI 40/120 AS ES	RONI 40/120 AS ST	R 4"	120



* DIN installation length

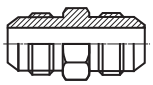
Hose nozzles with weld ends — PN 20

Type AISI 316Ti (INOX)	D	Hose ∅ internal	Install. length
ST 1413 AS ES	13.5 (1/4")	13	70
ST 3816 AS ES	17.2 (3/8")	16	70
ST 1219 AS ES	21.3 (1/2")	19	70
ST 3425 AS ES	26.9 (3/4")	25	70
ST 1032 AS ES	33.7 (1")	32	70
ST 11440 AS ES	42.4 (1 1/4")	40	70
ST 11250 AS ES	48.3 (1 1/2")	48 (50*)	100
ST 2060 AS ES	60.3 (2")	60	100
ST 21275 AS ES	76.1 (2 1/2")	75	120
ST 3090 AS ES	88.9 (3")	88 (90*)	120



* with flexible hoses when using suitable hose clips

Double nipples with JIC threads — up to 310 bar



Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread	Thread	PN*
DN 7/16-7/16	DN 7/16-7/16 ES	UNF 7/16"-20	UNF 7/16"-20	310 bar
DN 1/2-1/2	DN 1/2-1/2 ES	UNF 1/2"-20	UNF 1/2"-20	275 bar
DN 9/16-7/16	DN 9/16-7/16 ES	UNF 9/16"-18	UNF 7/16"-20	275 bar
DN 9/16-1/2	---	UNF 9/16"-18	UNF 1/2"-20	275 bar
DN 9/16-9/16	DN 9/16-9/16 ES	UNF 9/16"-18	UNF 9/16"-18	275 bar
DN 3/4-9/16	DN 3/4-9/16 ES	UNF 3/4"-16	UNF 9/16"-18	275 bar
DN 3/4-3/4	DN 3/4-3/4 ES	UNF 3/4"-16	UNF 3/4"-16	275 bar
DN 7/8-1/2	---	UNF 7/8"-14	UNF 1/2"-20	210 bar
DN 7/8-3/4	DN 7/8-3/4 ES	UNF 7/8"-14	UNF 3/4"-16	210 bar
DN 7/8-7/8	DN 7/8-7/8 ES	UNF 7/8"-14	UNF 7/8"-14	210 bar
DN 1 1/16-3/4	DN 1 1/16-3/4 ES	UN 1 1/16"-12	UNF 3/4"-16	210 bar

Other sizes are found in our Online Shop

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

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Double nipples with right-hand threads/left-hand threads — PN 16

Type brass	Thread	Thread	SW
DN 1414 MS RHLH	G 1/4"	G 1/4" LH	17
DN 3838 MS RHLH	G 3/8"	G 3/8" LH	19
DN 1212 MS RHLH	G 1/2"	G 1/2" LH	22
DN 3434 MS RHLH	G 3/4"	G 3/4" LH	27

Type brass	Thread	Thread	SW
DN 1010 MS RHLH	G 1"	G 1" LH	36
DN 114114 MS RHLH	G 1 1/4"	G 1 1/4" LH	46
DN 112112 MS RHLH	G 1 1/2"	G 1 1/2" LH	50

Double nipples with left-hand threads — PN 16

Type brass	Thread	Thread	SW
DN 1414 MS LH	G 1/4" LH	G 1/4" LH	17
DN 3838 MS LH	G 3/8" LH	G 3/8" LH	19

Double nipples with metric threads/G threads and metric threads — PN 16

Type brass	Thread	Thread	SW
Imperial/metric threads			
DN 14-M14 MS	G 1/4"	M 14 x 1.5	17
DN 14-M16 MS	G 1/4"	M 16 x 1.5	19
DN 38-M14 MS	G 3/8"	M 14 x 1.5	19
DN 38-M16 MS	G 3/8"	M 16 x 1.5	19
DN 12-M24 MS	G 1/2"	M 24 x 1.5	27
Metric/metric threads			
DN M14-M14 MS	M 14 x 1.5	M 14 x 1.5	17
DN M16-M14 MS	M 16 x 1.5	M 14 x 1.5	17
DN M16-M16 MS	M 16 x 1.5	M 16 x 1.5	19
DN M24-M24 MS	M 24 x 1.5	M 24 x 1.5	27

Double nipples with R threads/NPT threads — PN 60

Type brass nickel-plated	Thread	Thread	SW	Length
DN 18R18NPT MSV	R 1/8"	NPT 1/8"	11	27
DN 14R14NPT MSV	R 1/4"	NPT 1/4"	14	35
DN 38R38NPT MSV	R 3/8"	NPT 3/8"	17	37

Type brass nickel-plated	Thread	Thread	SW	Length
DN 12R12NPT MSV	R 1/2"	NPT 1/2"	22	46
DN 34R34NPT MSV	R 3/4"	NPT 3/4"	27	47

Double nipples with G threads/NPT threads — PN 40

Type AISI 316Ti (INOX)	Thread	Thread	SW	Length
DN 18G18NPT ES	G 1/8"	NPT 1/8"	14	26
DN 14G14NPT ES	G 1/4"	NPT 1/4"	19	33.5
DN 38G38NPT ES	G 3/8"	NPT 3/8"	22	38
DN 12G12NPT ES	G 1/2"	NPT 1/2"	27	43
DN 34G34NPT ES	G 3/4"	NPT 3/4"	32	47

Type AISI 316Ti (INOX)	Thread	Thread	SW	Length
DN 10G10NPT ES	G 1"	NPT 1"	41	55
DN 114G114NPT ES	G 1 1/4"	NPT 1 1/4"	50	66
DN 112G112NPT ES	G 1 1/2"	NPT 1 1/2"	55	64
DN 20G20NPT ES	G 2"	NPT 2"	70	66

High pressure double nipples G threads/NPT threads — up to 800 bar

Type zinc-plated steel	Thread with internal cone	Thread	PN
HDA 14	G 1/4"	NPT 1/4"	800 bar*
HDA 38	G 3/8"	NPT 3/8"	700 bar*

* with 2-fold safety

Double nipples with NPT threads — up to 345 bar

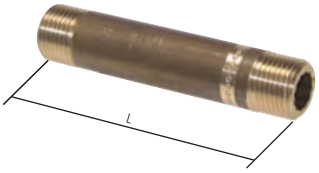
Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread	Thread	SW	Length**	PN*
DN 1818 NPT	DN 1818 NPT ES	NPT 1/8"	NPT 1/8"	12	27.0	345 bar
DN 1418 NPT	DN 1418 NPT ES	NPT 1/4"	NPT 1/8"	14	30.5	275 bar
DN 1414 NPT	DN 1414 NPT ES	NPT 1/4"	NPT 1/4"	14	36.5	275 bar
DN 3818 NPT	DN 3818 NPT ES	NPT 3/8"	NPT 1/8"	17	30.5	210 bar
DN 3814 NPT	DN 3814 NPT ES	NPT 3/8"	NPT 1/4"	19	36.5	210 bar
DN 3838 NPT	DN 3838 NPT ES	NPT 3/8"	NPT 3/8"	19	36.5	210 bar
DN 1214 NPT	DN 1214 NPT ES	NPT 1/2"	NPT 1/4"	22	40.5	210 bar
DN 1238 NPT	DN 1238 NPT ES	NPT 1/2"	NPT 3/8"	22	43.7	210 bar
DN 1212 NPT	DN 1212 NPT ES	NPT 1/2"	NPT 1/2"	22	48.4	210 bar
DN 3412 NPT	DN 3412 NPT ES	NPT 3/4"	NPT 1/2"	27	50.0	170 bar
DN 3434 NPT	DN 3434 NPT ES	NPT 3/4"	NPT 3/4"	27	50.0	170 bar
DN 1034 NPT	DN 1034 NPT ES	NPT 1"	NPT 3/4"	36	54.0	140 bar
DN 1010 NPT	DN 1010 NPT ES	NPT 1"	NPT 1"	36	59.0	140 bar
DN 114114 NPT	DN 114114 NPT ES	NPT 1 1/4"	NPT 1 1/4"	46	63.0	80 bar

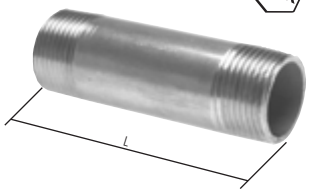
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases,
** Details apply for stainless steel type. For all other types, please ask.

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pipe nipples

TIP *We produce your desired length in stainless steel!*





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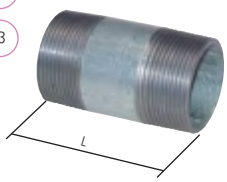


Pipe double nipples similar to EN 10241 (DIN 2982) — *up to 50 bar*

Type 16 bar brass (G-thread)	Type 20 bar AISI 316Ti (INOX)	Type 50 bar, st. pipe ST 37 zinc-plated	Thread	L
---	---	RONI 18/30 ST	R 1/8"	30
---	RONI 18/40 ES	RONI 18/40 ST	R 1/8"	40
---	RONI 18/50 ES	---	R 1/8"	50
---	RONI 18/60 ES	RONI 18/60 ST	R 1/8"	60
---	RONI 18/80 ES	RONI 18/80 ST	R 1/8"	80
---	RONI 18/100 ES	RONI 18/100 ST	R 1/8"	100
---	RONI 18/120 ES	RONI 18/120 ST	R 1/8"	120
---	RONI 14/30 ES	RONI 14/30 ST	R 1/4"	30
---	RONI 14/40 ES	RONI 14/40 ST	R 1/4"	40
---	RONI 14/60 ES	RONI 14/60 ST	R 1/4"	60
---	RONI 14/70 ES	---	R 1/4"	70
---	RONI 14/80 ES	RONI 14/80 ST	R 1/4"	80
---	RONI 14/100 ES	RONI 14/100 ST	R 1/4"	100
---	RONI 14/120 ES	RONI 14/120 ST	R 1/4"	120
---	RONI 14/150 ES	RONI 14/150 ST	R 1/4"	150
---	RONI 14/160 ES	---	R 1/4"	160
---	RONI 14/180 ES	RONI 14/180 ST	R 1/4"	180
---	RONI 14/200 ES	RONI 14/200 ST	R 1/4"	200
---	RONI 14/250 ES	RONI 14/250 ST	R 1/4"	250
---	RONI 38/30 ES	---	R 3/8"	30
RONI 38/40 MS	RONI 38/40 ES	RONI 38/40 ST	R 3/8"	40
RONI 38/60 MS	RONI 38/60 ES	RONI 38/60 ST	R 3/8"	60
RONI 38/80 MS	RONI 38/80 ES	RONI 38/80 ST	R 3/8"	80
RONI 38/100 MS	RONI 38/100 ES	RONI 38/100 ST	R 3/8"	100
---	RONI 38/120 ES	RONI 38/120 ST	R 3/8"	120
---	RONI 38/150 ES	RONI 38/150 ST	R 3/8"	150
---	RONI 38/180 ES	RONI 38/180 ST	R 3/8"	180
---	RONI 38/200 ES	RONI 38/200 ST	R 3/8"	200
---	RONI 38/250 ES	RONI 38/250 ST	R 3/8"	250
---	RONI 38/500 ES	---	R 3/8"	500
---	RONI 12/25 ES	---	R 1/2"	25
RONI 12/30 MS	RONI 12/30 ES	---	R 1/2"	30
RONI 12/40 MS	RONI 12/40 ES	RONI 12/40 ST	R 1/2"	40
RONI 12/60 MS	RONI 12/60 ES	RONI 12/60 ST	R 1/2"	60
RONI 12/80 MS	RONI 12/80 ES	RONI 12/80 ST	R 1/2"	80
RONI 12/100 MS	RONI 12/100 ES	RONI 12/100 ST	R 1/2"	100
RONI 12/120 MS	RONI 12/120 ES	RONI 12/120 ST	R 1/2"	120
RONI 12/150 MS	RONI 12/150 ES	RONI 12/150 ST	R 1/2"	150
RONI 12/180 MS	RONI 12/180 ES	RONI 12/180 ST	R 1/2"	180
RONI 12/200 MS	RONI 12/200 ES	RONI 12/200 ST	R 1/2"	200
---	RONI 12/250 ES	RONI 12/250 ST	R 1/2"	250
---	RONI 12/500 ES	---	R 1/2"	500
---	RONI 34/30 ES	---	R 3/4"	30
RONI 34/40 MS	RONI 34/40 ES	RONI 34/40 ST	R 3/4"	40
RONI 34/60 MS	RONI 34/60 ES	RONI 34/60 ST	R 3/4"	60
RONI 34/80 MS	RONI 34/80 ES	RONI 34/80 ST	R 3/4"	80
RONI 34/100 MS	RONI 34/100 ES	RONI 34/100 ST	R 3/4"	100
RONI 34/120 MS	RONI 34/120 ES	RONI 34/120 ST	R 3/4"	120
RONI 34/150 MS	RONI 34/150 ES	RONI 34/150 ST	R 3/4"	150
RONI 34/180 MS	RONI 34/180 ES	RONI 34/180 ST	R 3/4"	180
RONI 34/200 MS	RONI 34/200 ES	RONI 34/200 ST	R 3/4"	200
---	RONI 34/250 ES	RONI 34/250 ST	R 3/4"	250
---	RONI 10/30 ES	---	R 1"	30
RONI 10/40 MS	RONI 10/40 ES	RONI 10/40 ST	R 1"	40
RONI 10/60 MS	RONI 10/60 ES	RONI 10/60 ST	R 1"	60
RONI 10/80 MS	RONI 10/80 ES	RONI 10/80 ST	R 1"	80
RONI 10/100 MS	RONI 10/100 ES	RONI 10/100 ST	R 1"	100
RONI 10/120 MS	RONI 10/120 ES	RONI 10/120 ST	R 1"	120
RONI 10/150 MS	RONI 10/150 ES	RONI 10/150 ST	R 1"	150
---	RONI 10/170 ES	---	R 1"	170
RONI 10/180 MS	RONI 10/180 ES	RONI 10/180 ST	R 1"	180
RONI 10/200 MS	RONI 10/200 ES	RONI 10/200 ST	R 1"	200
---	RONI 10/250 ES	RONI 10/250 ST	R 1"	250
---	RONI 10/300 ES	---	R 1"	300
---	RONI 10/400 ES	---	R 1"	400
---	RONI 10/600 ES	---	R 1"	600
RONI 114/40 MS	RONI 114/40 ES	RONI 114/40 ST	R 1 1/4"	40
---	RONI 114/50 ES	---	R 1 1/4"	50
RONI 114/60 MS	RONI 114/60 ES	RONI 114/60 ST	R 1 1/4"	60
RONI 114/80 MS	RONI 114/80 ES	RONI 114/80 ST	R 1 1/4"	80
RONI 114/100 MS	RONI 114/100 ES	RONI 114/100 ST	R 1 1/4"	100
RONI 114/120 MS	RONI 114/120 ES	RONI 114/120 ST	R 1 1/4"	120
RONI 114/150 MS	RONI 114/150 ES	RONI 114/150 ST	R 1 1/4"	150
RONI 114/180 MS	RONI 114/180 ES	RONI 114/180 ST	R 1 1/4"	180
RONI 114/200 MS	RONI 114/200 ES	RONI 114/200 ST	R 1 1/4"	200
---	RONI 114/250 ES	RONI 114/250 ST	R 1 1/4"	250
---	RONI 114/300 ES	RONI 114/300 ST	R 1 1/4"	300

More sizes on the next page

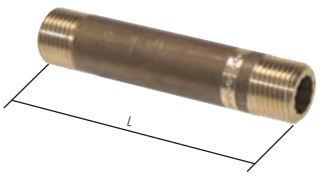
Continue to the next side

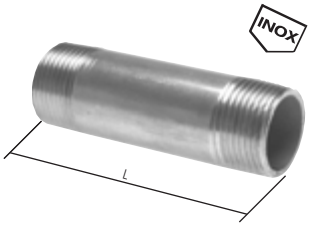
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Continued from previous page

Pipe double nipples similar to EN 10241 (DIN 2982) up to 50 bar

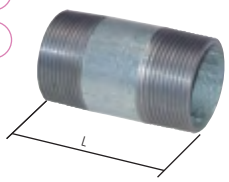
Type 16 bar bras (G-thread)	Type 20 bar AISI 316Ti INOX	Type 50 bar, st. pipe ST 37 zinc-plated	Thread	L
RONI 112/40 MS	RONI 112/40 ES	RONI 112/40 ST	R 1 1/2"	40
RONI 112/60 MS	RONI 112/60 ES	RONI 112/60 ST	R 1 1/2"	60
RONI 112/80 MS	RONI 112/80 ES	RONI 112/80 ST	R 1 1/2"	80
RONI 112/100 MS	RONI 112/100 ES	RONI 112/100 ST	R 1 1/2"	100
RONI 112/120 MS	RONI 112/120 ES	RONI 112/120 ST	R 1 1/2"	120
RONI 112/150 MS	RONI 112/150 ES	RONI 112/150 ST	R 1 1/2"	150
RONI 112/180 MS	RONI 112/180 ES	RONI 112/180 ST	R 1 1/2"	180
RONI 112/200 MS	RONI 112/200 ES	RONI 112/200 ST	R 1 1/2"	200
---	RONI 112/250 ES	RONI 112/250 ST	R 1 1/2"	250
---	RONI 112/300 ES	RONI 112/300 ST	R 1 1/2"	300
---	RONI 112/600 ES	---	R 1 1/2"	600
---	RONI 20/30 ES	---	R 2"	30
---	RONI 20/40 ES	RONI 20/40 ST	R 2"	40
---	RONI 20/50 ES	---	R 2"	50
RONI 20/60 MS	RONI 20/60 ES	RONI 20/60 ST	R 2"	60
RONI 20/80 MS	RONI 20/80 ES	RONI 20/80 ST	R 2"	80
RONI 20/100 MS	RONI 20/100 ES	RONI 20/100 ST	R 2"	100
RONI 20/120 MS	RONI 20/120 ES	RONI 20/120 ST	R 2"	120
---	RONI 20/130 ES	---	R 2"	130
RONI 20/150 MS	RONI 20/150 ES	RONI 20/150 ST	R 2"	150
---	RONI 20/180 ES	RONI 20/180 ST	R 2"	180
RONI 20/200 MS	RONI 20/200 ES	RONI 20/200 ST	R 2"	200
---	RONI 20/250 ES	RONI 20/250 ST	R 2"	250
---	RONI 20/300 ES	RONI 20/300 ST	R 2"	300
---	RONI 212/80 ES	RONI 212/80 ST	R 2 1/2"	80
---	RONI 212/100 ES	RONI 212/100 ST	R 2 1/2"	100
---	RONI 212/120 ES	RONI 212/120 ST	R 2 1/2"	120
---	RONI 212/150 ES	RONI 212/150 ST	R 2 1/2"	150
---	RONI 212/180 ES	RONI 212/180 ST	R 2 1/2"	180
---	RONI 212/200 ES	RONI 212/200 ST	R 2 1/2"	200
---	RONI 212/250 ES	RONI 212/250 ST	R 2 1/2"	250
---	RONI 212/300 ES	RONI 212/300 ST	R 2 1/2"	300
---	RONI 212/620 ES	---	R 2 1/2"	620
---	RONI 30/80 ES	RONI 30/80 ST	R 3"	80
---	RONI 30/100 ES	RONI 30/100 ST	R 3"	100
---	RONI 30/120 ES	RONI 30/120 ST	R 3"	120
---	RONI 30/150 ES	RONI 30/150 ST	R 3"	150
---	RONI 30/180 ES	RONI 30/180 ST	R 3"	180
---	RONI 30/200 ES	RONI 30/200 ST	R 3"	200
---	RONI 30/250 ES	RONI 30/250 ST	R 3"	250
---	RONI 30/300 ES	RONI 30/300 ST	R 3"	300
---	RONI 40/80 ES	RONI 40/80 ST	R 4"	80
---	RONI 40/100 ES	RONI 40/100 ST	R 4"	100
---	RONI 40/120 ES	RONI 40/120 ST	R 4"	120
---	RONI 40/150 ES	RONI 40/150 ST	R 4"	150
---	RONI 40/200 ES	RONI 40/200 ST	R 4"	200
---	RONI 40/250 ES	RONI 40/250 ST	R 4"	250
---	RONI 40/300 ES	RONI 40/300 ST	R 4"	300

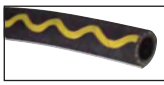


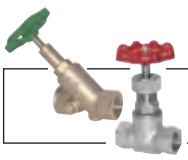


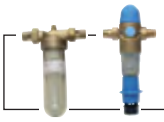
type 530

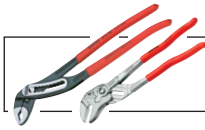
type 23

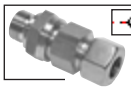


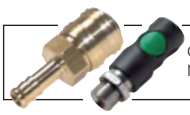

Water hoses - Goldschlange® on page 212


Shut-off valve on page 295

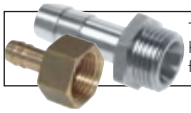

Fine and backwash filter for drinking water on page 361


Water pump pliers and pliers wrenches in the Online Shop


HP check valves of various shapes from page 450

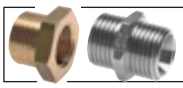

Coupling sockets NW7 from page 150

Garden hose couplings from page 178


Threaded nozzles & hose nozzles from page 64

LOCTITE Liquid seals, gaskets & tapes from page 549

Sealing flax and other sealing materials from page 556


Threaded fittings from page 102

Distributor bars from page 132

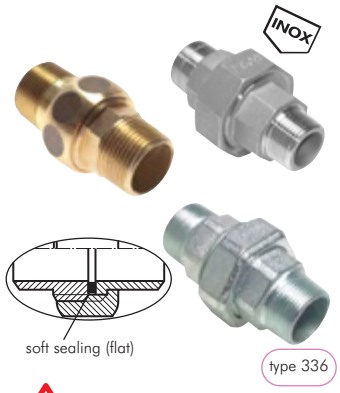
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Separable screw connections

Double nipples separable with male threads - conical sealing — up to 25 bar

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type 16 bar brass	Type 16 bar brass nickel-plated	Type 16 bar AISI 316 (INOX)	Type 25 bar mall. cast iron galv.	Thread	Thread
DNT 1818 MS	DNT 1818 MSV	DNT 1818 ES	---	R 1/8"	R 1/8"
DNT 1418 MS	DNT 1418 MSV	---	---	R 1/4"	R 1/8"
DNT 1414 MS	DNT 1414 MSV	DNT 1414 ES	DNT 1414 ST	R 1/4"	R 1/4"
DNT 3814 MS	DNT 3814 MSV	---	---	R 3/8"	R 1/4"
DNT 3838 MS	DNT 3838 MSV	DNT 3838 ES	DNT 3838 ST	R 3/8"	R 3/8"
DNT 1238 MS	DNT 1238 MSV	---	---	R 1/2"	R 3/8"
DNT 1212 MS	DNT 1212 MSV	DNT 1212 ES	DNT 1212 ST	R 1/2"	R 1/2"
DNT 3434 MS	DNT 3434 MSV	DNT 3434 ES	DNT 3434 ST	R 3/4"	R 3/4"
DNT 1010 MS	DNT 1010 MSV	DNT 1010 ES	DNT 1010 ST	R 1"	R 1"
---	---	DNT 114114 ES	DNT 114114 ST	R 1 1/4"	R 1 1/4"
---	---	DNT 112112 ES	DNT 112112 ST	R 1 1/2"	R 1 1/2"
---	---	DNT 2020 ES	DNT 2020 ST	R 2"	R 2"



Double nipples separable with male threads - flat sealing — up to 25 bar

Materials: Seal: Type brass: Centellen*, type AISI 316: PTFE, type malleable cast iron galvanised: Please order separately!

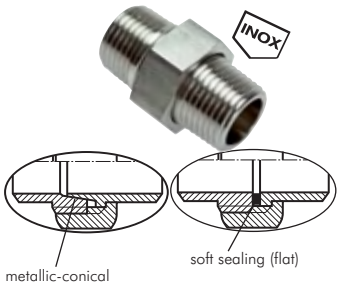
Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type 16 bar brass	Type 16 bar AISI 316 (INOX)	Thread	Type 25 bar mall. cast iron galv.	NBR seal for mall. cast iron	Thread
---	DNT 1818 F ES	R 1/8"	---	---	R 1/8"
---	DNT 1414 F ES	R 1/4"	---	---	R 1/4"
---	DNT 3838 F ES	R 3/8"	---	---	R 3/8"
DNT 1212 F MS	DNT 1212 F ES	R 1/2"	DNT 1212 F ST	DNT 12 Di NBR	R 1/2"
DNT 3434 F MS	DNT 3434 F ES	R 3/4"	DNT 3434 F ST	DNT 34 Di NBR	R 3/4"
DNT 1010 F MS	DNT 1010 F ES	R 1"	DNT 1010 F ST	DNT 10 Di NBR	R 1"
DNT 114114 F MS	DNT 114114 F ES	R 1 1/4"	DNT 114114 F ST	DNT 114 Di NBR	R 1 1/4"
DNT 112112 F MS	DNT 112112 F ES	R 1 1/2"	DNT 112112 F ST	DNT 112 Di NBR	R 1 1/2"
DNT 2020 F MS	DNT 2020 F ES	R 2"	---	---	R 2"

* application area: water, steam, alcohol, flammable gases, hydrocarbon based oils

Order accessories at the same time!

Please also order seals for the malleable cast iron type!



Double nipples separable with male threads - conical/flat sealing — PN 40

Materials: AISI 316Ti, seal: PTFE

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type conical sealing (INOX)	Type flat sealing (INOX)	Thread	Thread
DNT 1818 ES4A	DNT 1818 F ES4A	R 1/8"	R 1/8"
DNT 1414 ES4A	DNT 1414 F ES4A	R 1/4"	R 1/4"
DNT 3814 ES4A	---	R 3/8"	R 1/4"
DNT 3838 ES4A	DNT 3838 F ES4A	R 3/8"	R 3/8"
DNT 1212 ES4A	DNT 1212 F ES4A	R 1/2"	R 1/2"

Screw connections with female threads - conical sealing — up to 25 bar

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Optional: NPT thread **-NPT**

Type 16 bar brass	Type 16 bar AISI 316 (INOX)	Type 25 bar mall. cast iron galv.	Thread
---	DNT 1818 i ES	---	Rp 1/8"
---	DNT 1414 i ES	DNT 1414 i ST	Rp 1/4"
---	DNT 3838 i ES	DNT 3838 i ST	Rp 3/8"
DNT 1212 i MS	DNT 1212 i ES*	DNT 1212 i ST	Rp 1/2"
DNT 3434 i MS	DNT 3434 i ES*	DNT 3434 i ST	Rp 3/4"
DNT 1010 i MS	DNT 1010 i ES*	DNT 1010 i ST	Rp 1"
DNT 114114 i MS	DNT 114114 i ES*	DNT 114114 i ST	Rp 1 1/4"
DNT 112112 i MS	DNT 112112 i ES*	DNT 112112 i ST	Rp 1 1/2"
DNT 2020 i MS	DNT 2020 i ES*	DNT 2020 i ST	Rp 2"
---	DNT 212212 i ES	DNT 212212 i ST	Rp 2 1/2"
---	DNT 3030 i ES	DNT 3030 i ST	Rp 3"
---	DNT 4040 i ES	---	Rp 4"

* optional: NPT thread **-NPT**

Order example: DNT 1212 i ES **

Standard type

Designation for the options: NPT thread . . . . . **-NPT**

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Screw connections with female threads - flat sealing — up to 25 bar

Materials: Seal: Type brass: Centellen*, type AISI 316: PTFE, type mall. cast iron galvanised: Please order separately!

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type 16 bar brass	Type 16 bar AISI 316 INOX	Thread	Type 25 bar mall. cast iron galv.	NBR seal for mall. cast iron	Thread
---	DNT 1818 iF ES	Rp 1/8"	---	---	Rp 1/8"
---	DNT 1414 iF ES	Rp 1/4"	DNT 1414 iF ST	DNT 14 Di NBR	Rp 1/4"
---	DNT 3838 iF ES	Rp 3/8"	DNT 3838 iF ST	DNT 38 Di NBR	Rp 3/8"
DNT 1212 iF MS	DNT 1212 iF ES	Rp 1/2"	DNT 1212 iF ST	DNT 12 Di NBR	Rp 1/2"
DNT 3434 iF MS	DNT 3434 iF ES	Rp 3/4"	DNT 3434 iF ST	DNT 34 Di NBR	Rp 3/4"
DNT 1010 iF MS	DNT 1010 iF ES	Rp 1"	DNT 1010 iF ST	DNT 10 Di NBR	Rp 1"
DNT 114114 iF MS	DNT 114114 iF ES	Rp 1 1/4"	DNT 114114 iF ST	DNT 114 Di NBR	Rp 1 1/4"
DNT 112112 iF MS	DNT 112112 iF ES	Rp 1 1/2"	DNT 112112 iF ST	DNT 112 Di NBR	Rp 1 1/2"
DNT 2020 iF MS	DNT 2020 iF ES	Rp 2"	DNT 2020 iF ST	DNT 20 Di NBR	Rp 2"
---	DNT 212212 iF ES	Rp 2 1/2"	DNT 212212 iF ST	DNT 212 Di NBR	Rp 2 1/2"
---	DNT 3030 iF ES	Rp 3"	DNT 3030 iF ST	DNT 30 Di NBR	Rp 3"
---	DNT 4040 iF ES	Rp 4"	---	---	Rp 4"

* application area: water, steam, alcohol, flammable gases, hydrocarbon based oils

type 330/U1

Order accessories at the same time!

Please also order seals for the malleable cast iron type!

Screw connections with female and male threads - conical sealing — up to 25 bar

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Optional: NPT thread **-NPT**

Type 16 bar brass	Type 16 bar AISI 316 INOX	Type 25 bar mall. cast iron galv.	Thread female	Thread male
---	DNT 1818 iA ES*	---	Rp 1/8"	R 1/8"
---	DNT 1414 iA ES*	DNT 1414 iA ST	Rp 1/4"	R 1/4"
---	DNT 3838 iA ES*	DNT 3838 iA ST	Rp 3/8"	R 3/8"
DNT 1212 iA MS	DNT 1212 iA ES*	DNT 1212 iA ST	Rp 1/2"	R 1/2"
DNT 3434 iA MS	DNT 3434 iA ES*	DNT 3434 iA ST	Rp 3/4"	R 3/4"
DNT 1010 iA MS	DNT 1010 iA ES*	DNT 1010 iA ST	Rp 1"	R 1"
DNT 114114 iA MS	DNT 114114 iA ES*	DNT 114114 iA ST	Rp 1 1/4"	R 1 1/4"
DNT 112112 iA MS	DNT 112112 iA ES*	DNT 112112 iA ST	Rp 1 1/2"	R 1 1/2"
DNT 2020 iA MS	DNT 2020 iA ES*	DNT 2020 iA ST	Rp 2"	R 2"
---	DNT 212212 iA ES	DNT 212212 iA ST	Rp 2 1/2"	R 2 1/2"
---	DNT 3030 iA ES	DNT 3030 iA ST	Rp 3"	R 3"
---	DNT 4040 iA ES	---	Rp 4"	R 4"

* optional: NPT thread **-NPT**

Order example: DNT 1212 iA ES **

Standard type

Designation for the options: NPT thread . . . . . **-NPT**

type 341/U12

Screw connections with female and male threads - flat sealing — up to 25 bar

Materials: Seal: Type brass: Centellen*, type AISI 316: PTFE, type mall. cast iron galvanised: Please order separately!

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type 16 bar brass	Type 16 bar AISI 316 INOX	Thread (FT/MT)	Type 25 bar mall. cast iron galv.	NBR seal for mall. cast iron	Thread (FT/MT)
---	DNT 1818 iAF ES	Rp/R 1/8"	---	---	Rp/R 1/8"
---	DNT 1414 iAF ES	Rp/R 1/4"	---	---	Rp/R 1/4"
---	DNT 3838 iAF ES	Rp/R 3/8"	DNT 3838 iAF ST	DNT 38 Di NBR	Rp/R 3/8"
DNT 1212 iAF MS	DNT 1212 iAF ES	Rp/R 1/2"	DNT 1212 iAF ST	DNT 12 Di NBR	Rp/R 1/2"
DNT 3434 iAF MS	DNT 3434 iAF ES	Rp/R 3/4"	DNT 3434 iAF ST	DNT 34 Di NBR	Rp/R 3/4"
DNT 1010 iAF MS	DNT 1010 iAF ES	Rp/R 1"	DNT 1010 iAF ST	DNT 10 Di NBR	Rp/R 1"
DNT 114114 iAF MS	DNT 114114 iAF ES	Rp/R 1 1/4"	DNT 114114 iAF ST	DNT 114 Di NBR	Rp/R 1 1/4"
DNT 112112 iAF MS	DNT 112112 iAF ES	Rp/R 1 1/2"	DNT 112112 iAF ST	DNT 112 Di NBR	Rp/R 1 1/2"
DNT 2020 iAF MS	DNT 2020 iAF ES	Rp/R 2"	DNT 2020 iAF ST	DNT 20 Di NBR	Rp/R 2"
---	DNT 212212 iAF ES	Rp/R 2 1/2"	DNT 212212 iAF ST	DNT 212 Di NBR	Rp/R 2 1/2"
---	DNT 3030 iAF ES	Rp/R 3"	DNT 3030 iAF ST	DNT 30 Di NBR	Rp/R 3"
---	DNT 4040 iAF ES	Rp/R 4"	---	---	Rp/R 4"

* application area: water, steam, alcohol, flammable gases, hydrocarbon based oils

type 331/U2

Order accessories at the same time!

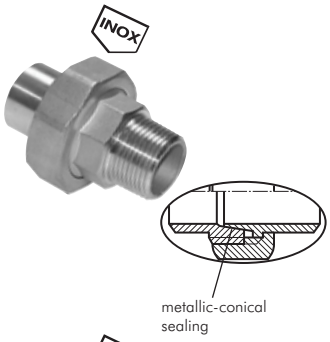
Please also order seals for the malleable cast iron type!

Replacements seals for flat sealing, separable double nipples and screw connections

Centellen for brass	Centellen for brass (double-sided FT)	PTFE for AISI 316	PTFE for AISI 316Ti (both sides MT)	NBR for malleable cast iron	Thread
---	---	DNT 18 Di TE	DR 18 TE	---	R/Rp 1/8"
---	---	DNT 14 Di TE	DR 14 TE	DNT 14 Di NBR	R/Rp 1/4"
---	---	DNT 38 Di TE	DR 38 TE	DNT 38 Di NBR	R/Rp 3/8"
DNT 12 Di CE	DNT 12 iF Di CE	DNT 12 Di TE	DR 38 TE	DNT 12 Di NBR	R/Rp 1/2"
DNT 34 Di CE	DNT 34 iF Di CE	DNT 34 Di TE	---	DNT 34 Di NBR	R/Rp 3/4"
DNT 10 Di CE	DNT 10 iF Di CE	DNT 10 Di TE	---	DNT 10 Di NBR	R/Rp 1"
DNT 114 Di CE	DNT 114 iF Di CE	DNT 114 Di TE	---	DNT 114 Di NBR	R/Rp 1 1/4"
DNT 112 Di CE	DNT 112 iF Di CE	DNT 112 Di TE	---	DNT 112 Di NBR	R/Rp 1 1/2"
DNT 20 Di CE	DNT 20 iF Di CE	DNT 20 Di TE	---	DNT 20 Di NBR	R/Rp 2"
---	---	DNT 212 Di TE	---	DNT 212 Di NBR	R/Rp 2 1/2"
---	---	DNT 30 Di TE	---	DNT 30 Di NBR	R/Rp 3"
---	---	DNT 40 Di TE	---	---	R/Rp 4"

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Separable screw connections



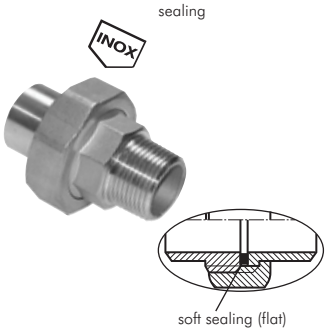
metallic-conical sealing

Screw connections with weld ends and male threads - conical sealing — PN 16

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type AISI 316 INOX	Thread	Ø external
DNT 1414 ASA ES	R 1/4"	13.5
DNT 3838 ASA ES	R 3/8"	17.2
DNT 1212 ASA ES	R 1/2"	21.3
DNT 3434 ASA ES	R 3/4"	26.9

Type AISI 316 INOX	Thread	Ø external
DNT 1010 ASA ES	R 1"	33.7
DNT 114114 ASA ES	R 1 1/4"	42.4
DNT 112112 ASA ES	R 1 1/2"	48.3
DNT 2020 ASA ES	R 2"	60.3



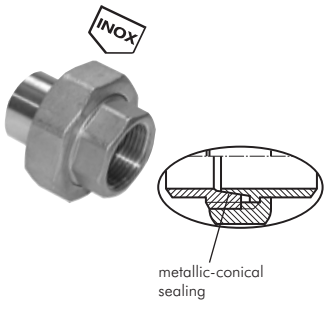
soft sealing (flat)

Screw connections with weld ends and male threads - flat sealing — PN 16

Materials: AISI 316, seal: PTFE

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type AISI 316 INOX	Thread	Ø external	Replacement seal PTFE
DNT 1414 ASAF ES	R 1/4"	13.5	DNT 14 Di TE
DNT 3838 ASAF ES	R 3/8"	17.2	DNT 38 Di TE
DNT 1212 ASAF ES	R 1/2"	21.3	DNT 12 Di TE
DNT 3434 ASAF ES	R 3/4"	26.9	DNT 34 Di TE
DNT 1010 ASAF ES	R 1"	33.7	DNT 10 Di TE
DNT 114114 ASAF ES	R 1 1/4"	42.4	DNT 114 Di TE
DNT 112112 ASAF ES	R 1 1/2"	48.3	DNT 112 Di TE
DNT 2020 ASAF ES	R 2"	60.3	DNT 20 Di TE



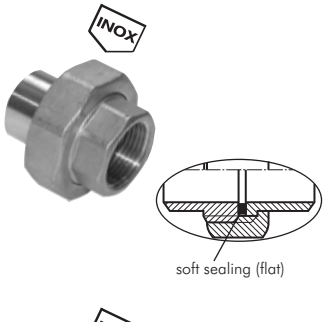
metallic-conical sealing

Screw connections with weld ends and female threads - conical sealing — PN 16

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type AISI 316 INOX	Thread	Ø external
DNT 1414 ASi ES	Rp 1/4"	13.5
DNT 3838 ASi ES	Rp 3/8"	17.2
DNT 1212 ASi ES	Rp 1/2"	21.3
DNT 3434 ASi ES	Rp 3/4"	26.9

Type AISI 316 INOX	Thread	Ø external
DNT 1010 ASi ES	Rp 1"	33.7
DNT 114114 ASi ES	Rp 1 1/4"	42.4
DNT 112112 ASi ES	Rp 1 1/2"	48.3
DNT 2020 ASi ES	Rp 2"	60.3



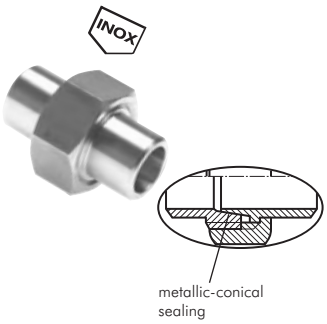
soft sealing (flat)

Screw connections with weld ends and female threads - flat sealing — PN 16

Materials: AISI 316, seal: PTFE

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type AISI 316 INOX	Thread	Ø external	Replacement seal PTFE
DNT 1414 ASiF ES	Rp 1/4"	13.5	DNT 14 Di TE
DNT 3838 ASiF ES	Rp 3/8"	17.2	DNT 38 Di TE
DNT 1212 ASiF ES	Rp 1/2"	21.3	DNT 12 Di TE
DNT 3434 ASiF ES	Rp 3/4"	26.9	DNT 34 Di TE
DNT 1010 ASiF ES	Rp 1"	33.7	DNT 10 Di TE
DNT 114114 ASiF ES	Rp 1 1/4"	42.4	DNT 114 Di TE
DNT 112112 ASiF ES	Rp 1 1/2"	48.3	DNT 112 Di TE
DNT 2020 ASiF ES	Rp 2"	60.3	DNT 20 Di TE



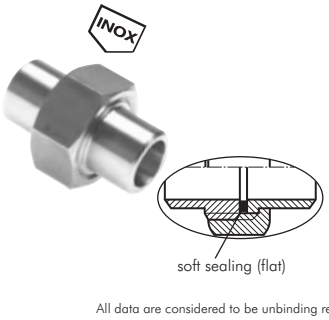
metallic-conical sealing

Screw connections with weld ends - conical sealing — PN 16

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type AISI 316 INOX	Ø external
DNT 1818 AS ES	10.2
DNT 1414 AS ES	13.5
DNT 3838 AS ES	17.2
DNT 1212 AS ES	21.3
DNT 3434 AS ES	26.9
DNT 1010 AS ES	33.7

Type AISI 316 INOX	Ø external
DNT 114114 AS ES	42.4
DNT 112112 AS ES	48.3
DNT 2020 AS ES	60.3
DNT 212212 AS ES	76.1
DNT 3030 AS ES	88.9
DNT 4040 AS ES	114.3



soft sealing (flat)

Screw connections with weld ends - flat sealing — PN 16

Materials: AISI 316, seal: PTFE

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type AISI 316 INOX	Ø external	Replacement seal PTFE
DNT 1818 ASF ES	10.2	DNT 18 Di TE
DNT 1414 ASF ES	13.5	DNT 14 Di TE
DNT 3838 ASF ES	17.2	DNT 38 Di TE
DNT 1212 ASF ES	21.3	DNT 12 Di TE
DNT 3434 ASF ES	26.9	DNT 34 Di TE
DNT 1010 ASF ES	33.7	DNT 10 Di TE

Type AISI 316 INOX	Ø external	Replacement seal PTFE
DNT 114114 ASF ES	42.4	DNT 114 Di TE
DNT 112112 ASF ES	48.3	DNT 112 Di TE
DNT 2020 ASF ES	60.3	DNT 20 Di TE
DNT 212212 ASF ES	76.1	DNT 212 Di TE
DNT 3030 ASF ES	88.9	DNT 30 Di TE
DNT 4040 ASF ES	114.3	DNT 40 Di TE

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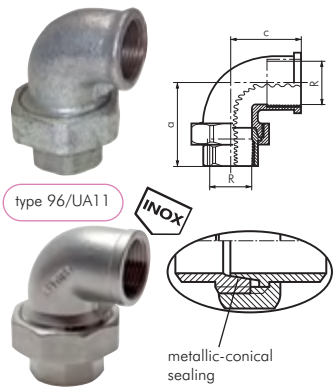
Elbow screw connections separable, both sides with female threads - conical sealing — up to 25 bar

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type 25 bar mall. cast iron galv.	a	c	Type 16 bar AISI 316 (INOX)	a	c	Thread
WT 38 ST	52	25	WT 38 ES	50	27	Rp 3/8"
WT 12 ST	58	28	WT 12 ES	58	27	Rp 1/2"
WT 34 ST	62	33	WT 34 ES	54	33	Rp 3/4"
WT 10 ST	72	38	WT 10 ES	74	40	Rp 1"
WT 114 ST	82	45	WT 114 ES	82	47	Rp 1 1/4"
WT 112 ST	90	50	WT 112 ES	87	52	Rp 1 1/2"
WT 20 ST	100	58	WT 20 ES	93	62	Rp 2"
WT 212 ST	122	70	---	---	---	Rp 2 1/2"
WT 30 ST	135	78	---	---	---	Rp 3"



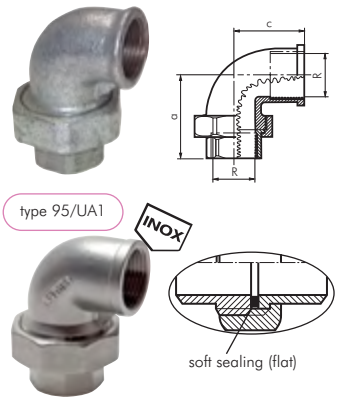
Elbow screw connections separable, both sides with female threads - flat sealing — up to 25 bar

Materials: Type malleable cast iron galvanised, Centellenseal included, type AISI 316: PTFE-seal included

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type 25 bar mall. cast iron galv.	a	c	Type 16 bar AISI 316 (INOX)	a	c	Thread	Replacem. seal Centellen* for mall. cast iron	Replacem. seal PTFE for AISI 316
WT 38 F ST	52	25	WT 38 F ES	50	27	Rp 3/8"	WT 38 Di	DNT 38 Di TE
WT 12 F ST	58	28	WT 12 F ES	58	27	Rp 1/2"	WT 12 Di	DNT 12 Di TE
WT 34 F ST	62	33	WT 34 F ES	54	33	Rp 3/4"	WT 34 Di	DNT 34 Di TE
WT 10 F ST	72	38	WT 10 F ES	74	40	Rp 1"	WT 10 Di	DNT 10 Di TE
WT 114 F ST	82	45	WT 114 F ES	82	47	Rp 1 1/4"	WT 114 Di	DNT 114 Di TE
WT 112 F ST	90	50	WT 112 F ES	87	52	Rp 1 1/2"	WT 112 Di	DNT 112 Di TE
WT 20 F ST	100	58	WT 20 F ES	93	62	Rp 2"	WT 20 Di	DNT 20 Di TE
WT 212 F ST	122	70	---	---	---	Rp 2 1/2"	WT 212 Di	---

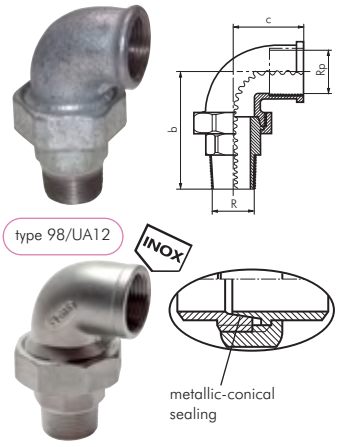
* application area: water, steam, alcohol, glycol, flammable gases, hydrocarbon based oils



Elbow screw connections separable with female and male threads - conical sealing — up to 25 bar

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type 25 bar mall. cast iron galv.	b	c	Type 16 bar AISI 316 (INOX)	b	c	Thread female	Thread male
WET 38 ST	65	25	WET 38 ES	61	27	Rp 3/8"	R 3/8"
WET 12 ST	76	28	WET 12 ES	72	27	Rp 1/2"	R 1/2"
WET 34 ST	82	33	WET 34 ES	69	33	Rp 3/4"	R 3/4"
WET 10 ST	94	38	WET 10 ES	89	40	Rp 1"	R 1"
WET 114 ST	107	45	WET 114 ES	98	47	Rp 1 1/4"	R 1 1/4"
WET 112 ST	115	50	WET 112 ES	102	52	Rp 1 1/2"	R 1 1/2"
WET 20 ST	128	58	WET 20 ES	111	62	Rp 2"	R 2"
WET 212 ST	152	70	---	---	---	Rp 2 1/2"	R 2 1/2"
WET 30 ST	168	78	---	---	---	Rp 3"	R 3"



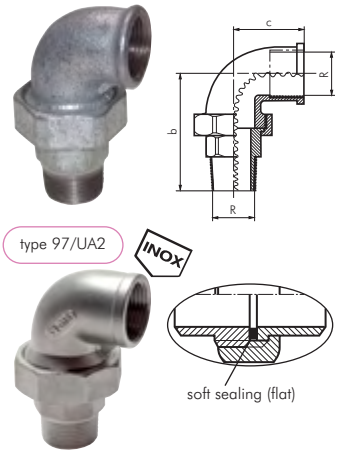
Elbow screw connections separable with female and male threads - flat sealing — up to 25 bar

Materials: Type malleable cast iron galvanised, Centellenseal included, type AISI 316: PTFE-seal included

Warning: Version of the sealing surfaces and union nuts varies depending on the manufacturer. It is not recommended to mix individual parts.

Type 25 bar mall. cast iron galv.	b	c	Type 16 bar AISI 316 (INOX)	b	c	Thread female	Thread male	Replacem. seal Centellen* for mall. cast iron	Replacem. seal PTFE for AISI 316
WET 38 F ST	65	25	WET 38 F ES	61	27	Rp 3/8"	R 3/8"	WT 38 Di	DNT 38 Di TE
WET 12 F ST	76	28	WET 12 F ES	72	27	Rp 1/2"	R 1/2"	WT 12 Di	DNT 12 Di TE
WET 34 F ST	82	33	WET 34 F ES	69	33	Rp 3/4"	R 3/4"	WT 34 Di	DNT 34 Di TE
WET 10 F ST	94	38	WET 10 F ES	89	40	Rp 1"	R 1"	WT 10 Di	DNT 10 Di TE
WET 114 F ST	107	45	WET 114 F ES	98	47	Rp 1 1/4"	Rp 1 1/4"	WT 114 Di	DNT 114 Di TE
WET 112 F ST	115	50	WET 112 F ES	102	52	Rp 1 1/2"	R 1 1/2"	WT 112 Di	DNT 112 Di TE
WET 20 F ST	128	58	WET 20 F ES	111	62	Rp 2"	R 2"	WT 20 Di	DNT 20 Di TE

* application area: water, steam, alcohol, glycol, flammable gases, hydrocarbon based oils



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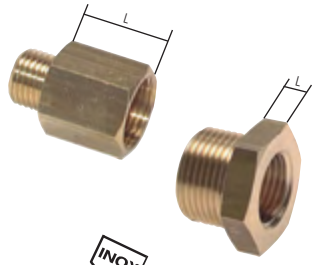
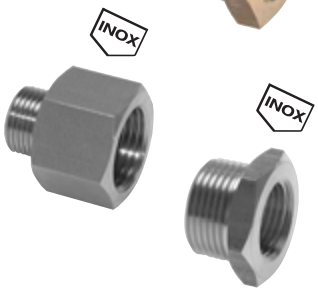
Reducing nipples

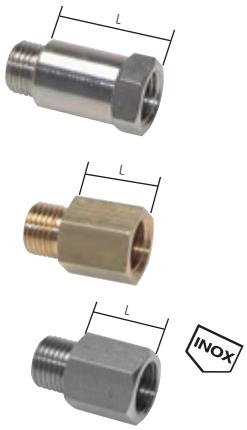




Reducing nipples with cylindrical male and female threads — up to 40 bar

Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 40 bar AISI 316Ti (INOX)	Thread male	Thread female	SW[1]	L[1]
RN 53 MSV	RN 53 MS	RN 53 ES	M 5	M 3	7	1.5
RN 518 MSV	RN 518 MS	RN 518 ES	M 5	G 1/8"	14	12.0
RN 185 MSV	RN 185 MS	RN 185 ES	G 1/8"	M 5	14	4.0
RN 1814 MSV	RN 1814 MS	RN 1814 ES	G 1/8"	G 1/4"	17	18.0
RN 1838 MSV	RN 1838 MS	---	G 1/8"	G 3/8"	19	19.0
RN 1812 MSV	---	---	G 1/8"	G 1/2"	24	18.0
---	RN 145 MS	RN 145 ES	G 1/4"	M 5	17	4.0
RN 1418 MSV	RN 1418 MS	RN 1418 ES	G 1/4"	G 1/8"	17	4.0
RN 1438 MSV	RN 1438 MS	RN 1438 ES	G 1/4"	G 3/8"	19	20.0
RN 1412 MSV	RN 1412 MS	---	G 1/4"	G 1/2"	24	14.0
RN 3818 MSV	RN 3818 MS	RN 3818 ES	G 3/8"	G 1/8"	19	4.0
RN 3814 MSV	RN 3814 MS	RN 3814 ES	G 3/8"	G 1/4"	19	5.0
RN 3812 MSV	RN 3812 MS	RN 3812 ES	G 3/8"	G 1/2"	24	16.0
RN 1218 MSV	RN 1218 MS	RN 1218 ES	G 1/2"	G 1/8"	24	6.0
RN 1214 MSV	RN 1214 MS	RN 1214 ES	G 1/2"	G 1/4"	24	6.0
RN 1238 MSV	RN 1238 MS	RN 1238 ES	G 1/2"	G 3/8"	24	6.0
RN 1234 MSV	RN 1234 MS	RN 1234 ES	G 1/2"	G 3/4"	32	19.0
RN 3414 MSV	RN 3414 MS	---	G 3/4"	G 1/4"	27	5.0
RN 3438 MSV	RN 3438 MS	RN 3438 ES	G 3/4"	G 3/8"	32	6.0
RN 3412 MSV	RN 3412 MS	RN 3412 ES	G 3/4"	G 1/2"	32	8.0
---	RN 3410 MS	---	G 3/4"	G 1"	36	15.0
RN 1038 MSV	---	---	G 1"	G 3/8"	36	7.0
RN 1012 MSV	RN 1012 MS	RN 1012 ES	G 1"	G 1/2"	36	6.0
RN 1034 MSV	RN 1034 MS	RN 1034 ES	G 1"	G 3/4"	36	6.0
RN 10114 MSV	RN 10114 MS	---	G 1"	G 1 1/4"	45	14.0
RN 11434 MSV	RN 11434 MS	---	G 1 1/4"	G 3/4"	42	7.0
RN 11410 MSV	RN 11410 MS	---	G 1 1/4"	G 1"	42	7.0
RN 114112 MSV	RN 114112 MS	---	G 1 1/4"	G 1 1/2"	51	15.0
RN 11234 MSV	RN 11234 MS	---	G 1 1/2"	G 3/4"	50	8.0
RN 11210 MSV	RN 11210 MS	---	G 1 1/2"	G 1"	50	8.0
RN 112114 MSV	RN 112114 MS	---	G 1 1/2"	G 1 1/4"	50	8.0
RN 2010 MSV	RN 2010 MS	---	G 2"	G 1"	60	9.0
RN 20114 MSV	RN 20114 MS	---	G 2"	G 1 1/4"	60	9.0
RN 20112 MSV	RN 20112 MS	---	G 2"	G 1 1/2"	60	9.0

[1] Details apply for the brass type. For all other types, please ask.



Thread extensions with cylindrical male and female threads — up to 40 bar

Type 16 bar brass nickel-plated	L	Type 16 bar brass	L	Type 40 bar AISI 316Ti (INOX)	L	Thread	SW[1]
RN 55 MSV	7	RN 55 MS	10	RN 55 ES	10	M 5	8
RN 1818 MSV	10	RN 1818 MS	15	RN 1818 ES	15	G 1/8"	14
RN 1818/16 MSV	16	---	---	---	---	G 1/8"	14
RN 1818/36 MSV	36	---	---	RN 1818/36 ES	36	G 1/8"	14
RN 1818/45 MSV	45	---	---	RN 1818/45 ES	45	G 1/8"	14
RN 1414 MSV	13	RN 1414 MS	18	RN 1414 ES	18	G 1/4"	17
RN 1414/27 MSV	27	---	---	---	---	G 1/4"	17
RN 1414/43 MSV	43	---	---	---	---	G 1/4"	17
RN 3838 MSV	14	RN 3838 MS	19	RN 3838 ES	20	G 3/8"	22
RN 1212 MSV	16	RN 1212 MS	22	RN 1212 ES	22	G 1/2"	27
---	---	---	---	RN 3434 ES	25	G 3/4"	---

[1] Details apply for the nickel-plated brass type. For all other types, please ask.

Thread extensions made of brass with square drives — DIN 3523

Type brass	Type brass chrome-plated	Thread	L
RN 3838/10 MS	RN 3838/10 MSV	G 3/8"	10
RN 3838/15 MS	RN 3838/15 MSV	G 3/8"	15
RN 3838/20 MS	RN 3838/20 MSV	G 3/8"	20
RN 3838/25 MS	RN 3838/25 MSV	G 3/8"	25
RN 3838/30 MS	RN 3838/30 MSV	G 3/8"	30
RN 3838/40 MS	RN 3838/40 MSV	G 3/8"	40
RN 3838/50 MS	RN 3838/50 MSV	G 3/8"	50
RN 3838/80 MS	---	G 3/8"	80
RN 3838/100 MS	---	G 3/8"	100
RN 1212/10 MS	RN 1212/10 MSV	G 1/2"	10
RN 1212/15 MS	RN 1212/15 MSV	G 1/2"	15
RN 1212/20 MS	RN 1212/20 MSV	G 1/2"	20
RN 1212/25 MS	RN 1212/25 MSV	G 1/2"	25
RN 1212/30 MS	RN 1212/30 MSV	G 1/2"	30
RN 1212/40 MS	RN 1212/40 MSV	G 1/2"	40
RN 1212/50 MS	RN 1212/50 MSV	G 1/2"	50
RN 1212/65 MS	RN 1212/65 MSV	G 1/2"	65
RN 1212/80 MS	RN 1212/80 MSV	G 1/2"	80

Type brass	Type brass chrome-plated	Thread	L
RN 1212/100 MS	RN 1212/100 MSV	G 1/2"	100
RN 3434/10 MS	RN 3434/10 MSV	G 3/4"	10
RN 3434/15 MS	RN 3434/15 MSV	G 3/4"	15
RN 3434/20 MS	RN 3434/20 MSV	G 3/4"	20
RN 3434/25 MS	RN 3434/25 MSV	G 3/4"	25
RN 3434/30 MS	RN 3434/30 MSV	G 3/4"	30
RN 3434/40 MS	RN 3434/40 MSV	G 3/4"	40
RN 3434/50 MS	RN 3434/50 MSV	G 3/4"	50
RN 3434/65 MS	RN 3434/65 MSV	G 3/4"	65
RN 3434/80 MS	RN 3434/80 MSV	G 3/4"	80
RN 3434/100 MS	RN 3434/100 MSV	G 3/4"	100
RN 1010/15 MS	RN 1010/15 MSV	G 1"	15
RN 1010/20 MS	RN 1010/20 MSV	G 1"	20
RN 1010/25 MS	RN 1010/25 MSV	G 1"	25
RN 1010/30 MS	RN 1010/30 MSV	G 1"	30
RN 1010/40 MS	RN 1010/40 MSV	G 1"	40
RN 1010/50 MS	---	G 1"	50
RN 1010/100 MS	---	G 1"	100

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Reducing nipples with conical male and cylindrical female threads — up to 25 bar

Type 25 bar mall. cast iron galv.	Type 16 bar AISI 316 INOX	Thread male	Thread female	Type 25 bar mall. cast iron galv.	Type 16 bar AISI 316 INOX	Thread male	Thread female
RN 1418 K ST	RN 1418 K ES	R 1/4"	Rp 1/8"	RN 114112 K ST	---	R 1 1/4"	Rp 1 1/2"
RN 1438 K ST	---	R 1/4"	Rp 3/8"	RN 11420 K ST	---	R 1 1/4"	Rp 2"
RN 1412 K ST	---	R 1/4"	Rp 1/2"	RN 11212 K ST	RN 11212 K ES	R 1 1/2"	Rp 1/2"
---	RN 3818 K ES	R 3/8"	Rp 1/8"	RN 11234 K ST	RN 11234 K ES	R 1 1/2"	Rp 3/4"
RN 3814 K ST	RN 3814 K ES	R 3/8"	Rp 1/4"	RN 11210 K ST	RN 11210 K ES	R 1 1/2"	Rp 1"
RN 3812 K ST	---	R 3/8"	Rp 1/2"	RN 112114 K ST	RN 112114 K ES	R 1 1/2"	Rp 1 1/4"
---	RN 1218 K ES	R 1/2"	Rp 1/8"	RN 11220 K ST	---	R 1 1/2"	Rp 2"
RN 1214 K ST	RN 1214 K ES	R 1/2"	Rp 1/4"	RN 2012 K ST	---	R 2"	Rp 1/2"
RN 1238 K ST	RN 1238 K ES	R 1/2"	Rp 3/8"	RN 2034 K ST	---	R 2"	Rp 3/4"
RN 1234 K ST	---	R 1/2"	Rp 3/4"	RN 2010 K ST	RN 2010 K ES	R 2"	Rp 1"
RN 1210 K ST	---	R 1/2"	Rp 1"	RN 20114 K ST	RN 20114 K ES	R 2"	Rp 1 1/4"
RN 3414 K ST	RN 3414 K ES	R 3/4"	Rp 1/4"	RN 20112 K ST	RN 20112 K ES	R 2"	Rp 1 1/2"
RN 3438 K ST	RN 3438 K ES	R 3/4"	Rp 3/8"	RN 20212 K ST	---	R 2"	Rp 2 1/2"
RN 3412 K ST	RN 3412 K ES	R 3/4"	Rp 1/2"	RN 2030 K ST	---	R 2"	Rp 3"
RN 3410 K ST	---	R 3/4"	Rp 1"	RN 212114 K ST	---	R 2 1/2"	Rp 1 1/4"
RN 34114 K ST	---	R 3/4"	Rp 1 1/4"	RN 212112 K ST	RN 212112 K ES	R 2 1/2"	Rp 1 1/2"
RN 1038 K ST	---	R 1"	Rp 3/8"	RN 21220 K ST	RN 21220 K ES	R 2 1/2"	Rp 2"
RN 1012 K ST	RN 1012 K ES	R 1"	Rp 1/2"	RN 21230 K ST	---	R 2 1/2"	Rp 3"
RN 1034 K ST	RN 1034 K ES	R 1"	Rp 3/4"	RN 3010 K ST	---	R 3"	Rp 1"
RN 10114 K ST	---	R 1"	Rp 1 1/4"	RN 30114 K ST	---	R 3"	Rp 1 1/4"
RN 10112 K ST	---	R 1"	Rp 1 1/2"	RN 30112 K ST	RN 30112 K ES	R 3"	Rp 1 1/2"
RN 1020 K ST	---	R 1"	Rp 2"	RN 3020 K ST	RN 3020 K ES	R 3"	Rp 2"
RN 11412 K ST	---	R 1 1/4"	Rp 1/2"	RN 30212 K ST	RN 30212 K ES	R 3"	Rp 2 1/2"
RN 11434 K ST	RN 11434 K ES	R 1 1/4"	Rp 3/4"	RN 4020 K ST	---	R 4"	Rp 2"
RN 11410 K ST	RN 11410 K ES	R 1 1/4"	Rp 1"	RN 4030 K ST	RN 4030 K ES	R 4"	Rp 3"

TIP Good quality, economical price!

type 241/N4

type 246/M4 red

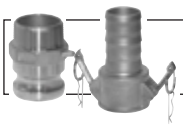
INOX

Thread enlargements with conical male and cyl. female threads — PN 16

Type brass nickel-plated	Thread male	Thread female	Type brass nickel-plated	Thread male	Thread female
RN 1818 K MSV	R 1/8"	Rp 1/8"	RN 1434 K MSV	R 1/4"	Rp 3/4"
RN 1814 K MSV	R 1/8"	Rp 1/4"	RN 3838 K MSV	R 3/8"	Rp 3/8"
RN 1838 K MSV	R 1/8"	Rp 3/8"	RN 3812 K MSV	R 3/8"	Rp 1/2"
RN 1812 K MSV	R 1/8"	Rp 1/2"	RN 3834 K MSV	R 3/8"	Rp 3/4"
RN 1414 K MSV	R 1/4"	Rp 1/4"	RN 1212 K MSV	R 1/2"	Rp 1/2"
RN 1438 K MSV	R 1/4"	Rp 3/8"	RN 1234 K MSV	R 1/2"	Rp 3/4"
RN 1412 K MSV	R 1/4"	Rp 1/2"	RN 3434 K MSV	R 3/4"	Rp 3/4"

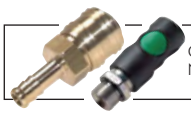
High pressure swivel joints from page 140

Service units from page 330



Kamlock couplings from page 186

Multibox MSV Brass nickel-plated reducing, connecting and and closing nozzles from M5 up to 1" on page 596



Coupling sockets NW7 from page 150

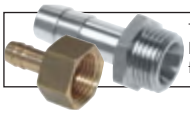
Ball valves from page 280

Pressure gauge from page 366

LOCTITE Liquid seals, gaskets & tapes from page 549

PU, PA, PTFE and PE hoses from page 192

Work gloves on page 589



Threaded nozzles & hose nozzles from page 64

2/2, 3/2 directional valves of brass or stainless steel from page 404

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

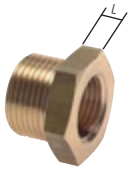
Reducing nipples

TIP Can be countersunk in bore!

Reducing nipples with cylindrical G threads without collars — up to 100 bar

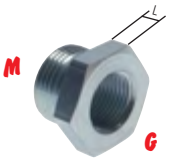
Type brass	Thread male	Thread female	L	PN	Corresponding thread sealant*
RN 1418 MS OB	G 1/4"	G 1/8"	8	100 bar	542/10 (Loctite)
RN 3814 MS OB	G 3/8"	G 1/4"	9	75 bar	542/10 (Loctite)
RN 1238 MS OB	G 1/2"	G 3/8"	10	50 bar	542/10 (Loctite)
RN 3412 MS OB	G 3/4"	G 1/2"	14	85 bar	542/10 (Loctite)
RN 1034 MS OB	G 1"	G 3/4"	20	80 bar	542/10 (Loctite)

* More thread seals can be found from page 548.



Reducing nipples with metric threads — PN 16

Type brass	Thread male	Thread female	SW	L
RN M14-M10 MS	M 14 x 1.5	M 10 x 1	17	4
RN M18-M14 MS	M 18 x 1.5	M 14 x 1.5	22	5
RN M24-M16 MS	M 24 x 1.5	M 16 x 1.5	27	8



Reducing nipples with metric threads/G threads — up to 315 bar

Type zinc-plated steel	Thread male	Thread female	SW	L	PN
RN M22-14 HD	M 22 x 1.5	G 1/4"	27	7	250 bar
RN M22-38 HD	M 22 x 1.5	G 3/8"	27	7	250 bar
RN M22-12 HD	M 22 x 1.5	G 1/2"	27	26	315 bar

Reducing nipples PVC-U (for plastic threads only) — PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!

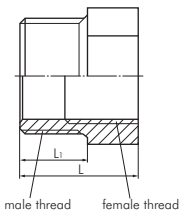
Type	Thread male		Thread female
RN 1238 PVC	Rp 1/2"		Rp 3/8"
RN 1234 PVC	Rp 1/2"	extended	Rp 3/4"
RN 3438 PVC	Rp 3/4"		Rp 3/8"
RN 3412 PVC	Rp 3/4"		Rp 1/2"
RN 3410 PVC	Rp 3/4"	extended	Rp 1"
RN 1038 PVC	Rp 1"		Rp 3/8"
RN 1012 PVC	Rp 1"		Rp 1/2"
RN 1034 PVC	Rp 1"		Rp 3/4"
RN 10114 PVC	Rp 1"	extended	Rp 1 1/4"
RN 11412 PVC	Rp 1 1/4"		Rp 1/2"
RN 114 34 PVC	Rp 1 1/4"		Rp 3/4"
RN 11410 PVC	Rp 1 1/4"		Rp 1"
RN 114112 PVC	Rp 1 1/4"	extended	Rp 1 1/2"
RN 11234 PVC	Rp 1 1/2"		Rp 3/4"
RN 11210 PVC	Rp 1 1/2"		Rp 1"
RN 112114 PVC	Rp 1 1/2"		Rp 1 1/4"
RN 11220 PVC	Rp 1 1/2"	extended	Rp 2"
RN 2010 PVC	Rp 2"		Rp 1"
RN 20114 PVC	Rp 2"		Rp 1 1/4"
RN 20112 PVC	Rp 2"		Rp 1 1/2"
RN 20212 PVC	Rp 2"	extended	Rp 2 1/2"
RN 30112 PVC	Rp 3"		Rp 1 1/2"
RN 3020 PVC	Rp 3"		Rp 2"
RN 30212 PVC	Rp 3"		Rp 2 1/2"
RN 3040 PVC	Rp 3"	extended	Rp 4"
RN 4020 PVC	Rp 4"		Rp 2"
RN 40212 PVC	Rp 4"		Rp 2 1/2"
RN 4030 PVC	Rp 4"		Rp 3"

LOCTITE Liquid seals, gaskets & tapes from page 549

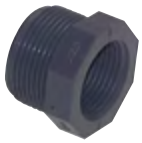
Reducing nipples PVC-U short version (for plastic threads only) — PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!



Type	Thread male	Thread female	Install. length L	Install. length L1
RNK 1214 PVC	Rp 1/2"	Rp 1/4"	27	15
RNK 3412 PVC	Rp 3/4"	Rp 1/2"	30	14
RNK 1034 PVC	Rp 1"	Rp 3/4"	34	19
RNK 11410 PVC	Rp 1 1/4"	Rp 1"	36	21
RNK 112114 PVC	Rp 1 1/2"	Rp 1 1/4"	36	21
RNK 20112 PVC	Rp 2"	Rp 1 1/2"	42	26
RNK 21220 PVC	Rp 2 1/2"	Rp 2"	47	30
RNK 30212 PVC	Rp 3"	Rp 2 1/2"	51	33
RNK 4030 PVC	Rp 4"	Rp 3"	64	39

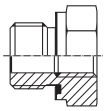


All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hydraulic thread reductions with cyl. female and male threads — up to 630 bar

Type zinc-plated st., elastomer seal	Type AISI 316Ti, elastomer seal (INOX)	Thread male	Thread female	PN
Ri 1/8 x 1/4 ED	Ri 1/8 x 1/4 ED ES	G 1/8"	G 1/4"	630 bar
Ri 1/8 x 3/8 ED	Ri 1/8 x 3/8 ED ES	G 1/8"	G 3/8"	630 bar
Ri 1/4 x 1/8 ED	Ri 1/4 x 1/8 ED ES	G 1/4"	G 1/8"	630 bar
Ri 1/4 x 3/8 ED	Ri 1/4 x 3/8 ED ES	G 1/4"	G 3/8"	630 bar
Ri 1/4 x 1/2 ED	Ri 1/4 x 1/2 ED ES	G 1/4"	G 1/2"	630 bar
Ri 1/4 x 3/4 ED	Ri 1/4 x 3/4 ED ES	G 1/4"	G 3/4"	630 bar
Ri 3/8 x 1/8 ED	Ri 3/8 x 1/8 ED ES	G 3/8"	G 1/8"	630 bar
Ri 3/8 x 1/4 ED	Ri 3/8 x 1/4 ED ES	G 3/8"	G 1/4"	630 bar
Ri 3/8 x 1/2 ED	Ri 3/8 x 1/2 ED ES	G 3/8"	G 1/2"	630 bar
Ri 3/8 x 3/4 ED	Ri 3/8 x 3/4 ED ES	G 3/8"	G 3/4"	400 bar
Ri 1/2 x 1/8 ED	Ri 1/2 x 1/8 ED ES	G 1/2"	G 1/8"	630 bar
Ri 1/2 x 1/4 ED	Ri 1/2 x 1/4 ED ES	G 1/2"	G 1/4"	630 bar
Ri 1/2 x 3/8 ED	Ri 1/2 x 3/8 ED ES	G 1/2"	G 3/8"	630 bar
Ri 1/2 x 3/4 ED	Ri 1/2 x 3/4 ED ES	G 1/2"	G 3/4"	400 bar
Ri 1/2 x 1 ED	Ri 1/2 x 1 ED ES	G 1/2"	G 1"	400 bar
Ri 1/2 x 1 1/4 ED	Ri 1/2 x 1 1/4 ED ES	G 1/2"	G 1 1/4"	400 bar
Ri 3/4 x 1/4 ED	Ri 3/4 x 1/4 ED ES	G 3/4"	G 1/4"	400 bar
Ri 3/4 x 3/8 ED	Ri 3/4 x 3/8 ED ES	G 3/4"	G 3/8"	400 bar
Ri 3/4 x 1/2 ED	Ri 3/4 x 1/2 ED ES	G 3/4"	G 1/2"	400 bar
Ri 3/4 x 1 ED	Ri 3/4 x 1 ED ES	G 3/4"	G 1"	400 bar
Ri 3/4 x 1 1/4 ED	Ri 3/4 x 1 1/4 ED ES	G 3/4"	G 1 1/4"	400 bar
Ri 3/4 x 1 1/2 ED	Ri 3/4 x 1 1/2 ED ES	G 3/4"	G 1 1/2"	315 bar
Ri 1 x 1/4 ED	Ri 1 x 1/4 ED ES	G 1"	G 1/4"	400 bar
Ri 1 x 3/8 ED	Ri 1 x 3/8 ED ES	G 1"	G 3/8"	400 bar
Ri 1 x 1/2 ED	Ri 1 x 1/2 ED ES	G 1"	G 1/2"	400 bar
Ri 1 x 3/4 ED	Ri 1 x 3/4 ED ES	G 1"	G 3/4"	400 bar
Ri 1 x 1 1/4 ED	Ri 1 x 1 1/4 ED ES	G 1"	G 1 1/4"	400 bar
Ri 1 x 1 1/2 ED	Ri 1 x 1 1/2 ED ES	G 1"	G 1 1/2"	315 bar
Ri 1 1/4 x 1/2 ED	Ri 1 1/4 x 1/2 ED ES	G 1 1/4"	G 1/2"	400 bar
Ri 1 1/4 x 3/4 ED	Ri 1 1/4 x 3/4 ED ES	G 1 1/4"	G 3/4"	400 bar
Ri 1 1/4 x 1 ED	Ri 1 1/4 x 1 ED ES	G 1 1/4"	G 1"	400 bar
Ri 1 1/4 x 1 1/2 ED	Ri 1 1/4 x 1 1/2 ED ES	G 1 1/4"	G 1 1/2"	315 bar
Ri 1 1/2 x 1/2 ED	Ri 1 1/2 x 1/2 ED ES	G 1 1/2"	G 1/2"	315 bar
Ri 1 1/2 x 3/4 ED	Ri 1 1/2 x 3/4 ED ES	G 1 1/2"	G 3/4"	315 bar
Ri 1 1/2 x 1 ED	Ri 1 1/2 x 1 ED ES	G 1 1/2"	G 1"	315 bar
Ri 1 1/2 x 1 1/4 ED	Ri 1 1/2 x 1 1/4 ED ES	G 1 1/2"	G 1 1/4"	315 bar
---	Ri 2 x 1/2 ED ES	G 2"	G 1/2"	250 bar
---	Ri 2 x 3/4 ED ES	G 2"	G 3/4"	250 bar
---	Ri 2 x 1 ED ES	G 2"	G 1"	250 bar
---	Ri 2 x 1 1/4 ED ES	G 2"	G 1 1/4"	250 bar
Ri 2 x 1 1/2*	Ri 2 x 1 1/2 ED ES	G 2"	G 1 1/2"	250 bar
Special reductions without elastomer seal (metric thread)				
Ri M18 x M22	---	M 18	M 22	40 bar
Ri M22 x 3/8	---	M 22	G 3/8"	40 bar

* PN 160 bar, without elastomer seal

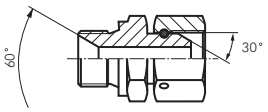


LOCTITE Liquid seals, gaskets & tapes from page 549

Adjustable screwed connections with inch threads (60° conical hose nipples) up to 400 bar

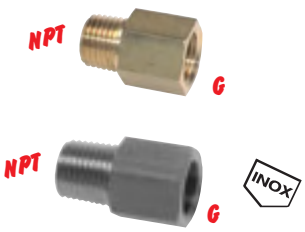
Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread female	Screw-in thread	PN*
EV 1818 HD	EV 1818 HD ES	G 1/8"	G 1/8"	400 bar
EV 1814 HD	EV 1814 HD ES	G 1/8"	G 1/4"	350 bar
EV 1418 HD	EV 1418 HD ES	G 1/4"	G 1/8"	400 bar
EV 1414 HD	EV 1414 HD ES	G 1/4"	G 1/4"	350 bar
EV 1438 HD	EV 1438 HD ES	G 1/4"	G 3/8"	325 bar
EV 1412 HD	EV 1412 HD ES	G 1/4"	G 1/2"	350 bar
EV 3814 HD	EV 3814 HD ES	G 3/8"	G 1/4"	350 bar
EV 3838 HD	EV 3838 HD ES	G 3/8"	G 3/8"	325 bar
EV 3812 HD	EV 3812 HD ES	G 3/8"	G 1/2"	350 bar
EV 1214 HD	EV 1214 HD ES	G 1/2"	G 1/4"	300 bar
EV 1238 HD	EV 1238 HD ES	G 1/2"	G 3/8"	300 bar
EV 1212 HD	EV 1212 HD ES	G 1/2"	G 1/2"	300 bar
EV 1234 HD	EV 1234 HD ES	G 1/2"	G 3/4"	300 bar
EV 3412 HD	EV 3412 HD ES	G 3/4"	G 1/2"	175 bar
EV 3434 HD	EV 3434 HD ES	G 3/4"	G 3/4"	175 bar
EV 3410 HD	EV 3410 HD ES	G 3/4"	G 1"	175 bar
EV 1034 HD	EV 1034 HD ES	G 1"	G 3/4"	150 bar
EV 1010 HD	EV 1010 HD ES	G 1"	G 1"	150 bar
EV 10114 HD	EV 10114 HD ES	G 1"	G 1 1/4"	150 bar
EV 114114 HD	EV 114114 HD ES	G 1 1/4"	G 1 1/4"	150 bar
EV 114112 HD	---	G 1 1/4"	G 1 1/2"	150 bar
EV 112114 HD	---	G 1 1/2"	G 1 1/4"	125 bar
EV 112112 HD	EV 112112 HD ES	G 1 1/2"	G 1 1/2"	125 bar
EV 2020 HD	EV 2020 HD ES	G 2"	G 2"	75 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

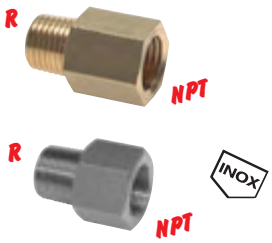
High pressure reducing nipples/adapters



Reducing nipples with NPT threads/G threads — up to 700 bar

Type 16 bar brass	Type 40 bar AISI 316Ti	Type 700 bar steel nitrified	Thread male	Thread female	SW[1]	Length[1]
RN 18NPT18G MS	RN 18NPT18G ES	---	NPT 1/8"	G 1/8"	14	25
RN 14NPT14G MS	RN 14NPT14G ES	---	NPT 1/4"	G 1/4"	17	30
RN 38NPT38G MS	RN 38NPT38G ES	RN 38NPT38G HD	NPT 3/8"	G 3/8"	19	30
RN 12NPT12G MS	RN 12NPT12G ES	---	NPT 1/2"	G 1/2"	24	40
RN 34NPT34G MS	RN 34NPT34G ES	---	NPT 3/4"	G 3/4"	32	40

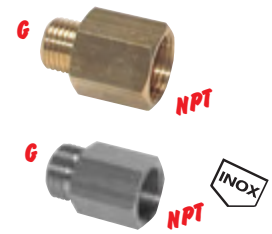
[1] Details apply for the brass type. For all other types, please ask.



Reducing nipples with R threads/NPT threads — up to 40 bar

Type 16 bar brass	Type 40 bar AISI 316Ti		Thread male	Thread female	SW[1]	Length[1]
RN 18R18NPT MS	RN 18R18NPT ES		R 1/8"	NPT 1/8"	14	25
RN 14R14NPT MS	RN 14R14NPT ES		R 1/4"	NPT 1/4"	17	30
RN 38R38NPT MS	RN 38R38NPT ES		R 3/8"	NPT 3/8"	19	30
RN 12R12NPT MS	RN 12R12NPT ES		R 1/2"	NPT 1/2"	24	38
RN 34R34NPT MS	RN 34R34NPT ES		R 3/4"	NPT 3/4"	32	40
RN 10R10NPT MS	RN 10R10NPT ES		R 1"	NPT 1"	36	50

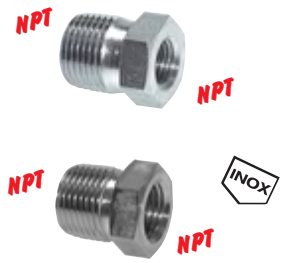
[1] Details apply for the brass type. For all other types, please ask.



Reducing nipples with G threads/NPT threads — up to 40 bar

Type 16 bar brass	Type 40 bar AISI 316Ti		Thread male	Thread female	SW[1]	Length[1]
RN 18G18NPT MS	RN 18G18NPT ES		G 1/8"	NPT 1/8"	14	25
RN 14G14NPT MS	RN 14G14NPT ES		G 1/4"	NPT 1/4"	17	30
RN 38G38NPT MS	RN 38G38NPT ES		G 3/8"	NPT 3/8"	19	30
RN 12G12NPT MS	RN 12G12NPT ES		G 1/2"	NPT 1/2"	24	38
RN 34G34NPT MS	RN 34G34NPT ES		G 3/4"	NPT 3/4"	32	40
RN 10G10NPT MS	RN 10G10NPT ES		G 1"	NPT 1"	36	50

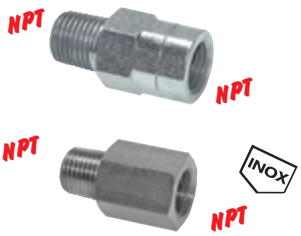
[1] Details apply for the brass type. For all other types, please ask.



Reducing nipples with NPT threads — up to 275 bar

Type zinc-plated steel	Type AISI 316Ti		Thread male	Thread female	PN*
RN 1418 NPT	RN 1418 NPT ES		NPT 1/4"	NPT 1/8"	275 bar
RN 1438 NPT	---		NPT 1/4"	NPT 3/8"	210 bar
RN 3818 NPT	RN 3818 NPT ES		NPT 3/8"	NPT 1/8"	210 bar
RN 3814 NPT	RN 3814 NPT ES		NPT 3/8"	NPT 1/4"	210 bar
RN 3812 NPT	---		NPT 3/8"	NPT 1/2"	210 bar
RN 1218 NPT	---		NPT 1/2"	NPT 1/8"	210 bar
RN 1214 NPT	RN 1214 NPT ES		NPT 1/2"	NPT 1/4"	210 bar
RN 1238 NPT	RN 1238 NPT ES		NPT 1/2"	NPT 3/8"	210 bar
RN 3438 NPT	RN 3438 NPT ES		NPT 3/4"	NPT 3/8"	170 bar
RN 3412 NPT	RN 3412 NPT ES		NPT 3/4"	NPT 1/2"	170 bar
RN 1012 NPT	RN 1012 NPT ES		NPT 1"	NPT 1/2"	140 bar
RN 1034 NPT	RN 1034 NPT ES		NPT 1"	NPT 3/4"	140 bar
RN 11410 NPT	---		NPT 1 1/4"	NPT 1"	80 bar
RN 11210 NPT	---		NPT 1 1/2"	NPT 1"	80 bar

* Details apply for the zinc-plated steel type. For all other types, please ask.



Extensions with NPT threads — up to 345 bar

Type zinc-plated steel	Type AISI 316Ti		Thread	PN*
RN 1818 NPT	RN 1818 NPT ES		NPT 1/8"	345 bar
RN 1414 NPT	RN 1414 NPT ES		NPT 1/4"	275 bar
---	RN 3838 NPT ES		NPT 3/8"	210 bar
RN 1212 NPT	RN 1212 NPT ES		NPT 1/2"	210 bar

* Details apply for stainless steel type. For all other types, please ask.

Ball valves from page 280

Strainer on page 359

Ready-made washing and hydraulic hoses on page 231

Hydraulic couplings from page 170

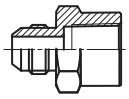
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

High pressure reducing nipples/adapters

Reducing nipples with JIC threads/G threads — up to 310 bar

Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread male	Thread female	PN*
RN 7/16-18	RN 7/16-18 ES	UNF 7/16"-20	G 1/8"	310 bar
RN 7/16-14	RN 7/16-14 ES	UNF 7/16"-20	G 1/4"	310 bar
RN 1/2-18	RN 1/2-18 ES	UNF 1/2"-20	G 1/8"	275 bar
RN 1/2-14	RN 1/2-14 ES	UNF 1/2"-20	G 1/4"	275 bar
RN 9/16-14	RN 9/16-14 ES	UNF 9/16"-18	G 1/4"	275 bar
RN 9/16-38	RN 9/16-38 ES	UNF 9/16"-18	G 3/8"	275 bar
RN 3/4-38	RN 3/4-38 ES	UNF 3/4"-16	G 3/8"	275 bar
RN 3/4-12	RN 3/4-12 ES	UNF 3/4"-16	G 1/2"	275 bar
RN 3/4-34	---	UNF 3/4"-16	G 3/4"	175 bar
RN 7/8-12	RN 7/8-12 ES	UNF 7/8"-14	G 1/2"	210 bar
RN 1 1/16-12	RN 1 1/16-12 ES	UN 1 1/16"-12	G 1/2"	210 bar
RN 1 1/16-34	RN 1 1/16-34 ES	UN 1 1/16"-12	G 3/4"	175 bar
RN 1 5/16-10	RN 1 5/16-10 ES	UN 1 5/16"-12	G 1"	150 bar
RN 1 5/8-10	RN 1 5/8-10 ES	UN 1 5/8"-12	G 1"	140 bar
RN 1 5/8-114	RN 1 5/8-114 ES	UN 1 5/8"-12	G 1 1/4"	140 bar
RN 1 7/8-112	RN 1 7/8-112 ES	UN 1 7/8"-12	G 1 1/2"	105 bar

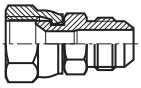
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



Reducing nipples with JIC threads — up to 310 bar

Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread male	Thread female	PN*
RN 7/16-7/16	RN 7/16-7/16 ES	UNF 7/16"-20	UNF 7/16"-20	310 bar
RN 7/16-9/16	RN 7/16-9/16 ES**	UNF 7/16"-20	UNF 9/16"-18	275 bar
RN 7/16-3/4	RN 7/16-3/4 ES**	UNF 7/16"-20	UNF 3/4"-16	275 bar
RN 7/16-7/8	RN 7/16-7/8 ES**	UNF 7/16"-20	UNF 7/8"-14	210 bar
RN 1/2-1/2	RN 1/2-1/2 ES	UNF 1/2"-20	UNF 1/2"-20	275 bar
RN 9/16-9/16	RN 9/16-9/16 ES	UNF 9/16"-18	UNF 9/16"-18	275 bar
RN 9/16-3/4	RN 9/16-3/4 ES**	UNF 9/16"-18	UNF 3/4"-16	275 bar
RN 9/16-7/8	RN 9/16-7/8 ES**	UNF 9/16"-18	UNF 7/8"-14	210 bar
RN 9/16-11/16	RN 9/16-11/16 ES**	UNF 9/16"-18	UN 1 1/16"-12	210 bar
RN 3/4-3/4	RN 3/4-3/4 ES	UNF 3/4"-16	UNF 3/4"-16	275 bar
RN 3/4-7/8	RN 3/4-7/8 ES**	UNF 3/4"-16	UNF 7/8"-14	210 bar
RN 3/4-11/16	RN 3/4-11/16 ES**	UNF 3/4"-16	UN 1 1/16"-12	210 bar
RN 7/8-7/8	RN 7/8-7/8 ES	UNF 7/8"-14	UNF 7/8"-14	210 bar
RN 7/8-11/16	RN 7/8-11/16 ES	UNF 7/8"-14	UN 1 1/16"-12	210 bar
RN 1 1/16-1 1/16	RN 1 1/16-1 1/16 ES	UN 1 1/16"-12	UN 1 1/16"-12	210 bar
RN 1 1/16-1 5/16	---	UN 1 1/16"-12	UN 1 5/16"-12	170 bar
RN 1 3/16-1 3/16	---	UN 1 3/16"-12	UN 1 3/16"-12	170 bar
RN 1 5/16-1 5/16	RN 1 5/16-1 5/16 ES	UN 1 5/16"-12	UN 1 5/16"-12	170 bar
RN 1 5/16-1 5/8	---	UN 1 5/16"-12	UN 1 5/8"-12	140 bar
RN 1 5/8-1 5/8	---	UN 1 5/8"-12	UN 1 5/8"-12	140 bar
RN 1 7/8-1 7/8	---	UN 1 7/8"-12	UN 1 7/8"-12	105 bar

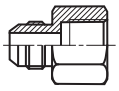
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases
** fixed



Reducing nipples with JIC threads/NPT threads — up to 310 bar

Type zinc-plated steel	Thread male	Thread female	PN*
RN 7/16-18 NPT	7/16"-20 UNF	1/8" NPT	310 bar
RN 9/16-14 NPT	9/16"-18 UNF	1/4" NPT	275 bar
RN 3/4-38 NPT	3/4"-16 UNF	3/8" NPT	210 bar
RN 3/4-12 NPT	3/4"-16 UNF	1/2" NPT	210 bar
RN 7/8-12 NPT	7/8"-14 UNF	1/2" NPT	210 bar
RN 1 1/16-34 NPT	1 1/16"-12 UN	3/4" NPT	170 bar
RN 1 5/16-10 NPT	1 5/16"-12 UN	1" NPT	140 bar
RN 1 5/8-114 NPT	1 5/8"-12 UN	1 1/4" NPT	80 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



LOCTITE Liquid seals, gaskets & tapes from page 549

JIC-, NPT-, UNF- and metric double nipples from page 104

Push in connections for imperial hoses are found from page 38

Parker Push in hoses on page 228

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Sleeves

Outstanding value!

INOX

INOX

type 240/M2 red

type 270/M2

Sleeves/reducing sleeves - round — up to 25 bar

Type 16 bar brass	Thread	Thread	Type 16 bar AISI 316 INOX	Type 25 bar mall. cast iron galv.	Thread	Thread
---	G 1/8"	G 1/8"	MUR 18 ES	MU 18 ST	Rp 1/8"	Rp 1/8"
---	G 1/4"	G 1/8"	MUR 1418 ES	---	Rp 1/4"	Rp 1/8"
MUR 14 MS	G 1/4"	G 1/4"	MUR 14 ES*	MU 14 ST	Rp 1/4"	Rp 1/4"
---	G 3/8"	G 1/8"	MUR 3818 ES	---	Rp 3/8"	Rp 1/8"
MUR 3814 MS	G 3/8"	G 1/4"	MUR 3814 ES	MU 3814 ST	Rp 3/8"	Rp 1/4"
MUR 38 MS	G 3/8"	G 3/8"	MUR 38 ES*	MU 38 ST	Rp 3/8"	Rp 3/8"
---	G 1/2"	G 1/8"	MUR 1218 ES	---	Rp 1/2"	Rp 1/8"
---	G 1/2"	G 1/4"	MUR 1214 ES	MU 1214 ST	Rp 1/2"	Rp 1/4"
MUR 1238 MS	G 1/2"	G 3/8"	MUR 1238 ES	MU 1238 ST	Rp 1/2"	Rp 3/8"
MUR 12 MS	G 1/2"	G 1/2"	MUR 12 ES*	MU 12 ST	Rp 1/2"	Rp 1/2"
---	G 3/4"	G 1/4"	MUR 3414 ES	---	Rp 3/4"	Rp 1/4"
---	G 3/4"	G 3/8"	MUR 3438 ES	MU 3438 ST	Rp 3/4"	Rp 3/8"
MUR 3412 MS	G 3/4"	G 1/2"	MUR 3412 ES	MU 3412 ST	Rp 3/4"	Rp 1/2"
MUR 34 MS	G 3/4"	G 3/4"	MUR 34 ES*	MU 34 ST	Rp 3/4"	Rp 3/4"
---	G 1"	G 3/8"	MUR 1038 ES	---	Rp 1"	Rp 3/8"
MUR 1012 MS	G 1"	G 1/2"	MUR 1012 ES	MU 1012 ST	Rp 1"	Rp 1/2"
MUR 1034 MS	G 1"	G 3/4"	MUR 1034 ES	MU 1034 ST	Rp 1"	Rp 3/4"
MUR 10 MS	G 1"	G 1"	MUR 10 ES*	MU 10 ST	Rp 1"	Rp 1"
---	G 1 1/4"	G 1/2"	MUR 11412 ES	MU 11412 ST	Rp 1 1/4"	Rp 1/2"
---	G 1 1/4"	G 3/4"	MUR 11434 ES	MU 11434 ST	Rp 1 1/4"	Rp 3/4"
MUR 11410 MS	G 1 1/4"	G 1"	MUR 11410 ES	MU 11410 ST	Rp 1 1/4"	Rp 1"
MUR 114 MS	G 1 1/4"	G 1 1/4"	MUR 114 ES*	MU 114 ST	Rp 1 1/4"	Rp 1 1/4"
---	G 1 1/2"	G 3/4"	MUR 11234 ES	MU 11234 ST	Rp 1 1/2"	Rp 3/4"
---	G 1 1/2"	G 1"	MUR 11210 ES	MU 11210 ST	Rp 1 1/2"	Rp 1"
MUR 112114 MS	G 1 1/2"	G 1 1/4"	MUR 112114 ES	MU 112114 ST	Rp 1 1/2"	Rp 1 1/4"
MUR 112 MS	G 1 1/2"	G 1 1/2"	MUR 112 ES*	MU 112 ST	Rp 1 1/2"	Rp 1 1/2"
---	G 2"	G 3/4"	MUR 2034 ES	MU 2034 ST	Rp 2"	Rp 3/4"
---	G 2"	G 1"	MUR 2010 ES	MU 2010 ST	Rp 2"	Rp 1"
---	G 2"	G 1 1/4"	MUR 20114 ES	MU 20114 ST	Rp 2"	Rp 1 1/4"
MUR 20112 MS	G 2"	G 1 1/2"	MUR 20112 ES	MU 20112 ST	Rp 2"	Rp 1 1/2"
MUR 20 MS	G 2"	G 2"	MUR 20 ES*	MU 20 ST	Rp 2"	Rp 2"
---	G 2 1/2"	G 1 1/2"	---	MU 212112 ST	Rp 2 1/2"	Rp 1 1/2"
---	G 2 1/2"	G 2"	---	MU 21220 ST	Rp 2 1/2"	Rp 2"
---	G 2 1/2"	G 2 1/2"	MUR 212 ES	MU 212 ST	Rp 2 1/2"	Rp 2 1/2"
---	G 3"	G 1 1/2"	---	MU 30112 ST	Rp 3"	Rp 1 1/2"
---	G 3"	G 2"	---	MU 3020 ST	Rp 3"	Rp 2"
---	G 3"	G 2 1/2"	---	MU 30212 ST	Rp 3"	Rp 2 1/2"
---	G 3"	G 3"	MUR 30 ES	MU 30 ST	Rp 3"	Rp 3"
---	G 4"	G 2"	---	MU 4020 ST	Rp 4"	Rp 2"
---	G 4"	G 2 1/2"	---	MU 40212 ST	Rp 4"	Rp 2 1/2"
---	G 4"	G 3"	---	MU 4030 ST	Rp 4"	Rp 3"
---	G 4"	G 4"	MUR 40 ES	MU 40 ST	Rp 4"	Rp 4"

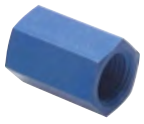
* optional: NPT thread **-NPT**

Order example: MUR 14 ES **

Standard type

Designation for the options: NPT thread . . . . . .-NPT

Sleeves/reducing sleeves - hexagonal — up to 40 bar



INOX

Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 16 bar aluminium	Type 40 bar AISI 316Ti INOX	Thread	Thread	SW[1]	Length[1]
MU 50 MSV	MU 50 MS	MU 50 A	MU 50 ES	M5	M5	8	11
MU 185 MSV	---	---	MU 185 ES	G 1/8"	M5	---	---
MU 18 MSV	MU 18 MS	MU 18 A	MU 18 ES	G 1/8"	G 1/8"	14	18
MU 1418 MSV	---	---	MU 1418 ES	G 1/4"	G 1/8"	---	---
MU 14 MSV	MU 14 MS	MU 14 A	MU 14 ES	G 1/4"	G 1/4"	17	26
MU 3818 MSV	---	---	---	G 3/8"	G 1/8"	22	20
MU 3814 MSV	---	---	MU 3814 ES	G 3/8"	G 1/4"	---	---
MU 38 MSV	MU 38 MS	MU 38 A	MU 38 ES	G 3/8"	G 3/8"	22	26
MU 1218 MSV	---	---	---	G 1/2"	G 1/8"	24	22
MU 1214 MSV	---	---	---	G 1/2"	G 1/4"	27	27
MU 1238 MSV	---	---	MU 1238 ES	G 1/2"	G 3/8"	---	---
MU 12 MSV	MU 12 MS	MU 12 A	MU 12 ES	G 1/2"	G 1/2"	27	30
MU 3412 MSV	---	---	MU 3412 ES	G 3/4"	G 1/2"	---	---
MU 34 MSV	MU 34 MS	---	MU 34 ES	G 3/4"	G 3/4"	32	36
MU 1034 MSV	---	---	MU 1034 ES	G 1"	G 3/4"	---	---
MU 10 MSV	MU 10 MS	---	MU 10 ES	G 1"	G 1"	41	40
---	---	---	MU 11410 ES	G 1 1/4"	G 1"	50	48
---	---	---	MU 114 ES	G 1 1/4"	G 1 1/4"	50	48
---	---	---	MU 112 ES	G 1 1/2"	G 1 1/2"	55	48
---	---	---	MU 20 ES	G 2"	G 2"	70	56

[1] Details apply for the brass type. For all other types, please ask.

Many additional products and sizes are available in our **Online Shop!**

Threaded sockets PVC-U

Order example: MU ** PVC

Standard type

Designation for the options: Size, e.g. . . . . .-38

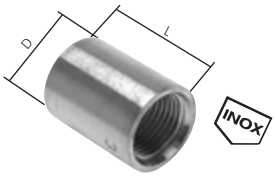
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Reducing sleeves with imperial and metric threads — PN 16

Type brass	Thread G 1	Thread G 2	Length	SW
MU 12-M14 MS	G 1/2"	M 14 x 1.5	24	27
MU 12-M16 MS	G 1/2"	M 16 x 1.5	24	27
MU 34-M14 MS	G 3/4"	M 14 x 1.5	28	32
MU 34-M16 MS	G 3/4"	M 16 x 1.5	28	32

Sleeves to weld on (DIN 2986) — PN 40

Type full lenght ST 37-2	L	Type full lenght AISI 316Ti (INOX)	L	Type half lenght AISI 316Ti (INOX)	L	D	Thread
MUR 18 AS ST	17.0	MUR 18 AS ES	17.0	MURH 18 AS ES	7.5	14.0	Rp 1/8"
MUR 14 AS ST*	25.0	MUR 14 AS ES	25.0	MURH 14 AS ES	11.0	17.2	Rp 1/4"
MUR 38 AS ST	26.0	MUR 38 AS ES	26.0	MURH 38 AS ES	12.0	21.3	Rp 3/8"
MUR 12 AS ST	34.0	MUR 12 AS ES	34.0	MURH 12 AS ES	15.0	26.4	Rp 1/2"
MUR 34 AS ST	36.0	MUR 34 AS ES	36.0	MURH 34 AS ES	17.0	31.8	Rp 3/4"
MUR 10 AS ST	43.0	MUR 10 AS ES	43.0	MURH 10 AS ES	20.0	39.5	Rp 1"
MUR 114 AS ST	48.0	MUR 114 AS ES	48.0	MURH 114 AS ES	22.0	48.3	Rp 1 1/4"
MUR 112 AS ST	48.0	MUR 112 AS ES	48.0	MURH 112 AS ES	22.0	54.5	Rp 1 1/2"
MUR 20 AS ST	56.0	MUR 20 AS ES	56.0	MURH 20 AS ES	26.0	66.3	Rp 2"
MUR 212 AS ST	65.0	MUR 212 AS ES	65.0	MURH 212 AS ES	31.0	82.0	Rp 2 1/2"
MUR 30 AS ST	71.0	MUR 30 AS ES	71.0	MURH 30 AS ES	34.0	95.0	Rp 3"

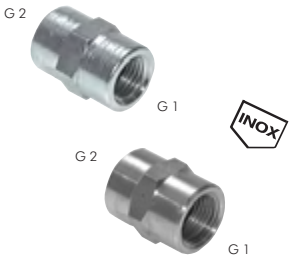


* D=18.5 mm

Sleeves/reducing sleeves — up to 350 bar

Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread G 1		Thread G 2	PN*
MU 18 HD	MU 18 HD ES	G 1/8"		G 1/8"	350 bar
MU 14 HD	MU 14 HD ES	G 1/4"		G 1/4"	350 bar
MU 3814 HD	MU 3814 HD ES	G 3/8"	reduced	G 1/4"	250 bar
MU 38 HD	MU 38 HD ES	G 3/8"		G 3/8"	250 bar
MU 12 HD	MU 12 HD ES	G 1/2"		G 1/2"	225 bar
MU 3412 HD	MU 3412 HD ES	G 3/4"	reduced	G 1/2"	200 bar
MU 34 HD	MU 34 HD ES	G 3/4"		G 3/4"	200 bar
MU 10 HD	MU 10 HD ES	G 1"		G 1"	160 bar
MU 114 HD	MU 114 HD ES	G 1 1/4"		G 1 1/4"	160 bar
MU 112 HD	MU 112 HD ES	G 1 1/2"		G 1 1/2"	160 bar

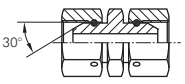
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



Straight screw connections with inch threads (60° conical hose nipples) — up to 575 bar

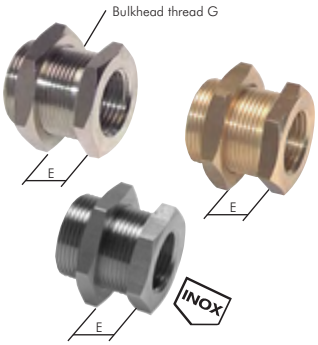
Type zinc-plated steel	Type AISI 316Ti (INOX)	Union nut with 60° external cone		Union nut with 60° external cone	PN*
GV 18	GV 18 ES	G 1/8"		G 1/8"	575 bar
GV 14	GV 14 ES	G 1/4"		G 1/4"	575 bar
GV 3814	---	G 3/8"	reduced	G 1/4"	425 bar
GV 38	GV 38 ES	G 3/8"		G 3/8"	425 bar
GV 1238	---	G 1/2"	reduced	G 3/8"	300 bar
GV 12	GV 12 ES	G 1/2"		G 1/2"	300 bar
GV 3412	---	G 3/4"	reduced	G 1/2"	175 bar
GV 34	GV 34 ES	G 3/4"		G 3/4"	175 bar
GV 1012	---	G 1"	reduced	G 1/2"	150 bar
GV 1034	---	G 1"	reduced	G 3/4"	150 bar
GV 10	GV 10 ES	G 1"		G 1"	150 bar
GV 114	GV 114 ES	G 1 1/4"		G 1 1/4"	150 bar
GV 112	GV 112 ES	G 1 1/2"		G 1 1/2"	125 bar
GV 20	GV 20 ES	G 2"		G 2"	75 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

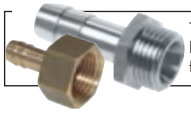


Bulkhead screw connections — up to 40 bar

Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 40 bar AISI 316Ti (INOX)	Thread female	Bulkhead thread G	E max.	Installation bore hole Ø
SV 50 MSV	SV 50 MS	---	M5	G 1/8"	8.0	10.0
SV 18 MSV	SV 18 MS	SV 18 ES	G 1/8"	G 1/4"	10.0	14.0
SV 14 MSV	SV 14 MS	SV 14 ES	G 1/4"	G 3/8"	14.0	17.0
SV 38 MSV	SV 38 MS	SV 38 ES	G 3/8"	G 1/2"	16.0	21.5
SV 12 MSV	SV 12 MS	SV 12 ES	G 1/2"	M28 x 1.5	20.0	28.5
SV 34 MSV	SV 34 MS	SV 34 ES	G 3/4"	M34 x 2	24.0	34.5
---	SV 10 MS	SV 10 ES	G 1"	M42 x 2	26.0	42.5
---	SV 114 MS	SV 114 ES	G 1 1/4"	M49 x 2	29.5	49.5
---	SV 112 MS	SV 112 ES	G 1 1/2"	M54 x 2	29.0	54.5



LOCTITE Liquid seals, gaskets & tapes from page 549



Threaded nozzles & hose nozzles from page 64

Hydraulic couplings from page 170

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Angle fittings

Angles 90° with female threads (forged) — up to 150 bar

Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 150 bar AISI 316L (INOX)	Thread
W 50 MSV	---	---	M5
W 18 MSV	W 18 MS*	W 18 MD ES	G 1/8"
W 14 MSV	W 14 MS	W 14 MD ES	G 1/4"
W 38 MSV	W 38 MS	W 38 MD ES	G 3/8"
W 12 MSV	W 12 MS	W 12 MD ES	G 1/2"
W 34 MSV	W 34 MS	---	G 3/4"
W 10 MSV	W 10 MS	---	G 1"
---	W 114 MS	---	G 1 1/4"
---	W 112 MS	---	G 1 1/2"
---	W 20 MS	---	G 2"

* design as for MSV

Angles 90° with female threads (cast) — up to 25 bar

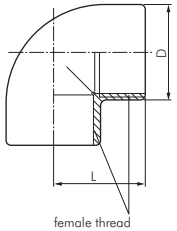
Type 10 bar AISI 316 (INOX)	Type 16 bar AISI 316 (INOX)	Type 25 bar mall. cast iron galv.	Thread	Type 16 bar AISI 316 (INOX)	Thread
Standard					
W 18 ES E	W 18 ES	---	Rp 1/8"	W 18 ES NPT	NPT 1/8"
W 14 ES E	W 14 ES	W 14 ST	Rp 1/4"	W 14 ES NPT	NPT 1/4"
W 38 ES E	W 38 ES	W 38 ST	Rp 3/8"	W 38 ES NPT	NPT 3/8"
W 12 ES E	W 12 ES	W 12 ST	Rp 1/2"	W 12 ES-NPT	NPT 1/2"
W 34 ES E	W 34 ES	W 34 ST	Rp 3/4"	W 34 ES-NPT	NPT 3/4"
W 10 ES E	W 10 ES	W 10 ST	Rp 1"	W 10 ES-NPT	NPT 1"
W 114 ES E	W 114 ES	W 114 ST	Rp 1 1/4"	W 114 ES-NPT	NPT 1 1/4"
W 112 ES E	W 112 ES	W 112 ST	Rp 1 1/2"	W 112 ES-NPT	NPT 1 1/2"
W 20 ES E	W 20 ES	W 20 ST	Rp 2"	W 20 ES-NPT	NPT 2"
---	W 212 ES	W 212 ST	Rp 2 1/2"	---	---
---	W 30 ES	W 30 ST	Rp 3"	---	---
---	W 40 ES	W 40 ST	Rp 4"	---	---
Reduced					
---	---	W 1238 ST	Rp 1/2" / Rp 3/8"	---	---
---	---	W 3412 ST	Rp 3/4" / Rp 1/2"	---	---
---	---	W 1012 ST	Rp 1" / Rp 1/2"	---	---
---	---	W 1034 ST	Rp 1" / Rp 3/4"	---	---
---	---	W 11410 ST	Rp 1 1/4" / Rp 1"	---	---
---	---	W 112114 ST	Rp 1 1/2" / Rp 1 1/4"	---	---
---	---	W 20112 ST	Rp 2" / Rp 1 1/2"	---	---

type 2/G1 (long) type 2a/D1 (short)

Elbows 90° with female threads — PN 25

Materials: Malleable cast iron galvanised

Type long (2)	L	Type short (2a)	L	Thread	Type long (2)	L	Type short (2a)	L	Thread
BO 14 i ST	40	---	---	Rp 1/4"	BO 112 i ST	116	BO 112 iK ST	85	Rp 1 1/2"
BO 38 i ST	48	---	---	Rp 3/8"	BO 20 i ST	140	BO 20 iK ST	102	Rp 2"
BO 12 i ST	55	BO 12 iK ST	45	Rp 1/2"	BO 212 i ST	176	---	---	Rp 2 1/2"
BO 34 i ST	69	BO 34 iK ST	50	Rp 3/4"	BO 30 i ST	205	---	---	Rp 3"
BO 10 i ST	85	BO 10 iK ST	63	Rp 1"	BO 40 i ST	260	---	---	Rp 4"
BO 114 i ST	105	BO 114 iK ST	76	Rp 1 1/4"					



Threaded angles PVC-U (for plastic threads only) — PN 10

Note: • Do not use PVC-U damaging thread seals!

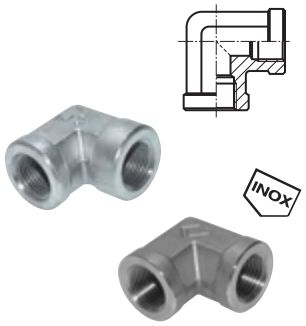
Warning: Not suitable for compressed air or other gases under pressure!

Type	Thread	External Ø D	Installation length L
W 38 PVC	Rp 3/8"	23.5	23
W 12 PVC	Rp 1/2"	28.0	25
W 34 PVC	Rp 3/4"	34.0	30
W 10 PVC	Rp 1"	43.0	36
W 114 PVC	Rp 1 1/4"	54.0	41
W 112 PVC	Rp 1 1/2"	63.0	46
W 20 PVC	Rp 2"	78.0	57
W 212 PVC	Rp 2 1/2"	89.0	84
W 30 PVC	Rp 3"	106.0	99
W 40 PVC	Rp 4"	129.0	119

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Angles 90° with female threads — up to 350 bar

Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN
W 18 HD	W 18 HD ES	G 1/8"	350 bar
W 14 HD	W 14 HD ES	G 1/4"	350 bar
W 38 HD	W 38 HD ES	G 3/8"	250 bar
W 12 HD	W 12 HD ES	G 1/2"	225 bar
W 34 HD	W 34 HD ES	G 3/4"	200 bar
W 10 HD	W 10 HD ES	G 1"	160 bar
W 114 HD	W 114 HD ES	G 1 1/4"	160 bar
W 112 HD	W 112 HD ES	G 1 1/2"	160 bar
W 20 HD	---	G 2"	100 bar



Elbow screw connections with inch threads (60° conical hose nipples) — up to 575 bar

Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN*
WV 18	WV 18 ES	G 1/8"	575 bar
WV 14[1)]	WV 14 ES	G 1/4"	575 bar
WV 38[1)]	WV 38 ES	G 3/8"	425 bar
WV 12[1)]	WV 12 ES	G 1/2"	300 bar
WV 34[1)]	WV 34 ES	G 3/4"	175 bar
WV 10[1)]	WV 10 ES	G 1"	150 bar
WV 114	WV 114 ES	G 1 1/4"	150 bar
WV 112	WV 112 ES	G 1 1/2"	125 bar
WV 20	WV 20 ES	G 2"	75 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases, [1)] tube construction

Angles 45° with female threads — up to 25 bar

Type 16 bar brass	Type 10 bar AISI 316	Type 16 bar AISI 316	Type 25 bar mall. cast iron galv.	Thread
---	W 1845 ES E	W 1845 ES	---	Rp 1/8"
---	W 1445 ES E	W 1445 ES	---	Rp 1/4"
W 3845 MS	W 3845 ES E	W 3845 ES	W 3845 ST	Rp 3/8"
W 1245 MS	W 1245 ES E	W 1245 ES	W 1245 ST	Rp 1/2"
W 3445 MS	W 3445 ES E	W 3445 ES	W 3445 ST	Rp 3/4"
W 1045 MS	W 1045 ES E	W 1045 ES	W 1045 ST	Rp 1"
---	W 11445 ES E	W 11445 ES	W 11445 ST	Rp 1 1/4"
---	W 11245 ES E	W 11245 ES	W 11245 ST	Rp 1 1/2"
---	W 2045 ES E	W 2045 ES	W 2045 ST	Rp 2"
---	---	W 21245 ES	W 21245 ST	Rp 2 1/2"
---	---	W 3045 ES	W 3045 ST	Rp 3"
---	---	W 4045 ES	---	Rp 4"

Elbows 45° with female threads — PN 25

Type malleable cast iron galv.	Thread
BO 3845 i ST	Rp 3/8"
BO 1245 i ST	Rp 1/2"
BO 3445 i ST	Rp 3/4"
BO 1045 i ST	Rp 1"
BO 11445 i ST	Rp 1 1/4"

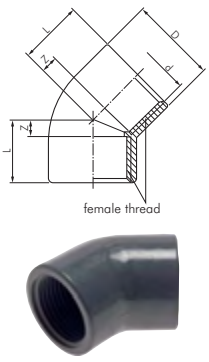
Type malleable cast iron galv.	Thread
BO 11245 i ST	Rp 1 1/2"
BO 2045 i ST	Rp 2"
BO 21245 i ST	Rp 2 1/2"
BO 3045 i ST	Rp 3"

Threaded angles 45° PVC-U (for plastic threads only) — PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!

Type	Thread	External Ø D	Installation length L	Z
W 1245 PVC	Rp 1/2"	28	15.0	6.0
W 3445 PVC	Rp 3/4"	34	16.3	8.7
W 1045 PVC	Rp 1"	43	19.1	10.9
W 11445 PVC	Rp 1 1/4"	54	21.4	14.6
W 11245 PVC	Rp 1 1/2"	63	21.4	21.6
W 2045 PVC	Rp 2"	78	25.7	26.3
W 21245 PVC	Rp 2 1/2"	89	30.2	30.8
W 3045 PVC	Rp 3"	106	33.3	37.7



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Angle fittings

Screw-in elbows with female and male threads (forged) — up to 150 bar

Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 150 bar AISI 316L INOX	Thread male	Thread female
WE 50 MSV	---	---	M 5	M 5
WE 18 MSV	WE 18 MS*	WE 18 MD ES	R 1/8"	G 1/8"
WE 14 MSV	WE 14 MS*	WE 14 MD ES	R 1/4"	G 1/4"
WE 38 MSV	WE 38 MS**	WE 38 MD ES	R 3/8"	G 3/8"
WE 12 MSV	WE 12 MS**	WE 12 MD ES	R 1/2"	G 1/2"
WE 34 MSV	WE 34 MS**	---	R 3/4"	G 3/4"
WE 10 MSV	WE 10 MS**	---	R 1"	G 1"
---	WE 114 MS	---	G 1 1/4"	G 1 1/4"
---	WE 112 MS	---	G 1 1/2"	G 1 1/2"
---	WE 20 MS	---	G 2"	G 2"
---	WE 212 MS	---	G 2 1/2"	G 2 1/2"
---	WE 30 MS	---	G 3"	G 3"

* design as for MSV, ** male thread: G

type 92/A4

Screw-in elbows with female and male threads (cast) — up to 25 bar

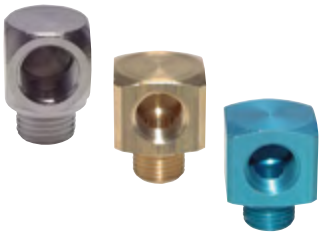
Type 10 bar AISI 316 INOX	Type 16 bar AISI 316 INOX	Type 25 bar mall. cast iron galv.	Thread male	Thread female	Type 16 bar AISI 316 INOX	Thread male/female
WE 18 ES E	WE 18 ES	---	R 1/8"	Rp 1/8"	WE 18 ES-NPT	NPT 1/8"
WE 14 ES E	WE 14 ES	WE 14 ST	R 1/4"	Rp 1/4"	WE 14 ES-NPT	NPT 1/4"
WE 38 ES E	WE 38 ES	WE 38 ST	R 3/8"	Rp 3/8"	WE 38 ES-NPT	NPT 3/8"
WE 12 ES E	WE 12 ES	WE 12 ST	R 1/2"	Rp 1/2"	WE 12 ES-NPT	NPT 1/2"
WE 34 ES E	WE 34 ES	WE 34 ST	R 3/4"	Rp 3/4"	WE 34 ES-NPT	NPT 3/4"
WE 10 ES E	WE 10 ES	WE 10 ST	R 1"	Rp 1"	WE 10 ES-NPT	NPT 1"
WE 114 ES E	WE 114 ES	WE 114 ST	R 1 1/4"	Rp 1 1/4"	WE 114 ES-NPT	NPT 1 1/4"
WE 112 ES E	WE 112 ES	WE 112 ST	R 1 1/2"	Rp 1 1/2"	WE 112 ES-NPT	NPT 1 1/2"
WE 20 ES E	WE 20 ES	WE 20 ST	R 2"	Rp 2"	WE 20 ES-NPT	NPT 2"
---	WE 212 ES	WE 212 ST	R 2 1/2"	Rp 2 1/2"	---	---
---	WE 30 ES	WE 30 ST	R 3"	Rp 3"	---	---
---	WE 40 ES	WE 40 ST	R 4"	Rp 4"	---	---

type 1/G4 long — type 1a/D4 short

Elbows 90° with female and male threads — PN 25

Materials: Malleable cast iron galvanised

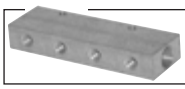
Type long (1)	L	H	Type short (1a)	L	H	Thread
BO 14 iA ST	40	36	---	---	---	Rp 1/4"
BO 38 iA ST	48	42	---	---	---	Rp 3/8"
BO 12 iA ST	55	48	BO 12 iAK ST	45	45	Rp 1/2"
BO 34 iA ST	69	60	BO 34 iAK ST	50	50	Rp 3/4"
BO 10 iA ST	85	75	BO 10 iAK ST	63	63	Rp 1"
BO 114 iA ST	105	95	BO 114 iAK ST	76	76	Rp 1 1/4"
BO 112 iA ST	116	105	BO 112 iAK ST	85	85	Rp 1 1/2"
BO 20 iA ST	140	130	BO 20 iAK ST	102	102	Rp 2"
BO 212 iA ST	176	165	---	---	---	Rp 2 1/2"
BO 30 iA ST	205	190	---	---	---	Rp 3"



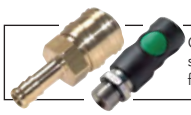
Elbow connections — PN 16

Type brass nickel-plated	Type brass	Type aluminium	Type AISI 316Ti INOX	Thread
GL 50 MSV	GL 50 MS	GL 50 A	GL 50 ES	M 5
GL 18 MSV	GL 18 MS	GL 18 A	---	G 1/8"
GL 14 MSV	GL 14 MS	GL 14 A	---	G 1/4"
GL 38 MSV	GL 38 MS	GL 38 A	---	G 3/8"
GL 12 MSV	GL 12 MS	GL 12 A	---	G 1/2"

LOCTITE Liquid seals, gaskets & tapes from page 549



Distributor bars from page 132



Coupling sockets NW7 from page 150

Hoses from page 192

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Screw-in elbows with NPT threads — up to 275 bar

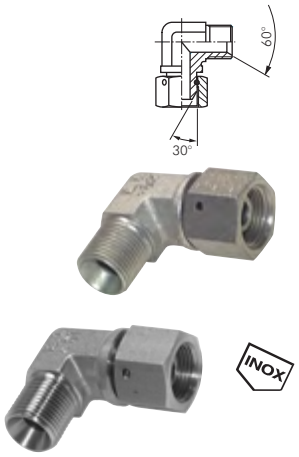
Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN*
WE 14 NPT	WE 14 NPT ES	1/4" NPT	275 bar
WE 38 NPT	WE 38 NPT ES	3/8" NPT	210 bar
WE 12 NPT	WE 12 NPT ES	1/2" NPT	210 bar
WE 34 NPT	WE 34 NPT ES	3/4" NPT	170 bar
WE 10 NPT	WE 10 NPT ES	1" NPT	140 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

Screw-in elbows with inch threads (60° conical hose nipples) — up to 475 bar

Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN*
WE 18 HD	WE 18 HD ES	G 1/8"	475 bar
WE 14 HD	WE 14 HD ES	G 1/4"	350 bar
WE 38 HD	WE 38 HD ES	G 3/8"	325 bar
WE 12 HD	WE 12 HD ES	G 1/2"	300 bar
WE 34 HD	WE 34 HD ES	G 3/4"	175 bar
WE 10 HD	WE 10 HD ES	G 1"	150 bar
WE 114 HD	WE 114 HD ES	G 1 1/4"	150 bar
WE 112 HD	WE 112 HD ES	G 1 1/2"	125 bar
WE 20 HD	WE 20 HD ES	G 2"	75 bar

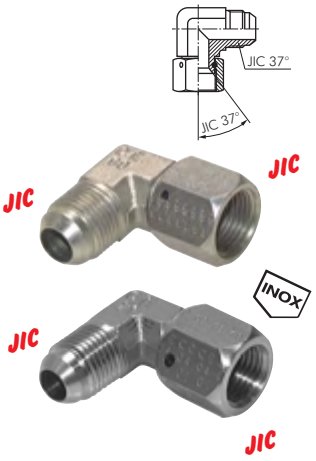
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

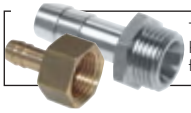


Screw-in elbows with JIC threads — up to 310 bar

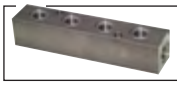
Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN*
WE 7/16 JIC	WE 7/16 JIC ES	UNF 7/16"-20	310 bar
WE 1/2 JIC	WE 1/2 JIC ES	UNF 1/2"-20	275 bar
WE 9/16 JIC	WE 9/16 JIC ES	UNF 9/16"-18	275 bar
WE 3/4 JIC	WE 3/4 JIC ES	UNF 3/4"-16	275 bar
WE 7/8 JIC	WE 7/8 JIC ES	UNF 7/8"-14	210 bar
WE 1 1/16 JIC	WE 1 1/16 JIC ES	UN 1 1/16"-12	210 bar
WE 1 3/16 JIC	---	UN 1 3/16"-12	170 bar
WE 1 5/16 JIC	WE 1 5/16 JIC ES	UN 1 5/16"-12	170 bar
WE 1 5/8 JIC	WE 1 5/8 JIC ES	UN 1 5/8"-12	140 bar
WE 1 7/8 JIC	WE 1 7/8 JIC ES	UN 1 7/8"-12	100 bar

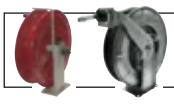
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases




Threaded nozzles & hose nozzles from page 64

Cutting ring screw connections from page 77


Distributor bars up to 315 bar on page 133


Hose reel up to 400 bar from page 205

Parker Push in hoses on page 228

Hydraulic hoses from page 231

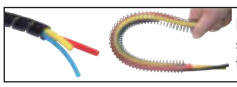
HYDAC Pipe clamps from page 244

Hydraulic couplings from page 170

JIC-, NPT-, UNF- and metric double nipples from page 104

LOCTITE Liquid seals, gaskets & tapes from page 549

High pressure ball valves from page 292


Bundle and steel spirals from page 247

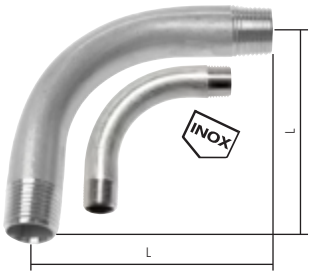
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Angle fittings

Angles with male threads — up to 150 bar

Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 25 bar mall. cast iron galv.	Type 150 bar AISI 316L INOX	Thread
WA 50 MSV	---	---	---	M5
WA 18 MSV	WA 18 MS	---	WA 18 MD ES	R 1/8"
WA 14 MSV	WA 14 MS	---	WA 14 MD ES	R 1/4"
WA 38 MSV	WA 38 MS	WA 38 ST	WA 38 MD ES	R 3/8"
WA 12 MSV	WA 12 MS	WA 12 ST	WA 12 MD ES	R 1/2"
WA 34 MSV	WA 34 MS	WA 34 ST	---	R 3/4"
WA 10 MSV	WA 10 MS	WA 10 ST	---	R 1"
---	---	WA 114 ST	---	R 1 1/4"
---	---	WA 112 ST	---	R 1 1/2"
---	---	WA 20 ST	---	R 2"

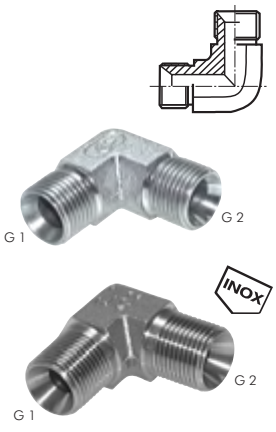
type 3/G8



Elbows 90° with male threads — up to 25 bar

Type 25 bar mall. cast iron galv.	Thread	L
BO 14 ST	R 1/4"	36
BO 38 ST	R 3/8"	42
BO 12 ST	R 1/2"	48
BO 34 ST	R 3/4"	60
BO 10 ST	R 1"	75
BO 114 ST	R 1 1/4"	95
BO 112 ST	R 1 1/2"	105
BO 20 ST	R 2"	130
BO 212 ST	R 2 1/2"	165

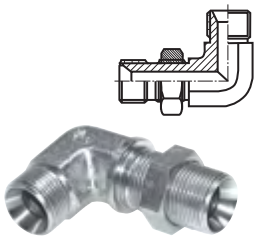
Type 16 bar AISI 316 INOX	Thread	L
BO 18 ES	R 1/8"	50
BO 14 ES	R 1/4"	60
BO 38 ES	R 3/8"	70
BO 12 ES	R 1/2"	80
BO 34 ES	R 3/4"	100
BO 10 ES	R 1"	120
BO 114 ES	R 1 1/4"	140
BO 112 ES	R 1 1/2"	160
BO 20 ES	R 2"	190



Angles with inch threads (60° conical hose nipples) — up to 400 bar

Type zinc-plated steel	Type V4A (stainless steel) INOX	Thread G 1		Thread G 2	PN*
WA 18 HD	WA 18 HD ES	G 1/8"		G 1/8"	400 bar
WA 1418 HD	---	G 1/4"	reduced	G 1/8"	350 bar
WA 14 HD	WA 14 HD ES	G 1/4		G 1/4"	350 bar
WA 3814 HD	---	G 3/8"	reduced	G 1/4"	325 bar
WA 38 HD	WA 38 HD ES	G 3/8"		G 3/8"	325 bar
WA 1238 HD	---	G 1/2"	reduced	G 3/8"	325 bar
WA 12 HD	WA 12 HD ES	G 1/2"		G 1/2"	350 bar
WA 3412 HD	---	G 3/4"	reduced	G 1/2"	325 bar
WA 34 HD	WA 34 HD ES	G 3/4"		G 3/4"	325 bar
WA 1034 HD	---	G 1"	reduced	G 3/4"	225 bar
WA 10 HD	WA 10 HD ES	G 1"		G 1"	225 bar
WA 114 HD	WA 114 HD ES	G 1 1/4"		G 1 1/4"	190 bar
WA 112 HD	WA 112 HD ES	G 1 1/2"		G 1 1/2"	190 bar
WA 20 HD	WA 20 HD ES	G 2"		G 2"	175 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

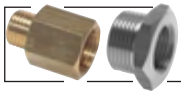


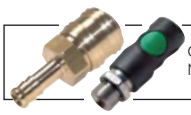
Angles bulkhead nipples with inch threads (60° conical hose nipples) — up to 350 bar

Type zinc-plated steel	Thread	PN*
WSN 18 HD	G 1/8"	350 bar
WSN 14 HD	G 1/4"	350 bar
WSN 38 HD	G 3/8"	325 bar
WSN 12 HD	G 1/2"	350 bar
WSN 34 HD	G 3/4"	325 bar
WSN 10 HD	G 1"	225 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

TIP Straight high pressure bulkhead screw connections are found on page 103


Reducing nipple on page 112


Coupling sockets NW7 from page 150

Ball valves from page 280

LOCTITE Liquid seals, gaskets & tapes from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Angles with NPT threads — up to 420 bar

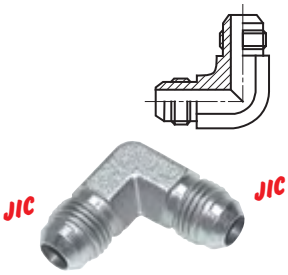
Type zinc-plated steel	Thread	PN*
WA 14 NPT	NPT 1/4"	350 bar
WA 38 NPT	NPT 3/8"	250 bar
WA 12 NPT	NPT 1/2"	225 bar
WA 34 NPT	NPT 3/4"	200 bar
WA 10 NPT	NPT 1"	160 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

Angles with JIC threads — up to 450 bar

Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN*
WA 7/16 JIC	WA 7/16 JIC ES	UNF 7/16"-20	450 bar
WA 1/2 JIC	WA 1/2 JIC ES	UNF 1/2"-20	450 bar
WA 9/16 JIC	WA 9/16 JIC ES	UNF 9/16"-18	350 bar
WA 3/4 JIC	WA 3/4 JIC ES	UNF 3/4"-16	350 bar
WA 7/8 JIC	WA 7/8 JIC ES	UNF 7/8"-14	350 bar
WA 1 1/16 JIC	WA 1 1/16 JIC ES	UN 1 1/16"-12	350 bar
WA 1 3/16 JIC	---	UN 1 3/16"-12	170 bar
WA 1 5/16 JIC	WA 1 5/16 JIC ES	UN 1 5/16"-12	290 bar
WA 1 5/8 JIC	WA 1 5/8 JIC ES	UN 1 5/8"-12	240 bar
---	WA 1 7/8 JIC ES	UN 1 7/8"-12	240 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



Screw-in elbows 45° with female and male threads — up to 25 bar

Type 16 bar brass	Type 25 bar mall. cast iron galv.	Type 16 bar AISI 316	Thread male	Thread female
---	---	WE 1445 ES	R 1/4"	Rp 1/4"
WE 3845 MS	WE 3845 ST	WE 3845 ES	R 3/8"	Rp 3/8"
WE 1245 MS	WE 1245 ST	WE 1245 ES	R 1/2"	Rp 1/2"
WE 3445 MS	WE 3445 ST	WE 3445 ES	R 3/4"	Rp 3/4"
WE 1045 MS	WE 1045 ST	WE 1045 ES	R 1"	Rp 1"
WE 11445 MS	WE 11445 ST	WE 11445 ES	R 1 1/4"	Rp 1 1/4"
WE 11245 MS	WE 11245 ST	WE 11245 ES	R 1 1/2"	Rp 1 1/2"
WE 2045 MS	WE 2045 ST	WE 2045 ES	R 2"	Rp 2"

Elbows 45° with female and male threads — PN 25

Type 25 bar mall. cast iron galv.	Thread male	Thread female
BO 1445 iA ST	R 1/4"	Rp 1/4"
BO 3845 iA ST	R 3/8"	Rp 3/8"
BO 1245 iA ST	R 1/2"	Rp 1/2"
BO 3445 iA ST	R 3/4"	Rp 3/4"
BO 1045 iA ST	R 1"	Rp 1"
BO 11445 iA ST	R 1 1/4"	Rp 1 1/4"

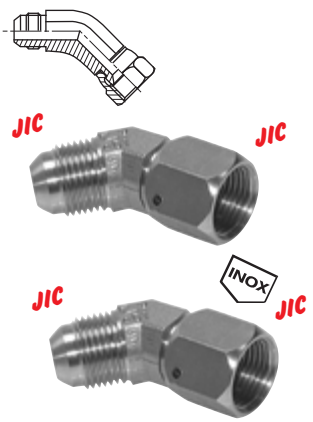
Type 25 bar mall. cast iron galv.	Thread male	Thread female
BO 11245 iA ST	R 1 1/2"	Rp 1 1/2"
BO 2045 iA ST	R 2"	Rp 2"
BO 21245 iA ST	R 2 1/2"	Rp 2 1/2"
BO 3045 iA ST	R 3"	Rp 3"
BO 4045 iA ST	R 4"	Rp 4"

type 40/G4-45°

Screw-in elbows 45° with JIC threads — up to 310 bar

Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN*
WE 7/1645 JIC	WE 7/1645 JIC ES	UNF 7/16"-20	310 bar
WE 1/245 JIC	WE 1/245 JIC ES	UNF 1/2"-20	275 bar
WE 9/1645 JIC	WE 9/1645 JIC ES	UNF 9/16"-18	275 bar
WE 3/445 JIC	WE 3/445 JIC ES	UNF 3/4"-16	275 bar
WE 7/845 JIC	WE 7/845 JIC ES	UNF 7/8"-14	210 bar
WE 1 1/1645 JIC	WE 1 1/1645 JIC ES	UN 1 1/16"-12	210 bar
WE 1 5/1645 JIC	WE 1 5/1645 JIC ES	UN 1 5/16"-12	170 bar
WE 1 5/845 JIC	WE 1 5/845 JIC ES	UN 1 5/8"-12	140 bar
---	WE 1 7/845 JIC ES	UN 1 7/8"-12	100 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



Parker Push in hoses on page 228

Industrial hoses from page 213

Hydraulic hoses from page 231

HYDAC Pipe clamps from page 244

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

T-pieces

T-pieces with female threads (forged) — up to 150 bar

Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 150 bar AISI 316L (INOX)	Thread
T 50 MSV	---	---	M5
T 18 MSV	T 18 MS*	T 18 MD ES	G 1/8"
T 14 MSV	T 14 MS*	T 14 MD ES	G 1/4"
T 38 MSV	T 38 MS	T 38 MD ES	G 3/8"
T 12 MSV	T 12 MS	T 12 MD ES	G 1/2"
T 34 MSV	T 34 MS	---	G 3/4"
T 10 MSV	T 10 MS	---	G 1"
---	T 114 MS	---	G 1 1/4"
---	T 112 MS	---	G 1 1/2"
---	T 20 MS	---	G 2"
---	T 212 MS	---	G 2 1/2"
---	T 30 MS	---	G 3"
---	T 40 MS	---	G 4"

* design as for MSV

type 130/B1

T-pieces with female threads (cast) — up to 25 bar

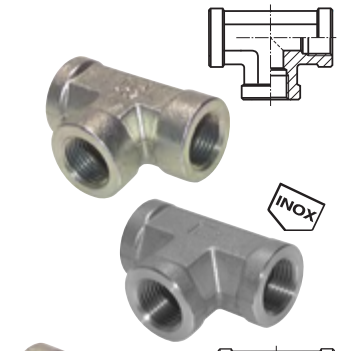
Type 10 bar AISI 316 (INOX)	Type 16 bar AISI 316 (INOX)	Type 25 bar mall. cast iron galv.	Thread	Type 16 bar AISI 316 (INOX)	Thread
T 18 ES E	T 18 ES	T 18 ST	Rp 1/8"	T 18 ES-NPT	NPT 1/8"
T 14 ES E	T 14 ES	T 14 ST	Rp 1/4"	T 14 ES-NPT	NPT 1/4"
T 38 ES E	T 38 ES	T 38 ST	Rp 3/8"	T 38 ES-NPT	NPT 3/8"
T 12 ES E	T 12 ES	T 12 ST	Rp 1/2"	T 12 ES-NPT	NPT 1/2"
T 34 ES E	T 34 ES	T 34 ST	Rp 3/4"	T 34 ES-NPT	NPT 3/4"
T 10 ES E	T 10 ES	T 10 ST	Rp 1"	T 10 ES-NPT	NPT 1"
T 114 ES E	T 114 ES	T 114 ST	Rp 1 1/4"	T 114 ES-NPT	NPT 1 1/4"
T 112 ES E	T 112 ES	T 112 ST	Rp 1 1/2"	T 112 ES-NPT	NPT 1 1/2"
T 20 ES E	T 20 ES	T 20 ST	Rp 2"	T 20 ES-NPT	NPT 2"
---	T 212 ES	T 212 ST	Rp 2 1/2"	---	---
---	T 30 ES	T 30 ST	Rp 3"	---	---
---	T 40 ES	T 40 ST	Rp 4"	---	---

type 130/B1

T-pieces with female threads and reduced/enlarged outlets — up to 25 bar

Type 25 bar mall. cast iron galv.	Type 16 bar brass	Type 16 bar AISI 316 (INOX)	Thread G 1	
T 121412 ST	---	---	Rp 1/2"	Rp 1/4"
T 123812 ST	T 123812 MS	T 123812 ES	Rp 1/2"	Rp 3/8"
T 123412 ST	---	---	Rp 1/2"	Rp 3/4"
T 343834 ST	---	---	Rp 3/4"	Rp 3/8"
T 341234 ST	T 341234 MS	T 341234 ES	Rp 3/4"	Rp 1/2"
T 103810 ST	---	---	Rp 1"	Rp 3/8"
T 101210 ST	T 101210 MS	---	Rp 1"	Rp 1/2"
T 103410 ST	T 103410 MS	T 103410 ES	Rp 1"	Rp 3/4"
T 11412114 ST	---	---	Rp 1 1/4"	Rp 1/2"
T 11434114 ST	---	---	Rp 1 1/4"	Rp 3/4"
T 11410114 ST	---	---	Rp 1 1/4"	Rp 1"
T 11212112 ST	---	---	Rp 1 1/2"	Rp 1/2"
T 11234112 ST	---	---	Rp 1 1/2"	Rp 3/4"
T 11210112 ST	---	---	Rp 1 1/2"	Rp 1"
T 112114112 ST	---	T 112114112 ES	Rp 1 1/2"	Rp 1 1/4"

Type 25 bar mall. cast iron galv.	Thread G 1	Thread G 2
T 201220 ST	Rp 2"	Rp 1/2"
T 203420 ST	Rp 2"	Rp 3/4"
T 201020 ST	Rp 2"	Rp 1"
T 2011420 ST	Rp 2"	Rp 1 1/4"
T 2011220 ST	Rp 2"	Rp 1 1/2"
T 21234212 ST	Rp 2 1/2"	Rp 3/4"
T 21210212 ST	Rp 2 1/2"	Rp 1"
T 212114212 ST	Rp 2 1/2"	Rp 1 1/4"
T 212112212 ST	Rp 2 1/2"	Rp 1 1/2"
T 21220212 ST	Rp 2 1/2"	Rp 2"
T 3011230 ST	Rp 3"	Rp 1 1/2"
T 302030 ST	Rp 3"	Rp 2"
T 3021230 ST	Rp 3"	Rp 2 1/2"
T 402040 ST	Rp 4"	Rp 2"
T 403040 ST	Rp 4"	Rp 3"



T-pieces with female threads — up to 350 bar

Type zinc-plated steel	Type V4A (stainless steel) (INOX)	Thread	PN*
T 18 HD	T 18 HD ES	G 1/8"	350 bar
T 14 HD	T 14 HD ES	G 1/4"	350 bar
T 38 HD	T 38 HD ES	G 3/8"	250 bar
T 12 HD	T 12 HD ES	G 1/2"	225 bar
T 34 HD	T 34 HD ES	G 3/4"	200 bar
T 10 HD	T 10 HD ES	G 1"	160 bar
T 114 HD	T 114 HD ES	G 1 1/4"	160 bar
T 112 HD	---	G 1 1/2"	160 bar
T 20 HD	---	G 2"	100 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

T-pieces with NPT female threads — up to 345 bar

Type zinc-plated steel	Type V4A (stainless steel) (INOX)	Thread	PN*
T 18 NPT	T 18 NPT ES	NPT 1/8"	345 bar
T 14 NPT	T 14 NPT ES	NPT 1/4"	275 bar
T 38 NPT	T 38 NPT ES	NPT 3/8"	210 bar
T 12 NPT	T 12 NPT ES	NPT 1/2"	210 bar
T 34 NPT	T 34 NPT ES	NPT 3/4"	170 bar
T 10 NPT	T 10 NPT ES	NPT 1"	140 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

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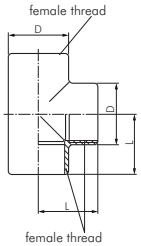
Thread T-pieces PVC-U (for plastic threads only) — PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!



Type	Thread	External Ø D	Installation length L
T 38 PVC	Rp 3/8"	23.5	23
T 12 PVC	Rp 1/2"	28.0	25
T 34 PVC	Rp 3/4"	34.0	30
T 10 PVC	Rp 1"	43.0	36
T 114 PVC	Rp 1 1/4"	54.0	41
T 112 PVC	Rp 1 1/2"	63.0	46
T 20 PVC	Rp 2"	78.0	57
T 212 PVC	Rp 2 1/2"	89.0	83
T 30 PVC	Rp 3"	106.0	99
T 40 PVC	Rp 4"	129.0	119

Elbow distributors with female threads — PN 25

type 221/Za1

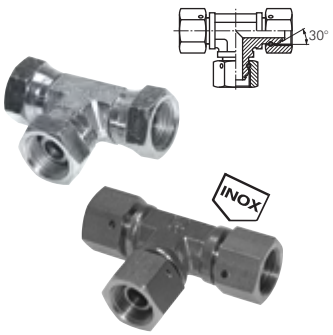
Type malleable cast iron galv.	Thread
WV 38 ST	3 x Rp 3/8"
WV 12 ST	3 x Rp 1/2"
WV 34 ST	3 x Rp 3/4"
WV 10 ST	3 x Rp 1"

Type malleable cast iron galv.	Thread
WV 114 ST	3 x Rp 1 1/4"
WV 112 ST	3 x Rp 1 1/2"
WV 20 ST	3 x Rp 2"

T-connections — PN 16

Brass nickel-plated	Brass	Aluminium	Thread male	Thread female
FR 50 MSV	FR 50 MS	FR 50 A	M 5	2 x M 5
FR 18 MSV	FR 18 MS	FR 18 A	G 1/8"	2 x G 1/8"
FR 14 MSV	FR 14 MS	FR 14 A	G 1/4"	2 x G 1/4"
FR 38 MSV	FR 38 MS	FR 38 A	G 3/8"	2 x G 3/8"
---	---	FR 12 A	G 1/2"	2 x G 1/2"

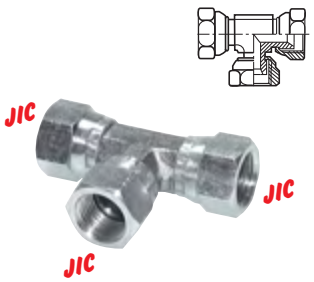
T-screw connections with inch threads (60° conical hose nipples) — up to 400 bar



Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN*
TV 18	TV 18 ES	G 1/8"	400 bar
TV 14	TV 14 ES	G 1/4"	400 bar
TV 38	TV 38 ES	G 3/8"	400 bar
TV 12	TV 12 ES	G 1/2"	300 bar
TV 34	TV 34 ES	G 3/4"	175 bar
TV 10	TV 10 ES	G 1"	150 bar
TV 114	TV 114 ES	G 1 1/4"	150 bar
TV 112	TV 112 ES	G 1 1/2"	125 bar
TV 20	TV 20 ES	G 2"	75 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

T-screw connections with JIC threads — up to 310 bar



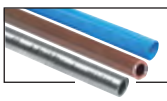
Type zinc-plated steel	Thread	PN*
TV 7/16 JIC	UNF 7/16"-20	310 bar
TV 1/2 JIC	UNF 1/2"-20	275 bar
TV 9/16 JIC	UNF 9/16"-18	275 bar
TV 3/4 JIC	UNF 3/4"-16	275 bar
TV 7/8 JIC	UNF 7/8"-14	210 bar
TV 11/16 JIC	UN 11/16"-12	210 bar
TV 15/16 JIC	UN 15/16"-12	170 bar
TV 15/8 JIC	UN 15/8"-12	140 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

LOCTITE Liquid seals, gaskets & tapes from page 549

Manual tools are found in Online Shop

Pressure gauge from page 366


Aluminium, copper and steel pipes on page 250

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

T-pieces

T-pieces (female/male/female- forged) — up to 150 bar

Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 150 bar AISI 316L (INOX)	Thread male	Thread female
TE 50 MSV	---	---	M 5	M 5
TE 18 MSV	TE 18 MS	TE 18 MD ES	R 1/8"	G 1/8"
TE 14 MSV	TE 14 MS	TE 14 MD ES	R 1/4"	G 1/4"
TE 38 MSV	TE 38 MS	TE 38 MD ES	R 3/8"	G 3/8"
TE 12 MSV	TE 12 MS	TE 12 MD ES	R 1/2"	G 1/2"
TE 34 MSV	TE 34 MS	---	R 3/4"	G 3/4"
TE 10 MSV	TE 10 MS	---	R 1"	G 1"

type 133

T-pieces (female/male/female- cast) — up to 25 bar

Type 25 bar mall. cast iron galv.	Type 16 bar AISI 316 (INOX)	Thread male	Thread female
---	TE 18 ES	R 1/8"	Rp 1/8"
---	TE 14 ES	R 1/4"	Rp 1/4"
TE 38 ST	TE 38 ES	R 3/8"	Rp 3/8"
TE 12 ST	TE 12 ES	R 1/2"	Rp 1/2"
TE 34 ST	TE 34 ES	R 3/4"	Rp 3/4"
TE 10 ST	---	R 1"	Rp 1"

type 134

T-pieces (male/female/female) — up to 25 bar

Type 16 bar brass nickel-pl.	Type 16 bar brass	Thread female	Type 16 bar AISI 316 (INOX)	Type 25 bar mall. cast iron galv.	Thread female	Thread male
LE 50 MSV	---	M5	---	---	M5	M5
LE 18 MSV	LE 18 MS	G 1/8"	LE 18 ES	---	Rp 1/8"	R 1/8"
LE 14 MSV	LE 14 MS	G 1/4"	LE 14 ES	---	Rp 1/4"	R 1/4"
LE 38 MSV	LE 38 MS	G 3/8"	LE 38 ES	---	Rp 3/8"	R 3/8"
LE 12 MSV	LE 12 MS	G 1/2"	LE 12 ES	LE 12 ST	Rp 1/2"	R 1/2"
LE 34 MSV	LE 34 MS	G 3/4"	LE 34 ES	LE 34 ST	Rp 3/4"	R 3/4"
LE 10 MSV	LE 10 MS	G 1"	---	LE 10 ST	Rp 1"	R 1"
---	---		---	LE 114 ST	Rp 1 1/4"	R 1 1/4"
---	---		---	LE 112 ST	Rp 1 1/2"	R 1 1/2"
---	---		---	LE 20 ST	Rp 2"	R 2"

T-pieces (female/male/male) — PN 16

Type brass nickel-plated	Thread male	Thread female
LTE 18 MSV	R 1/8"	G 1/8"
LTE 14 MSV	R 1/4"	G 1/4"
LTE 38 MSV	R 3/8"	G 3/8"
LTE 12 MSV	R 1/2"	G 1/2"
LTE 34 MSV	R 3/4"	G 3/4"
LTE 10 MSV	R 1"	G 1"

T-pieces with inch threads (60° conical hose nipples) — up to 475 bar

Type zinc-plated steel	Type V4A (stainless steel) (INOX)	Thread	PN*
LTE 18 HD	LTE 18 HD ES	G 1/8"	475 bar
LTE 14 HD	LTE 14 HD ES	G 1/4"	350 bar
LTE 38 HD	LTE 38 HD ES	G 3/8"	325 bar
LTE 12 HD	LTE 12 HD ES	G 1/2"	350 bar
LTE 34 HD	LTE 34 HD ES	G 3/4"	325 bar
LTE 10 HD	LTE 10 HD ES	G 1"	225 bar
LTE 114 HD	LTE 114 HD ES	G 1 1/4"	190 bar
LTE 112 HD	LTE 112 HD ES	G 1 1/2"	190 bar
LTE 20 HD	LTE 20 HD ES	G 2"	175 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

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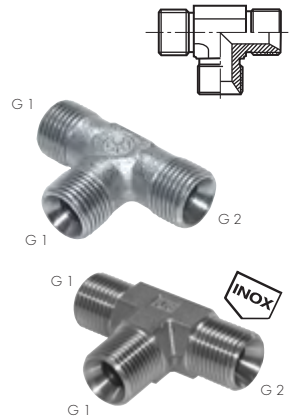
T-pieces (male/male/male) — PN 16

Type brass nickel-plated	Type brass	Thread
TA 18 MSV	TA 18 MS	R 1/8"
TA 14 MSV	TA 14 MS	R 1/4"
TA 38 MSV	TA 38 MS	R 3/8"
TA 12 MSV	TA 12 MS	R 1/2"
TA 34 MSV	TA 34 MS	R 3/4"
TA 10 MSV	TA 10 MS	R 1"

T-pieces with inch threads (60° conical hose nipples) — up to 475 bar

Type zinc-plated steel	Type V4A (stainless steel)	Thread G 1		Thread G 2	PN*
TA 18 HD	TA 18 HD ES	G 1/8"		G 1/8"	475 bar
TA 14 HD	TA 14 HD ES	G 1/4"		G 1/4"	350 bar
TA 383814 HD	---	G 3/8"	reduced	G 1/4"	325 bar
TA 38 HD	TA 38 HD ES	G 3/8"		G 3/8"	325 bar
TA 121238 HD	---	G 1/2"	reduced	G 3/8"	325 bar
TA 12 HD	TA 12 HD ES	G 1/2"		G 1/2"	350 bar
TA 343412 HD	---	G 3/4"	reduced	G 1/2"	325 bar
TA 34 HD	TA 34 HD ES	G 3/4"		G 3/4"	325 bar
TA 101034 HD	---	G 1"	reduced	G 3/4"	225 bar
TA 10 HD	TA 10 HD ES	G 1"		G 1"	225 bar
TA 114 HD	TA 114 HD ES	G 1 1/4"		G 1 1/4"	190 bar
TA 112 HD	TA 112 HD ES	G 1 1/2"		G 1 1/2"	190 bar
TA 20 HD	---	G 2"		G 2"	175 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



T-pieces (male/male/male) with NPT threads — up to 345 bar

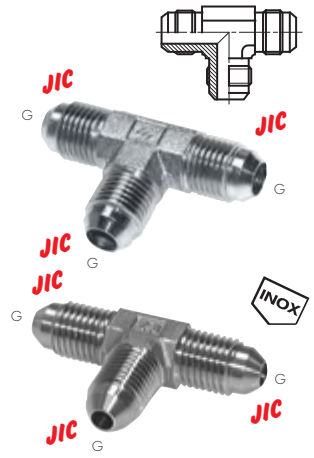
Type zinc-plated steel	Thread	PN*
TA 18 NPT	NPT 1/8"	345 bar
TA 14 NPT	NPT 1/4"	275 bar
TA 38 NPT	NPT 3/8"	210 bar
TA 12 NPT	NPT 1/2"	210 bar
TA 34 NPT	NPT 3/4"	170 bar
TA 10 NPT	NPT 1"	140 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

T-pieces with JIC threads — up to 310 bar

Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN*
TA 7/16 JIC	TA 7/16 JIC ES	UNF 7/16"-20	310 bar
TA 1/2 JIC	TA 1/2 JIC ES	UNF 1/2"-20	275 bar
TA 9/16 JIC	TA 9/16 JIC ES	UNF 9/16"-18	275 bar
TA 3/4 JIC	TA 3/4 JIC ES	UNF 3/4"-16	275 bar
TA 7/8 JIC	TA 7/8 JIC ES	UNF 7/8"-14	210 bar
TA 1 1/16 JIC	TA 1 1/16 JIC ES	UN 1 1/16"-12	210 bar
TA 1 3/16 JIC	---	UN 1 3/16"-12	170 bar
TA 1 5/16 JIC	TA 1 5/16 JIC ES	UN 1 5/16"-12	170 bar
TA 1 5/8 JIC	TA 1 5/8 JIC ES	UN 1 5/8"-12	140 bar
---	TA 1 7/8 JIC ES	UN 1 7/8"-12	100 bar

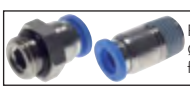
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



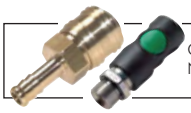
T-pieces (male/female/male) — PN 16

Type brass nickel-plated	Thread male	Thread female
TAIA 18 MSV	R 1/8"	G 1/8"
TAIA 14 MSV	R 1/4"	G 1/4"
TAIA 38 MSV	R 3/8"	G 3/8"
TAIA 12 MSV	R 1/2"	G 1/2"
TAIA 34 MSV	R 3/4"	G 3/4"
TAIA 10 MSV	R 1"	G 1"

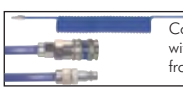
LOCTITE Liquid seals, gaskets & tapes from page 549



Push-in fittings Ø 3 - 32 mm from page 24



Coupling sockets NW7 from page 150



Coil tubes assembled with couplings from page 200

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Distributors/pipeline sockets

type 180/C1

Cross pieces — up to 25 bar

Type 16 bar brass nickel-pl.	Type 16 bar brass	Thread	Type 16 bar AISI 316 (INOX)	Type 25 bar mall. cast iron galv.	Thread
K 18 MSV	K 18 MS*	G 1/8"	K 18 ES	---	Rp 1/8"
K 14 MSV	K 14 MS*	G 1/4"	K 14 ES	K 14 ST	Rp 1/4"
K 38 MSV	K 38 MS*	G 3/8"	K 38 ES	K 38 ST	Rp 3/8"
K 12 MSV	K 12 MS*	G 1/2"	K 12 ES	K 12 ST	Rp 1/2"
---	K 34 MS	G 3/4"	K 34 ES	K 34 ST	Rp 3/4"
---	K 10 MS	G 1"	K 10 ES	K 10 ST	Rp 1"
---	K 114 MS	G 1 1/4"	K 114 ES	K 114 ST	Rp 1 1/4"
---	K 112 MS	G 1 1/2"	K 112 ES	K 112 ST	Rp 1 1/2"
---	K 20 MS	G 2"	K 20 ES	K 20 ST	Rp 2"
---	---	---	K 212 ES	K 212 ST	Rp 2 1/2"
---	---	---	K 30 ES	K 30 ST	Rp 3"
---	---	---	K 40 ES	K 40 ST	Rp 4"

* design as for MSV

Air junctions, 2-way — up to 25 bar

Type 16 bar brass nickel-pl.	Thread	Type 16 bar brass	Type 16 bar AISI 316 (INOX)	Type 25 bar mall. cast iron galv.	Thread
Y 18 MSV	G 1/8"	---	---	---	---
Y 14 MSV	G 1/4"	---	Y 14 ES	---	Rp 1/4"
Y 38 MSV	G 3/8"	LW 238 MS	Y 38 ES	Y 38 ST	Rp 3/8"
Y 12 MSV	G 1/2"	LW 212 MS	Y 12 ES	Y 12 ST	Rp 1/2"
---	---	---	Y 34 ES	Y 34 ST	Rp 3/4"
---	---	---	Y 10 ES	Y 10 ST	Rp 1"
---	---	---	Y 114 ES	---	Rp 1 1/4"
---	---	---	Y 112 ES	---	Rp 1 1/2"
---	---	---	Y 20 ES	---	Rp 2"
---	---	---	Y 212 ES	---	Rp 2 1/2"
---	---	---	Y 30 ES	---	Rp 3"

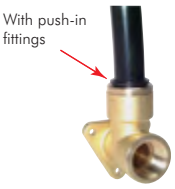
type 220

Air junctions, 3-way — PN 16

Type brass	Thread
LW 338 MS	G 3/8"
LW 312 MS	G 1/2"

Y-pieces (female/female/male) — PN 16

Type brass nickel-plated	Thread male	Thread female
YE 18 MSV	R 1/8"	G 1/8"
YE 14 MSV	R 1/4"	G 1/4"
YE 38 MSV	R 3/8"	G 3/8"
YE 12 MSV	R 1/2"	G 1/2"

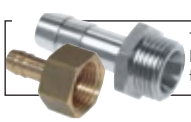


Pipeline sockets with push-in fittings — PN 16

Type brass	Thread	Push in tube Ø external	Outlets
WD 1215 MS	G 1/2"	15	1 x upwards, 1 x at the front
WD 3422 MS	G 3/4"	22	1 x upwards, 1 x at the front

Pipeline sockets — PN 16

Type brass	Type AISI 316 (INOX)	Thread	Outlets
WD 38 MS	WD 38 ES	G 3/8"	1 x upwards, 1 x at the front
WD 12 MS	WD 12 ES	G 1/2"	1 x upwards, 1 x at the front
WD 34 MS	WD 34 ES	G 3/4"	1 x upwards, 1 x at the front


Threaded nozzles & hose nozzles from page 64

LOCTITE Liquid seals, gaskets & tapes from page 549

Parker Push in hoses on page 228

Ball valves from page 280

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pipeline sockets/air junctions, 5-way — PN 16

Type **brass**	Thread	Outlets
WD 12 LW3 MS	G 1/2"	1 x upwards, 1 x downwards, 3 x at the front

Pipeline sockets/distributors, 5-way — PN 16

Type **brass**	Thread	Outlets
WD 12 VT MS	G 1/2"	1 x upwards, 1 x downwards, 2 x on the side, 1 x at the front

Pipeline sockets/air junctions made of plastic — PN 15

Temperature range: -10°C to max. +50°C

Type **with 2 outlets**	Type **with 3 outlets**	Upper input thread	Front output thread	Lower through-hole thread
End junction box without through-hole thread				
WD 12 LW 2 K	WD 12 LW 3 K	G 1/2"	G 1/2"	---
WD 12 LW 2 K-34	WD 12 LW 3 K-34	G 3/4"	G 1/2"	---
Through-way junction box				
WD 12 LW 2 KD	WD 12 LW 3 KD	G 1/2"	G 1/2"	G 1/2"
WD 12 LW 2 KD-34	WD 12 LW 3 KD-34	G 3/4"	G 1/2"	G 3/4"

with 2 outlets

with 3 outlets

Air junctions with female threads and coupling sockets NW 7.2

Materials: Housing: Brass, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as large vacuum

Type	Input E	Output
2-way		
LWKDG 238 NW7	G 3/8" (FT)	2 x coupling sockets NW 7.2
LWKDG 212 NW7	G 1/2" (FT)	2 x coupling sockets NW 7.2
3-way		
LWKDG 338 NW7	G 3/8" (FT)	3 x coupling sockets NW 7.2
LWKDG 312 NW7	G 1/2" (FT)	3 x coupling sockets NW 7.2

Air junctions with male threads and coupling sockets NW 7.2

Materials: Housing: Brass, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as large vacuum

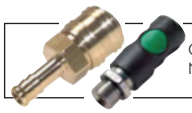
Type	Input E	Output
2-way		
LWKDGDN 238 NW7	G 3/8" (MT)	2 x coupling sockets NW 7.2
LWKDGDN 212 NW7	G 1/2" (MT)	2 x coupling sockets NW 7.2
3-way		
LWKDGDN 338 NW7	G 3/8" (MT)	3 x coupling sockets NW 7.2
LWKDGDN 312 NW7	G 1/2" (MT)	3 x coupling sockets NW 7.2

Pipeline sockets with coupling sockets NW 7.2

Materials: Housing: Brass, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as large vacuum

Type **brass**	Input E	Output
WDKDG 38 MS NW7	G 3/8" (FT)	1 x coupling socket NW 7.2
WDKDG 12 MS NW7	G 1/2" (FT)	1 x coupling socket NW 7.2
WDKDG 34 MS NW7	G 3/4" (FT)	1 x coupling socket NW 7.2

Big push-in fittings up to Ø 32 mm from page 24


Coupling sockets NW7 from page 150

Bolts, nuts and washers from page 615

PVC fabric hoses on page 208

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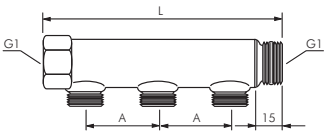
Distributor blocks

3 outlets with male threads



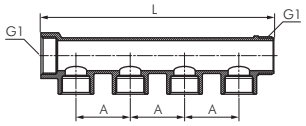
3 outlets with female threads

Distributor pipes with male and female threads — PN 10

Materials: Brass
Operating range: For the assembly of extraction points. The distributor may be extended as required since these are equipped with female and male threads.

Type 2 outlets	L	Type 3 outlets	L	Type 4 outlets	L	Thread G1 input (FT/MT)	Thread extraction point	A
With male thread on the extraction point								
VTA 342 MS	110	VTA 343 MS	160	VTA 344 MS	210	G 3/4"	G 1/2" (MT)	50
VTA 102 MS	113	VTA 103 MS	163	VTA 104 MS	213	G 1"	G 1/2" (MT)	50
VTA 1142 MS	137	VTA 1143 MS	197	VTA 1144 MS	257	G 1 1/4"	G 1/2" (MT)	60
With female thread on the extraction point								
VTi 342 MS	110	VTi 343 MS	160	VTi 344 MS	210	G 3/4"	G 1/2" (FT)	50
VTi 102 MS	113	VTi 103 MS	163	VTi 104 MS	213	G 1"	G 1/2" (FT)	50
VTi 1142 MS	137	VTi 1143 MS	197	VTi 1144 MS	257	G 1 1/4"	G 1/2" (FT)	60

4 outlets with male threads



4 outlets with female threads

Distributor pipes with male and female threads — PN 10

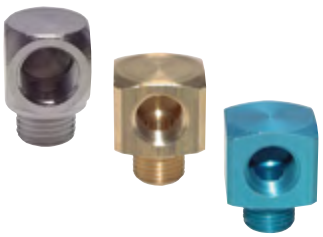
Materials: Brass nickel-plated
Operating range: For the assembly of extraction points. The distributor may be extended as required since these are equipped with female and male threads.

Type 2 outlets	L	Type 3 outlets	L	Type 4 outlets	L	Thread G1 Input (FT/MT)	Thread extraction point	A
With male thread on the extraction point								
VTA 342 MSV	87	VTA 343 MSV	125	VTA 344 MSV	163	G 3/4"	G 1/2" (MT)	38
VTA 102 MSV	89	VTA 103 MSV	127	VTA 104 MSV	165	G 1"	G 1/2" (MT)	38
With female thread on the extraction point								
VTi 342 MSV	87	VTi 343 MSV	125	VTi 344 MSV	163	G 3/4"	G 1/2" (FT)	38
VTi 102 MSV	89	VTi 103 MSV	127	VTi 104 MSV	165	G 1"	G 1/2" (FT)	38

LOCTITE Liquid seals, gaskets & tapes from page 549

Ball valves from page 280

2/2, 3/2 directional valves of brass or stainless steel from page 404



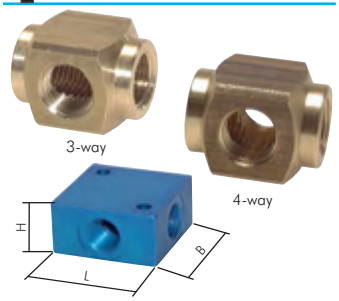
Elbows connections — PN 16

Type brass nickel-plated	Type brass	Type aluminium	Thread
GL 50 MSV	GL 50 MS	GL 50 A	M 5
GL 18 MSV	GL 18 MS	GL 18 A	G 1/8"
GL 14 MSV	GL 14 MS	GL 14 A	G 1/4"
GL 38 MSV	GL 38 MS	GL 38 A	G 3/8"
GL 12 MSV	GL 12 MS	GL 12 A	G 1/2"

T-connections — PN 16

Brass nickel-plated	Brass	Aluminium	Thread male	Thread female
FR 50 MSV	FR 50 MS	FR 50 A	M 5	2 x M 5
FR 18 MSV	FR 18 MS	FR 18 A	G 1/8"	2 x G 1/8"
FR 14 MSV	FR 14 MS	FR 14 A	G 1/4"	2 x G 1/4"
FR 38 MSV	FR 38 MS	FR 38 A	G 3/8"	2 x G 3/8"
---	---	FR 12 A	G 1/2"	2 x G 1/2"

Dimensions can be found in the item details in our Online Shop!



Cross distributor blocks — PN 16

Type brass	L	W	H	Type aluminium	L	W	H	Thread
3-way								
FR 503 MS	14	14	8	---	---	---	---	3 x M 5
FR 183 MS	23	16	16	---	---	---	---	3 x G 1/8"
FR 143 MS	30	22	22	---	---	---	---	3 x G 1/4"
4-way								
VB 450 MS	14	14	8	VB 450 A	22	22	10	4 x M 5
VB 418 MS	23	16	16	VB 418 A	25	25	16	4 x G 1/8"
VB 414 MS	30	22	22	VB 414 A	40	40	20	4 x G 1/4"
---	---	---	---	VB 438 A	50	50	26	4 x G 3/8"
---	---	---	---	VB 412 A	50	50	32	4 x G 1/2"

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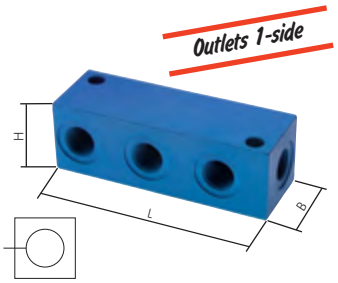
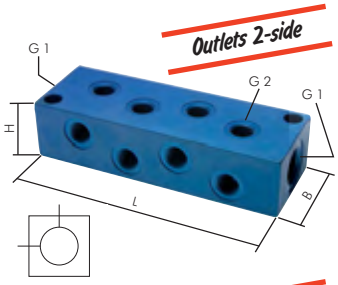
Distributor bars 4-way - M5 to G 1/2" — PN 16

Type aluminium	Thread	L	W	H
FR 450 A	4 x M 5	40	15	15
FR 418 A	4 x G 1/8"	56	20	20
FR 414 A	4 x G 1/4"	89	30	30
FR 438 A	4 x G 3/8"	85	40	30
FR 412 A	4 x G 1/2"	105	40	30
FR 434 A	4 x G 3/4"	140	50	50



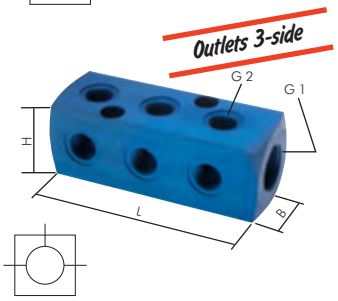
Distributor bars 8-way - M5 to G 1/2" — PN 16

Type aluminium	G 1	G 2	L	W	H
FR 850 A	2 x G 1/4"	8 x M 5	65	32	25
FR 818 A	2 x G 3/8"	8 x G 1/8"	114	40	30
FR 814 A	2 x G 1/2"	8 x G 1/4"	144	50	35
FR 812 A	2 x G 3/4"	8 x G 1/2"	170	60	45



Distributor blocks 9/12-way - M3 to G 1/2" — PN 16

Type aluminium	G 1	G 2	L	W	H
VB 930 A	1 x G 1/8"	9 x M 3	45	18	18
VB 950 A	1 x G 1/8"	9 x M 5	50	20	20
VB 1250 A	2 x G 1/4"	12 x M 5	58	22	22
VB 918 A	1 x G 3/8"	9 x G 1/8"	80	30	30
VB 914 A	1 x G 1/2"	9 x G 1/4"	100	35	35
VB 912 A	1 x G 3/4"	9 x G 1/2"	135	50	50



Distributor bars made of stainless steel, one and two-sided — PN 10

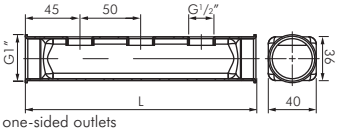
Materials: AISI 304L

Type **one-sided outlets** INOX	Number of outlets	Type **two-sided outlets** INOX	Number of outlets	Thread input	Thread output	L
RLEH2 1012 ES	2	RLDH2 1012 ES	4	2 x G 1"	G 1/2"	143
RLEH3 1012 ES	3	RLDH3 1012 ES	6	2 x G 1"	G 1/2"	193
RLEH4 1012 ES	4	RLDH4 1012 ES	8	2 x G 1"	G 1/2"	243
RLEH5 1012 ES	5	RLDH5 1012 ES	10	2 x G 1"	G 1/2"	293
RLEH6 1012 ES	6	RLDH6 1012 ES	12	2 x G 1"	G 1/2"	343
RLEH7 1012 ES	7	RLDH7 1012 ES	14	2 x G 1"	G 1/2"	393
RLEH8 1012 ES	8	RLDH8 1012 ES	16	2 x G 1"	G 1/2"	443
RLEH9 1012 ES	9	RLDH9 1012 ES	18	2 x G 1"	G 1/2"	493
RLEH10 1012 ES	10	RLDH10 1012 ES	20	2 x G 1"	G 1/2"	543
RLEH11 1012 ES	11	RLDH11 1012 ES	22	2 x G 1"	G 1/2"	593
RLEH12 1012 ES	12	RLDH12 1012 ES	24	2 x G 1"	G 1/2"	643

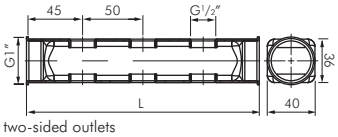
1 or 2 sided x 4 outlets

1 or 2 sided x 6 outlets

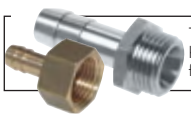
1 or 2 sided x 8 outlets



one-sided outlets



two-sided outlets

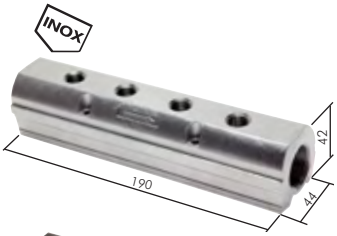

Threaded nozzles & hose nozzles from page 64

Push-in fittings Ø 4 - 32 mm from page 24

One-way control valves on page 440

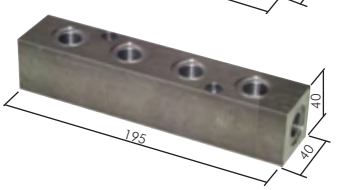
Distributor bars made of stainless steel, one-sided (heavy duty) — PN 15

Type AISI 316 INOX	Thread input	Thread output
FR 414 ES	2 x G 3/4"	4 x G 1/4"



Distributor bars — PN 315

Type **zinc-plated steel**	Thread input	Thread output
FR 438 HD	2 x G 3/8"	4 x G 3/8"



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

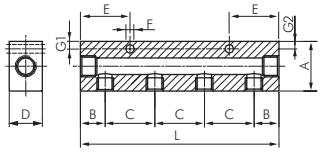
Distributor blocks

type 2 outlets

type 3 outlets

type 4 outlets

type 6 outlets



Distributor bars, one-sided — PN 16

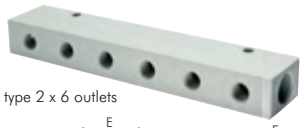
Type aluminium anodised	Thread input	Thread output	L	A	B	C	D	E	F	G1	G2
2 outlets*											
RLE2 18M5 A	2 x G 1/8"	2 x M5	45	20	15	15	15	22.5	4.2	3.5	16.5
RLE2 1418 A	2 x G 1/4"	2 x G 1/8"	60	30	15	30	20	30.0	5.2	4.5	25.5
RLE2 3818 A	2 x G 3/8"	2 x G 1/8"	66	40	18	30	20	33.0	5.2	4.5	35.5
RLE2 3814 A	2 x G 3/8"	2 x G 1/4"	72	40	18	36	20	36.0	6.5	6.0	34.0
RLE2 1214 A	2 x G 1/2"	2 x G 1/4"	80	40	22	36	28	40.0	6.5	5.8	34.2
3 outlets											
RLE3 18M5 A	2 x G 1/8"	3 x M5	60	20	15	15	15	22.5	4.2	3.5	3.5
RLE3 1418 A	2 x G 1/4"	3 x G 1/8"	90	30	15	30	20	30.0	5.2	4.5	4.5
RLE3 3818 A	2 x G 3/8"	3 x G 1/8"	96	30	18	30	20	33.0	5.2	25.5	25.5
RLE3 3814 A	2 x G 3/8"	3 x G 1/4"	108	30	18	36	20	36.0	6.5	24.0	24.0
RLE3 1214 A	2 x G 1/2"	3 x G 1/4"	116	40	22	36	28	40.0	6.5	34.2	34.2
4 outlets											
RLE4 18M5 A	2 x G 1/8"	4 x M5	75	20	15	15	15	22.5	4.2	3.5	3.5
RLE4 1418 A	2 x G 1/4"	4 x G 1/8"	120	30	15	30	20	30.0	5.2	4.5	4.5
RLE4 3818 A**	2 x G 3/8"	4 x G 1/8"	126	30	18	30	20	33.0	5.2	25.5	25.5
RLE4 3814 A**	2 x G 3/8"	4 x G 1/4"	144	30	18	36	20	36.0	6.5	24.0	24.0
RLE4 1214 A**	2 x G 1/2"	4 x G 1/4"	152	40	22	36	28	40.0	6.5	34.2	34.2
6 outlets											
RLE6 18M5 A	2 x G 1/8"	6 x M5	105	20	15	15	15	22.5	4.2	3.5	3.5
RLE6 1418 A	2 x G 1/4"	6 x G 1/8"	180	30	15	30	20	30.0	5.2	4.5	4.5
RLE6 3818 A**	2 x G 3/8"	6 x G 1/8"	186	30	18	30	20	33.0	5.2	25.5	25.5
RLE6 3814 A**	2 x G 3/8"	6 x G 1/4"	216	30	18	36	20	36.0	6.5	24.0	24.0
RLE6 1214 A**	2 x G 1/2"	6 x G 1/4"	224	40	22	36	28	40.0	6.5	34.2	34.2

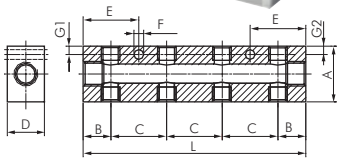
* mounting holes arranged opposite to each other, **mounting holes arranged on the output side

type 2 x 2 outlets

type 2 x 3 outlets

type 2 x 4 outlets

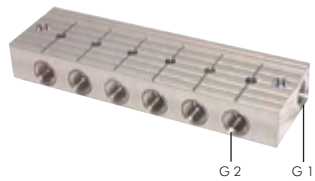

type 2 x 6 outlets

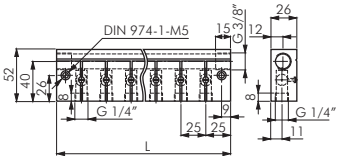


Distributor bars, two-sided — PN 16

Type aluminium anodised	Thread input	Thread output	L	A	B	C	D	E	F	G1	G2
2 x 2 outlets*											
RLD2 18M5 A	2 x G 1/8"	4 x M5	45	20	15	15	15	22.5	4.2	3.5	16.5
RLD2 1418 A	2 x G 1/4"	4 x G 1/8"	60	30	15	30	20	30.0	5.2	4.5	25.5
RLD2 3818 A	2 x G 3/8"	4 x G 1/8"	66	40	18	30	20	33.0	5.2	4.5	35.5
RLD2 3814 A	2 x G 3/8"	4 x G 1/4"	72	40	18	36	20	36.0	6.5	6.0	34.0
RLD2 1214 A	2 x G 1/2"	4 x G 1/4"	80	40	22	36	28	40.0	6.5	5.8	34.2
2 x 3 outlets											
RLD3 18M5 A	2 x G 1/8"	6 x M5	60	20	15	15	15	22.5	4.2	3.5	3.5
RLD3 1418 A	2 x G 1/4"	6 x G 1/8"	90	30	15	30	20	30.0	5.2	4.5	4.5
RLD3 3818 A	2 x G 3/8"	6 x G 1/8"	96	40	18	30	20	33.0	5.2	4.5	4.5
RLD3 3814 A	2 x G 3/8"	6 x G 1/4"	108	40	18	36	20	36.0	6.5	6.0	6.0
RLD3 1214 A	2 x G 1/2"	6 x G 1/4"	116	40	22	36	28	40.0	6.5	5.8	5.8
2 x 4 outlets											
RLD4 18M5 A	2 x G 1/8"	8 x M5	75	20	15	15	15	22.5	4.2	3.5	3.5
RLD4 1418 A	2 x G 1/4"	8 x G 1/8"	120	30	15	30	20	30.0	5.2	4.5	4.5
RLD4 3818 A	2 x G 3/8"	8 x G 1/8"	126	40	18	30	20	33.0	5.2	4.5	4.5
RLD4 3814 A	2 x G 3/8"	8 x G 1/4"	144	40	18	36	20	36.0	6.5	6.0	6.0
RLD4 1214 A	2 x G 1/2"	8 x G 1/4"	152	40	22	36	28	40.0	6.5	5.8	5.8
2 x 6 outlets											
RLD6 18M5 A	2 x G 1/8"	12 x M5	105	20	15	15	15	22.5	4.2	3.5	3.5
RLD6 1418 A	2 x G 1/4"	12 x G 1/8"	180	30	15	30	20	30.0	5.2	4.5	4.5
RLD6 3818 A	2 x G 3/8"	12 x G 1/8"	186	40	18	30	20	33.0	5.2	4.5	4.5
RLD6 3814 A	2 x G 3/8"	12 x G 1/4"	216	40	18	36	20	36.0	6.5	6.0	6.0
RLD6 1214 A	2 x G 1/2"	12 x G 1/4"	224	40	22	36	28	40.0	6.5	5.8	5.8

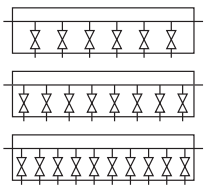
* mounting holes arranged directly opposite each other



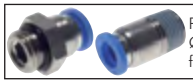


Distributor bars with integrated ball valves — PN 10

Materials: Body: Aluminium anodised, ball and spindle: Brass chrome-plated, seals: PTFE/NBR
Temperature range: -10°C to max. +100°C
Pressure range: 0 to 10 bar, as well as low vacuum
Function: Serves as distributor bars and stopper bars in machined and systems where it becomes necessary to turn off individual control loops. At each outlet, the bar has a ball valve that can be adjusted using a flat screwdrivers. The slot in the spindle displays the position of the ball valve.



Type	Number of outlets	L	G 1	G 2	Nominal diameter per connection (DN)
FRKH 614 A	6	175	2 x G 3/8"	6 x G 1/4"	8 mm
FRKH 814 A	8	225	2 x G 3/8"	8 x G 1/4"	8 mm
FRKH 1014 A	10	275	2 x G 3/8"	10 x G 1/4"	8 mm


Push-in fittings Ø 3 - 32 mm from page 24

FESTO
Festo screwed connections can be found in our Online Shop

Mini ball valves from page 288

Bolts, nuts and washers from page 615

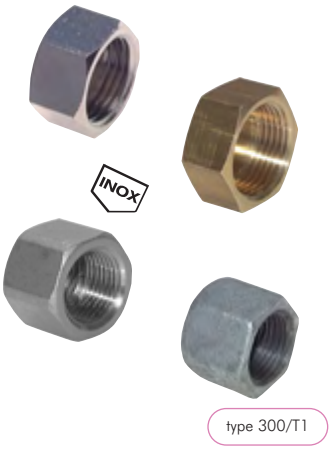
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

End caps with female threads — up to 25 bar

☞ **Optional:** NPT thread **-NPT**

Type **16 bar** brass nickel-pl.	Type **16 bar** brass	Thread	Type **16 bar** AISI 316 INOX	Type **25 bar** malleable cast iron galv.	Thread
VK 18 MSV	VK 18 MS	G 1/8"	VK 18 ES	---	Rp 1/8"
VK 14 MSV	VK 14 MS	G 1/4"	VK 14 ES	VK 14 ST	Rp 1/4"
VK 38 MSV	VK 38 MS	G 3/8"	VK 38 ES	VK 38 ST	Rp 3/8"
VK 12 MSV	VK 12 MS	G 1/2"	VK 12 ES*	VK 12 ST	Rp 1/2"
VK 34 MSV	VK 34 MS	G 3/4"	VK 34 ES*	VK 34 ST	Rp 3/4"
VK 10 MSV	VK 10 MS	G 1"	VK 10 ES*	VK 10 ST	Rp 1"
VK 114 MSV	VK 114 MS	G 1 1/4"	VK 114 ES*	VK 114 ST	Rp 1 1/4"
VK 112 MSV	VK 112 MS	G 1 1/2"	VK 112 ES*	VK 112 ST	Rp 1 1/2"
VK 20 MSV	VK 20 MS	G 2"	VK 20 ES*	VK 20 ST	Rp 2"
---	VK 212 MS	G 2 1/2"	VK 212 ES*	VK 212 ST	Rp 2 1/2"
---	---	---	VK 30 ES	VK 30 ST	Rp 3"
---	---	---	---	VK 40 ST	Rp 4"

* optional: NPT thread **-NPT**



type 300/T1

☞ **Order example:** VK 12 ES **

Standard type

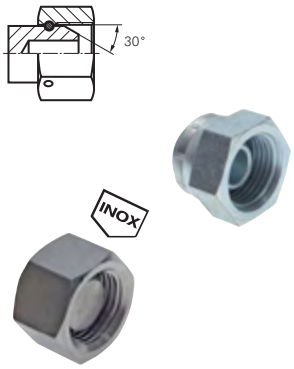
Designation for the options:
NPT thread . . . . . **-NPT**

End caps with inch threads (60° conical hose nipples) — up to 575 bar

Suitable: BUZR end caps with a 60° cone close the hoses and pipe screw connectors that are provided with a 60° conical hose nipple as male threads.

Type **zinc-plated steel**	Type **V4A (stainless steel)** INOX	Thread	PN*
BUZR 1/8	BUZR 1/8 ES	G 1/8"	575 bar
BUZR 1/4	BUZR 1/4 ES	G 1/4"	575 bar
BUZR 3/8	BUZR 3/8 ES	G 3/8"	425 bar
BUZR 1/2	BUZR 1/2 ES	G 1/2"	300 bar
BUZR 3/4	BUZR 3/4 ES	G 3/4"	175 bar
BUZR 1	BUZR 1 ES	G 1"	150 bar
BUZR 1 1/4	BUZR 1 1/4 ES	G 1 1/4"	150 bar
BUZR 1 1/2	BUZR 1 1/2 ES	G 1 1/2"	125 bar
BUZR 2	BUZR 2 ES	G 2"	75 bar

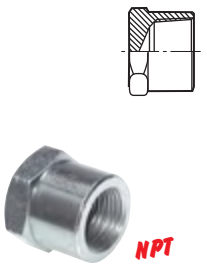
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



End caps with NPT threads — up to 345 bar

Type **zinc-plated steel**	Thread	PN*
VK 18 NPT	1/8" NPT	345 bar
VK 14 NPT	1/4" NPT	275 bar
VK 38 NPT	3/8" NPT	210 bar
VK 12 NPT	1/2" NPT	210 bar
VK 34 NPT	3/4" NPT	170 bar
VK 1 NPT	1" NPT	140 bar
VK 114 NPT	1 1/4" NPT	80 bar
VK 112 NPT	1 1/2" NPT	70 bar
VK 2 NPT	2" NPT	70 bar

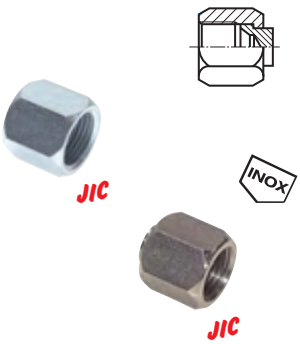
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



End caps with JIC threads — up to 345 bar

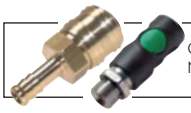
Type **zinc-plated steel**	Type **V4A (stainless steel)** INOX	Thread	PN*
VK 7/16 JIC	VK 7/16 JIC ES	UNF 7/16"-20	310 bar
VK 1/2 JIC	VK 1/2 JIC ES	UNF 1/2"-20	275 bar
VK 9/16 JIC	VK 9/16 JIC ES	UNF 9/16"-18	275 bar
VK 3/4 JIC	VK 3/4 JIC ES	UNF 3/4"-16	275 bar
VK 7/8 JIC	VK 7/8 JIC ES	UNF 7/8"-14	210 bar
VK 11/16 JIC	VK 11/16 JIC ES	UNF 11/16"-12	210 bar
VK 13/16 JIC	---	UNF 13/16"-12	170 bar
VK 15/16 JIC	VK 15/16 JIC ES	UNF 15/16"-12	170 bar
VK 15/8 JIC	VK 15/8 JIC ES	UNF 15/8"-12	140 bar
VK 17/8 JIC	VK 17/8 JIC ES	UNF 17/8"-12	100 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



LOCTITE Liquid seals, gaskets & tapes from page 549

Ready-made washing and hydraulic hoses on page 231



Coupling sockets NW7 from page 150

PU-house sets with coupling & plug on page 209

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Closing plugs

908

Closing plugs with hexagonal sockets and cylindrical threads — up to 40 bar

Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 40 bar V4A (SS) INOX	Thread
VS 50 MSV*	---	---	M5
VS 70 MSV*	---	---	M7
VS 18 MSV*	VS 18 MS	VS 18 ES	G 1/8"
VS 14 MSV*	VS 14 MS	VS 14 ES	G 1/4"
VS 38 MSV*	VS 38 MS	VS 38 ES	G 3/8"
VS 12 MSV*	VS 12 MS	VS 12 ES	G 1/2"
VS 34 MSV	VS 34 MS	VS 34 ES	G 3/4"
VS 10 MSV	VS 10 MS	VS 10 ES	G 1"
---	VS 114 MS	VS 114 ES	G 1 1/4"
---	VS 112 MS	VS 112 ES	G 1 1/2"
---	VS 20 MS	VS 20 ES	G 2"

* with O-ring seal

906

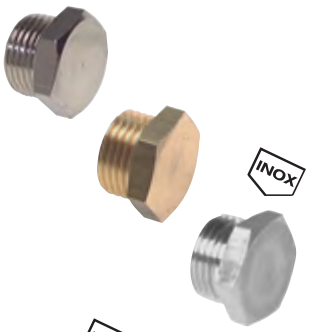
Closing plugs with hexagonal sockets without collars — up to 40 bar

... also metric

Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 40 bar V4A (SS) INOX	Thread	Type 16 bar brass	Type 40 bar AISI 316Ti INOX	Thread
Imperial						
VS 18 K MSV	VS 18 K MS	VS 18 K ES	R 1/8"	VS 18 MS OB	VS 18 ES OB	G 1/8"
VS 14 K MSV	VS 14 K MS	VS 14 K ES	R 1/4"	VS 14 MS OB	VS 14 ES OB	G 1/4"
VS 38 K MSV	VS 38 K MS	VS 38 K ES	R 3/8"	VS 38 MS OB	VS 38 ES OB	G 3/8"
VS 12 K MSV	VS 12 K MS	VS 12 K ES	R 1/2"	VS 12 MS OB	VS 12 ES OB	G 1/2"
---	VS 34 K MS	VS 34 K ES	R 3/4"	---	---	---
---	VS 10 K MS	VS 10 K ES	R 1"	---	---	---
---	---	VS 114 K ES	R 1 1/4"	---	---	---
---	---	VS 112 K ES	R 1 1/2"	---	---	---
Metric						
---	VS M8 K MS	VS M8 K ES	M8 x 0.75 (con.)	VS M8 MS OB	---	M 8 x 0.75
---	VS M8 x 1 K MS	---	M8 x 1 (con.)	---	---	---
---	VS M10 K MS	VS M10 K ES	M10 x 1 (con.)	VS M10 MS OB	---	M 10 x 1
---	VS M12 K MS	VS M12 K ES	M12 x 1.5 (con.)	VS M12 MS OB	---	M 12 x 1.5
---	VS M14 K MS	VS M14 K ES	M14 x 1.5 (con.)	VS M14 MS OB	---	M 14 x 1.5

* must be sealed with sealant!

Closing plugs with exterior hexagons and cylindrical threads — up to 40 bar



Type 16 bar brass nickel-pl.	Type 16 bar brass	Type 40 bar AISI 316Ti INOX	Thread	SW[1]
VS 50 A MSV	VS 50 A MS	---	M5	8
VS 18 A MSV	VS 18 A MS	VS 18 A ES	G 1/8"	14
VS 14 A MSV	VS 14 A MS	VS 14 A ES	G 1/4"	17
VS 38 A MSV	VS 38 A MS	VS 38 A ES	G 3/8"	19
VS 12 A MSV	VS 12 A MS	VS 12 A ES	G 1/2"	24
VS 34 A MSV	---	VS 34 A ES	G 3/4"	---
VS 10 A MSV	---	VS 10 A ES	G 1"	---

[1] applies to type brass. For all other types, please ask.

Closing plugs with exterior hexagons and conical threads — up to 16 bar

Type 16 bar AISI 316 INOX	Type 8 bar PA 6	Thread
VS 18 AK ES	VS 18 K	R 1/8"
VS 14 AK ES	VS 14 K	R 1/4"
VS 38 AK ES	VS 38 K	R 3/8"
VS 12 AK ES*	VS 12 K	R 1/2"
VS 34 AK ES*	---	R 3/4"
VS 10 AK ES*	---	R 1"

Type 16 bar AISI 316 INOX	Type 8 bar PA 6	Thread
VS 114 AK ES*	---	R 1 1/4"
VS 112 AK ES*	---	R 1 1/2"
VS 20 AK ES*	---	R 2"
VS 212 AK ES	---	R 2 1/2"
VS 30 AK ES	---	R 3"

* optional: NPT thread **-NPT**

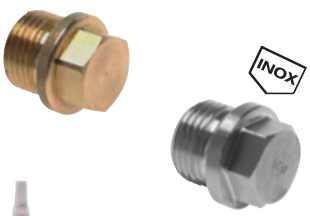
Order example: VS 12 AK ES **

Standard type

Designation for the options: NPT thread . . . . . **-NPT**

910

Closing plugs with exterior hexagons and collar, with cyl. threads — up to 40 bar



Type 16 bar brass	Type 40 bar V4A (SS) INOX	Thread	SW[1]
VS 18 AB MS	VS 18 AB ES	G 1/8"	10
VS 14 AB MS	VS 14 AB ES	G 1/4"	13
VS 38 AB MS	VS 38 AB ES	G 3/8"	17
VS 12 AB MS	VS 12 AB ES	G 1/2"	19
VS 34 AB MS	VS 34 AB ES	G 3/4"	24
VS 10 AB MS	VS 10 AB ES	G 1"	27
VS 114 AB MS	VS 114 AB ES	G 1 1/4"	30
VS 112 AB MS	VS 112 AB ES	G 1 1/2"	30
VS 20 AB MS	VS 20 AB ES	G 2"	36

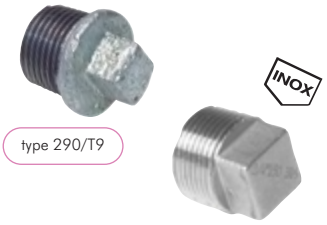
[1] Details apply for the brass type. For all other types, please ask.

LOCTITE Liquid seals, gaskets & tapes from Page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Closing plugs with exterior squares and conical threads — up to 25 bar

Type 25 bar mall. cast iron galv.	Type 16 bar AISI 316 (INOX)	Thread	Type 25 bar mall. cast iron galv.	Type 16 bar AISI 316 (INOX)	Thread
VS 18 ST	VS 18 VK ES	R 1/8"	VS 114 ST	VS 114 VK ES	R 1 1/4"
VS 14 ST	VS 14 VK ES	R 1/4"	VS 112 ST	VS 112 VK ES	R 1 1/2"
VS 38 ST	VS 38 VK ES	R 3/8"	VS 20 ST	VS 20 VK ES	R 2"
VS 12 ST	VS 12 VK ES	R 1/2"	VS 212 ST	VS 212 VK ES	R 2 1/2"
VS 34 ST	VS 34 VK ES	R 3/4"	VS 30 ST	VS 30 VK ES	R 3"
VS 10 ST	VS 10 VK ES	R 1"	---	VS 40 VK ES	R 4"

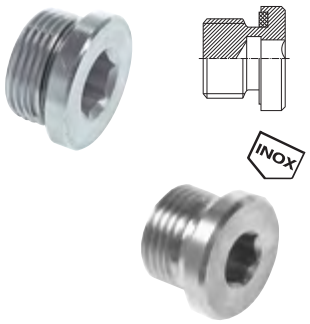


Locking screws with elastomer seals (imperial) — up to 400 bar

Materials: Seal: NBR (type AISI 316Ti: FKM)
Optional: Seal made of FKM **-V**

Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread	PN*
VSTi 1/8	VSTi 1/8 ES	G 1/8"	400 bar
VSTi 1/4	VSTi 1/4 ES	G 1/4"	400 bar
VSTi 3/8	VSTi 3/8 ES	G 3/8"	400 bar
VSTi 1/2	VSTi 1/2 ES	G 1/2"	400 bar
VSTi 3/4	VSTi 3/4 ES	G 3/4"	400 bar
VSTi 1	VSTi 1 ES	G 1"	400 bar
VSTi 1 1/4	VSTi 1 1/4 ES	G 1 1/4"	250 bar
VSTi 1 1/2	VSTi 1 1/2 ES	G 1 1/2"	250 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

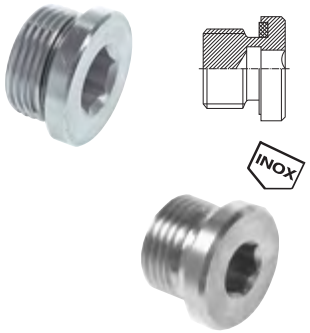


Locking screws with elastomer seals (metric) — up to 400 bar

Materials: Seal: NBR (type AISI 316Ti: FKM)
Optional: Seal made of FKM **-V**

Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread	PN*
VSTi 10 x 1	VSTi 10 x 1 ES	M 10 x 1	400 bar
VSTi 12 x 1.5	VSTi 12 x 1.5 ES	M 12 x 1.5	400 bar
VSTi 14 x 1.5	VSTi 14 x 1.5 ES	M 14 x 1.5	400 bar
VSTi 16 x 1.5	VSTi 16 x 1.5 ES	M 16 x 1.5	400 bar
VSTi 18 x 1.5	VSTi 18 x 1.5 ES	M 18 x 1.5	400 bar
VSTi 20 x 1.5	VSTi 20 x 1.5 ES	M 20 x 1.5	400 bar
VSTi 22 x 1.5	VSTi 22 x 1.5 ES	M 22 x 1.5	400 bar
VSTi 24 x 1.5	---	M 24 x 1.5	400 bar
VSTi 26 x 1.5	VSTi 26 x 1.5 ES	M 26 x 1.5	400 bar
VSTi 27 x 2	VSTi 27 x 2 ES	M 27 x 2	400 bar
VSTi 33 x 2	VSTi 33 x 2 ES	M 33 x 2	400 bar
VSTi 42 x 2	VSTi 42 x 2 ES	M 42 x 2	250 bar
VSTi 48 x 2	VSTi 48 x 2 ES	M 48 x 2	250 bar

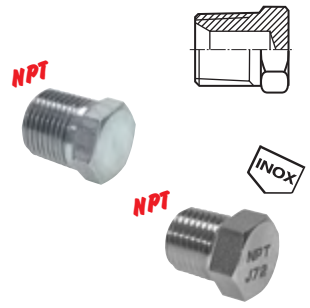
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



Locking screws with NPT threads — up to 345 bar

Type zinc-plated steel	Type V4A (stainless steel) (INOX)	Type 16 bar AISI 316 (INOX)	Thread	PN*
VSTi 1/8 NPT	VSTi 1/8 NPT ES	Closing plugs with NPT thread (PN 16) see page 136	1/8" NPT	345 bar
VSTi 1/4 NPT	VSTi 1/4 NPT ES		1/4" NPT	275 bar
VSTi 3/8 NPT	VSTi 3/8 NPT ES		3/8" NPT	210 bar
VSTi 1/2 NPT	VSTi 1/2 NPT ES		1/2" NPT	210 bar
VSTi 3/4 NPT	VSTi 3/4 NPT ES		3/4" NPT	170 bar
VSTi 1 NPT	VSTi 1 NPT ES		1" NPT	140 bar
VSTi 1 1/4 NPT	VSTi 1 1/4 NPT ES		1 1/4" NPT	80 bar
VSTi 1 1/2 NPT	VSTi 1 1/2 NPT ES		1 1/2" NPT	70 bar
VSTi 2 NPT	VSTi 2 NPT ES		2" NPT	70 bar

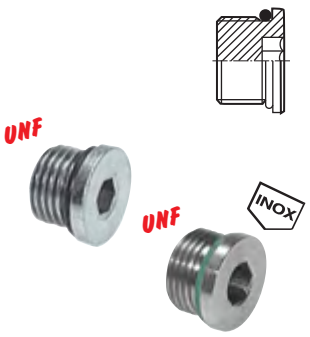
* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



Locking screws with O-rings with UNF threads — up to 630 bar

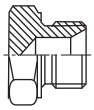
Type zinc-plated steel	Type V4A (stainless steel) (INOX)	Thread	PN*
VSTi 7/16 UNF	VSTi 7/16 UNF ES	UNF 7/16"-20	630 bar
VSTi 1/2 UNF	VSTi 1/2 UNF ES	UNF 1/2"-20	630 bar
VSTi 9/16 UNF	VSTi 9/16 UNF ES	UNF 9/16"-18	630 bar
VSTi 3/4 UNF	VSTi 3/4 UNF ES	UNF 3/4"-16	630 bar
VSTi 7/8 UNF	VSTi 7/8 UNF ES	UNF 7/8"-14	630 bar
VSTi 1 1/16 UNF	VSTi 1 1/16 UNF ES	UN 1 1/16"-12	400 bar
VSTi 1 3/16 UNF	---	UN 1 3/16"-12	400 bar
VSTi 1 5/16 UNF	VSTi 1 5/16 UNF ES	UN 1 5/16"-12	400 bar
VSTi 1 5/8 UNF	VSTi 1 5/8 UNF ES	UN 1 5/8"-12	250 bar
VSTi 1 7/8 UNF	VSTi 1 7/8 UNF ES	UN 1 7/8"-12	250 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Closing plugs



Blind fittings with inch threads (60° conical hose nipples) — up to 575 bar

Suitable: ROV blind fittings with a 60° cone close the hoses and pipe screw connectors that are provided with a 60° conical hose nipple in a union nut with female thread.

Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN*
ROV 1/8	ROV 1/8 ES	G 1/8"	575 bar
ROV 1/4	ROV 1/4 ES	G 1/4"	575 bar
ROV 3/8	ROV 3/8 ES	G 3/8"	425 bar
ROV 1/2	ROV 1/2 ES	G 1/2"	300 bar
ROV 3/4	ROV 3/4 ES	G 3/4"	175 bar
ROV 1	ROV 1 ES	G 1"	150 bar
ROV 1 1/4	ROV 1 1/4 ES	G 1 1/4"	150 bar
---	ROV 1 1/2 ES	G 1 1/2"	125 bar
---	ROV 2 ES	G 2"	75 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

Locking screws with JIC threads — up to 310 bar

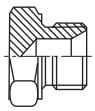
Type zinc-plated steel	Type V4A (stainless steel)	Thread	PN*
VSTi 7/16 JIC	VSTi 7/16 JIC ES	UNF 7/16"-20	310 bar
VSTi 1/2 JIC	VSTi 1/2 JIC ES	UNF 1/2"-20	275 bar
VSTi 9/16 JIC	VSTi 9/16 JIC ES	UNF 9/16"-18	275 bar
VSTi 3/4 JIC	VSTi 3/4 JIC ES	UNF 3/4"-16	275 bar
VSTi 7/8 JIC	VSTi 7/8 JIC ES	UNF 7/8"-14	210 bar
VSTi 1 1/16 JIC	VSTi 1 1/16 JIC ES	UN 1 1/16"-12	210 bar
VSTi 1 3/16 JIC	---	UN 1 3/16"-12	170 bar
VSTi 1 5/16 JIC	VSTi 1 5/16 JIC ES	UN 1 5/16"-12	170 bar
VSTi 1 5/8 JIC	VSTi 1 5/8 JIC ES	UN 1 5/8"-12	140 bar
VSTi 1 7/8 JIC	VSTi 1 7/8 JIC ES	UN 1 7/8"-12	100 bar

* the safety factor reached in tests with hydraulic oil was four-times, please ask in individual cases

Closing plugs for cutting ring screw connections* — ISO 8434-1 (DIN 2353)

Type zinc-plated steel	Type AISI 316Ti	Union nut* heavy	Union nut* Light	For pipe screw connectors
BUZ 6	BUZ 6 ES	M 6 S	M 6 L	6 L / 6 S
BUZ 8	BUZ 8 ES	M 8 S	M 8 L	8 L / 8 S
BUZ 10	BUZ 10 ES	M 10 S	M 10 L	10 L / 10 S
BUZ 12	BUZ 12 ES	M 12 S	M 12 L	12 L / 12 S
BUZ 14	BUZ 14 ES	M 14 S	---	14 S
BUZ 15	BUZ 15 ES	---	M 15 L	15 L
BUZ 16	BUZ 16 ES	M 16 S	---	16 S
BUZ 18	BUZ 18 ES	---	M 18 L	18 L
BUZ 20	BUZ 20 ES	M 20 S	---	20 S
BUZ 22	BUZ 22 ES	---	M 22 L	22 L
BUZ 25	BUZ 25 ES	M 25 S	---	25 S
BUZ 28	BUZ 28 ES	---	M 28 L	28 L
BUZ 30	BUZ 30 ES	M 30 S	---	30 S
BUZ 35	BUZ 35 ES	---	M 35 L	35 L
BUZ 38	BUZ 38 ES	M 38 S	---	38 S
BUZ 42	BUZ 42 ES	---	M 42 L	42 L

* Please order union nuts separately if required. Nuts can be found on page 99.



Application example

Blind fittings for cutting ring screw connections* — ISO 8434-1 (DIN 2353)

Suitable: Blind fitting for EVGE, DKO-L or DKO-S. To seal the hoses or pipe ends, on which nuts and cutting rings have been attached.

Type zinc-plated steel	Type AISI 316Ti	Tube Ø male	Union nut thread
Light model series			
ROV 6 L	ROV 6 L ES	6 L	M 12 x 1.5
ROV 8 L	ROV 8 L ES	8 L	M 14 x 1.5
ROV 10 L	ROV 10 L ES	10 L	M 16 x 1.5
ROV 12 L	ROV 12 L ES	12 L	M 18 x 1.5
ROV 15 L	ROV 15 L ES	15 L	M 22 x 1.5
ROV 18 L	ROV 18 L ES	18 L	M 26 x 1.5
ROV 22 L	ROV 22 L ES	22 L	M 30 x 2
ROV 28 L	ROV 28 L ES	28 L	M 36 x 2
ROV 35 L	ROV 35 L ES	35 L	M 45 x 2
ROV 42 L	ROV 42 L ES	42 L	M 52 x 2

Type zinc-plated steel	Type AISI 316Ti	Tube Ø male	Union nut thread
Heavy model series			
ROV 6 S	ROV 6 S ES	6 S	M 14 x 1.5
ROV 8 S	ROV 8 S ES	8 S	M 16 x 1.5
ROV 10 S	ROV 10 S ES	10 S	M 18 x 1.5
ROV 12 S	ROV 12 S ES	12 S	M 20 x 1.5
ROV 14 S	ROV 14 S ES	14 S	M 22 x 1.5
ROV 16 S	ROV 16 S ES	16 S	M 24 x 1.5
ROV 20 S	ROV 20 S ES	20 S	M 30 x 2
ROV 25 S	ROV 25 S ES	25 S	M 36 x 2
ROV 30 S	ROV 30 S ES	30 S	M 42 x 2
ROV 38 S	ROV 38 S ES	38 S	M 52 x 2

* Please order union nuts and cutting rings separately if required. Nuts and cutting rings are found from page 98.

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Straight swivel joints male-female threads — slow

Outstanding value!

Suitable: For slow rotary movements, e.g. to avoid the twisting of hoses.
Materials: Body: Brass nickel-plated, seal: NBR
Temperature range: -20°C to max. +80°C
Operating pressure: -0.99 to 15 bar
Media: Oiled compressed air

Type	Thread male	Thread female
DREH 18 MSV	G 1/8"	G 1/8"
DREH 14 MSV	G 1/4"	G 1/4"
DREH 38 MSV	G 3/8"	G 3/8"

Angle and T-swivel joints are found on page 53.

360° rotatable

Quick swivel joints — up to 1500 rpm

Suitable: As a rotating compressed air supply in mechanical engineering
Materials: Body: Brass nickel-plated, pivot pins: Zinc-plated steel, ball bearing: Steel, seal: NBR
Temperature range: 0°C to max. +60°C
Operating pressure: -0.95 to 10 bar
Media: Compressed air, neutral gases

Type	Thread male	Thread female	$U_{Max.}$*
GFS 18	G 1/8"	G 1/8"	1500
GFS 14	G 1/4"	G 1/4"	1200
GFS 38	G 3/8"	G 3/8"	1000
GFS 12	G 1/2"	G 1/2"	1000

* depends on operating time

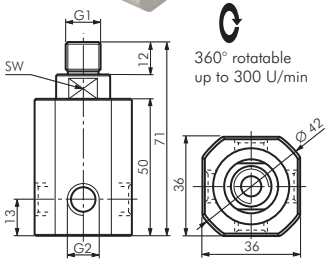
360° rotatable
up to 1.500 U/min

Rotary distributors rotatable 4-way — up to 300 rpm

Suitable: As a rotating compressed air supply in mechanical engineering
Materials: Body: Aluminium anodised, pivot pins: Stainless steel, ball bearing: Steel, seal: NBR
Temperature range: 0°C to max. +80°C
Operating pressure: -0.95 to 10 bar
Media: Oiled compressed air

Type	G 1	G 2 (3 x sealed with plugs)	SW
GF 14 A	G 1/4"	4 x G 1/4"	17
GF 38 A	G 3/8"	4 x G 3/8"	19

360° rotatable
up to 300 U/min



Swivel joints with male and female threads — for tools

Suitable: For reduced rotary movements, e.g. connection to compressed air tools, especially for suspended compressed air tools.
Materials: Brass nickel-plated/plastic
Temperature range: 0°C to max. +60°C
Operating pressure: 0 - 15 bar
Media: Compressed air

Type	Thread female	Thread male	Version 360° rotatable
Precision version			
DREHGELENK 14	R 1/4" (conic)	R 1/4"	3-way
DREHGELENK 38	R 3/8" (conic)	R 3/8"	2-way
DREHGELENK 12	R 1/2" (conic)	R 1/2"	2-way
Standard version			
DREHGELENK 14 B	Rp 1/4"	R 1/4"	2-way

Swivel joints with male and female threads — for tools

Suitable: For slow rotary movements, e.g. to avoid the twisting of hoses
Materials: Steel nickel-plated
Temperature range: 0°C to max. +60°C
Operating pressure: 0 - 15 bar
Media: Compressed air

Type	Thread	Connection
DG 1414 IA	G 1/4" (FT)	R 1/4" (MT)
DG 3838 IA	G 3/8" (FT)	R 3/8" (MT)
DG 14 KSNW7*	G 1/4" (MT)	Plug NW 7.2

* 50° pivotable

plug NW 7

360° rotatable

360° rotatable

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Ball guided swivel joints

Suitable: Usage between a fixed point and a hose connected to rotating or oscillating machine components or cranes. For swivelling movements up to max. 20 rpm, uninterrupted rotational motion.
Materials: Outside part: Steel A3C yellow, internal parts: Steel hardened, seals: NBR
Media: Oil up to 90°C
Pressure range: 10 to 350 bar, depending on connection

rotatable 360°

Ball guided bulkhead rotation screw connections, cutting ring connection up to 350 bar

Type zinc-plated steel	Tube Ø external	Union nut thread	DN	Installation length over all	PN
Light model series					
DREHSOT 8 L	8 L	M 14x1.5	6.0	70.0	315 bar
DREHSOT 10 L	10 L	M 16x1.5	7.5	82.0	315 bar
DREHSOT 12 L	12 L	M 18x1.5	7.5	83.0	315 bar
DREHSOT 15 L	15 L	M 22x1.5	12.0	84.0	315 bar
DREHSOT 18 L	18 L	M 26x1.5	16.0	124.5	315 bar
DREHSOT 22 L	22 L	M 30x2	16.0	110.0	160 bar
DREHSOT 28 L	28 L	M 36x2	25.0	132.5	160 bar
Heavy model series					
DREHSOT 6 S	6 S	M 14x1.5	4.0	72.0	350 bar
DREHSOT 8 S	8 S	M 16x1.5	6.0	72.0	350 bar
DREHSOT 12 S	12 S	M 20x1.5	7.5	83.0	350 bar
DREHSOT 16 S	16 S	M 24x1.5	12.0	86.0	350 bar
DREHSOT 20 S	20 S	M 30x2	16.0	115.0	350 bar
DREHSOT 25 S	25 S	M 36x2	20.0	120.0	350 bar
DREHSOT 38 S	38 S	M 52x2	32.0	139.0	250 bar

rotatable 360°

Ball guided straight swivel joints, cutting ring connections PN 350

Type zinc-plated steel	Tube Ø male	Union nut thread	DN	Installation length over all (without nuts)
Heavy model series				
DREHG 6 S	6 S	M 14x1.5	4.0	61
DREHG 8 S	8 S	M 16x1.5	6.0	61
DREHG 12 S	12 S	M 20x1.5	7.5	72
DREHG 16 S	16 S	M 24x1.5	12.0	74
DREHG 20 S	20 S	M 30x2	16.0	92
DREHG 25 S	25 S	M 36x2	20.0	96

360° rotatable

High pressure swivel joints up to 500 bar

Suitable: Rotary joint for slow oscillatory and rotary movement with hydraulic oil or oiled compressed air.
Materials: Body: Zinc-plated steel, seal: FKM/PTFE
Temperature range: -25°C to max. +200°C
☞ **Optional:** Version in stainless steel (PN 400) **-ES**

Type	Screw-in thread	Thread female	rpm max.	PN	Replacement parts seals
DREH 14 HD	G 1/4"	G 1/4"	5.0	500 bar	DREH 14 HD Di
DREH 38 HD	G 3/8"	G 3/8"	5.0	400 bar	DREH 38 HD Di
DREH 12 HD	G 1/2"	G 1/2"	5.0	400 bar	DREH 12 HD Di
DREH 34 HD	G 3/4"	G 3/4"	2.0	400 bar	DREH 34 HD Di
DREH 10 HD	G 1"	G 1"	2.0	400 bar	DREH 10 HD Di
DREH 114 HD	G 1 1/4"	G 1 1/4"	1.0	400 bar	DREH 114 HD Di
DREH 112 HD	G 1 1/2"	G 1 1/2"	1.0	315 bar	DREH 112 HD Di

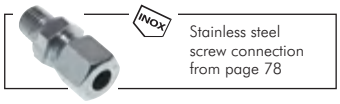
☞ **Order example:** DREH 14 HD **
Standard type
Designation for the options: Version in stainless steel (PN 400) . . . **-ES**

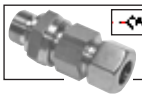
LOCTITE Liquid seals, gaskets & tapes from page 549

Hydraulic oil from page 574

Roller bearing from page 603

V-belt from page 609


Stainless steel screw connection from page 78


HP check valves of various shapes from page 450

Distributor bars up to 315 bar on page 132

Functional nut on page 99

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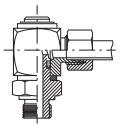
Slide bearing angles swivel joints (metric) — up to 10 rpm*



metric

Materials: Seal: NBR (type AISI 316L: FKM)
Temperature range*: -20°C to max. +100°C (type AISI 316L: -25°C to max. +200°C)
Media: Only for lubricating media
Field of application: Between a fixed point and a hose on rotating or oscillating machine components. Hose can vibrate and rotate due to the slide bearing shaft under maximum pressure loading.
Warning: To balance out alignment inaccuracies, the use of a flexible connection is imperatively recommended.

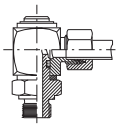
Type zinc-plated steel	Type AISI 316L (INOX)	Type AISI 316L (NC) (INOX)	Screw-in thread	DN	Tube Ø external	Umax* (rpm)	PN*
Light model series							
DREH 6 LM	DREH 6 LM ES	DREH 6 LM NC	M 10 x 1	5	6 L	10.0	250 bar
DREH 8 LM	DREH 8 LM ES	DREH 8 LM NC	M 12 x 1.5	5	8 L	10.0	250 bar
DREH 10 LM	DREH 10 LM ES	DREH 10 LM NC	M 14 x 1.5	6	10 L	5.0	250 bar
DREH 12 LM	DREH 12 LM ES	DREH 12 LM NC	M 16 x 1.5	8	12 L	5.0	250 bar
DREH 15 LM	DREH 15 LM ES	DREH 15 LM NC	M 18 x 1.5	10	15 L	2.0	250 bar
DREH 18 LM	DREH 18 LM ES	DREH 18 LM NC	M 22 x 1.5	13	18 L	1.0	160 bar
DREH 22 LM	DREH 22 LM ES	DREH 22 LM NC	M 26 x 1.5	16	22 L	1.0	160 bar
DREH 28 LM	DREH 28 LM ES	---	M 33 x 2	20	28 L	1.0	100 bar
DREH 35 LM	DREH 35 LM ES	---	M 42 x 2	25	35 L	0.5	100 bar
DREH 42 LM	DREH 42 LM ES	---	M 48 x 2	32	42 L	0.5	100 bar
Heavy model series							
DREH 6 SM	DREH 6 SM ES	DREH 6 SM NC	M 12 x 1.5	5	6 S	10.0	400 bar
DREH 8 SM	DREH 8 SM ES	DREH 8 SM NC	M 14 x 1.5	5	8 S	10.0	400 bar
DREH 10 SM	DREH 10 SM ES	DREH 10 SM NC	M 16 x 1.5	6	10 S	5.0	400 bar
DREH 12 SM	DREH 12 SM ES	DREH 12 SM NC	M 18 x 1.5	8	12 S	5.0	400 bar
DREH 16 SM	DREH 16 SM ES	DREH 16 SM NC	M 22 x 1.5	13	16 S	1.0	400 bar
DREH 20 SM	DREH 20 SM ES	DREH 20 SM NC	M 27 x 2	16	20 S	1.0	250 bar
DREH 25 SM	DREH 25 SM ES	DREH 25 SM NC	M 33 x 2	20	25 S	1.0	250 bar
DREH 30 SM	DREH 30 SM ES	---	M 42 x 2	25	30 S	0.5	250 bar
DREH 38 SM	DREH 38 SM ES	---	M 48 x 2	32	38 S	0.5	250 bar

360° rotatable

360° rotatable

* Temperature values, pressures and revolutions per minute are maximum values which should not happen simultaneously. Please contact us to select the correct swivel joint for your operating case.

Slide bearing angles swivel joints (imperial) — up to 10 rpm*



imperial

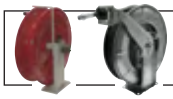
Materials: Seal: NBR (type AISI 316L: FKM)
Temperature range*: -20°C to max. +100°C (type AISI 316L: -25°C to max. +200°C)
Media: Only for lubricating media
Field of application: Between a fixed point and a hose on rotating or oscillating machine components. Hose can vibrate and rotate due to the slide bearing shaft under maximum pressure loading.
Warning: To balance out alignment inaccuracies, the use of a flexible connection is imperatively recommended.

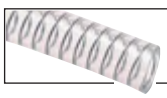
Type zinc-plated steel	Type AISI 316L (INOX)	Type AISI 316L (NC) (INOX)	Screw-in thread	DN	Tube Ø external	Umax* (rpm)	PN*
Light model series							
DREH 6 LR	DREH 6 LR ES	DREH 6 LR NC	G 1/8"	5	6 L	10.0	250 bar
DREH 8 LR	DREH 8 LR ES	DREH 8 LR NC	G 1/4"	6	8 L	10.0	250 bar
DREH 10 LR	DREH 10 LR ES	DREH 10 LR NC	G 1/4"	6	10 L	5.0	250 bar
DREH 12 LR	DREH 12 LR ES	DREH 12 LR NC	G 3/8"	8	12 L	5.0	250 bar
DREH 15 LR	DREH 15 LR ES	DREH 15 LR NC	G 1/2"	13	15 L	2.0	250 bar
DREH 18 LR	DREH 18 LR ES	DREH 18 LR NC	G 1/2"	13	18 L	1.0	160 bar
DREH 22 LR	DREH 22 LR ES	DREH 22 LR NC	G 3/4"	16	22 L	1.0	160 bar
DREH 28 LR	DREH 28 LR ES	---	G 1"	20	28 L	1.0	100 bar
DREH 35 LR	DREH 35 LR ES	---	G 1 1/4"	25	35 L	0.5	100 bar
DREH 42 LR	DREH 42 LR ES	---	G 1 1/2"	32	42 L	0.5	100 bar
Heavy model series							
DREH 6 SR	DREH 6 SR ES	DREH 6 SR NC	G 1/4"	5	6 S	10.0	400 bar
DREH 8 SR	DREH 8 SR ES	DREH 8 SR NC	G 1/4"	5	8 S	10.0	400 bar
DREH 10 SR	DREH 10 SR ES	DREH 10 SR NC	G 3/8"	6	10 S	5.0	400 bar
DREH 12 SR	DREH 12 SR ES	DREH 12 SR NC	G 3/8"	8	12 S	5.0	400 bar
DREH 14 SR	DREH 14 SR ES	DREH 14 SR NC	G 1/2"	10	14 S	2.0	400 bar
DREH 16 SR	DREH 16 SR ES	DREH 16 SR NC	G 1/2"	13	16 S	1.0	400 bar
DREH 20 SR	DREH 20 SR ES	DREH 20 SR NC	G 3/4"	16	20 S	1.0	250 bar
DREH 25 SR	DREH 25 SR ES	DREH 25 SR NC	G 1"	20	25 S	1.0	250 bar
DREH 30 SR	DREH 30 SR ES	---	G 1 1/4"	25	30 S	0.5	250 bar
DREH 38 SR	DREH 38 SR ES	---	G 1 1/2"	32	38 S	0.5	250 bar

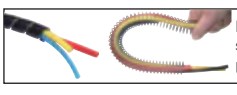
360° rotatable

360° rotatable

* Temperature values, pressures and revolutions per minute are maximum values which should not happen simultaneously. Please contact us to select the correct swivel joint for your operating case.


Hose reel up to 400 bar from page 205


PVC-suction-pressure hoses Page 223

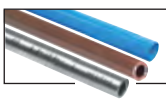

Bundle & steel spirals from page 247

Hydraulic couplings from page 170

Parker Push in hoses on page 228

HYDAC Pipe clamps from page 244

Ready-made washing and hydraulic hoses on page 231


Aluminium, copper and steel pipes down from page 250

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Chapter 3 - Couplings

Quick connect couplings, NW 2.7 & NW 5

Coupling sockets
NW 2.7
MT/FT/nozzles
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Coupling plugs
NW 2.7
MT/FT/hose
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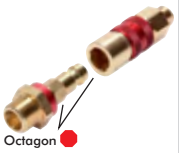
Coupling sockets
NW 5
MT/MT/hose nozzles
Page 146

Quick release couplings
NW 5
Page 147

Coupling plugs
NW 5
MT/FT/hose
Page 148



Coded couplings
NW5
Page 162

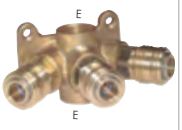
Multiple couplings
Page 41

Quick connect couplings, NW 7.2 (workshop couplings)

Couplings
standard
NW 7
Page 150-153

Couplings
stainless steel
NW 7
Page 150-153

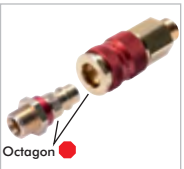
Couplings
plastic sleeves
Page 152



Pipeline sockets air
junctions incl. couplings
Page 153

Coupling plugs
NW 7
Page 154-155

Dust covers
NW 7
Page 155



Coded couplings
NW 7
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Safety couplings, NW 7.2 & NW 10

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NW 7.2 Eco-Line
Page 156

Safety couplings
NW 7.2 Cejn
Page 157

Multi-Link
NW 7.2 Cejn
Page 157

Coupling plugs
safety couplings
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Push button couplings
steel/stainless steel
Page 158

Push button couplings
plastic
Page 158

Safety couplings
NW 10 Cejn
Page 159

Quick connect couplings, NW 10 & NW 12, ARO/ORION

Couplings
NW 10
Page 159

Couplings
NW 10
Cejn
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Couplings
NW 10
stainless steel
Page 159

Safety couplings
NW 10
Page 159

Coupling plugs
for NW 10
Page 160

Couplings
NW 12
Page 160

ARO/Orion couplings
NW 5.5
Page 161

Mould couplings & tanker truck couplings

Mould coupling sockets
DN 6
Page 164

Mould coupling plugs
DN 6
Page 165

Mould coupling sockets
DN 9
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Mould coupling plugs
DN 9
Page 167

System adapter
DN 6/DN 9
Page 167

Mould couplings
accessories
Page 168

Tanker truck couplings
Page 169

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hydraulic couplings

Hydraulic push-in coupling ISO 7241-1 B
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Stainless steel push-in coupling ISO 7241-1 B
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Plastic push-in coupling ISO 7241-1 B
Page 170

Flat-Face ISO 16028
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Flat-Face screw coupling
Page 171

Hydraulic push-in coupling ISO 7241-1 A
Page 172

Hydraulic screw coupling ISO 16028
Page 173

Compressor couplings & sandblast couplings

Compressor couplings
Page 174-176

Compressor couplings with brass seal
Page 174-176

Stainless steel compressor couplings
Page 174-176

Safety compressor couplings
Page 175

Cock plug valves with compressor couplings
Page 176

Replacement seals for compressor couplings
Page 176

Sandblast couplings
Page 177

Garden hose couplings

Garden hose quick couplings
Page 178-180

Stainless steel quick couplings
Page 178-179

Garden hose quick couplings
Page 178-180

Distributor for garden hose quick couplings
Page 180

Hose sprayers and accessories
Page 180

GARDENA couplings
Page 181

GARDENA system accessories
Page 181

Storz couplings (fire brigade couplings)

Storz couplings
Page 182-185

Storz couplings for industrial hoses
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Storz fixed couplings
Page 183

Storz transition fittings
Page 184

Storz blind couplings
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Multi-purpose steel tubes + accessories
Page 185

Tanker truck couplings
Page 169

Kamlock couplings (MIL-C-27487/EN 14420-7)

Kamlock coupling sockets
Page 186+188

Kamlock coupling sockets
Page 186+188

Kamlock connectors
Page 187

Kamlock connectors
Page 187

Kamlock caps - closing plugs
Page 187

Kamlock coupling sockets with safety locking device
Page 188

Kamlock couplings acc. to EN 14420-7
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Couplings NW 2.7

Compatible with**
Rectus 20, 91
Walther 06-003
Festo KD2/KS2
IMI-Norgren 232
Aventics CP1-NW2.7

Quick connect couplings — NW 2.7

Materials: Body: Brass, brass nickel-plated or stainless steel AISI 303, seal: NBR (stainless steel: FKM)
Temperature range: -20°C to max. +100°C (stainless steel: -15°C to max. +200°C)
Operating pressure: 0 - 35 bar, as well as low vacuum
Flow*: 165 l/min

Only the following combinations of coupling plug and coupling socket are possible:

- Shut-off coupling socket BA with coupling plug without valve
- Shut-off coupling socket BA with shut-off coupling plug BA

* 6 bar input pressure, 0.5 bar pressure difference

Coupling sockets with male threads — NW 2.7

☞ **Optional:** Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**, NPT thread **-NPT**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Thread male
KDG M5 NW2,7	KDG M5 NW2,7 MSV	KDG M5 NW2,7 ES	M 5
KDG 18 NW2,7	KDG 18 NW2,7 MSV	KDG 18 NW2,7 ES	G 1/8"

Coupling sockets with female threads — NW 2.7

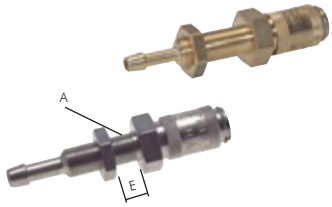
☞ **Optional:** Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**, NPT thread **-NPT**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Thread female
KDGi M5 NW2,7	KDGi M5 NW2,7 MSV	KDGi M5 NW2,7 ES	M 5
KDGi 18 NW2,7	KDGi 18 NW2,7 MSV	KDGi 18 NW2,7 ES	G 1/8"

Coupling sockets with hose nozzles — NW 2.7

☞ **Optional:** Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**

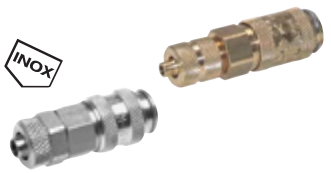
Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Hose Ø internal
KDS 3 NW2,7	KDS 3 NW2,7 MSV	KDS 3 NW2,7 ES	3
KDS 4 NW2,7	KDS 4 NW2,7 MSV	KDS 4 NW2,7 ES	4
KDS 5 NW2,7	KDS 5 NW2,7 MSV	KDS 5 NW2,7 ES	5



Coupling sockets with hose nozzles & bulkhead threads — NW 2.7

☞ **Optional:** Can be used for plug shut-off on both sides **-BA**

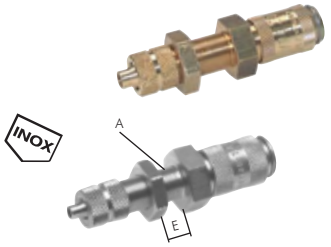
Type **brass**	Type **brass nickel-plated**	A	Emax	Hose Ø internal
KDSS 3 NW2,7	KDSS 3 NW2,7 MSV	M 7 x 0.5	14	3
KDSS 4 NW2,7	KDSS 4 NW2,7 MSV	M 7 x 0.5	14	4



Coupling sockets with union nuts — NW 2.7

☞ **Optional:** Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Hose Ø ext. x internal.
KDK 3 NW2,7	KDK 3 NW2,7 MSV	KDK 3 NW2,7 ES	4.3 x 3
KDK 4 NW2,7	KDK 4 NW2,7 MSV	KDK 4 NW2,7 ES	6 x 4



Coupling sockets with union nuts & bulkhead threads — NW 2.7

☞ **Optional:** Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	A	Emax	Hose Ø ext. x internal.
KDKS 3 NW2,7	KDKS 3 NW2,7 MSV	KDKS 3 NW2,7 ES	M 7 x 0.5	11	4.3 x 3
KDKS 4 NW2,7	KDKS 4 NW2,7 MSV	KDKS 4 NW2,7 ES	M 8 x 0.5	8.5	6 x 4

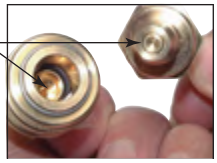
☞ **Order example:** KDG 18 NW2,7 **

Standard type

Designation for the options:
Body made of stainless steel AISI 316L . . . . . **-ES4A**
Can be used for plug shut-off on both sides . . . . . **-BA**
NPT thread . . . . . **-NPT**

PU, PA, PTFE and PE hoses from page 192

Special version **BA:**
Socket and plug shut-off



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Coupling plugs with male threads — NW 2.7

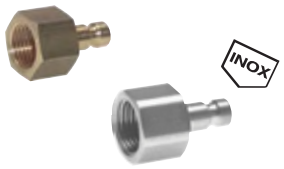
☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**, NPT thread **-NPT**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Thread male
KSG M5 NW2,7	KSG M5 NW2,7 MSV	KSG M5 NW2,7 ES	M 5
KSG 18 NW2,7	KSG 18 NW2,7 MSV	KSG 18 NW2,7 ES	G 1/8"

Coupling plugs with female threads — NW 2.7

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**, NPT thread **-NPT**

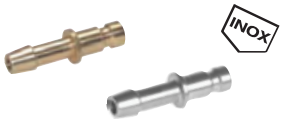
Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Thread female
KSGi M5 NW2,7	KSGi M5 NW2,7 MSV	KSGi M5 NW2,7 ES	M 5
KSGi 18 NW2,7	KSGi 18 NW2,7 MSV	KSGi 18 NW2,7 ES	G 1/8"



Coupling plugs with hose nozzles — NW 2.7

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**

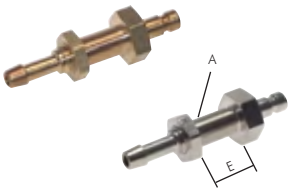
Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Hose Ø internal
KSS 3 NW2,7	KSS 3 NW2,7 MSV	KSS 3 NW2,7 ES	3
KSS 4 NW2,7	KSS 4 NW2,7 MSV	KSS 4 NW2,7 ES	4
---	KSS 5 NW2,7 MSV	KSS 5 NW2,7 ES	5



Coupling plugs with hose nozzles & bulkhead threads — NW 2.7

☞ **Optional:** With valve for both-sided shut-off **-BA**

Type **brass**	Type **brass nickel-plated**	A	Emax	Hose Ø internal
KSSS 3 NW2,7	KSSS 3 NW2,7 MSV	M 7 x 0.5	14	3
KSSS 4 NW2,7	KSSS 4 NW2,7 MSV	M 7 x 0.5	14	4



Coupling plugs with union nuts — NW 2.7

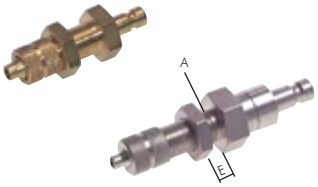
☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Hose Ø ext. x internal
KSK 3 NW2,7	KSK 3 NW2,7 MSV	KSK 3 NW2,7 ES	4.3 x 3
KSK 4 NW2,7	KSK 4 NW2,7 MSV	KSK 4 NW2,7 ES	6 x 4

Coupling plugs with union nuts & bulkhead threads — NW 2.7

☞ **Optional:** With valve for both-sided shut-off **-BA**

Type **brass**	Type **brass nickel-plated**	A	Emax	Hose Ø ext. x internal
KSKS 3 NW2,7	KSKS 3 NW2,7 MSV	M 7 x 0.5	11	4.3 x 3
KSKS 4 NW2,7	KSKS 4 NW2,7 MSV	M 8 x 0.5	8.5	6 x 4

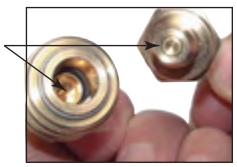


☞ **Order example:** KSG M5 NW2.7 **

Standard type

Designation for the options:
Body made of stainless steel AISI 316L . . . . . **-ES4A**
With valve for both-sided shut-off . . . . . **-BA**
NPT thread . . . . . **-NPT**

Special version BA:
Socket and plug shut-off



LOCTITE
Liquid seals, gaskets & tapes from page 549

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Couplings NW 5

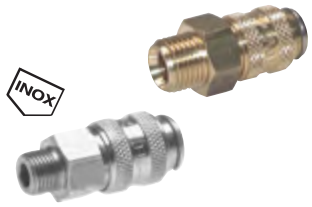
Compatible with**
Rectus 21, 90
Camozzi
EWO
KANI
Festo KD3/KS3
IMI-Norgren 233
Aventics CP1-NW5

Quick connect couplings — NW 5

Materials: Body: Brass, brass nickel-plated, steel hardened or stainless steel AISI 303, seal: NBR (stainless steel: FKM)
Temperature range: -20°C to max. +100°C (stainless steel: -15°C to max. +200°C)
Operating pressure: 0 - 35 bar, as well as low vacuum
Flow*: 560 l/min (option **-BA**: 360 l/min)

Only the following combinations of coupling plug and coupling socket are possible:
- Shut-off coupling socket BA with coupling plug without valve
- Shut-off coupling socket BA with shut-off coupling plug BA

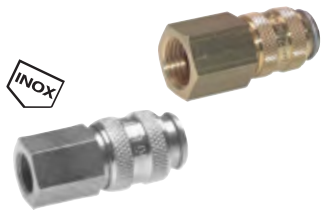
* 6 bar input pressure, 0.5 bar pressure difference



Coupling sockets with male threads — NW 5

Optional: Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**, NPT thread **-NPT**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Type **steel hardened, nickel-plated**	Thread male
KDG 18 NW5	KDG 18 NW5 MSV	KDG 18 NW5 ES	KDG 18 NW5 ST	G 1/8"
KDG 14 NW5	KDG 14 NW5 MSV	KDG 14 NW5 ES	KDG 14 NW5 ST	G 1/4"
KDG 38 NW5	KDG 38 NW5 MSV	KDG 38 NW5 ES	KDG 38 NW5 ST	G 3/8"



Coupling sockets with female threads — NW 5

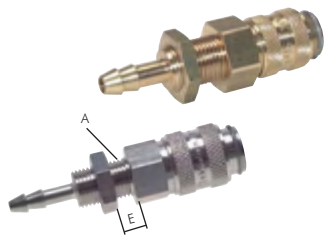
Optional: Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**, NPT thread **-NPT**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Type **steel hardened, nickel-plated**	Thread female
KDGi 18 NW5	KDGi 18 NW5 MSV	KDGi 18 NW5 ES	KDGi 18 NW5 ST	G 1/8"
KDGi 14 NW5	KDGi 14 NW5 MSV	KDGi 14 NW5 ES	KDGi 14 NW5 ST	G 1/4"
KDGi 38 NW5	KDGi 38 NW5 MSV	KDGi 38 NW5 ES	KDGi 38 NW5 ST	G 3/8"

Coupling sockets with hose nozzles — NW 5

Optional: Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Type **steel hardened, nickel-plated**	Hose Ø internal
KDS 4 NW5	KDS 4 NW5 MSV	KDS 4 NW5 ES	---	4
KDS 5 NW5	KDS 5 NW5 MSV	---	---	5
KDS 6 NW5	KDS 6 NW5 MSV	KDS 6 NW5 ES	KDS 6 NW5 ST	6
KDS 8 NW5	KDS 8 NW5 MSV	---	---	8
KDS 9 NW5	KDS 9 NW5 MSV	KDS 9 NW5 ES	KDS 9 NW5 ST	9



Coupling sockets with hose nozzles & bulkhead threads — NW 5

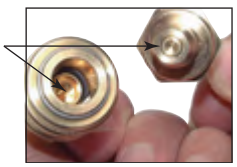
Optional: Can be used for plug shut-off on both sides **-BA**

Type **brass**	Type **brass nickel-plated**	Bulkhead thread A	Emax	Hose Ø internal
KDSS 4 NW5	KDSS 4 NW5 MSV	M 10 x 1	10	4
KDSS 6 NW5	KDSS 6 NW5 MSV	M 12 x 1	10	6
KDSS 8 NW5	KDSS 8 NW5 MSV	M 12 x 1	10	8
KDSS 9 NW5	KDSS 9 NW5 MSV	M 12 x 1	10	9

Order example: KDG 18 NW 5 **
Standard type

Designation for the options:
Body made of stainless steel AISI 316L . . **-ES4A**
Can be used for plug shut-off
on both sides . . . . . **-BA**
NPT thread . . . . . **-NPT**

Special version **BA:**
Socket and plug shut-off



Distinctive couplings from page 162

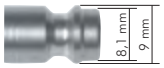
Hose clamps from page 234

PVC fabric hoses on page 208

Screw connections with union nuts from page 53

** names and designations are partly registered trademarks of the respective manufacturer.

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



Coupling sockets with union nuts — NW 5

☞ **Optional:** Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Hose Ø ext. x internal
KDK 4 NW5	KDK 4 NW5 MSV	KDK 4 NW5 ES	6 x 4
KDK 6 NW5	KDK 6 NW5 MSV	KDK 6 NW5 ES	8 x 6

Coupling sockets with union nuts & bend protection — NW 5

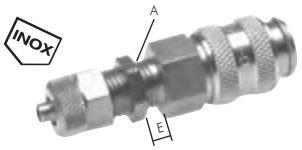
☞ **Optional:** Can be used for plug shut-off on both sides **-BA**, red sliding sleeve **-RO**, green sliding sleeve **-GR**, blue sliding sleeve **-BL**, black sliding sleeve **-SCH**

Type **brass**	Type **brass nickel-plated**	Hose Ø ext. x internal
Rigid		
KDK KS 4 NW5	KDK KS 4 NW5 MSV	6 x 4
KDK KS 6 NW5	KDK KS 6 NW5 MSV	8 x 6
Rotatable		
KDK KD 4 NW5	KDK KD 4 NW5 MSV	6 x 4
KDK KD 6 NW5	KDK KD 6 NW5 MSV	8 x 6

Coupling sockets with union nuts & bulkhead threads — NW 5

☞ **Optional:** Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	A	Emax	Hose Ø ext. x internal
KDKS 4 NW5	KDKS 4 NW5 MSV	KDKS 4 NW5 ES	M 10 x 1	6	6 x 4
KDKS 6 NW5	KDKS 6 NW5 MSV	KDKS 6 NW5 ES	M 12 x 1	5	8 x 6

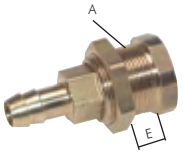


Quick release coupling sockets with hose nozzles & bulkhead threads — NW 5

Application: e.g. fire service, ambulances and buses, which are supplied externally by a compressed air system for emergencies. **Connecting the coupling:** Inserting the plug. **Loosening the coupling:** Pull on the plug and hose, the coupling loosens automatically. **Installation:** To guarantee the pull-off function the coupling must be mounted with the bulkhead thread and supplied using an elastic hose.

☞ **Optional:** Can be used for plug shut-off on both sides **-BA**

Type **brass**	Type **brass nickel-plated**	Pull-off force for 0 bar/6 bar	A	Emax	Hose Ø ext. x internal
KDAS 4 NW5	---	30 N/35 N	M 20 x 1	12	4
KDAS 6 NW5	---	30 N/35 N	M 20 x 1	12	6
KDAS 8 NW5	---	30 N/35 N	M 20 x 1	12	8
KDAS 9 NW5	KDAS 9 NW5 MSV	30 N/35 N	M 20 x 1	12	9



Quick release coupling sockets with union nuts & bulkhead threads — NW 5

Application: e.g. fire service, ambulances and buses, which are supplied externally by a compressed air system for emergencies. **Connecting the coupling:** Inserting the plug. **Loosening the coupling:** Pull on the plug and hose, the coupling loosens automatically. **Installation:** To guarantee the pull-off function the coupling must be mounted with the bulkhead thread and supplied using an elastic hose.

☞ **Optional:** Can be used for plug shut-off on both sides **-BA**

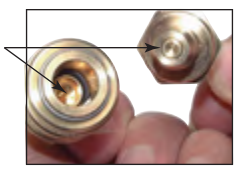
Type **brass**	Type **brass nickel-plated**	Pull-off force for 0 bar/6 bar	A	Emax	Hose Ø ext. x internal
KDAK 4 NW5	KDAK 4 NW5 MSV	30 N/35 N	M 20 x 1	6	6 x 4
KDAK 6 NW5	KDAK 6 NW5 MSV	30 N/35 N	M 20 x 1	5	8 x 6

☞ **Order example:** KDK 4 NW5

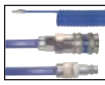
Standard type

Designation for the options:
Body made of stainless steel AISI 316L .**-ES4A**
Can be used for plug shut-off
on both sides . . . . . .**-BA**

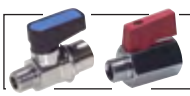
Special version **BA:**
Socket and plug
shut-off



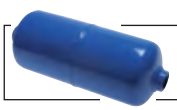
Hoses
from page 192



Coil tubes assembled
with couplings
from page 200

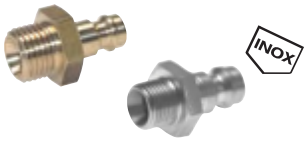


Mini ball valves
from page 288



Compressed
air reservoir
from page 514

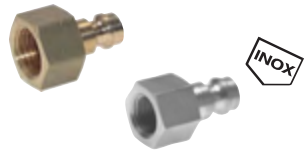
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



Coupling plugs with male threads — NW 5

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**, NPT thread **-NPT**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Type **steel hardened, nickel-plated**	Thread male
KSG 18 NW5	KSG 18 NW5 MSV	KSG 18 NW5 ES	KSG 18 NW5 ST	G 1/8"
KSG 14 NW5	KSG 14 NW5 MSV	KSG 14 NW5 ES	KSG 14 NW5 ST	G 1/4"
KSG 38 NW5	KSG 38 NW5 MSV	KSG 38 NW5 ES	KSG 38 NW5 ST	G 3/8"



Coupling plugs with female threads — NW 5

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**, NPT thread **-NPT**

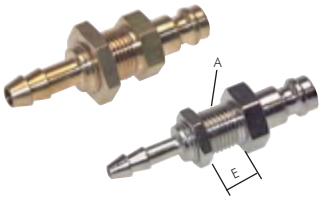
Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Type **steel hardened, nickel-plated**	Thread female
KSGi M6 NW5	---	---	---	M 6
KSGi M8 NW5	---	---	---	M 8
KSGi 18 NW5	KSGi 18 NW5 MSV	KSGi 18 NW5 ES	KSGi 18 NW5 ST	G 1/8"
KSGi 14 NW5	KSGi 14 NW5 MSV	KSGi 14 NW5 ES	KSGi 14 NW5 ST	G 1/4"
KSGi 38 NW5	KSGi 38 NW5 MSV	KSGi 38 NW5 ES	KSGi 38 NW5 ST	G 3/8"

Coupling plugs with hose nozzles — NW 5

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Type **steel nickel-plated**	Hose Ø internal
KSS 4 NW5	KSS 4 NW5 MSV	KSS 4 NW5 ES	KSS 4 NW5 ST	4
KSS 6 NW5	KSS 6 NW5 MSV	KSS 6 NW5 ES	KSS 6 NW5 ST	6
KSS 8 NW5	KSS 8 NW5 MSV	KSS 8 NW5 ES	KSS 8 NW5 ST*	8
KSS 9 NW5	KSS 9 NW5 MSV	KSS 9 NW5 ES	KSS 9 NW5 ST*	9

* hardened



Coupling plugs with hose nozzles & bulkhead threads — NW 5

☞ **Optional:** With valve for both-sided shut-off **-BA**

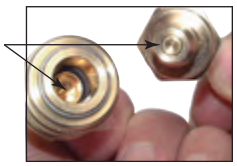
Type **brass**	Type **brass nickel-plated**	A	Emax	Hose Ø internal
KSSS 4 NW5	KSSS 4 NW5 MSV	M 10 x 1	10	4
KSSS 6 NW5	KSSS 6 NW5 MSV	M 12 x 1	10	6
KSSS 8 NW5	KSSS 8 NW5 MSV	M 12 x 1	10	8
KSSS 9 NW5	KSSS 9 NW5 MSV	M 12 x 1	10	9

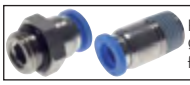
☞ **Order example:** KSG 18 NW5 **

Standard type

Designation for the options:
Body made of stainless steel AISI 316L . . . . **-ES4A**
With valve for both-sided shut-off . . . . . **-BA**
NPT thread . . . . . **-NPT**

Special version **BA:**
Socket and plug shut-off



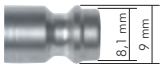

Push-in fittings Ø 3 - 32 mm from page 24

Distributor bars from page 132

Distinctive couplings from page 162

PU, PA, PTFE and PE hoses from page 192

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

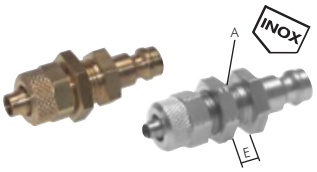


Coupling plugs with union nuts — NW 5

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**, red colour coding **-RO**, green colour coding **-GR**, blue colour coding **-BL**, black colour coding **-SCH**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Hose Ø ext. x internal
KSK 4 NW5	KSK 4 NW5 MSV	KSK 4 NW5 ES	6 x 4
KSK 6 NW5	KSK 6 NW5 MSV	KSK 6 NW5 ES	8 x 6

Coupling plugs with union nuts & bulkhead threads — NW 5



☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**, red colour coding **-RO**, green colour coding **-GR**, blue colour coding **-BL**, black colour coding **-SCH**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	A	Emax	Hose Ø ext. x internal
KSKS 4 NW5	KSKS 4 NW5 MSV	KSKS 4 NW5 ES	M 10 x 1	9	6 x 4
KSKS 6 NW5	KSKS 6 NW5 MSV	KSKS 6 NW5 ES	M 12 x 1	9	8 x 6

Coupling plugs with union nuts & bend protection — NW 5

☞ **Optional:** With valve for both-sided shut-off **-BA**

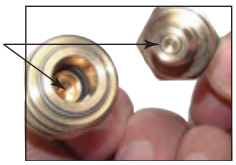
Type **brass**	Type **brass nickel-plated**	Hose Ø ext. x internal
With bend protection		
KSK KS 4 NW5	KSK KS 4 NW5 MSV	6 x 4
KSK KS 6 NW5	KSK KS 6 NW5 MSV	8 x 6
With bend protection, rotatable		
KSK KD 4 NW5	KSK KD 4 NW5 MSV	6 x 4
KSK KD 6 NW5	KSK KD 6 NW5 MSV	8 x 6

☞ **Order example:** KSK 4 NW5 **

Standard type

Designation for the options:
Body made of stainless steel AISI 316L **.-ES4A**
With valve for both-sided shut-off . . . . **.-BA**

Special version **BA:**
Socket and plug shut-off



Dust protection caps — NW 5

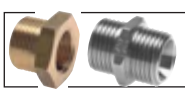
Materials: Soft PVC

Type **for coupling sockets**	Type **for coupling plugs**
KD STAUB NW5	KS STAUB NW5

for coupling socket

for coupling plug

application example


Thread fittings from page 102

Push-in fittings Ø 4 - 32 mm from page 24

Hoses from page 192

LOCTITE Liquid seals, gaskets & tapes from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Couplings NW 7.2 (standard)

Compatible with**
Rectus 25, 26, 1600, 1625
TEMA 1600
CEJN 320
JWL 520, 530, 560
Legris 25, 26
Parker PE, PEF
Prevost E ... 07
Festo KD4/KS4
IMI-Norgren 238
Aventics CP1-NW 7/7.8

Quick connect couplings — NW 7.2

Materials: Body: Brass, brass nickel-plated, steel hardened or stainless steel AISI 303, seal: NBR (stainless steel: FKM)
Temperature range: -20°C to max. +100°C (stainless steel: -15°C to max. +200°C, plastic sleeve max. +80°C)
Operating pressure: 0 - 35 bar, as well as low vacuum
Flow***: Bolt lock: 1100 l/min (option **-BA**: 800 l/min), ball lock: 1800 l/min, ball lock/plastic sleeve: 2100 l/min

Only the following combinations of coupling plug and coupling socket are possible:
- Shut-off coupling socket BA with coupling plug without valve
- Shut-off coupling socket BA with shut-off coupling plug BA

*** 6 bar input pressure, 0.5 bar pressure difference

Coupling sockets with male threads — NW 7.2

☞ **Optional:** Can be used for plug shut-off on both sides **-BA**, NPT thread **-NPT**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Actual nominal width	Thread male
KDG 18 NW7	KDG 18 NW7 MSV	---	7.2	G 1/8"
KDG 14 NW7	KDG 14 NW7 MSV	KDG 14 NW7 ES	7.2	G 1/4"
KDG 38 NW7	KDG 38 NW7 MSV	KDG 38 NW7 ES	7.2	G 3/8"
KDG 12 NW7*	KDG 12 NW7 MSV	KDG 12 NW7 ES	7.2	G 1/2"

* SW22 with PTFE coated G thread, optionally with SW24 and undetachable gasket: KDG 12 NW7-SW24

☞ **Order example:** KDG 18 NW7 **
- Standard type
- **Designation for the options:** Can be used for plug shut-off on both sides . . . .**-BA**; NPT thread . . . . . .**-NPT**

Coupling sockets with female threads — NW 7.2

☞ **Optional:** Can be used for plug shut-off on both sides **-BA**, NPT thread **-NPT**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Actual nominal width	Thread female
KDGi 18 NW7	---	---	7.2	G 1/8"
KDGi 14 NW7	KDGi 14 NW7 MSV	KDGi 14 NW7 ES	7.2	G 1/4"
KDGi 38 NW7	KDGi 38 NW7 MSV	KDGi 38 NW7 ES	7.2	G 3/8"
KDGi 12 NW7	KDGi 12 NW7 MSV	KDGi 12 NW7 ES	7.2	G 1/2"

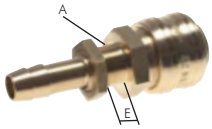
☞ **Order example:** KDGi 18 NW7 **
- Standard type
- **Designation for the options:** Can be used for plug shut-off on both sides . . . .**-BA**; NPT thread . . . . . .**-NPT**

Coupling sockets with hose nozzles — NW 7.2

☞ **Optional:** Can be used for plug shut-off on both sides **-BA**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Actual nominal width	Hose Ø internal
KDS 6 NW7	KDS 6 NW7 MSV	KDS 6 NW7 ES	7.2	6
KDS 8 NW7	KDS 8 NW7 MSV	KDS 8 NW7 ES	7.2	8
KDS 9 NW7	KDS 9 NW7 MSV	KDS 9 NW7 ES	7.2	9
KDS 10 NW7	KDS 10 NW7 MSV	KDS 10 NW7 ES	7.2	10
KDS 13 NW7	KDS 13 NW7 MSV	KDS 13 NW7 ES	7.2	13

☞ **Order example:** KDS 6 NW7 **
- Standard type
- **Designation for the options:** Can be used for plug shut-off on both sides . . . .**-BA**



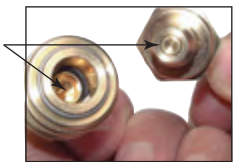
Coupling sockets with hose nozzles & bulkhead threads — NW 7.2

☞ **Optional:** Can be used for plug shut-off on both sides **-BA**

Type **brass**	A	Emax	Hose Ø internal
KDSS 6 NW7	M 12 x 1	10	6
KDSS 8 NW7	M 12 x 1	10	8
KDSS 10 NW7	M 14 x 1	10	10

☞ **Order example:** KDSS 6 NW7 **
- Standard type
- **Designation for the options:** Can be used for plug shut-off on both sides . . . .**-BA**

Special version **BA:** Socket and plug shut-off



PVC fabric hoses on page 208
Hose clamps from page 234
Automatic hose reel from page 204
Blow guns from page 524

** names and designations are partly registered trademarks of the respective manufacturer.

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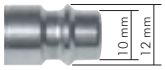


Coupling sockets with angle hose nozzles — NW 7.2

Type brass	Actual nominal width	Hose Ø internal
KDSW 6 NW7	7.2	6
KDSW 9 NW7	7.2	9
KDSW 13 NW7	7.2	13

Coupling sockets with union nuts — NW 7.2

☞ **Optional:** Can be used for plug shut-off on both sides **-BA**

Type brass	Type brass nickel-plated	Type stainless steel (INOX)	Actual nominal width	Hose Ø ext. x internal
KDK 4 NW7	---	---	7.2	6 x 4
KDK 6 NW7	KDK 6 NW7 MSV	KDK 6 NW7 ES	7.2	8 x 6
KDK 8 NW7	KDK 8 NW7 MSV	KDK 8 NW7 ES	7.2	10 x 8
KDK 129 NW7	KDK 129 NW7 MSV	---	7.2	12 x 9

☞ **Order example:** KDK 4 NW7 **

Standard type

Designation for the options:
Can be used for plug shut-off on both sides . . . .**-BA**

Coupling sockets with union nuts & bend protection — NW 7.2

☞ **Optional:** Can be used for plug shut-off on both sides **-BA**

Type brass	Type brass nickel-plated	Actual nominal width	Hose Ø ext. x internal
Rigid			
KDK KS 6 NW7	KDK KS 6 NW7 MSV	7.2	8 x 6
KDK KS 8 NW7	KDK KS 8 NW7 MSV	7.2	10 x 8
KDK KS 129 NW7	---	7.2	12 x 9
Rotatable			
KDK KD 4 NW7	KDK KD 4 NW7 MSV	7.2	6 x 4
KDK KD 6 NW7	KDK KD 6 NW7 MSV	7.2	8 x 6
KDK KD 8 NW7	KDK KD 8 NW7 MSV	7.2	10 x 8

☞ **Order example:** KDK KS 6 NW7 **

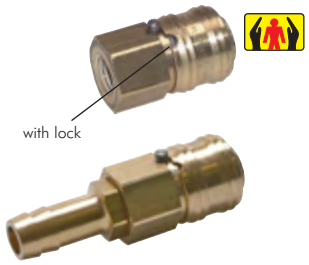
Standard type

Designation for the options:
Can be used for plug shut-off on both sides . . . .**-BA**

Coupling sockets with lock against accidental uncoupling — NW 7.2

Application: By turning the sliding sleeve by 180° and accidental loosening of the coupling is prevented. Only when the recess of the sleeve is in front of the locking pin can the coupling be unlocked.

Type brass	Actual nominal width	Connection
KDGiV 14 NW7	7.2	G 1/4" (FT)
KDSV 13 NW7	7.2	Hose nozzle 13mm



Coupling sockets with male threads, ball locks — NW 7.2

☞ **Optional:** Body made of AISI 316L **-ES4AKV**, can be used for plug shut-off on both sides **-BA**

Type steel hard., nickel-pl./brass nickel-plate	Thread male	Stainless steel* (INOX)	Thread male	Actual nominal width
KDG 14 NW7 ST	R 1/4"	KDG 14 NW7 ES KV	G 1/4"	7.8
KDG 38 NW7 ST	R 3/8"	KDG 38 NW7 ES KV	G 3/8"	7.8
KDG 12 NW7 ST	R 1/2"	KDG 12 NW7 ES KV	G 1/2"	7.8

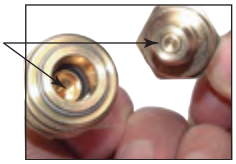
* coupling can be used with plug without shut-off and with shut-off **-BA**.

☞ **Order example:** KDG 14 NW7 ST **

Standard type

Designation for the options:
Body made of AISI 316L . . . . . .**-ES4AKV**
Can be used for plug shut-off on both sides . . . .**-BA**

Special version **BA:**
Socket and plug shut-off



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Couplings NW 7.2 (standard)

Coupling sockets with female threads, ball locks — NW 7.2

☞ **Optional:** Body made of AISI 316L **-ES4AKV**, can be used for plug shut-off on both sides **-BA**

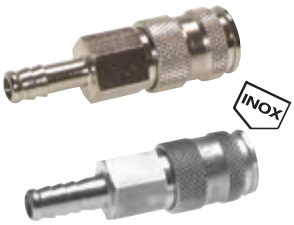
Type **steel hard., nickel-pl./brass nickel-plate**	Type **stainless steel*** INOX	Actual nominal width	Thread female
KDGi 14 NW7 ST	KDGi 14 NW7 ES KV	7.8	G 1/4"
KDGi 38 NW7 ST	KDGi 38 NW7 ES KV	7.8	G 3/8"
KDGi 12 NW7 ST	KDGi 12 NW7 ES KV	7.8	G 1/2"

* coupling can be used with plug without shut-off and with shut-off **-BA**.

☞ **Order example:** KDGi 14 NW7 ST **

Standard type

Designation for the options:
Body made of AISI 316L . . . . . **-ES4AKV**
Can be used for plug shut-off on both sides . . . . **-BA**



Coupling sockets with hose nozzles, ball locks — NW 7.2

☞ **Optional:** Body made of AISI 316L **-ES4AKV**, can be used for plug shut-off on both sides **-BA**

Type **steel hard., nickel-pl./brass nickel-plate**	Type **stainless steel*** INOX	Actual nominal width	Hose Ø internal
KDS 6 NW7 ST	KDS 6 NW7 ES KV	7.8	6
---	KDS 8 NW7 ES KV	7.8	8
KDS 9 NW7 ST	KDS 9 NW7 ES KV	7.8	9
---	KDS 10 NW7 ES KV	7.8	10
KDS 13 NW7 ST	KDS 13 NW7 ES KV	7.8	13

* coupling can be used with plug without shut-off and with shut-off **-BA**.

☞ **Order example:** KDS 6 NW7 ST **

Standard type

Designation for the options:
Body made of AISI 316L . . . . . **-ES4AKV**
Can be used for plug shut-off on both sides . . . . **-BA**

Coupling sockets with male threads, ball locks & plastic sleeves — NW 7.2

Type **steel/brass/plastic**	Actual nominal width	Thread male
KDG 14 NW7 STK	7.8	R 1/4"
KDG 38 NW7 STK	7.8	R 3/8"
KDG 12 NW7 STK	7.8	R 1/2"

Coupling sockets with female threads, ball locks & plastic sleeves — NW 7.2

Type **steel/brass/plastic**	Actual nominal width	Thread female
KDGi 14 NW7 STK	7.8	G 1/4"
KDGi 38 NW7 STK	7.8	G 3/8"
KDGi 12 NW7 STK	7.8	G 1/2"

Coupling sockets with hose nozzles, ball locks & plastic sleeves — NW 7.2

Type **steel/brass/plastic**	Actual nominal width	Hose Ø internal
KDS 6 NW7 STK	7.8	6
KDS 8 NW7 STK	7.8	8
KDS 9 NW7 STK	7.8	9
KDS 10 NW7 STK	7.8	10
KDS 13 NW7 STK	7.8	13

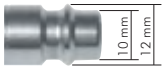
PVC fabric hoses on page 208

Blow guns from page 524

Compressed air tools from page 533

Service units FUTURA series from page 330

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



Air junctions with female threads & coupling sockets NW 7.2

Materials: Body: Brass, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as large vacuum

Type	Input E	Output
2-way		
LWKDG 238 NW7	G 3/8" (FT)	2 x coupling sockets NW 7.2
LWKDG 212 NW7	G 1/2" (FT)	2 x coupling sockets NW 7.2
3-way		
LWKDG 338 NW7	G 3/8" (FT)	3 x coupling sockets NW 7.2
LWKDG 312 NW7	G 1/2" (FT)	3 x coupling sockets NW 7.2

Air junctions with male threads & coupling sockets NW 7.2

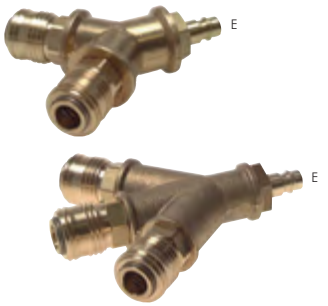
Materials: Body: Brass, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as large vacuum

Type	Input E	Output
2-way		
LWKDGDN 238 NW7	G 3/8" (MT)	2 x coupling sockets NW 7.2
LWKDGDN 212 NW7	G 1/2" (MT)	2 x coupling sockets NW 7.2
3-way		
LWKDGDN 338 NW7	G 3/8" (MT)	3 x coupling sockets NW 7.2
LWKDGDN 312 NW7	G 1/2" (MT)	3 x coupling sockets NW 7.2

Air junctions with coupling plugs & coupling sockets NW 7.2

Materials: Body: Brass, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as large vacuum

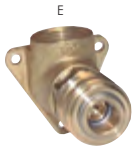
Type	Input E	Output
2-way		
LWKDGKS 238 NW7	Coupling plug NW 7.2	2 x coupling sockets NW 7.2
LWKDGKS 212 NW7	Coupling plug NW 7.2	2 x coupling sockets NW 7.2
3-way		
LWKDGKS 338 NW7	Coupling plug NW 7.2	3 x coupling sockets NW 7.2
LWKDGKS 312 NW7	Coupling plug NW 7.2	3 x coupling sockets NW 7.2



Pipeline sockets with coupling sockets NW 7.2

Materials: Body: Brass, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as large vacuum

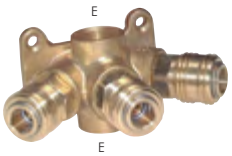
Type **brass**	Input E	Output
WDKDG 38 MS NW7	G 3/8" (FT)	1 x coupling socket NW 7.2
WDKDG 12 MS NW7	G 1/2" (FT)	1 x coupling socket NW 7.2
WDKDG 34 MS NW7	G 3/4" (FT)	1 x coupling socket NW 7.2



Pipeline sockets/air junctions with coupling sockets NW 7.2

Materials: Body: Brass, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as large vacuum

Type **brass**	Input E	Output
WDKDG 12 LW3 MS NW7	2 x G 1/2" FT	3 x coupling sockets NW 7.2



Pipeline sockets/air junctions with coupling sockets NW 7.2

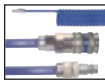
Materials: Body: Plastic, brass, seals: NBR
Temperature range: -10°C to max. +50°C
Operating pressure: 0 - 15 bar as well as low vacuum

Type **with 2 coupling sockets**	Type **with 3 coupling sockets**	Input thread above
WDKDG 12 LW2 NW7	WDKDG 12 LW3 NW7	G 1/2"
WDKDG 34 LW2 NW7	WDKDG 34 LW3 NW7	G 3/4"

with 2 coupling sockets

with 3 coupling sockets

PVC-fabric hoses with coupling & plug on page 208



Coil tubes assembled with couplings from page 200

Ball valves from page 280

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Couplings NW 7.2 (standard)

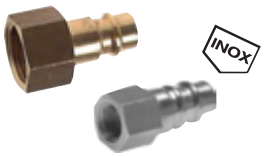
Coupling plugs with male threads — NW 7.2

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**, NPT thread **-NPT**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Type **steel hardened, zinc-plated**	Thread male
KSG 18 NW7	KSG 18 NW7 MSV	KSG 18 NW7 ES	KSG 18 NW7 ST	G 1/8"
KSG 14 NW7	KSG 14 NW7 MSV	KSG 14 NW7 ES	KSG 14 NW7 ST*	G 1/4"
KSG 38 NW7	KSG 38 NW7 MSV	KSG 38 NW7 ES	KSG 38 NW7 ST	G 3/8"
KSG 12 NW7	KSG 12 NW7 MSV	KSG 12 NW7 ES	KSG 12 NW7 ST	G 1/2

* R thread

Coupling plugs with female threads — NW 7.2



☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**, NPT thread **-NPT**

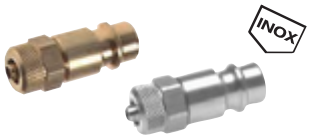
Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Type **steel hardened, zinc-plated**	Thread female
KSGi 18 NW7	KSGi 18 NW7 MSV	KSGi 18 NW7 ES	KSGi 18 NW7 ST	G 1/8"
KSGi 14 NW7	KSGi 14 NW7 MSV	KSGi 14 NW7 ES	KSGi 14 NW7 ST	G 1/4"
KSGi 38 NW7	KSGi 38 NW7 MSV	KSGi 38 NW7 ES	KSGi 38 NW7 ST	G 3/8"
KSGi 12 NW7	KSGi 12 NW7 MSV	KSGi 12 NW7 ES	KSGi 12 NW7 ST	G 1/2"

Coupling plugs with hose nozzles — NW 7.2

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Type **steel hardened, zinc-plated**	Hose Ø internal
KSS 4 NW7	KSS 4 NW7 MSV	KSS 4 NW7 ES	KSS 4 NW7 ST	4
KSS 6 NW7	KSS 6 NW7 MSV	KSS 6 NW7 ES	KSS 6 NW7 ST	6
KSS 8 NW7	KSS 8 NW7 MSV	KSS 8 NW7 ES	KSS 8 NW7 ST	8
KSS 9 NW7	KSS 9 NW7 MSV	KSS 9 NW7 ES	KSS 9 NW7 ST	9
KSS 10 NW7	KSS 10 NW7 MSV	KSS 10 NW7 ES	KSS 10 NW7 ST	10
KSS 13 NW7	KSS 13 NW7 MSV	KSS 13 NW7 ES	KSS 13 NW7 ST	13

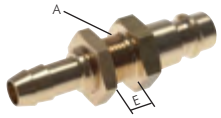
Coupling plugs with union nuts — NW 7.2



☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**

Type **brass**	Type **brass nickel-plated**	Type **stainless steel** INOX	Hose Ø ext. x internal
KSK 4 NW7	KSK 4 NW7 MSV	KSK 4 NW7 ES	6 x 4
KSK 6 NW7	KSK 6 NW7 MSV	KSK 6 NW7 ES	8 x 6
KSK 8 NW7	KSK 8 NW7 MSV	KSK 8 NW7 ES	10 x 8
KSK 129 NW7	---	---	12 x 9

Coupling plugs with hose nozzles & bulkhead threads — NW 7.2



☞ **Optional:** With valve for both-sided shut-off **-BA**

Type **brass**	A	Emax	Hose Ø internal
KSSS 6 NW7	M 12 x 1	10	6
KSSS 8 NW7	M 12 x 1	10	8
KSSS 10 NW7	M 14 x 1	10	10

Coupling plugs with male threads & rotary joints — NW 7.2

Temperature range: 0°C to max. +60°C, **Operating pressure:** Max. 15 bar

Type **steel nickel-plated**	Thread male
DG 14 KSNW7	G 1/4"

360° rotatable & 50° pivotable

TIP *Very good for compressed air tools!*

Coupling plugs with union nuts for PVC hoses — NW 7.2

Temperature range: - 10°C to max. +60°C

Advantages: • Frequent assembly and disassembly possible
• No hose clamp - no risk of injury

Type **brass/aluminium**	Hose Ø internal x ext.
KSCX 4 NW7	4 x 10
KSCX 6 NW7	6 x 12
KSCX 8 NW7	8 x 14
KSCX 9 NW7	9 x 15
KSCX 10 NW7	10 x 16

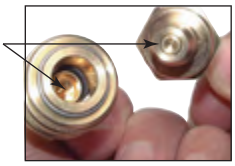
☞ **Order example:** KSG 18 NW7 **

Standard type

Designation for the options:
Body made of stainless steel AISI 316L . . **-ES4A**
With valve for both-sided shut-off . . . . . **-BA**
NPT thread . . . . . **-NPT**

PVC fabric hoses on page 208

Special version BA:
Socket and plug shut-off



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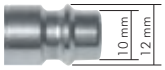


Coupling plugs with union nuts & bend protection — NW 7.2

☞ **Optional:** With valve for both-sided shut-off **-BA**

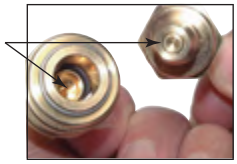
Type **brass**	Type **brass nickel-plated**	Type **steel hardened, zinc-plated**	Hose ∅ ext. x internal
Rigid			
KSK KS 4 NW7	KSK KS 4 NW7 MSV	---	6 x 4
KSK KS 6 NW7	KSK KS 6 NW7 MSV	---	8 x 6
KSK KS 8 NW7	KSK KS 8 NW7 MSV	---	10 x 8
KSK KS 129 NW7	KSK KS 129 NW7 MSV	---	12 x 9
Rotatable			
KSK KD 4 NW7	KSK KD 4 NW7 MSV	KSK KD 4 NW7 ST	6 x 4
KSK KD 6 NW7	KSK KD 6 NW7 MSV	KSK KD 6 NW7 ST	8 x 6
KSK KD 8 NW7	KSK KD 8 NW7 MSV	KSK KD 8 NW7 ST	10 x 8

☞ **Order example:** KSK KS 4 NW7 **

Standard type

Designation for the options:
With valve for both-sided shut-off . . . . . **-BA**

Special version **BA:**
Socket and plug shut-off



Coupling plugs with union nuts (Stream-Line) — NW 7.2

⚠ **Warning:** These coupling plugs are specially designed for CEJN Stream-Line hoses (page 210).

Type **steel hardened, zinc-plated**	Hose ∅ ext. x internal
KSSL 85 NW7 ST	8 x 5
KSSL 106 NW7 ST	10 x 6.5
KSSL 128 NW7 ST	12 x 8
KSSL 139 NW7 ST	13.5 x 9.5
KSSL 1611 NW7 ST	16 x 11

Safety coupling plugs with female threads — NW 7.2

Function: These coupling plugs meet almost all the functions of a safety coupling. The hose line is vented slowly over multiple venting notches, this helps prevent beating of the hose line.
Temperature range: -20°C to max. +60°C
Operating pressure: Max. 16 bar

Type **brass**	Thread female
KSGi 38 NW7 S	G 3/8"

Safety coupling plugs with hose nozzles — NW 7.2

Function: These coupling plugs meet almost all the functions of a safety coupling. The hose line is vented slowly over multiple venting notches, this helps prevent beating of the hose line.
Temperature range: -20°C to max. +60°C
Operating pressure: Max. 16 bar

Type **brass**	Hose ∅ internal
KSS 6 NW7 S	6
KSS 9 NW7 S	9
KSS 13 NW7 S	13

Dust protection caps — NW 7.2

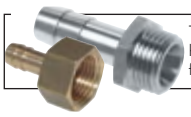
Materials: Soft PVC

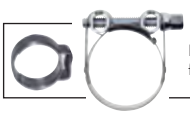
Type **for coupling sockets**	Type **for coupling plugs**
KD STAUB NW7	KS STAUB NW7

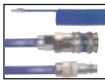
for coupling socket

for coupling plug

application example


Threaded nozzles & hose nozzles from page 64


Hose clamps from page 234


Coil tubes assembled with couplings from page 200

PVC fabric hoses from page 208

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Safety couplings NW 7.2

Compatible with**

Rectus 25, 26, 1600, 1625
TEMA 1600
CEJN 320
JWL 520, 530, 560
Legris 25, 26
Parker PE, PEF
Prevost E ... 07
Festo KD4/KS4
IMI-Norgren 238
Aventics CP1-NW 7/7.8

Safety coupling sockets ISO 4414/EN 983 — NW 7.2

Materials: Body: Brass nickel-plated, steel nickel-plated, seal: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 12 bar (Eco: to max. 8* bar)
Flow: 1800 l/min (Eco: 1100 l/min) (input pressure: 6 bar, max. pressure drop: 0.5 bar)
Function: The coupling occurs as for standard couplings by inserting the push in nipple into the coupling socket. Uncoupling occurs in two steps: By pushing back the unlocking sleeve, the coupling socket closes and ventilates the coupling plug while this is still held in the coupling socket. The plug is then released by pulling the unlocking sleeve. The dangerous recoil effect is thus prevented.

RECOMMENDATION
Use coupling plugs made of hardened steel!

Advantages:
- No risk of injury when releasing the coupling as the plug does not jump out
- Easy to use (release like standard couplings)

* corresponds with 35 bar static operating pressure (without pulsation)

Safety coupling sockets with male threads — NW 7.2

Type standard	Actual nominal width	Thread male	Type Eco (outstanding value!)	Actual nominal width	Thread male
KDGSi 14 NW7	7.8	R 1/4"	KDGSi 14 NW7 E	7.2	G 1/4"
KDGSi 38 NW7	7.8	R 3/8"	KDGSi 38 NW7 E	7.2	G 3/8"
KDGSi 12 NW7	7.8	R 1/2"	KDGSi 12 NW7 E	7.2	G 1/2"

Safety coupling sockets with female threads — NW 7.2

Type standard	Actual nominal width	Type Eco (outstanding value!)	Actual nominal width	Thread female
KDGiSi 14 NW7	7.8	KDGiSi 14 NW7 E	7.2	G 1/4"
KDGiSi 38 NW7	7.8	KDGiSi 38 NW7 E	7.2	G 3/8"
KDGiSi 12 NW7	7.8	KDGiSi 12 NW7 E	7.2	G 1/2"

Safety coupling sockets with hose nozzles — NW 7.2

Type standard	Actual nominal width	Type Eco (outstanding value!)	Actual nominal width	Hose Ø internal
KDSSi 6 NW7	7.8	KDSSi 6 NW7 E	7.2	6
---	---	KDSSi 8 NW7 E	7.2	8
KDSSi 9 NW7	7.8	KDSSi 9 NW7 E	7.2	9
---	---	KDSSi 10 NW7 E	7.2	10
KDSSi 13 NW7	7.8	KDSSi 13 NW7 E	7.2	13

Link-Tech couplings

Many additional products and sizes are available in our **Online Shop!**

PVC fabric hoses on page 208

CEJN PU-house sets with coupling & plug on page 208

Automatic hose reel from page 204

Bolts, nuts and washers from page 615

LOCTITE Liquid seals, gaskets & tapes from page 549

Hose clamps from page 234

Cylinder from page 460

Ball valves from page 280

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Safety coupling sockets ISO 4414/EN 983 eSafe — NW 7.2

Materials: Body: Steel/brass zinc-plated, seal: NBR
Temperature range: -20°C to max. +80°C
Operating pressure: 0 - 16 bar
Flow: 2.250 l/min (input pressure 6 bar, max. pressure drop 0.5 bar)
Function: The coupling occurs as for standard couplings by inserting the push in nipple into the coupling socket. The decoupling occurs by pushing the unlocking sleeve back. Then the coupling socket closes and ventilates the coupling plug when still held in the coupling socket. The coupling socket only releases the plug when the residual pressure on the plug side has fallen below a pressure of approx. 0.3 bar. As such, the dangerous recoil effect will be reliably (depending on the pressure present on the plug side) prevented.

RECOMMENDATION
Use coupling plugs made of hardened steel!

*Compatible with***
Rectus 25, 26, 1600, 1625
TEMA 1600
CEJN 320
JWL 520, 530, 560
Legris 25, 26
Parker PE, PEF
Prevost E ... 07
Festo KD4/KS4
IMI-Norgren 238
Aventics CP1-NW 7/7.8

Safety coupling sockets with male threads — NW 7.2

eSafe

Type	Actual nominal width	Thread male
KDGSiC 14 NW7 ST	7.6	R 1/4"
KDGSiC 38 NW7 ST	7.6	R 3/8"
KDGSiC 12 NW7 ST	7.6	R 1/2"

Safety coupling sockets with female threads — NW 7.2

eSafe

Type	Actual nominal width	Thread female
KDGiSiC 14 NW7 ST	7.6	G 1/4"
KDGiSiC 38 NW7 ST	7.6	G 3/8"
KDGiSiC 12 NW7 ST	7.6	G 1/2"

Safety coupling sockets with hose nozzles — NW 7.2

eSafe

Type	Actual nominal width	Hose Ø internal
KDSSiC 6 NW7 ST	7.6	6
KDSSiC 8 NW7 ST	7.6	8
KDSSiC 9 NW7 ST	7.6	9
KDSSiC 10 NW7 ST	7.6	10
KDSSiC 13 NW7 ST	7.6	13

Safety coupling sockets with union nuts (Stream-Line) — NW 7.2

Warning: These couplings are specially designed for CEJN Stream-Line hoses (page 195).

eSafe

Type	Actual nominal width	Hose Ø ext. x internal
KDSLSiC 85 NW7 ST	7.6	8 x 5
KDSLSiC 106 NW7 ST	7.6	10 x 6.5
KDSLSiC 128 NW7 ST	7.6	12 x 8
KDSLSiC 139 NW7 ST	7.6	13.5 x 9.5
KDSLSiC 1611 NW7 ST	7.6	16 x 11

Multi-Link distribution systems — NW 7.2

Description: Compressed air distribution system assembled completely with individually pivotable standard couplings NW 7.2. An optional thread step (G 1/2") that can be assembled for interlinking several blocks is included in the scope of supply.
Materials: Body: Zinc-plated steel, zinc, seal: NBR
Temperature range: -20°C to max. +100°C (safety coupling max. +80°C), **Operating pressure:** 0 - 16 bar
Media: Compressed air

eSafe

with safety coupling

with female thread

eSafe

type MLiG REP — type MLKDGSi REP

Type	Actual nominal width	Thread female	Description
With safety coupling eSafe as outlet			
MLKDGSi 212	7.6	G 1/2"	2-way distributor
MLKDGSi 312	7.6	G 1/2"	3-way distributor
MLKDGSi 412	7.6	G 1/2"	4-way distributor
MLKDGSi 512	7.6	G 1/2"	5-way distributor
With female thread G1/2" as outlet			
MLiG 212	---	G 1/2"	2-way distributor
MLiG 312	---	G 1/2"	3-way distributor
MLiG 412	---	G 1/2"	4-way distributor
MLiG 512	---	G 1/2"	5-way distributor
Expansion segments			
MLKDGSi REP	7.6	---	Expansion segment with 1x safety coupling
MLiG REP	---	G 1/2"	Expansion segment with G 1/2" FT

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Safety couplings NW 7.2

Safety push button coupling sockets ISO 4414/EN 983 — NW 7.2

*Compatible with***

Rectus 25, 26, 1600, 1625
TEMA 1600
CEJN 320
JWL 520, 530, 560
Legris 25, 26
Parker PE, PEF
Prevost E ... 07
Festo KD4/KS4
IMI-Norgren 238
Aventics CP1-NW 7/7.8

Materials: Type zinc-plated steel: Body: Steel hardened and zinc-plated/aluminium/brass nickel-plated, seal: NBR, type AISI 316L: Body: AISI 316L, spring: AISI 301, balls: AISI 420, seal: FKM, type plastic: Body: Composite material (conductive)/brass nickel-plated, seal: NBR
Temperature range: -20°C to max. +70°C (type plastic: -15 °C to max. +70°C)
Operating pressure: 0 - 12 bar
Flow: 1500 l/min (input pressure 6 bar, 0.6 bar pressure drop)
Function: The coupling occurs as for standard couplings by inserting the push in nipple into the coupling socket. Uncoupling is effected by pressing the uncoupling button. Then the coupling socket closes and ventilates the coupling plug when still held in the coupling socket. This reliably prevents the dangerous recoil effect. Type zinc-plated steel and AISI 316L: Plug is released by pressing a second time, type plastic: Plug is only released after the residual pressure on the plug side has dropped below approx. 0.5 bar.

RECOMMENDATION

Use coupling plugs made of hardened steel!

Advantages:
- Coupling head can be rotated - after being screwed in, the push button can be turned to a position that is optimal from an ergonomic point of view
- Safety function is controlled by the residual pressure on the plug side (only type plastic)
- Antistatic, compliant with ATEX 2 Standard (no potential source of ignition) and can therefore be used in spray painting booths, gas environments or grain transfers (only type plastic)
- Plastic body prevents surfaces from being scratched (only type plastic)
- Manufactured without silicone (only type plastic)

Safety push button coupling sockets with male threads — NW 7.2

Type zinc-plated steel	Type AISI 316L (INOX)	Type plastic	Actual nominal width	Thread male
KDGSiP 14 NW7 ST	KDGSiP 14 NW7 ES	KDGSiP 14 NW7	7.4	G 1/4"
KDGSiP 38 NW7 ST	KDGSiP 38 NW7 ES	KDGSiP 38 NW7	7.4	G 3/8"
KDGSiP 12 NW7 ST	KDGSiP 12 NW7 ES	KDGSiP 12 NW7	7.4	G 1/2"

Safety push button coupling sockets with female threads — NW 7.2

Type zinc-plated steel	Type AISI 316L (INOX)	Type plastic	Actual nominal width	Thread female
KDGiSiP 14 NW7 ST	KDGiSiP 14 NW7 ES	KDGiSiP 14 NW7	7.4	G 1/4"
KDGiSiP 38 NW7 ST	KDGiSiP 38 NW7 ES	KDGiSiP 38 NW7	7.4	G 3/8"
KDGiSiP 12 NW7 ST	KDGiSiP 12 NW7 ES	KDGiSiP 12 NW7	7.4	G 1/2"

Safety push button coupling sockets with hose nozzles — NW 7.2

Type zinc-plated steel	Type AISI 316L (INOX)	Type plastic	Actual nominal width	Hose Ø internal
KDSSiP 6 NW7 ST	KDSSiP 6 NW7 ES	KDSSiP 6 NW7	7.4	6
KDSSiP 8 NW7 ST	---	KDSSiP 8 NW7	7.4	8
KDSSiP 9 NW7 ST	KDSSiP 9 NW7 ES	KDSSiP 9 NW7	7.4	9
KDSSiP 10 NW7 ST	---	KDSSiP 10 NW7	7.4	10
KDSSiP 13 NW7 ST	KDSSiP 13 NW7 ES	KDSSiP 13 NW7	7.4	13

LOCTITE Liquid seals, gaskets & tapes from page 549
PVC fabric hoses on page 208
Hose clamps from page 234
Ball valves from page 280

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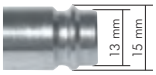


Quick connect couplings — NW 10

Materials: Type brass nickel-plated: Body: Brass nickel-plated, sliding sleeve: Steel nickel-plated, seal: NBR
Type brass/steel: Body: Brass nickel-plated/steel (QPQ), sliding sleeve: Brass nickel-plated, seal: NBR
Type AISI 303: Body and sliding sleeve: AISI 303, seal: FKM
Temperature range: -20°C to max. +100°C, stainless steel: -15°C to max. +200°C
Operating pressure: 0 - 35 bar, as well as low vacuum
Flow: Brass nickel-plated/AISI 303: 2600 l/min (option **-BA**: 2100 l/min), brass/steel: 3600 l/min

*Compatible with***
Rectus 27, 41, 1700, 1727
TEMA 1700
CEJN 410

Only the following combinations of coupling plug and coupling socket are possible:
- Shut-off coupling socket BA with coupling plug without valve
- Shut-off coupling socket BA with shut-off coupling plug BA

Coupling sockets with male threads — NW 10

Optional: Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**

Type brass nickel-plated	Type brass/steel	Thread male	Type AISI 303 (INOX)	Thread male
KDG 14 NW10	---	R 1/4"	---	G 1/4"
KDG 38 NW10	KDG 38 NW10 ST	R 3/8"	KDG 38 NW10 ES	G 3/8"
KDG 12 NW10	KDG 12 NW10 ST	R 1/2"	KDG 12 NW10 ES	G 1/2"
KDG 34 NW10	KDG 34 NW10 ST	R 3/4"	KDG 34 NW10 ES	G 3/4"

brass/steel

Coupling sockets with female threads — NW 10

Optional: Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**

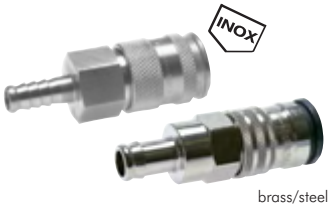
Type brass nickel-plated	Type brass/steel	Type AISI 303 (INOX)	Thread female
KDGi 14 NW10	---	---	G 1/4"
KDGi 38 NW10	KDGi 38 NW10 ST	KDGi 38 NW10 ES	G 3/8"
KDGi 12 NW10	KDGi 12 NW10 ST	KDGi 12 NW10 ES	G 1/2"
KDGi 34 NW10	KDGi 34 NW10 ST	KDGi 34 NW10 ES	G 3/4"

brass/steel

Coupling sockets with hose nozzles — NW 10

Optional: Body made of AISI 316L **-ES4A**, can be used for plug shut-off on both sides **-BA**

Type brass nickel-plated	Type brass/steel	Type AISI 303 (INOX)	Hose Ø internal
KDS 9 NW10	---	KDS 9 NW10 ES	9
---	KDS 10 NW10 ST	---	10
KDS 13 NW10	KDS 13 NW10 ST	KDS 13 NW10 ES	13
KDS 19 NW10	KDS 19 NW10 ST	KDS 19 NW10 ES	19



brass/steel

Order example: KDG 14 NW10 **
Standard type

Designation for the options:
Body made of stainless steel AISI 316L . . . . . **-ES4A**
Can be used for plug shut-off on both sides . . . . **-BA**

CEJN Safety coupling sockets ISO 4414/EN 983 eSafe — NW 10

Materials: Body: Steel/brass zinc-plated , seal: NBR
Temperature range: -20°C to max. +80°C
Operating pressure: 0 - 16 bar
Flow: 4000 l/min (6 bar input pressure, 0.5 bar pressure difference)
Function: The coupling occurs as for standard couplings by inserting the push in nipple into the coupling socket. The decoupling occurs by pushing the unlocking sleeve back. Then the coupling socket closes and ventilates the coupling plug when still held in the coupling socket. The coupling socket only releases the plug when the residual pressure on the plug side has fallen below a pressure of approx. 0.3 bar. As such, the dangerous recoil effect will be reliably (depending on the pressure present on the plug side) prevented.

*Compatible with***
Rectus 27, 41, 1700, 1727
TEMA 1700
CEJN 410

RECOMMENDATION
Use coupling plugs made of hardened steel!

CEJN Safety coupling sockets with male threads — NW 10

Type	Actual nominal width	Thread male
KDGSiC 38 NW10	10.4	R 3/8"
KDGSiC 12 NW10	10.4	R 1/2"
KDGSiC 34 NW10	10.4	R 3/4"

CEJN Safety coupling sockets with female threads — NW 10

Type	Actual nominal width	Thread female
KDGiSiC 38 NW10	10.4	G 3/8"
KDGiSiC 12 NW10	10.4	G 1/2"
KDGiSiC 34 NW10	10.4	G 3/4"

CEJN Safety coupling sockets with hose nozzles — NW 10

Type	Actual nominal width	Hose Ø internal
KDSSiC 10 NW10	10.4	10
KDSSiC 13 NW10	10.4	13
KDSSiC 16 NW10	10.4	16
KDSSiC 19 NW10	10.4	19

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13 mm 15 mm

Coupling plugs with male threads — NW 10

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**

Type **steel hardened* nickel-plated**	Thread male	Type **AISI 303** INOX	Thread male
KSG 14 NW10	R 1/4"	KSG 14 NW10 ES**	G 1/4"
KSG 38 NW10	R 3/8"	KSG 38 NW10 ES	G 3/8"
KSG 12 NW10	R 1/2"	KSG 12 NW10 ES	G 1/2"
KSG 34 NW10	R 3/4"	KSG 34 NW10 ES	G 3/4"

* material for both-sided shut-off version: brass nickel-plated, ** not available in AISI 316L

Coupling plugs with female threads — NW 10

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**

Type **steel hardened* nickel-plated**	Type **AISI 303** INOX	Thread female
KSGi 14 NW10	---	G 1/4"
KSGi 38 NW10	KSGi 38 NW10 ES	G 3/8"
KSGi 12 NW10	KSGi 12 NW10 ES	G 1/2"
KSGi 34 NW10	KSGi 34 NW10 ES	G 3/4"

* material for both-sided shut-off version: brass nickel-plated

Coupling plugs with hose nozzles — NW 10

☞ **Optional:** Body made of AISI 316L **-ES4A**, with valve for both-sided shut-off **-BA**

Type **steel hardened* nickel-plated**	Type **AISI 303** INOX	Hose Ø internal
KSS 6 NW10	---	6
KSS 8 NW10	---	8
KSS 9 NW10	KSS 9 NW10 ES	9
KSS 10 NW10	KSS 10 NW10 ES	10
KSS 13 NW10	KSS 13 NW10 ES	13
KSS 16 NW10	---	16
KSS 19 NW10	KSS 19 NW10 ES	19

* material for both-sided shut-off version: brass nickel-plated

☞ **Order example:** KSG 14 NW10 **

Standard type

Designation for the options:
Body made of stainless steel AISI 316L . . . . . **-ES4A**
With valve for both-sided shut-off . . . . . **-BA**

Quick connect couplings — NW 12

15,5 mm 19,8 mm

Materials: Body: Brass, seal: NBR
Temperature range: -10°C to max. +50°C (water: +5°C to max. +50°C)
Operating pressure: 0 - 16 bar
Flow*: 4000 l/min
* 6 bar input pressure, 1 bar pressure difference

Coupling sockets with male threads — NW 12

Type	Thread male
KDG 12 NW12	G 1/2"
KDG 34 NW12	G 3/4"

Coupling sockets with female threads — NW 12

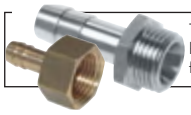
Type	Thread female
KDGi 12 NW12	G 1/2"
KDGi 34 NW12	G 3/4"

Coupling plugs with male threads — NW 12

Type	Thread male
KSG 14 NW12	G 1/4"
KSG 12 NW12	G 1/2"

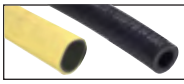
Coupling plugs with hose nozzles — NW 12

Type	Hose Ø internal
KSS 13 NW12	13
KSS 16 NW12	16
KSS 19 NW12	19


Threaded nozzles & hose nozzles from page 64

Hose clamps from page 234

PVC fabric hoses on page 208


Compressed air rubber hoses from page 212

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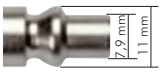
Quick connect couplings — ARO/ORION NW 5.5

Materials: Type standard: Body and sliding sleeve: Brass, seals: NBR, type ball lock: Body: Brass nickel-plated, sliding sleeve: Steel hardened and nickel-plated, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as low vacuum
Flow*: 550 l/min (type ball lock: 1140 l/min)
* 6 bar input pressure, 0.5 bar pressure difference



*Compatible with***
ARO 210
ORION 44510
CEJN 300
Rectus 14, 22
JWL 512, 522, 523, 572

Coupling sockets with male threads — ARO/ORION NW 5.5

Type standard	Thread male	Type ball lock	Thread male
KDG 14 ARO5	G 1/4"	KDG 14 ARO5 ST	R 1/4"
KDG 38 ARO5	G 3/8"	KDG 38 ARO5 ST	R 3/8"
KDG 12 ARO5	G 1/2"	KDG 12 ARO5 ST	R 1/2"

Coupling sockets with female threads — ARO/ORION NW 5.5

Type standard	Type ball lock	Thread female
KDGi 14 ARO5	KDGi 14 ARO5 ST	G 1/4"
KDGi 38 ARO5	KDGi 38 ARO5 ST	G 3/8"
KDGi 12 ARO5	KDGi 12 ARO5 ST	G 1/2"

Coupling sockets with hose nozzles — ARO/ORION NW 5.5

Type standard	Type ball lock	Hose Ø internal
KDS 6 ARO5	KDS 6 ARO5 ST	6
KDS 8 ARO5	KDS 8 ARO5 ST	8
KDS 9 ARO5	KDS 9 ARO5 ST	9
KDS 10 ARO5	KDS 10 ARO5 ST	10
KDS 13 ARO5	KDS 13 ARO5 ST	13

Coupling plugs with male threads — ARO/ORION NW 5.5

Type standard	Thread male	Type steel hardened, nickel-plated	Thread male
KSG 18 ARO5	G 1/8"	---	---
KSG 14 ARO5	G 1/4"	KSG 14 ARO5 ST	R 1/4"
KSG 38 ARO5	G 3/8"	KSG 38 ARO5 ST	R 3/8"
KSG 12 ARO5	G 1/2"	KSG 12 ARO5 ST	R 1/2"

Coupling plugs with female threads — ARO/ORION NW 5.5

Type standard	Type steel hardened, nickel-plated	Thread female
KSGi 18 ARO5	---	G 1/4"
KSGi 14 ARO5	KSGi 14 ARO5 ST	G 1/4"
KSGi 38 ARO5	KSGi 38 ARO5 ST	G 3/8"
KSGi 12 ARO5	KSGi 12 ARO5 ST	G 1/2"

Coupling plugs with hose nozzles — ARO/ORION NW 5.5

Type standard	Type steel hardened, nickel-plated	Hose Ø internal
KSS 6 ARO5	KSS 6 ARO5 ST	6
KSS 8 ARO5	KSS 8 ARO5 ST	8
KSS 9 ARO5	KSS 9 ARO5 ST	9
KSS 10 ARO5	KSS 10 ARO5 ST	10
KSS 13 ARO5	KSS 13 ARO5 ST	13

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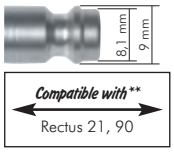
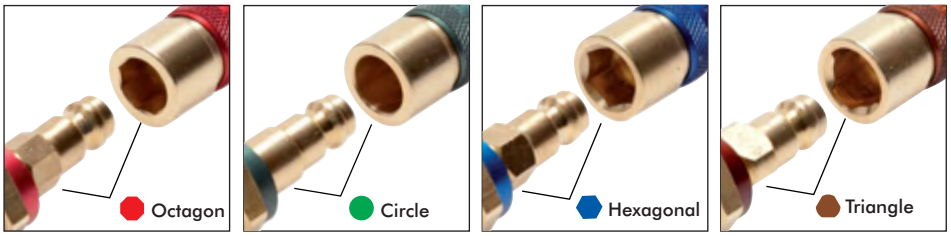
Coded couplings NW 5



Coded quick connect couplings (distinctive) — NW 5

Materials: Body: Brass or brass nickel-plated, sliding sleeve: Aluminium anodised, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as low vacuum
Flow*: 550 l/min
* 6 bar input pressure, 0.5 bar pressure difference



Coded coupling sockets with male threads — NW 5

Type red octagonal SW10	Type green circle 10.5	Type blue hexagonal SW10	Type brown triangle 9.5	Thread male
KDG 18 NW5-ROC	KDG 18 NW5-GRC	KDG 18 NW5-BLC	KDG 18 NW5-BRC	G 1/8"
KDG 14 NW5-ROC	KDG 14 NW5-GRC	KDG 14 NW5-BLC	KDG 14 NW5-BRC	G 1/4"

Coded coupling sockets with female threads — NW 5

Type red octagonal SW10	Type green circle 10.5	Type blue hexagonal SW10	Type brown triangle 9.5	Thread female
Plain brass				
KDGi 18 NW5-ROC	KDGi 18 NW5-GRC	KDGi 18 NW5-BLC	KDGi 18 NW5-BRC	G 1/8"
KDGi 14 NW5-ROC	KDGi 14 NW5-GRC	KDGi 14 NW5-BLC	KDGi 14 NW5-BRC	G 1/4"
Brass nickel-plated				
KDGi 18 NW5 MSV-ROC	KDGi 18 NW5 MSV-GRC	KDGi 18 NW5 MSV-BLC	KDGi 18 NW5 MSV-BRC	G 1/8"

Coded coupling sockets with hose nozzles — NW 5

Type red octagonal SW10	Type green circle 10.5	Type blue hexagonal SW10	Type brown triangle 9.5	Hose Ø internal
KDS 6 NW5-ROC	KDS 6 NW5-GRC	KDS 6 NW5-BLC	KDS 6 NW5-BRC	6
KDS 9 NW5-ROC	KDS 9 NW5-GRC	KDS 9 NW5-BLC	KDS 9 NW5-BRC	9

Coded coupling plugs with male threads — NW 5

Note: Coded coupling plugs also fit in uncoded coupling sockets

Type red octagonal SW10	Type green circle 10.5	Type blue hexagonal SW10	Type brown triangle 9.5	Thread male
Plain brass				
KSG 18 NW5-ROC	KSG 18 NW5-GRC	KSG 18 NW5-BLC	KSG 18 NW5-BRC	G 1/8"
KSG 14 NW5-ROC	KSG 14 NW5-GRC	KSG 14 NW5-BLC	KSG 14 NW5-BRC	G 1/4"
Brass nickel-plated				
KSG 18 NW5 MSV-ROC	KSG 18 NW5 MSV-GRC	KSG 18 NW5 MSV-BLC	KSG 18 NW5 MSV-BRC	G 1/8"

Coded coupling plugs with female threads — NW 5

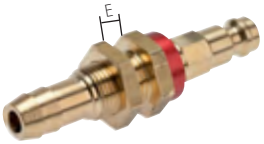
Note: Coded coupling plugs also fit in uncoded coupling sockets

Type red octagonal SW10	Type green circle 10.5	Type blue hexagonal SW10	Type brown - triangle 9.5	Thread female
KSGi 18 NW5-ROC	KSGi 18 NW5-GRC	KSGi 18 NW5-BLC	KSGi 18 NW5-BRC	G 1/8"
KSGi 14 NW5-ROC	KSGi 14 NW5-GRC	KSGi 14 NW5-BLC	KSGi 14 NW5-BRC	G 1/4"

Coded coupling plugs with hose nozzles — NW 5

Note: Coded coupling plugs also fit in uncoded coupling sockets

Type red octagonal SW10	Type green - circle 10.5	Type blue hexagonal SW10	Type brown triangle 9.5	Hose Ø internal
KSS 6 NW5-ROC	KSS 6 NW5-GRC	KSS 6 NW5-BLC	KSS 6 NW5-BRC	6
KSS 9 NW5-ROC	KSS 9 NW5-GRC	KSS 9 NW5-BLC	KSS 9 NW5-BRC	9



Coded coupling plugs with hose nozzles & bulkhead threads — NW 5

Thread: M 12 x 1, **Emax:** 10
Note: Coded coupling plugs also fit in uncoded coupling sockets

Type red octagonal SW10	Type green - circle 10.5	Type blue hexagonal SW10	Type brown triangle 9.5	Hose Ø internal
KSSS 6 NW5-ROC	KSSS 6 NW5-GRC	KSSS 6 NW5-BLC	KSSS 6 NW5-BRC	6
KSSS 9 NW5-ROC	KSSS 9 NW5-GRC	KSSS 9 NW5-BLC	KSSS 9 NW5-BRC	9

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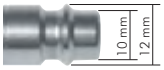
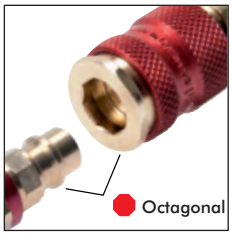
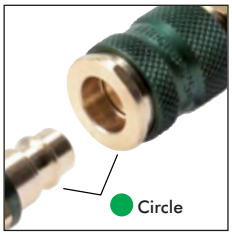


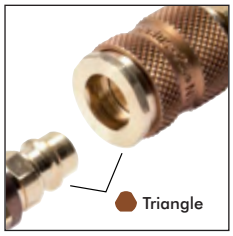
Coded quick connect couplings (distinctive) NW 7.2

Materials: Body: Brass, sliding sleeve: Aluminium anodised, seals: NBR
Temperature range: -20°C to max. +100°C
Operating pressure: 0 - 35 bar as well as low vacuum
Flow*: 1800 l/min
* 6 bar input pressure, 0.5 bar pressure difference

*Compatible with***
Rectus 25, 26, 1600, 1625







Coded coupling sockets with male threads, ball locks NW 7.2

Note: Uncoded coupling plugs also fit in coded coupling sockets

Type **red** octagonal SW12	Type **green** circle 12.5	Type **blue** hexagonal SW12	Type **brown** triangle 12.5	Thread male
KDG 14 NW7 ST-ROC	KDG 14 NW7 ST-GRC	KDG 14 NW7 ST-BLC	KDG 14 NW7 ST-BRC	G 1/4"
KDG 12 NW7 ST-ROC	KDG 12 NW7 ST-GRC	KDG 12 NW7 ST-BLC	KDG 12 NW7 ST-BRC	G 1/2"

Coded coupling sockets with female threads, ball locks NW 7.2

Note: Uncoded coupling plugs also fit in coded coupling sockets

Type **red** octagonal SW12	Type **green** circle 12.5	Type **blue** hexagonal SW12	Type **brown** triangle 12.5	Thread female
KDGi 14 NW7 ST-ROC	KDGi 14 NW7 ST-GRC	KDGi 14 NW7 ST-BLC	KDGi 14 NW7 ST-BRC	G 1/4"

Coded coupling sockets with hose nozzles, ball locks NW 7.2

Note: Uncoded coupling plugs also fit in coded coupling sockets

Type **red** octagonal SW12	Type **green** circle 12.5	Type **blue** hexagonal SW12	Type **brown** triangle 12.5	Hose Ø internal
KDS 9 NW7 ST-ROC	KDS 9 NW7 ST-GRC	KDS 9 NW7 ST-BLC	KDS 9 NW7 ST-BRC	9

Coded coupling plugs with male threads NW 7.2

Type **red** octagonal SW12	Type **green** circle 12.5	Type **blue** hexagonal SW12	Type **brown** triangle 12.5	Thread male
KSG 14 NW7-ROC	KSG 14 NW7-GRC	KSG 14 NW7-BLC	KSG 14 NW7-BRC	G 1/4"

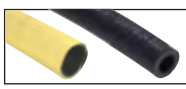
Coded coupling plugs with female threads NW 7.2

Type **red** octagonal SW12	Type **green** circle 12.5	Type **blue** hexagonal SW12	Type **brown** triangle 12.5	Thread female
KSGi 14 NW7-ROC	KSGi 14 NW7-GRC	KSGi 14 NW7-BLC	KSGi 14 NW7-BRC	G 1/4"

Coded coupling plugs with hose nozzles NW 7.2

Type **red** octagonal SW12	Type **green** circle 10.5	Type **blue** hexagonal SW12	Type **brown** triangle 12.5	Hose Ø internal
KSS 9 NW7-ROC	KSS 9 NW7-GRC	KSS 9 NW7-BLC	KSS 9 NW7-BRC	9

Liquid seals, gaskets & tapes from page 549



Compressed air rubber hoses from page 212

Service units FUTURA series from page 330

Cylinder from page 460

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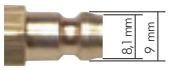
Mould couplings up to +160°C

optional with unlocking protection



Compatible with **
Hasco Z8 .../9 ...

Mould couplings up to +160°C — DN 6 (9 mm spigot)

Materials: Connection, valve, valve body and unlocking sleeve: Brass or AISI 303, spring, circlip and locking balls: Stainless steel, seals: FKM (PTFE coated)
Temperature range: -20°C to max. +160°C
Operating pressure: 0 to 15 bar
Operating range: For liquid media with temperatures up to +160°C, e.g. for cooling circuits on plastic processing machines (+200°C on request)
☞ **Optional:** With unlocking protection (standard by stainless steel couplings) **-S**

To differentiate the brass couplings easier:

Coupling socket:
Sliding sleeves made of plain brass → shut-off
Sliding sleeves made of nickel-plated brass → without a valve

Coupling plug:
Plugs made of plain brass → metric thread
Plugs made of nickel-plated brass → imperial thread

Only the following combinations of coupling plug and coupling socket are possible:

- Coupling socket without valve **OV** with coupling plug without valve
- Coupling socket with valve **BA** with a coupling plug **with** and **without** valve

Coupling sockets, straight hose nozzles — DN 6 (9 mm spigot)

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTS 9 BA	KDTS 9 BA ES	Z80/9	Hose Ø 9 mm	Yes
KDTSP 10 BA	---	Z80PL/9	Push-in hose Ø 9.5 mm (GSP 10 ***)	Yes
KDTS 9 OV	KDTS 9 OV ES	Z801/9	Hose Ø 9 mm	No
KDTSP 10 OV	---	Z801PL/9	Push-in hose Ø 9.5 mm (GSP 10 ***)	No

*** please enter colour

Coupling sockets, 45° hose nozzles — DN 6 (9 mm spigot)

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTS 945 BA	KDTS 945 BA ES	Z80/9/45	Hose Ø 9 mm	Yes
KDTSP 1045 BA	---	Z80PL/9x45	Push-in hose Ø 9.5 mm (GSP 10 ***)	Yes
KDTS 945 OV	KDTS 945 OV ES	Z801/9/45	Hose Ø 9 mm	No
KDTSP 1045 OV	---	Z801PL/9x45	Push-in hose Ø 9.5 mm (GSP 10 ***)	No

*** please enter colour

Coupling sockets, 90° hose nozzles — DN 6 (9 mm spigot)

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTS 990 BA	KDTS 990 BA ES	Z80/9/90	Hose Ø 9 mm	Yes
KDTSP 1090 BA	---	Z80PL/9x90	Push-in hose Ø 9.5 mm (GSP 10 ***)	Yes
KDTS 990 OV	KDTS 990 OV ES	Z801/9/90	Hose Ø 9 mm	No
KDTSP 1090 OV	---	Z801PL/9x90	Push-in hose Ø 9.5 mm (GSP 10 ***)	No

*** please enter colour

Coupling sockets, male threads straight — DN 6 (9 mm spigot)

type G1/4", brass

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTG 9/M14 BA	KDTG 9/M14 BA ES	Z807/9/14x1.5	M 14 x 1.5	Yes
KDTG 9/14 BA	KDTG 9/14 BA ES	Z82/9/1/4	G 1/4"	Yes
KDTG 9/M14 OV	KDTG 9/M14 OV ES	Z808/9/14x1.5	M 14 x 1.5	No
KDTG 9/14 OV	KDTG 9/14 OV ES	Z808/9/1/4 [1)]	G 1/4"	No

[1)] design like Z82/9/R1/4

Coupling sockets, male threads 45° — DN 6 (9 mm spigot)

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTG 9/M1445 BA	KDTG 9/M1445 BA ES	Z807/9/14x1.5/45	M 14 x 1.5	Yes
KDTG 9/1445 BA	KDTG 9/1445 BA ES		G 1/4"	Yes
KDTG 9/M1445 OV	KDTG 9/M1445 OV ES	Z808/9/14x1.5/45	M 14 x 1.5	No
KDTG 9/1445 OV	KDTG 9/1445 OV ES		G 1/4"	No

Coupling sockets, male threads 90° — DN 6 (9 mm spigot)

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTG 9/M1490 BA	KDTG 9/M1490 BA ES	Z807/9/14x1.5/90	M 14 x 1.5	Yes
KDTG 9/1490 BA	KDTG 9/1490 BA ES		G 1/4"	Yes
KDTG 9/M1490 OV	KDTG 9/M1490 OV ES	Z808/9/14x1.5/90	M 14 x 1.5	No
KDTG 9/1490 OV	KDTG 9/1490 OV ES		G 1/4"	No

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optional with unlocking protection

Closing coupling sockets — DN 6 (9 mm spigot)

Type brass	Compatible with Hasco
KDTV 9	Z825/9

Coupling plugs, straight hose nozzles without valves — DN 6 (9 mm spigot)

Type brass	Type AISI 303 (INOX)	Compatible with Hasco	Connection
KSTS 9	KSTS 9 ES	Z83/9	Hose Ø 9 mm
KSTSP 10	---		Push-in hose Ø 9.5 mm (GSP 10 ***)

*** please enter colour

Coupling plugs, male threads straight — DN 6 (9 mm spigot)

Type brass	Type AISI 303 (INOX)	Compatible with Hasco	Connection	With valve
KSTG 9/M14 BA	KSTG 9/M14 BA ES	Z811/9/14x1.5	M 14 x 1.5	Yes
KSTG 9/14 BA*	KSTG 9/14 BA ES	Z811/9/R1/4	G 1/4"	Yes
KSTG 9/M8	KSTG 9/M8 ES	Z81/9/8x0.75	M 8 x 0.75	No
KSTG 9/M10	KSTG 9/M10 ES	Z81/9/10x1	M 10 x 1	No
KSTG 9/M14	KSTG 9/M14 ES	Z81/9/14x1.5	M 14 x 1.5	No
KSTG 9/18*	KSTG 9/18 ES	Z81/9/R1/8	G 1/8"	No
KSTG 9/14*	KSTG 9/14 ES	Z81/9/R1/4	G 1/4"	No

* material: brass nickel-plated

without valve

with valve

Coupling plugs, male threads 90° without valves — DN 6 (9 mm spigot)

Type brass	Compatible with Hasco	Connection
KSTGW 9/M8	Z81/9/8x0.75/90	M 8 x 0.75 (con.)
KSTGW 9/M10	Z81/9/10x1/90	M 10 x 1 (con.)
KSTGW 9/M14		M 14 x 1.5 (con.)
KSTGW 9/18*	Z81/9/R1/8/90	R 1/8"
KSTGW 9/14*		R 1/4"
KSTGW 9/38*		R 3/8"

* material: brass nickel-plated

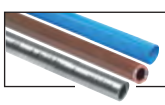
Coupling plugs, pipes without valves — DN 6 (9 mm spigot)

Type brass	Compatible with Hasco	Tube Ø	Length over all
KSTR 9/63-8	Z90/9x63	8	63
KSTR 9/100-8	Z90/9x100	8	100
KSTR 9/63		10	63
KSTR 9/100		10	100
KSTR 9/120	Z90/9x120	10	120
KSTR 9/240	Z90/9x240	10	240
KSTR 9/360	Z90/9x360	10	360

Connecting plugs without valves — DN 6 (9 mm spigot)

Type brass	Type AISI 303 (INOX)	Compatible with Hasco	Connection
KSTST 9/9	KSTST 9/9 ES	Z830/9x9	Plug with 9 mm connections
KSTST 9/13	KSTST 9/13 ES	Z830/9x13	Plug with 9/13 mm connection

Parker
Push-in hoses
on page 228



Aluminium, copper and steel pipes
on page 250

Cutting ring screw connections
from page 77

Flame retardence and insulation hoses
on page 224

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Mould couplings up to +160°C

optional with unlocking protection

Compatible with**
Hasco Z8 .../13 ...

Mould couplings up to +160°C — DN 9 (13 mm spigot)

Materials: Connection, valve, valve body and unlocking sleeve: Brass or AISI 303, spring, circlip and locking balls: Stainless steel, seals: FKM (PTFE coated)
Temperature range: -20°C to max. +160°C
Operating pressure: 0 to 15 bar
Areas of application: For liquid media with temperatures up to +160°C, e.g. for cooling circuits on plastic processing machines (+200°C on request)
☞ **Optional:** With unlocking protection (standard by stainless steel couplings) **-S**
To differentiate the brass couplings easier:

Coupling socket:
Sliding sleeves made of plain brass → shut-off
Sliding sleeves made of nickel-plated brass → without a valve

Coupling plug:
Plugs made of plain brass → metric thread
Plugs made of nickel-plated brass → imperial thread

Only the following combinations of coupling plug and coupling socket are possible:

- Coupling socket without valve **OV** with coupling plug without valve
- Coupling socket with valve **BA** with a coupling plug **with** and **without** valve

Coupling sockets, straight hose nozzles — DN 9 (13 mm spigot)

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTS 13 BA	KDTS 13 BA ES	Z80/13	Hose Ø 13 mm	Yes
KDTSP 12 BA	---	Z80PL/13	Push-in hose Ø 12.7 mm (GSP 12 ***)	Yes
KDTS 13 OV	KDTS 13 OV ES	Z801/13	Hose Ø 13 mm	No
KDTSP 12 OV	---	Z801PL/13	Push-in hose Ø 12.7 mm (GSP 12 ***)	No

Coupling sockets, 45° hose nozzles — DN 9 (13 mm spigot)

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTS 1345 BA	KDTS 1345 BA ES	Z80/13/45	Hose Ø 13 mm	Yes
KDTSP 1245 BA	---	Z80PL/13x45	Push-in hose Ø 12.7 mm (GSP 12 ***)	Yes
KDTS 1345 OV	KDTS 1345 OV ES	Z801/13/45	Hose Ø 13 mm	No
KDTSP 1245 OV	---	Z801PL/13x45	Push-in hose Ø 12.7 mm (GSP 12 ***)	No

*** please enter colour

Coupling sockets, 90° hose nozzles — DN 9 (13 mm spigot)

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTS 1390 BA	KDTS 1390 BA ES	Z80/13/90	Hose Ø 13 mm	Yes
KDTSP 1290 BA	---	Z80PL/13x90	Push-in hose Ø 12.7 mm (GSP 12 ***)	Yes
KDTS 1390 OV	KDTS 1390 OV ES	Z801/13/90	Hose Ø 13 mm	No
KDTSP 1290 OV	---	Z801PL/13x90	Push-in hose Ø 12.7 mm (GSP 12 ***)	No

*** please enter colour

tbrass G 3/8"

Coupling sockets, male threads straight — DN 9 (13 mm spigot)

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTG 13/M16 BA	KDTG 13/M16 BA ES	Z807/13/16x1.5	M 16 x 1.5	Yes
KDTG 13/38 BA	KDTG 13/38 BA ES	Z82/13/R3/8	G 3/8"	Yes
KDTG 13/12 BA	---		G 1/2"	Yes
KDTG 13/M16 OV	KDTG 13/M16 OV ES	Z808/13/16x1.5	M 16 x 1.5	No
KDTG 13/38 OV	KDTG 13/38 OV ES	Z808/13/R3/8[1]	G 3/8"	No
KDTG 13/12 OV	---		G 1/2"	No

[1] design like Z82/13/R3/8

Coupling sockets, male threads 45° — DN 9 (13 mm spigot)

Type brass	Type AISI 303 with unlocking protection (INOX)	Compatible with Hasco	Connection	With valve
KDTG 13/M1645 BA	KDTG 13/M1645 BA ES	Z807/13/16x1.5/45	M 16 x 1.5	Yes
KDTG 13/3845 BA	KDTG 13/3845 BA ES		G 3/8"	Yes
KDTG 13/M1645 OV	KDTG 13/M1645 OV ES	Z808/13/16x1.5/45	M 16 x 1.5	No
KDTG 13/3845 OV	KDTG 13/3845 OV ES		G 3/8"	No

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optional with unlocking protection

Mould couplings up to +160°C

Coupling sockets, male threads 90° — DN 9 (13 mm spigot)

Type brass	Type AISI 303 (INOX) with unlocking protection	Compatible with Hasco	Connection	With valve
KDTG 13/M1690 BA	KDTG 13/M1690 BA ES	Z807/13/16x1.5/90	M 16 x 1.5	Yes
KDTG 13/3890 BA	KDTG 13/3890 BA ES		G 3/8"	Yes
KDTG 13/M1690 OV	KDTG 13/M1690 OV ES	Z808/13/16x1.5/90	M 16 x 1.5	No
KDTG 13/3890 OV	KDTG 13/3890 OV ES		G 3/8"	No

Closing coupling sockets — DN 9 (13 mm spigot)

Type brass	Compatible with Hasco
KDTV 13	Z825/13

Coupling plugs, straight hose nozzles without valves — DN 9 (13 mm spigot)

Type brass	Type AISI 303 (INOX)	Compatible with Hasco	Connection
KSTS 13	KSTS 13 ES	Z83/13	Hose Ø 13 mm
KSTSP 12	---		Push-in hose Ø 12.7 mm (GSP 12 ***)

*** please enter colour

Coupling plugs, male threads straight — DN 9 (13 mm spigot)

Type brass	Type AISI 303 (INOX)	Compatible with Hasco	Connection	With valve
KSTG 13/M14 BA	---	Z811/13/14x1.5	M 14 x 1.5	Yes
KSTG 13/M16 BA	KSTG 13/M16 BA ES	Z811/13/16x1.5	M 16 x 1.5	Yes
KSTG 13/14 BA*	---	Z811/13/R1/4	G 1/4"	Yes
KSTG 13/38 BA*	KSTG 13/38 BA ES	Z811/13/R3/8	G 3/8"	Yes
KSTG 13/12 BA*	---		G 1/2"	Yes
KSTG 13/M14	KSTG 13/M14 ES	Z81/13/14x1.5	M 14 x 1.5	No
KSTG 13/M16	KSTG 13/M16 ES	Z81/13/16x1.5	M 16 x 1.5	No
KSTG 13/18*	---	Z81/13/R1/8	G 1/8"	No
KSTG 13/14*	KSTG 13/14 ES	Z81/13/R1/4	G 1/4"	No
KSTG 13/38*	KSTG 13/38 ES	Z81/13/R3/8	G 3/8"	No
KSTG 13/12*	KSTG 13/12 ES	Z81/13/R1/2	G 1/2"	No

* material: brass nickel-plated

without valve

with valve

Coupling plugs, male threads 90° without valves — DN 9 (13 mm spigot)

Type brass	Compatible with Hasco	Connection
KSTGW 13/M14	Z81/13/M14x1.5/90	M 14 x 1.5 (con.)
KSTGW 13/14*	Z81/9/R1/4/90	R 1/4"
KSTGW 13/38*	Z81/9/R3/8/90	R 3/8"

* material: brass nickel-plated

Coupling plugs, pipes without valves — DN 9 (13 mm spigot)

Type brass	Compatible with Hasco	Tube Ø	Length over all
KSTR 13/150	Z90/13x150	14	150
KSTR 13/300	Z90/13x300	14	300

Connecting plugs without valves — DN 9 (13 mm spigot)

Type brass	Type AISI 303 (INOX)	Compatible with Hasco	Connection
KSTST 9/13	KSTST 9/13 ES	Z830/9x13	Plug with 9/13 mm connection
KSTST 13/13	KSTST 13/13 ES	Z830/13x13	Plug with 13 mm connections

HYDAC
Pipe clamps
from page 244

Ready-made washing and hydraulic hoses on page 231

LOCTITE
Liquid seals, gaskets & tapes from page 549

Hose clamps
from page 234

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Mould couplings up to +160°C

optional with unlocking protection

Female threaded pipes for applications with temperature control — PN 15

Type brass	Compatible with HASCO	Thread	Tube Ø external	Tube Ø internal	Length
ASR M14-120	Z906/9x120/14x1.5	M 14 x 1.5	10	6	120
ASR M16-150	Z906/13x150/16x1.5	M 16 x 1.5	14	9	150

Screw-on hose nozzles with metric threads (fixed) — PN 16

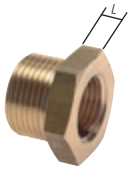
Type brass	Thread	Hose Ø internal	SW
AST M89 MS	M 8	9	12
AST M149 MS	M 14 x 1.5	9	17
AST M1613 MS	M 16 x 1.5	13	22
AST M2419 MS	M 24 x 1.5	19	30

Threaded nozzles with metric threads — PN 16

Type brass	Thread	Hose Ø internal	SW
GT M86 MS	M 8 x 0.75	6	11
GT M89 MS	M 8 x 0.75	9	11
GT M109 MS	M 10 x 1	9	11
GT M1213 MS	M 12 x 1.5	13	15
GT M1413 MS	M 14 x 1.5	13	15
GT M1613 MS	M 16 x 1.5	13	17
GT M2419 MS	M 24 x 1.5	19	27

Angle threaded nozzles with imperial and metric threads — PN 16

Type brass	Thread	Hose Ø internal
Imperial threads		
GTW 189 MS	R 1/8"	9
GTW 1413 MS	R 1/4"	13
GTW 1219 MS	R 1/2"	19
Metric threads		
GTW M89 MS	M 8 x 0.75 (con.)	9
GTW M109 MS	M 10 x 1 (con.)	9
GTW M1413 MS	M 14 x 1.5 (con.)	13
GTW M2419 MS	M 24 x 1.5 (con.)	19



Reducing nipples with metric threads — PN 16

Type brass	Thread male	Thread female	SW	L
RN M14-M10 MS	M 14 x 1.5	M 10 x 1	17	4
RN M18-M14 MS	M 18 x 1.5	M 14 x 1.5	22	5
RN M24-M16 MS	M 24 x 1.5	M 16 x 1.5	27	8

Double nipples with metric threads/G threads and metric threads — PN 16

Type brass	Thread	Thread	SW
Imperial/metric threads			
DN 14-M14 MS	G 1/4"	M 14 x 1.5	17
DN 14-M16 MS	G 1/4"	M 16 x 1.5	19
DN 38-M14 MS	G 3/8"	M 14 x 1.5	19
DN 38-M16 MS	G 3/8"	M 16 x 1.5	19
DN 12-M24 MS	G 1/2"	M 24 x 1.5	27
Metric/metric threads			
DN M14-M14 MS	M 14 x 1.5	M 14 x 1.5	17
DN M16-M14 MS	M 16 x 1.5	M 14 x 1.5	17
DN M16-M16 MS	M 16 x 1.5	M 16 x 1.5	19
DN M24-M24 MS	M 24 x 1.5	M 24 x 1.5	27

Reducing sleeves with imperial and metric threads — PN 16

Type brass	Thread G 1	Thread G 2	Length	SW
MU 12-M14 MS	G 1/2"	M 14 x 1.5	24	27
MU 12-M16 MS	G 1/2"	M 16 x 1.5	24	27
MU 34-M14 MS	G 3/4"	M 14 x 1.5	28	32
MU 34-M16 MS	G 3/4"	M 16 x 1.5	28	32

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Tanker truck couplings (V part)

Dimensions acc. to EN 14420-6 (DIN 28450)

Materials: Thread sealing: PTFE (brass: polyurethane)

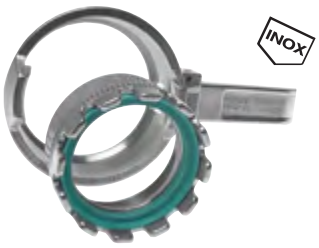
Type AISI 316 (INOX)	Type brass	DN	Thread female
VK 50 ES	VK 50 MS	50	G 2"
VK 80 ES	VK 80 MS	80	G 3"
VK 100 ES	VK 100 MS	100	G 4"

Tanker truck couplings (M part)

Dimensions acc. to EN 14420-6 (DIN 28450)

Materials: Soft seal: Hypalon, thread sealing: PTFE (brass: polyurethane)
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 16 bar
Supply volume: Clamping lever, crown piece, soft and thread seals

Type AISI 316 (INOX)	Type brass	DN	Thread female
MK 50 ES	MK 50 MS	50	G 2"
MK 80 ES	MK 80 MS	80	G 3"
MK 100 ES	MK 100 MS	100	G 4"



Clamping levers for tanker truck M couplings

Dimensions acc. to EN 14420-6 (DIN 28450)

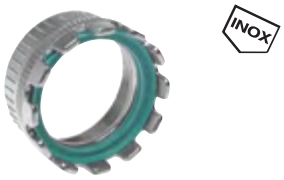
Type AISI 316 (INOX)	Type brass	Suitable for
MKSH 50 ES	MKSH 50 MS	MK 50
MKSH 80 ES	MKSH 80 MS	MK 80

Crown pieces for tanker truck M couplings

Dimensions acc. to EN 14420-6 (DIN 28450)

Materials: Soft seal: Hypalon, thread sealing: PTFE (brass: polyurethane)

Type AISI 316 (INOX)	Type brass	Suitable for
MKKS 50 ES	MKKS 50 MS	MK 50
MKKS 80 ES	MKKS 80 MS	MK 80



End caps for tanker truck V couplings

Dimensions acc. to EN 14420-6 (DIN 28450)

Materials: Soft seal: Hypalon (type aluminium: NBR), chain: AISI 316 (type aluminium: AISI 304)

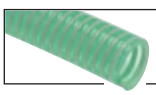
Type AISI 316 (INOX)	Type brass	Type aluminium (outstanding value!)	Suitable for
MB 50 ES	MB 50 MS	MB 50 A	VK 50
MB 80 ES	MB 80 MS	MB 80 A	VK 80
MB 100 ES	MB 100 MS	MB 100 A	VK 100

Closing plugs for tanker truck M couplings

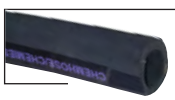
Dimensions acc. to EN 14420-6 (DIN 28450)

Materials: Chain: AISI 316 (type aluminium: AISI 304)

Type AISI 316 (INOX)	Type brass	Type aluminium (outstanding value!)	Suitable for
VB 50 ES	VB 50 MS	VB 50 A	MK 50
VB 80 ES	VB 80 MS	VB 80 A	MK 80
VB 100 ES	VB 100 MS	VB 100 A	MK 100

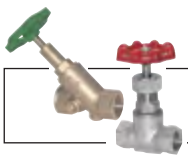


Suction-pressure hoses from page 223



Chemical hoses from page 218

Power clamps "Band-It" Extremely high clamping strength, from page 240

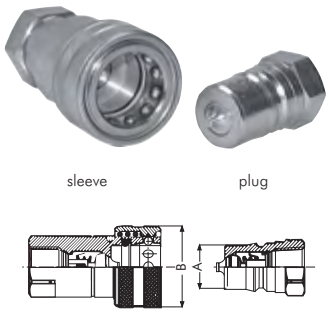


Shut-off valves on page 295

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. ...essure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hydraulic couplings

Hydraulic couplings with female threads made of steel — ISO 7241-1 B

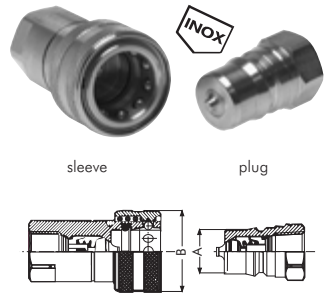


Materials: Body: Zinc-plated steel, seal: O-ring: NBR, support ring: PTFE
Temperature range: -25°C to +120°C
☞ **Optional:** NPT thread **-NPT,** plug with pressure eliminator (can be coupled, even if dynamic pressure has built up on the plug side in the uncoupled state, due to e.g. solar irradiation) **-DE**

Type **sleeve**	Type **plug**	Thread female	PN	Ø A	Ø B	Nomin. width	Type **replacement seals***
VAM 18 ST	VAS 18 ST	G 1/8"	400 bar	10.8	23	5	VAM 18 Di
VAM 14 ST	VAS 14 ST	G 1/4"	350 bar	14.2	28	6	VAM 14 Di
VAM 38 ST	VAS 38 ST	G 3/8"	325 bar	19.0	35	10	VAM 38 Di
VAM 12 ST	VAS 12 ST	G 1/2"	250 bar	23.5	44	12	VAM 12 Di
VAM 34 ST	VAS 34 ST	G 3/4"	250 bar	31.5	52	20	VAM 34 Di
VAM 10 ST	VAS 10 ST	G 1"	225 bar	37.7	60	25	VAM 10 Di
VAM 114 ST	VAS 114 ST	G 1 1/4"	120 bar	44.4	75	40	VAM114112 Di
VAM 112 ST	VAS 112 ST	G 1 1/2"	120 bar	44.4	75	40	VAM114112 Di
VAM 20 ST	VAS 20 ST	G 2"	100 bar	63.1	105	50	VAM 20 Di

* O-ring: FKM, support ring: PTFE (NW 40 and 50 only have one O-ring)

Hydraulic couplings with female threads made of stainless steel — ISO 7241-1 B

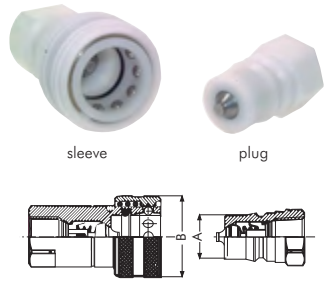


Materials: Body: AISI 316L, spring: AISI 316L, seal: O-ring: FKM, support ring: PTFE
Temperature range: -25°C to +200°C
☞ **Optional:** NPT thread **-NPT**

Type **sleeve** INOX	Type **plug** INOX	Thread female	PN	Ø A	Ø B	Nomin. width	Type **replacement seals***
VAM 18 ES	VAS 18 ES	G 1/8"	300 bar	10.8	23	5	VAM 18 ES Di
VAM 14 ES	VAS 14 ES	G 1/4"	300 bar	14.2	28	6	VAM 14 ES Di
VAM 38 ES	VAS 38 ES	G 3/8"	250 bar	19.0	35	10	VAM 38 ES Di
VAM 12 ES	VAS 12 ES	G 1/2"	250 bar	23.5	44	12	VAM 12 ES Di
VAM 34 ES	VAS 34 ES	G 3/4"	250 bar	31.5	52	20	VAM 34 ES Di
VAM 10 ES	VAS 10 ES	G 1"	200 bar	37.7	60	25	VAM 10 ES Di
VAM 114 ES	VAS 114 ES	G 1 1/4"	110 bar	44.4	75	40	VAM114112 ES Di
VAM 112 ES	VAS 112 ES	G 1 1/2"	110 bar	44.4	75	40	VAM114112 ES Di
VAM 20 ES	VAS 20 ES	G 2"	90 bar	63.1	105	50	VAM 20 ES Di

* O-ring: FKM, support ring: PTFE (NW 40 and 50 only have one O-ring)

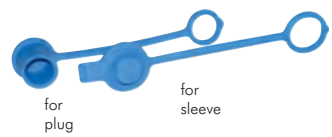
Couplings with female threads made of POM — ISO 7241-1 B



Materials: Body: POM, valves: AISI 303, spring: AISI 301, balls: AISI 316, seal: NBR
Temperature range: -20°C to max. +90°C
Operating pressure: See table
Fields of application: Water, compressed air, mild chemicals, ink, vacuums, food processing

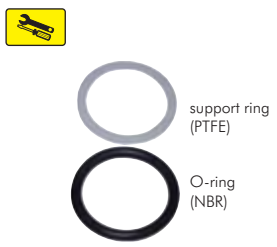
Type **sleeve**	Type **plug**	Thread female	Operat. pressure to 50°C	At 90°C	Ø A	Ø B	Nominal width
VAM 18 K	VAS 18 K	G 1/8"	15 bar	7.5 bar	10.8	25	4.3
VAM 14 K	VAS 14 K	G 1/4"	15 bar	7.5 bar	14.2	28	6.0
VAM 38 K	VAS 38 K	G 3/8"	15 bar	7.5 bar	19.0	35	7.5
VAM 12 K	VAS 12 K	G 1/2"	10 bar	5 bar	23.5	44	11.0
VAM 34 K	VAS 34 K	G 3/4"	10 bar	5 bar	31.5	52	13.0
VAM 10 K	VAS 10 K	G 1"	10 bar	5 bar	37.7	60	20.0

Dust protection for push-in couplings — ISO 7241-1 B



Type **for sleeve**	Type **for plug**	For sleeve/plug with female threads
490622 B	490632 B	G 1/4"
490822 B	490832 B	G 3/8"
491022 B	491032 B	G 1/2"
491322 B	491332 B	G 3/4"
491622 B	491632 B	G 1"
492022 B	492032 B	G 1 1/4"
492522 B	492532 B	G 1 1/2"
493222 B	493232 B	G 2"

Replacement seals for push-in couplings — ISO 7241-1 A



The sealing sets include O-ring and support ring.

Type **sealing set**	For size
DICHTSATZ SVK1	1*
DICHTSATZ SVK2A	2A*
DICHTSATZ SVK2T	2T
DICHTSATZ SVK3	3
DICHTSATZ SVK4	4
DICHTSATZ SVK6	6

Replacement seals for ISO 7241-1 A on page 172

* not standardised following ISO 7241-1 A

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Flat-face couplings — ISO 16028

Materials: Zinc-plated steel, seal: NBR, support ring: PTFE
Temperature range: -25°C to max. +125°C

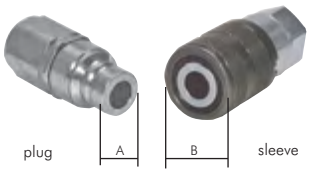
Advantages:
- No dirt can get in as the coupling can simply be wiped clean on the smooth "flat-face" surface.
- Axial forces can be absorbed well due to the coupling's design. Especially suited for use on hydraulic hoses.

The clean hydraulic coupling!

Flat-face couplings with female threads — ISO 16028

Type sleeve	Type plug	Thread female	A	B	PN	DN	Size
FFM 18*	FFS 18*	G 1/8"	13.5	25	500 bar	4	0
FFM 14	FFS 14	G 1/4"	16.2	28	350 bar	6	1
FFM 38	FFS 38	G 3/8"	19.7	32	350 bar	10	2
FFM 12/2	FFS 12/2	G 1/2"	19.7	32	350 bar	10	2
FFM 12	FFS 12	G 1/2"	24.5	38	350 bar	12	3
FFM 34/3	FFS 34/3	G 3/4"	24.5	38	350 bar	12	3
FFM 34	FFS 34	G 3/4"	30.0	48	350 bar	16	4
FFM 10/4	FFS 10/4	G 1"	30.0	48	350 bar	16	4
FFM 114	FFS 114	G 1 1/4"	36.0	55	350 bar	18	5
FFM 20*	FFS 20*	G 2"	72.9	103	250 bar	40	8

* not ISO



EJN Flat-face couplings with female threads — exceeds ISO 16028

Type sleeve	Type plug	Thread female	A	B	PN	DN	Size
FFM 14-C	FFS 14-C	G 1/4"	16.2	28	500 bar	6	1
FFM 38-C	FFS 38-C	G 3/8"	19.7	32	400 bar	10	2
FFM 12/2-C	FFS 12/2-C	G 1/2"	19.7	32	400 bar	10	2
FFM 12-C	FFS 12-C	G 1/2"	24.5	38	400 bar	12	3
FFM 34/3-C	FFS 34/3-C	G 3/4"	24.5	38	400 bar	12	3
FFM 34-C	FFS 34-C	G 3/4"	30.0	48	400 bar	19	4
FFM 10/4-C	FFS 10/4-C	G 1"	30.0	48	400 bar	19	4

The clean hydraulic coupling!

EJN Flat-face coupling plugs with pressure eliminators — exceeds ISO 16028

Materials: Zinc-plated steel, seal: NBR
Temperature range: -30°C to max. +100°C

Advantages:
- Next to the advantages of flat-face couplings, the flat-face plug with pressure eliminator allows coupling on the plug side under static pressure (e.g. with decoupled components where a pressure has built up, e.g. due to sun irradiation).
- Fully compatible to the flat-face standard couplings

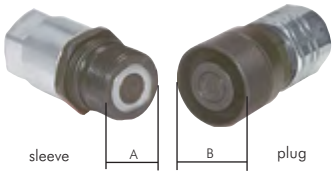
TIP Can be coupled under pressure!

Type	Thread female	A	PN	DN	Size
FFS 14 DE	G 1/4"	16.2	500 bar	6	1
FFS 38 DE	G 3/8"	19.7	400 bar	10	2
FFS 12/2 DE	G 1/2"	19.7	400 bar	10	2
FFS 12 DE	G 1/2"	24.5	400 bar	12	3
FFS 34/3 DE	G 3/4"	24.5	400 bar	12	3
FFS 34 DE	G 3/4"	30.0	400 bar	19	4
FFS 10/4 DE	G 1"	30.0	400 bar	19	4

Flat-face screw couplings with female threads, can be coupled under pressure

TIP Can be coupled under pressure!

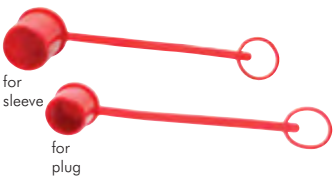
Type sleeve	Type plug	Thread female	A	B	PN	DN	Size
FFMS 38	FFSS 38	G 3/8"	M 30 x 2	34	350 bar	8.7	2
FFMS 12/2	FFSS 12/2	G 1/2"	M 30 x 2	36	350 bar	8.7	2
FFMS 12	FFSS12	G 1/2"	M 36 x 2	42	350 bar	12.8	3
FFMS 34/3	FFSS 34/3	G 3/4"	M 36 x 2	42	350 bar	12.8	3
FFMS 34	FFSS 34	G 3/4"	M 43 x 2	48	350 bar	15.0	4
FFMS 10/4	FFSS 10/4	G 1"	M 43 x 2	48	350 bar	15.0	4



Dust protection for flat-face couplings — ISO 16028

Type for sleeve	For sleeves Ø	Type for plug	For plug Ø	Size
790622	28	790632	16.2	1
791022	32	791032	19.7	2
791222	38	791232	24.5	3
791622	48	791632	30.0	4
791822	55	791832	36.0	5
794022*	103	794032*	72.9	8

* aluminium version with chain



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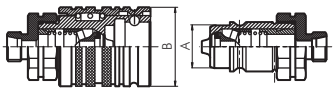
Hydraulic couplings

Hydraulic push-in couplings — ISO 7241-1 A

Materials: Zinc-plated steel, seal: NBR
Temperature range: -20°C to max. +100°C

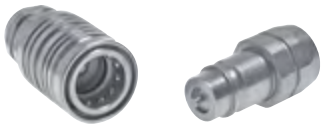
Advantages:
- Streamlining design of the flow rate range
- Push Pull design: Coupling can be decoupled by pushing or pulling the sleeve



Size	1*	2A*	2T	3	4	6
A	26	31	31.0	38.0	46	54.0
B	12	16	17.3	20.6	29	34.5

* not standardised following ISO 7241-1 A

Push-in couplings with female threads — ISO 7241-1 A


sleeve plug

Type sleeve	Type plug	Thread female	PN	Size
410627.1	410637.1	G 1/4"	250 bar	1*
---	410632.2 T	M 16 x 1.5	250 bar	2T
410822.2 T	410832.2 T	M 18 x 1.5	250 bar	2T
410827.2 A	410837.2 A	G 3/8"	250 bar	2A*
410827.2 T	410837.2 T	G 3/8"	250 bar	2T
410827.3	410837.3	G 3/8"	250 bar	3
411022.3	411032.3	M 22 x 1.5	250 bar	3
411027.3	411037.3	G 1/2"	250 bar	3
411327.4	411337.4	G 3/4"	225 bar	4
411622.6	411632.6	M 30 x 1.5	225 bar	6
411627.6	411637.6	G 1"	225 bar	6

* not standardised following ISO 7241-1 A

Push-in couplings with pipe connections ISO 8434-1 (DIN 2353) — ISO 7241-1 A

sleeve plug

Seal sets on page 170

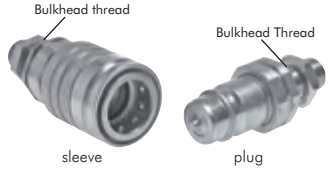
Nuts and cutting rings from page 98

Seamless precision hydraulic pipes from page 252

Type sleeve	Type plug	Tube connection	PN	Size
Light model series				
430622.1	430632.1	8 L	250 bar	1*
430622.2 T	430632.2 T	8 L	250 bar	2T
430822.2 T	430832.2 T	10 L	250 bar	2T
431022.2 T	431032.2 T	12 L	250 bar	2T
430622.3	430632.3	8 L	250 bar	3
430822.3	430832.3	10 L	250 bar	3
431022.3	431032.3	12 L	250 bar	3
431322.3	431332.3	15 L	250 bar	3
431622.3	431632.3	18 L	250 bar	3
431022.4	431032.4	12 L	225 bar	4
431622.6	431632.6	18 L	225 bar	6
432022.6	432032.6	22 L	160 bar	6
432522.6	432532.6	28 L	160 bar	6
Heavy model series				
440622.2 T	440632.2 T	10 S	250 bar	2T
440822.2 T	440832.2 T	12 S	250 bar	2T
440622.3	440632.3	10 S	250 bar	3
440822.3	440832.3	12 S	250 bar	3
441022.3	441032.3	14 S	250 bar	3
441322.3	441332.3	16 S	250 bar	3
441622.3	441632.3	20 S	250 bar	3
441622.6	441632.6	20 S	225 bar	6
442022.6	442032.6	25 S	225 bar	6
442522.6	442532.6	30 S	225 bar	6

* not standardised following ISO 7241-1 A

Bulkhead push-in couplings with pipe connections ISO 8434-1 (DIN 2353) ISO 7241-1 A



sleeve plug

Type sleeve	Type plug	Tube connection	PN	Size
Light model series				
460822.3	460832.3	10 L	250 bar	3
461022.3	461032.3	12 L	250 bar	3
461322.3	461332.3	15 L	250 bar	3
461622.3	461632.3	18 L	250 bar	3
461622.6	461632.6	18 L	225 bar	6
462022.6	462032.6	22 L	160 bar	6
462522.6	462532.6	28 L	160 bar	6
Heavy model series				
470822.3	470832.3	12 S	250 bar	3
471022.3	471032.3	14 S	250 bar	3
471322.3	471332.3	16 S	250 bar	3
471622.3	471632.3	20 S	250 bar	3
471622.6	471632.6	20 S	225 bar	6
472022.6	472032.6	25 S	225 bar	6
472522.6	472532.6	30 S	225 bar	6

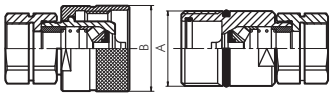
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hydraulic quick connect screw couplings ISO 14541

Materials: Zinc-plated steel, seal: NBR
Temperature range: -20°C to max. +100°C

Size	1	2	3	4	6	8*
Dimension A	M 24 x 2	M 28 x 2	M 36 x 2	M 42 x 2	M 48 x 3	M 70 x 3
Dimension B	35	34	42	48	55	85

* not standardised following ISO 14541



Advantages:
- Quick connect screw couplings shut off on the plug and the sleeve when uncoupled. The connection of the coupling sleeve and coupling plug is carried out via a screw connection with hand nut. During the coupling procedure, the valve chamber is sealed before the valves open. When uncoupling, the valves are already closed, before the connection can be pulled out of the seal. Can be coupled up to max. 50 bar under pressure.
- Secure against pressure thrusts and pressure vibrations
- Streamlining design of the flow rate range

Quick connect screw couplings with female threads made of stainless steel ISO 14541

Type sleeve	Type plug	Thread female	PN	Size
510627.1	510637.1	G 1/4"	450 bar	1
510822.2	510832.2	M 16 x 1.5	450 bar	2
510827.2	510837.2	G 3/8"	450 bar	2
510822.3	510832.3	M 18 x 1.5	400 bar	3
510827.3	510837.3	G 3/8"	400 bar	3
511022.3	511032.3	M 22 x 1.5	400 bar	3
511027.3	511037.3	G 1/2"	400 bar	3
511322.4	511332.4	M 22 x 1.5	400 bar	4
511327.4	511337.4	G 3/4"	400 bar	4
512027.6	512037.6	G 3/4"	300 bar	6
512527.6	512537.6	G 1"	300 bar	6
513027.8	513037.8	G 1 1/4"	300 bar	8*
513527.8	513537.8	G 1 1/2"	300 bar	8*

* not standardised following ISO 14541

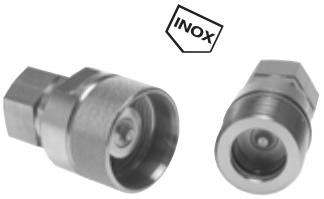
plug sleeve

Quick connect screw couplings with female threads made of stainless steel ISO 14541

Materials: Body: AISI 316L, support ring: PTFE, seal: FKM
Temperature range: -20°C to max. +150°C

Type sleeve INOX	Type plug INOX	Thread female	PN	Size
510627.1 ES	510637.1 ES	G 1/4"	300 bar	1
510827.2 ES	510837.2 ES	G 3/8"	250 bar	2
511027.3 ES	511037.3 ES	G 1/2"	250 bar	3
511327.4 ES	511337.4 ES	G 3/4"	250 bar	4
512527.6 ES	512537.6 ES	G 1"	250 bar	6
513527.8 ES	513537.8 ES	G 1 1/2"	200 bar	8*

* not standardised following ISO 14541



plug sleeve

Quick connect screw couplings with tube connections ISO 8434-1 ISO 14541

Type sleeve	Type plug	Tube connection	PN	Size
Light model series				
530622.2	530632.2	8 L	315 bar	2
530822.2	530832.2	10 L	315 bar	2
530622.3	530632.3	8 L	315 bar	3
530822.3	530832.3	10 L	315 bar	3
531022.3	531032.3	12 L	315 bar	3
531322.3	531332.3	15 L	315 bar	3
531022.4	531032.4	12 L	315 bar	4
531322.4	531332.4	15 L	315 bar	4
531622.4	531632.4	18 L	315 bar	4
531622.6	531632.6	18 L	160 bar	6
532022.6	532032.6	22 L	160 bar	6
532522.6	532532.6	28 L	160 bar	6
533222.6	533232.6	35 L	160 bar	6
Heavy model series				
540622.2	540632.2	10 S	450 bar	2
540822.2	540832.2	12 S	450 bar	2
540622.3	540632.3	10 S	400 bar	3
540822.3	540832.3	12 S	400 bar	3
541022.3	541032.3	14 S	400 bar	3
541322.3	541332.3	16 S	400 bar	3
541022.4	541032.4	14 S	400 bar	4
541322.4	541332.4	16 S	400 bar	4
541622.4	541632.4	20 S	400 bar	4
541622.6	541632.6	20 S	300 bar	6
542022.6	542032.6	25 S	300 bar	6
542522.6	542532.6	30 S	300 bar	6
542522.8	542532.8	30 S	300 bar	8*
543022.8	543032.8	38 S	300 bar	8*

* not standardised following ISO 14541

plug sleeve

LOCTITE Liquid seals, gaskets & tapes from page 549

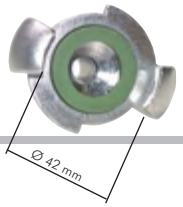
HYDAC Pipe clamps from page 244

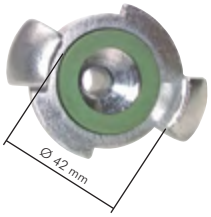
Cutting ring screw connections from page 77

Seamless precision hydraulic pipes from page 252

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Compressor couplings





Compressor couplings — 42 mm clamp width

Temperature range: -40°C to max. +95°C
Operating pressure: 10 or 16 bar

Compressor couplings with male threads (similar to DIN 3489) — 42 mm

Type 10 bar malleable iron galv. NBR seal	DN	Type 10 bar malleable iron galv. brass seal	DN	Type 16 bar AISI 316 FKM seal	DN	Thread
KAG 38	8.5	---	---	KAG 38 ES	10	G 3/8"
KAG 12	12	KAG 12 MS	11	KAG 12 ES	14	G 1/2"
KAG 34	17	KAG 34 MS	17	KAG 34 ES	19	G 3/4"
KAG 10	20	KAG 10 MS	17	KAG 10 ES	20	G 1"
Replacement seals						
SKG GU		SKG MS		SKG GU ES		

Compressor couplings with female threads (similar to DIN 3489) — 42 mm

Type 10 bar malleable iron galv. NBR seal	DN	Type 10 bar malleable iron galv. brass seal	DN	Type 16 bar AISI 316 FKM seal	DN	Thread
KiG 38	15	---	---	KiG 38 ES	15	Rp 3/8"
KiG 12	19	KiG 12 MS	17	KiG 12 ES	19	Rp 1/2"
KiG 34	20	KiG 34 MS	17	KiG 34 ES	20	Rp 3/4"
KiG 10	20	KiG 10 MS	17	KiG 10 ES	20	Rp 1"
Replacement seals						
SKG GU		SKG MS		SKG GU ES		

Compressor couplings with hose nozzles (similar to DIN 3489) — 42 mm

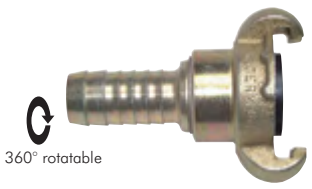
Type 10 bar malleable iron galv. NBR seal	DN	Type 10 bar malleable iron galv. brass seal	DN	Type 16 bar AISI 316 FKM seal	DN	Hose Ø internal
SKG 13	8.5	SKG 13 MS	8.5	SKG 13 ES	9	13 (1/2")
SKG 19	14	SKG 19 MS	15	SKG 19 ES	15	19 (3/4")
SKG 25	19	SKG 25 MS	19	SKG 25 ES	20	25 (1")
SKG 32	20	---	---	---	---	32 (1 1/4")
Replacement seals						
SKG GU		SKG MS		SKG GU ES		

Compressor couplings with hose nozzles & safety collars (similar to DIN 3489) 42 mm

Advantages: • Additional mechanical connection between coupling and clamp (only in connection with hose clamp SL ... SB on page 239)

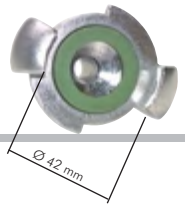
Type 10 bar malleable iron galvanised	DN	Safety collar Ø	Hose Ø internal
SKG 10 SB	5.5	21	10
SKG 13 SB	8.5	24	13 (1/2")
SKG 19 SB	14	28	19 (3/4")
SKG 25 SB	18.5	36	25 (1")
Replacement seals (NBR)			
SKG GU			

Compressor couplings with hose nozzles, rotatable (similar to DIN 3489) — 42 mm



Type 16 bar malleable iron galvanised	DN	Hose Ø internal
SKGD 13	10	13 (1/2")
SKGD 19	15	19 (3/4")
SKGD 25	19	25 (1")
Replacement seals (NBR)		
SKG GU		

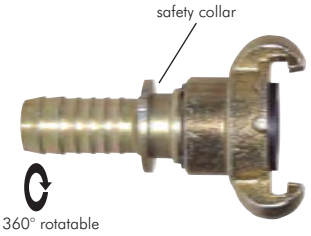
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



Compressor couplings with hose nozzles & safety collars, rotatable (similar to DIN 3489) 42 mm

Advantages: • Additional mechanical connection between coupling and clamp (only in connection with hose clamp SL ... SB on page 239)

Type 16 bar malleable iron galvanised	DN	Safety collar Ø	Hose Ø internal
SKGD 13 SB	10	24.0	13 (1/2")
SKGD 19 SB	15	34.0	19 (3/4")
SKGD 25 SB	19	39.0	25 (1")
Replacement seals (NBR)			
SKG GU			



Safety compressor couplings

Reversed seal - easier coupling possible.

Pre-bolted seal - connection is tight.

TIP The smooth screwable claw-coupling.

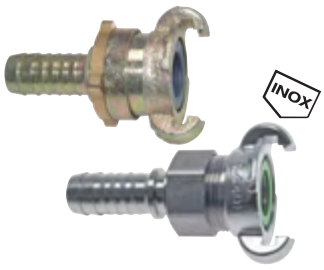
Safety compressor couplings with threaded connections (DIN 3238) 42 mm

Materials: Malleable iron galvanised

Type 16 bar male thread	DN	Type 16 bar female thread	DN	Thread
SSGA 38	10	SSGi 38	13	G 3/8"
SSGA 12	13	SSGi 12	17	G 1/2"
SSGA 34	17	SSGi 34	17	G 3/4"
SSGA 10	17	SSGi 10	17	G 1"
Replacement seals				
SSG GU		SSG GU		

Safety compressor couplings with hose nozzles (DIN 3238) 42 mm

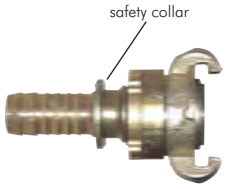
Type 16 bar malleable iron galvanised	DN	Type 16 bar AISI 316 INOX	DN	Hose Ø internal
SSG 13	10	SSG 13 ES	10	13 (1/2")
SSG 19	15	SSG 19 ES	15	19 (3/4")
SSG 25	18	SSG 25 ES	18	25 (1")
Replacement seals				
SSG GU		SSG GU ES		

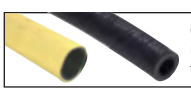


Safety compressor couplings with hose nozzles & safety collars (DIN 3238) 42 mm

Advantages: • Additional mechanical connection between coupling and clamp (only in connection with hose clamp SL ... SB on page 239)

Type 16 bar malleable iron galvanised	DN	Safety collar Ø	Hose Ø internal
SSG 13 SB	10	24	13 (1/2")
SSG 19 SB	15	34	19 (3/4")
SSG 25 SB	18	39	25 (1")
Replacement seals			
SSG GU			




Compressed air rubber hoses from page 212

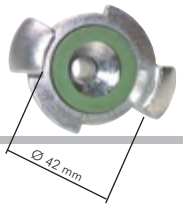
Ball valves from page 280

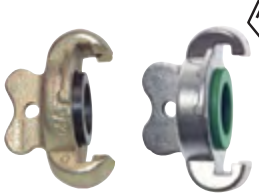
Compressed air treatment from page 362

LOCTITE Liquid seals, gaskets & tapes from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Compressor couplings





Compressor coupling locks (DIN 3489) — 42 mm

Type 10 bar malleable iron galv. NBR seal	Type 16 bar AISI 316 FKM seal	Usage
VKO	VKO ES	All compressor couplings
Replacement seals		
SKG GU	SKG GU ES	

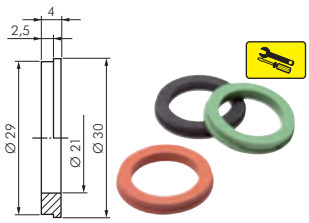
Replacement seals for rigid and rotating compressor couplings — 42 mm

For the types malleable cast iron with rubber seal and stainless steel with FKM seal

Type	Colour	Material	Temperature	Resistant against
SKG GU	Black	NBR	-40°C to max. +95°C	Oil-contain. compress. air
SKG GU D	Red	TFEP	-40°C to max. +200°C	Steam
SKG GU ES	Green	FKM	-30°C to max. +200°C	Chemical substances

For the types malleable cast iron with brass seal

Type	Supply volume	Ø internal	Ø external	Height
SKG MS	Brass bushing	17	32	21
	Hose ring	23	28	12
	Retaining screw M 5	---	---	---



Replacement seals for safety compressor couplings — 42 mm

Type	Colour	Material	Temperature	Resistant against
SSG GU	Black	NBR	-40°C to max. +95°C	Oil-contain. compress. air
SSG GU D	Red	TFEP	-40°C to max. +200°C	Steam
SSG GU ES	Green	FKM	-30°C to max. +200°C	Chemical substances

Cock plug valves with compressor couplings (DIN 3486) — 42 mm

Materials: Malleable iron
Function: If the cock is closed, the coupling side is vented. This ensures safe coupling.

Type	Thread female input E
KH EH G 12	G 1/2"
KH EH G 34	G 3/4"
KH EH G 10	G 1"

Double cock plug valves with compressor couplings (DIN 3487) — 42 mm

Materials: Malleable iron
Function: If the cock is closed, the coupling side is vented. This ensures safe coupling.

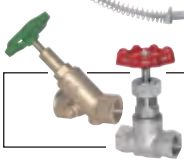
Type	Thread female input E
KH DH G 34	G 3/4"
KH DH G 10	G 1"

Whipcheck safety cables

Application: To prevent uncontrolled whiplash of the hose during malfunction of the fitting or integration. For the protection of humans and materials.

Type zinc-plated steel with alu tubes	Type stainless steel /w copper tubes*	For hose Ø external	Cable length
SIKA 13-35	SIKA 13-35 ES	13 - 35	Approx. 50 cm
SIKA 35-75	SIKA 35-75 ES	35 - 75	Approx. 90 cm

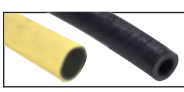
* specially for the mining industry



Shut-off valves on page 295

Compressed air tools from page 533

High performance blow guns from page 531



Compressed air rubber hoses from page 212

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

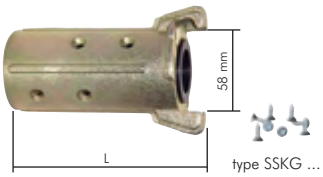
Sandblast couplings — 58 mm clamp width

Suitable: Couplings to connect sandblast hoses without cross section constriction.
Materials: Body: Malleable iron galvanised, yellow chromated or nylon, seal: NBR
Operating pressure: Up to max. 12 bar
Supply volume: Type malleable cast iron: With retaining screws, type nylon: With retaining screws and automatic lock function
Recommended accessories for couplings made from malleable cast iron: Safety clip or automatic lock function

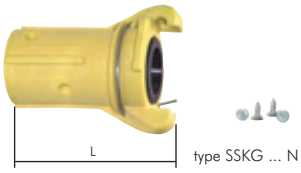
Warning: Please note that the malleable cast iron coupling SSKG 32135, SSKIG 11462, SSKIG 11262, SSKIG G 5062 and the nylon coupling have a new sealing system so that the hose or the thread is positioned right on the seal. The advantage is that the blasting abrasives cannot be compressed behind the seal. In the case of all other couplings, the hose is separated from the seal by a ridge.

Sandblast couplings with hose connections — 58 mm

Type **malleable iron**	L	Type **nylon**	L	Hose Ø internal	Hose Ø external	**Repl.seal** for type mall. iron	**Repl.seal** for type nylon
---		SSKG 19 N	110	19	33	---	SSKGN GU 19
SSKG 2593	93	SSKG 25 N	110	25	39	SSKG GU	SSKGN GU 25
SSKG 3292	92	SSKG 32 N	136	32	48	SSKG GU	SSKGN GU
SSKG 32135	135	---		32	48	SSKG GU LG	---
SSKG 38129	129	SSKG 38 N	136	38	56	SSKG GU	SSKGN GU
SSKG 40150	150	SSKG 42 N	137	42	60	SSKG GU	SSKGN GU



type SSKG ...



type SSKG ... N

Sandblast couplings with female threads — 58 mm

Type **malleable iron**	L	Type **nylon**	L	Thread female	**Repl.seal** for type mall. iron	**Repl.seal** for type nylon
SSKiG 11455	55	---		G 1 1/4"	SSKG GU	---
SSKiG 11462	62	SSKiG 114 N	63	G 1 1/4"	SSKG GU LG	SSKGN GU
SSKiG 11255	55	---		G 1 1/2"	SSKG GU	---
SSKiG 11262	62	---		G 1 1/2"	SSKG GU LG	---
SSKiG 2079	79	---		G 2"	SSKG GU	---
SSKiG G5055	55	---		50 mm coarse thread	SSKG GU	---
SSKiG G5062	62	SSKiG G50 N	63	50 mm coarse thread	SSKG GU LG	SSKGN GU

type SSKiG ...

type SSKiG ... N

Replacement seals for sandblast couplings — 58 mm

Type **NBR**	Ø internal	Ø external	L
For malleable iron			
SSKG GU	31.0	48.5	10.5
SSKG GU LG	31.0	44.0	27.0
For nylon			
SSKGN GU 19	19.0	44.0	27.0
SSKGN GU 25	25.0	44.0	27.0
SSKGN GU	31.5	44.0	27.0

type SSKG GU LG

type SSKG GU

type SSKGN GU 19/25

type SSKGN GU

Spare parts/accessories for sandblast couplings — 58 mm

Type		VPE
Retaining screws for the malleable iron and nylon types		
SSKG HA	Cross recess screw 4.8 x 13 mm for hose attachment	10
Safety clips/automatic lock functions for the malleable iron types		
SSKG SI	Safety clip according to DIN 11024, 3 mm wire	10
SSKG SIA	Automatic lock function for attaching to the coupling, 2 mm wire	10

type SSKG SI

type SSKG HA

type SSKG SIA

Sandblast hoses on page 219

Blast guns and blasting abrasives on page 535

Eye protection from page 591

Disposable overalls from page 591

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Garden hose quick couplings

Garden hose quick couplings — 40 mm clamp width

Materials: Body: Brass or stainless steel AISI 316, seal: NBR, (stainless steel: FKM)
Temperature range: 0°C to max. +80°C (stainless steel: -20°C to max. +200°C)
Operating pressure: 0 - 25 bar, as well as low vacuum
Operating range: Water, air, bases, oil and drinking water (only type brass with KTW)

Garden hose quick couplings with hose nozzles — 40 mm

Type brass	Type brass with KTW approval	Type stainless steel (INOX)	Hose Ø internal
GSK 6 MS	---	---	6
GSK 10 MS	GSK 10 KTW	---	10
GSK 13 MS	GSK 13 KTW	GSK 13 ES	13 (1/2")
GSK 16 MS	GSK 16 KTW	---	16 (5/8")
GSK 19 MS	GSK 19 KTW	GSK 19 ES	19 (3/4")
GSK 25 MS	GSK 25 KTW	GSK 25 ES	25 (1")
GSK 32 MS	GSK 32 KTW	GSK 32 ES	32 (1 1/4")
GSK 38 MS	GSK 38 KTW	---	38 (1 1/2")
Replacement seals			
GKOR	NBR seal for type brass		
GKOR KTW	NBR seal for type brass with KTW approval		
GKOR ES	FKM seal for type stainless steel		

Garden hose quick couplings with female threads — 40 mm

Type brass	Type brass with KTW approval	Type stainless steel (INOX)	Thread female
GKi 14 MS	---	---	G 1/4"
GKi 38 MS	GKi 38 KTW	---	G 3/8"
GKi 12 MS	GKi 12 KTW	GKi 12 ES	G 1/2"
GKi 34 MS	GKi 34 KTW	GKi 34 ES	G 3/4"
GKi 10 MS	GKi 10 KTW	GKi 10 ES	G 1"
GKi 114 MS	GKi 114 KTW	GKi 114 ES	G 1 1/4"
GKi 112 MS	GKi 112 KTW	---	G 1 1/2"
Replacement seals			
GKOR	NBR seal for type brass		
GKOR KTW	NBR seal for type brass with KTW approval		
GKOR ES	FKM seal for type stainless steel		

Garden hose quick couplings with female threads, rotatable — 40 mm

Type	Thread female	Seal NBR standard	Seal NBR KTW approval
GKiD 12 MS	G 1/2"	GKORX	GKOR KTW
GKiD 34 MS	G 3/4"	GKORX	GKOR KTW
GKiD 10 MS	G 1"	GKORX	GKOR KTW

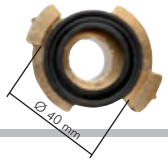
Garden hose quick couplings with male threads — 40 mm

Type brass	Type brass with KTW approval	Type stainless steel (INOX)	Thread male
GKA 14 MS	---	---	G 1/4"
GKA 38 MS	GKA 38 KTW	---	G 3/8"
GKA 12 MS	GKA 12 KTW	GKA 12 ES	G 1/2"
GKA 34 MS	GKA 34 KTW	GKA 34 ES	G 3/4"
GKA 10 MS	GKA 10 KTW	GKA 10 ES	G 1"
GKA 114 MS	GKA 114 KTW	GKA 114 ES	G 1 1/4"
GKA 112 MS	GKA 112 KTW	---	G 1 1/2"
Replacement seals			
GKOR	NBR seal for type brass		
GKOR KTW	NBR seal for type brass with KTW approval		
GKOR ES	FKM seal for type stainless steel		

Garden hose quick couplings with male threads, rotatable — 40 mm

Type	Thread male	Seal NBR standard	Seal NBR KTW approval
GKAD 12 MS	G 1/2"	GKORX	GKOR KTW
GKAD 34 MS	G 3/4"	GKORX	GKOR KTW
GKAD 10 MS	G 1"	GKORX	GKOR KTW

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



Garden hose quick couplings

End caps for garden hose quick couplings — 40 mm

Type brass	Type brass with KTW approval	Type stainless steel	
GKVS	GKVS KTW	GKVS ES	
Replacement seals			
GKOR			NBR seal for type brass
GKOR KTW			NBR seal for type brass with KTW approval
GKOR ES			FKM seal for type stainless steel
Chain made of stainless steel			
GKVS KETTE ES			Stainless steel chain used for GK end caps with borehole

Garden hose quick couplings with hose nozzles, rotatable — 40 mm

Type coupled can be rotated	Type coupled can not be rotated*	Hose Ø internal	Seal NBR standard	Seal NBR KTW approval
GSKD 13 MS	GSKD 13 MS E	13 (1/2")	GKORX	GKOR KTW
GSKD 19 MS	GSKD 19 MS E	19 (3/4")	GKORX	GKOR KTW
GSKD 25 MS	GSKD 25 MS E	25 (1")	GKORX	GKOR KTW
GSKD 32 MS	---	32 (1 1/4")	GKORX	GKOR KTW

Outstanding value!

* suitable replacement seal: GKOR

Angle garden hose quick couplings with hose nozzles, rotatable — 40 mm

Type coupled can be rotated	Hose Ø internal	Seal NBR standard	Seal NBR KTW approval
GSKDW 13 MS	13 (1/2")	GKORX	GKOR KTW
GSKDW 19 MS	19 (3/4")	GKORX	GKOR KTW
GSKDW 25 MS	25 (1")	GKORX	GKOR KTW
GSKDW 32 MS	32 (1 1/4")	GKORX	GKOR KTW

Safety garden hose quick couplings with hose nozzles — 40 mm

Type	Hose Ø internal	Seal NBR
GSSK 13 MS	13 (1/2")	GKORS
GSSK 19 MS	19 (3/4")	GKORS
GSSK 25 MS	25 (1")	GKORS
GSSK 32 MS	32 (1 1/4")	GKORS

Garden hose quick couplings with screw connections for garden hoses — 40 mm

Temperature range: 0°C to max. +60°C
Operating pressure: 0 - 8 bar
Media: Water

Advantages:
- Multiple assembly possible
- No formation of dirt accumulations
- No risk of injury due to sharp edges and corners

Type	Hose Ø internal
GSKWS 13 MS	13 (1/2")
GSKWS 19 MS	19 (3/4")
Replacement seals	
GKOR	NBR seal for type brass
GKOR KTW	NBR seal for type brass with KTW approval

Garden hose quick couplings with screw connections for industrial hoses — 40 mm

Advantages:
- Multiple assembly possible
- No formation of dirt accumulations
- No risk of injury due to sharp edges and edges
- Suitable for almost all high-quality industrial and pressure hoses
- With KTW approval

Type	Hose Ø internal	Hose Ø external	Wall thickness of hose	Seal NBR KTW approval
GSKX 13 KTW	13 (1/2")	19.0 - 20.6	3.0 - 3.8	GKOR KTW
GSKX 19 KTW	19 (3/4")	26.6 - 27.4	3.8 - 4.2	GKOR KTW
GSKX 25 KTW	25 (1")	33.8 - 35.0	4.4 - 5.0	GKOR KTW

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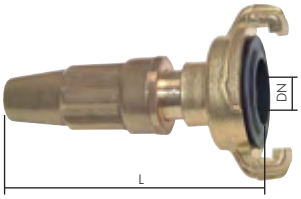
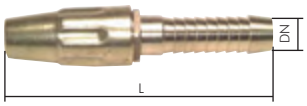
Garden hose quick couplings



Hose sprayers for garden hose quick couplings — 40 mm

Type	Size	Nozzle Ø	DN	Length L approx.	Seal NBR
GSK SPR 12	1/2"	5.3	9	84	GKOR
GSK SPR 34	3/4"	6.4	14	95	GKOR
GSK SPR 10	1"	7.0	20	112	GKOR



Hose sprayers with hose connections

Type	Size	Nozzle Ø	DN	Hose Ø internal	Length L approx.
GSK SPR 13	1/2"	5.3	9	13 (1/2")	90
GSK SPR 19	3/4"	6.4	16	19 (3/4")	110
GSK SPR 25	1"	7.2	21	25 (1")	135

Y distributors for garden hose quick couplings — 40 mm

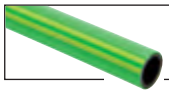
Type	Input E	Version	Figure
GKY 34 MS	FT G 3/4"	2 x garden hose quick coupling, 1 x G 3/4" female thread	1
GKYGK	Quick coupling	3 x garden hose quick couplings	2

Adapter garden hose quick couplings/Gardena Systems

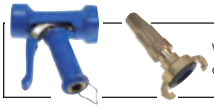
Type	
GKWS MS	
Replacement seals	
GKOR	NBR seal for type brass
WSK DR N	NBR O-ring for "GARDENA" system

Seals for garden hose quick couplings — 40 mm

Type	D Ø internal	D Ø external	Height	Colour	Usage
For brass bodies (seal material: NBR)					
GKOR	24.0	35.0	12.0	Black	For all stationary couplings
GKOR KTW	21.0	33.0	10.6	Red	For all stationary couplings and garden hose quick couplings with screw connections, KTW approved
GKORD	22.5	37.7	12.0	Black	For all rotating C garden hose quick couplings (up to September 2004)
GKORS	21.6	33.5	6.8	Black	For all safety garden hose quick couplings
GKORX	21.0	33.0	10.6	Black	For all garden hose quick couplings with screw connections (type GSKX ... MS), for all rotating C garden hose quick couplings (from September 2004, can be rotated when coupled)
For stainless steel bodies (seal material: FKM)					
GKOR ES	20.6	33.7	10.6	Green	For all stainless steel garden hose quick couplings


Garden hoses on page 212

Hose clamps from page 234


Water guns on page 532

PE canisters + buckets from page 642

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Garden hose hose couplings — up to 10 bar

Type brass:
Materials: Body: Brass, seal: NBR, compression ring: Nylon
Temperature range: 0°C to max. +60°C
Operating pressure: 0 - 8 bar
Media: Water

Type GARDENA:
Materials: Body: PP and ABS, seal: EPDM
Temperature range: 0°C to max. +40°C
Operating pressure: 0 - 10 bar
Media: Water

Coupling plugs with female threads (valve pieces)

Type brass	Type GARDENA	Thread female
WSKS 12 i	WSKS 12 iK	G 1/2"
WSKS 34 i	WSKS 34 iK	G 3/4"
WSKS 10 i	WSKS 10 iK	G 1"

Coupling plugs with male threads (device adapters)

Type brass	Type GARDENA	Thread male
---	WSKS 14 K	G 1/4"
WSKS 12	---	G 1/2"
WSKS 34	WSKS 34 K	G 3/4"

Coupling sockets with hose connections

Type brass	Type GARDENA	Hose ∅ internal
Standard		
WSKDS 13	WSKDS 13 K	13 (1/2")
WSKDS 19	WSKDS 19 K	19 (3/4")
With water stop		
WSKDS 13 A	WSKDS 13 AK	13 (1/2")
WSKDS 19 A	WSKDS 19 AK	19 (3/4")

Coupling sockets with male threads (for device connections)

Type GARDENA	Thread male
WSKDG 34 K	G 3/4"

Hose connectors (repairs)

Type brass	Type GARDENA	Hose ∅ internal
WSS 13	WSS 13 K	13 (1/2")
WSS 19	WSS 19 K	19 (3/4")

GARDENA water volumeters — PN 12

Application: The water volumeter is ideal for controlling water consumption. The device measures the amount of water that has flowed through it. Four functions, easy to select via buttons: Water consumption per day, per season, per watering operation, and current flow rate (l/min.).
Temperature range: Medium: +5°C to max. +40°C, environment: +5°C to max. +60°C
Measuring tolerance: ± 5%
Connection: GARDENA coupling system (any flow direction)
Auxiliary energy: 3V coin cells (included in scope of delivery)

Type	Measuring range
DMG 30 K	2 - 30 l/min.

GARDENA spray guns/GARDENA washing brushes

Type GARDENA	Version
WS SPR K	Water sprayer, with hard jet or spray mist setting. Continuous flow adjustment, trigger handle with continuous locking
WS SPR MULTI K	Multi-function spray head with three spray patterns (hard jet, rain jet, shower), variable flow adjustment for dosed watering, trigger handle with continuous locking
WS SPR CLASSIC	Classical water jet. Continuous adjustment from hard jet to fine spray mist
WS SPR WASCH	Classic compact washing brush with regulating and shut-off valve. Bristles of horse-hair mixture
WS SPR WASCH EL	Compact washing brush, brush body elastic with regulating and shut-off valve
WS SPR WASCH SR	Hand scrubber with regulating and shut-off valve, bristles made of synthetic fibre

type WS SPR K

type WS SPR MULTI K

type WS SPR CLASSIC

type WS SPR WASCH

type WS SPR WASCH EL

type WS SPR WASCH SR

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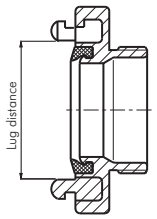
Storz couplings (fire brigade couplings)



Storz couplings (fire brigade couplings) 16 bar

Materials: Seal: NBR (stainless steel: FKM)
Temperature range: -40°C to +110°C (stainless steel: -15°C to +200°C)
Pressure range: Up to 16 bar
Operating range: Industry, fire brigade, refinery, agriculture, construction industry, maritime, military and catastrophe protection

Dimensions for size determination of Storz couplings
DIN sizes

Lug distance 31 mm	= Storz size 25-D
Lug distance 66 mm	= Storz size 52-C
Lug distance 89 mm	= Storz size 75-B
Lug distance 133 mm	= Storz size 110-A

Advantages

- Simple arrangement from hose end and connection.
- Quick connecting and releasing through a 120° rotation.
- All couplings with the same lug distance are compatible with each other. The following applies: Same lug distance, same nominal size.
- Broad spectrum of applications through the use of application-specific hoses.
- Aluminium forged - no risk of breaking as with e.g. cast couplings.

For suction and pressure operation!

TIP The hose does not become twisted!

Storz couplings with hose connections, rotatable

Advantages: • The hose does not become twisted when coupling as the socket contained in the lug part can rotate.
Optional: With lock **-VER**

Type alu forged	Type brass	Type AISI 316 (INOX)	Storz size	Lug distance	Hose DN
STKS 31/25 A[1]	STKS 31/25 MS	STKS 31/25 ES	25-D	31	25
STKS 44/19 A	STKS 44/19 MS	---	32	44	19
STKS 44/25 A	STKS 44/25 MS	---	32	44	25
STKS 44/32 A	---	---	32	44	32
STKS 51/25 A	STKS 51/25 MS	---	38	51	25
STKS 51/32 A	STKS 51/32 MS	---	38	51	32
STKS 51/38 A	STKS 51/38 MS	STKS 51/38 ES	38	51	38
STKS 66/25 A	STKS 66/25 MS	STKS 66/25 ES	52-C	66	25
STKS 66/32 A	STKS 66/32 MS	STKS 66/32 ES	52-C	66	32
STKS 66/38 A	STKS 66/38 MS	STKS 66/38 ES	52-C	66	38
STKS 66/42 A	---	STKS 66/42 ES	52-C	66	42
STKS 66/52 A[2]	STKS 66/52 MS	STKS 66/52 ES	52-C	66	52
STKS 81/38 A	STKS 81/38 MS	STKS 81/38 ES	65	81	38
STKS 81/52 A	STKS 81/52 MS	STKS 81/52 ES	65	81	52
STKS 81/65 A	STKS 81/65 MS	STKS 81/65 ES	65	81	65
STKS 81/75 A	STKS 81/75 MS	STKS 81/75 ES	65	81	75
STKS 89/65 A	STKS 89/65 MS	STKS 89/65 ES	75-B	89	65
STKS 89/70 A	---	---	75-B	89	70
STKS 89/75 A[3]	STKS 89/75 MS	STKS 89/75 ES	75-B	89	75
STKS 89/80 A	---	STKS 89/80 ES	75-B	89	80
STKS 105/90 A	---	---	90	105	90
STKS 115/100 A	STKS 115/100 MS	STKS 115/100 ES	100	115	100
STKS 133/90 A	---	---	110-A	133	90
STKS 133/100 A	STKS 133/100 MS	STKS 133/100 ES	110-A	133	100
STKS 133/110 A[4]	STKS 133/110 MS	STKS 133/110 ES	110-A	133	110

[1] DIN 14301, [2] DIN 14321, [3] DIN 14322, [4] DIN 14323

Option: With lock

Recommended accessories:
Hinge bolt clamps can be found on page 237.
Wire hose clamps (for hoses with spiral inlay) are found on page 238.

Order example: STKS 31/19 A **

Standard type	Designation for the options: With lock . . . . . -VER

Storz couplings with hose connections for PVC or rubber hoses, rotatable

For suction and pressure operation!

Advantages: • The hose does not become twisted when coupling as the socket contained in the lug part can rotate.
• Thanks to "Christmas tree profile", suitable for hoses on sockets of greater wall thickness.
Optional: With lock **-VER**

Option: With lock

Type alu forged	Type brass	Type AISI 316 (INOX)	Storz size	Lug distance	Hose DN
STKSP 31/13 A	---	---	25-D	31	13
STKSP 31/19 A	STKSP 31/19 MS	STKSP 31/19 ES	25-D	31	19
STKSP 66/51 A	---	---	52-C	66	51
STKSP 89/76 A	---	---	75-B	89	76
STKSP 133/102 A	---	---	110-A	133	102
STKSP 133/110 A	---	---	110-A	133	110
STKSP 148/127 A	---	---	125	148	127
STKSP 160/152 A	---	---	150	160	152

Order example: STKSP 31/13 A **

Standard type	Designation for the options: With lock . . . . . -VER

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Storz couplings with hose connections for clamp connections, rotatable

The hose assembly is carried out using shell hose clamps to EN 14420-3 (DIN 2817) (page 239)

Advantages: • The hose does not become twisted when coupling as the socket contained in the lug part can rotate

Optional: With lock **-VER**

Type alu forged	Type brass	Type AISI 316 (INOX)	Storz size	Lug distance	Hose DN
STKSS 31/19 A	STKSS 31/19 MS	STKSS 31/19 ES	25-D	31	19
STKSS 31/25 A	STKSS 31/25 MS	STKSS 31/25 ES	25-D	31	25
STKSS 66/38 A	---	STKSS 66/38 ES	52-C	66	38
STKSS 66/50 A	STKSS 66/50 MS	STKSS 66/50 ES	52-C	66	50
---	---	STKSS 81/50 ES	65	81	50
STKSS 89/75 A	---	STKSS 89/75 ES	75-B	89	75
STKSS 133/100 A	---	STKSS 133/100 ES	110-A	133	100

Accessories hose clamps
SSA 33
SSA 39/SSA 43
SSA 52/SSA 56/SSA 60
SSA 67/SSA 71
SSA 67/SSA 71
SSA 93/SSA 97
SSA 119/SSA 122

Order example: STKSS 66/38 A **

Standard type

Designation for the options:
With lock . . . . . **-VER**

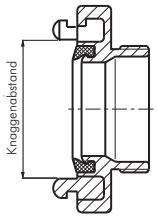
For suction and pressure operation!

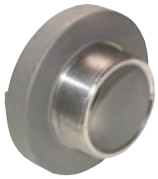
Option: With lock

Storz fixed couplings with male threads

Optional: Pivotable male thread connections **-DR** (only available for the types marked with *)

Type alu forged	Type brass	Type AISI 316 (INOX)	Storz size	Lug distance	Thread
STKG 31/34 A	STKG 31/34 MS*	STKG 31/34 ES	25-D	31	G 3/4"
STKG 31/10 A	STKG 31/10 MS*	STKG 31/10 ES	25-D	31	G 1"
STKG 44/10 A	STKG 44/10 MS	STKG 44/10 ES	32	44	G 1"
STKG 44/114 A	STKG 44/114 MS	STKG 44/114 ES	32	44	G 1 1/4"
STKG 51/114 A	STKG 51/114 MS	STKG 51/114 ES	38	51	G 1 1/4"
STKG 51/112 A	STKG 51/112 MS	STKG 51/112 ES	38	51	G 1 1/2"
STKG 66/10 A	STKG 66/10 MS	STKG 66/10 ES	52-C	66	G 1"
STKG 66/114 A	STKG 66/114 MS	STKG 66/114 ES	52-C	66	G 1 1/4"
STKG 66/112 A*	STKG 66/112 MS	STKG 66/112 ES	52-C	66	G 1 1/2"
STKG 66/20 A*	STKG 66/20 MS*	STKG 66/20 ES*	52-C	66	G 2"
STKG 81/20 A*	STKG 81/20 MS	STKG 81/20 ES	65	81	G 2"
STKG 81/212 A*	STKG 81/212 MS	STKG 81/212 ES	65	81	G 2 1/2"
STKG 81/30 A*	STKG 81/30 MS	---	65	81	G 3"
STKG 89/212 A*	STKG 89/212 MS	STKG 89/212 ES*	75-B	89	G 2 1/2"
STKG 89/30 A*	STKG 89/30 MS	STKG 89/30 ES	75-B	89	G 3"
STKG 105/30 A	---	---	90	105	G 3"
STKG 115/40 A*	---	STKG 115/40 ES	100	115	G 4"
STKG 133/40 A*	STKG 133/40 MS	STKG 133/40 ES*	110-A	133	G 4"





Order example: STKG 31/34 A **

Standard type

Designation for the options:
Pivotable male thread connections . .**-DR**

Fire extinguishing and water hoses are found on page 211

Storz fixed couplings with female threads

Materials: Seals in the female threads: NBR (type AISI 316: PTFE)

Optional: Pivotable female thread connections **-DR**, with lock **-VER**

Type alu forged	Type brass	Type AISI 316 (INOX)	Storz size	Lug distance	Thread
STKGI 31/12 A	STKGI 31/12 MS	STKGI 31/12 ES	25-D	31	G 1/2"
STKGI 31/34 A	STKGI 31/34 MS*	STKGI 31/34 ES	25-D	31	G 3/4"
STKGI 31/10 A[1]	STKGI 31/10 MS*	STKGI 31/10 ES	25-D	31	G 1"
STKGI 44/10 A	STKGI 44/10 MS	STKGI 44/10 ES	32	44	G 1"
STKGI 44/114 A	STKGI 44/114 MS	STKGI 44/114 ES	32	44	G 1 1/4"
STKGI 51/114 A	STKGI 51/114 MS	STKGI 51/114 ES	38	51	G 1 1/4"
STKGI 51/112 A	STKGI 51/112 MS	STKGI 51/112 ES	38	51	G 1 1/2"
STKGI 66/10 A	STKGI 66/10 MS	STKGI 66/10 ES	52-C	66	G 1"
STKGI 66/114 A	STKGI 66/114 MS	STKGI 66/114 ES	52-C	66	G 1 1/4"
STKGI 66/112 A	STKGI 66/112 MS	STKGI 66/112 ES	52-C	66	G 1 1/2"
STKGI 66/20 A[2]	STKGI 66/20 MS[3]	STKGI 66/20 ES	52-C	66	G 2"
STKGI 66/212 A	STKGI 66/212 MS	STKGI 66/212 ES	52-C	66	G 2 1/2"
STKGI 81/20 A	STKGI 81/20 MS	STKGI 81/20 ES	65	81	G 2"
STKGI 81/212 A	STKGI 81/212 MS	STKGI 81/212 ES	65	81	G 2 1/2"
STKGI 81/30 A	STKGI 81/30 MS	STKGI 81/30 ES	65	81	G 3"
STKGI 89/20 A	STKGI 89/20 MS	STKGI 89/20 ES	75-B	89	G 2"
STKGI 89/212 A[4]	STKGI 89/212 MS[5]	STKGI 89/212 ES	75-B	89	G 2 1/2"
STKGI 89/30 A	STKGI 89/30 MS	STKGI 89/30 ES	75-B	89	G 3"
STKGI 105/30 A	---	---	90	105	G 3"
STKGI 115/40 A	STKGI 115/40 MS	STKGI 115/40 ES	100	115	G 4"
STKGI 133/40 A	STKGI 133/40 MS	STKGI 133/40 ES	110-A	133	G 4"
STKGI 133/412 A[6]	STKGI 133/412 MS	STKGI 133/412 ES	110-A	133	G 4 1/2"

[1] DIN 14306, [2] DIN 14307, [3] DIN 86204, [4] DIN 14308, [5] DIN 86205, [6] DIN 14309

Order example: STKGI 66/114 A **

Standard type

Designation for the options:
Pivotable female thread connections .**-DR**
With lock . . . . . .**-VER**

Option: With lock

LOCTITE
Liquid seals, gaskets & tapes from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Storz couplings (fire brigade couplings)

Storz transition fittings

Type alu forged	Type brass	Type AISI 316 (INOX)	Storz size	Lug distance 1	Lug distance 2
STK 51/31 A[1]	---	---	38/25-D	51	31
STK 66/31 A	STK 66/31 MS	STK 66/31 ES	52-C/25-D	66	31
STK 81/51 A	---	---	65/38	81	51
STK 81/66 A	STK 81/66 MS	STK 81/66 ES	65/52-C	81	66
STK 89/66 A[2]	STK 89/66 MS	STK 89/66 ES	75-B/52-C	89	66
STK 89/81 A	STK 89/81 MS	STK 89/81 ES	75-B/65	89	81
STK 105/89 A	---	---	90/75-B	105	89
STK 115/89 A	---	STK 115/89 ES	100/75-B	115	89
STK 115/105 A	---	---	100/90	115	105
STK 133/89 A[3]	STK 133/89 MS	STK 133/89 ES	110-A/75-B	133	89
STK 133/115 A	---	STK 133/115 ES	110-A/100	133	115

[1] DIN 14341, [2] DIN 14342, [3] DIN 14343

Storz transition fittings on flanges PN 16

Type alu forged	Type AISI 316 (INOX)	Storz size	Lug distance	DN
STKFL 31/25 A	STKFL 31/25 ES	25-D	31	25
STKFL 66/40 A *	---	52-C	66	40
STKFL 66/50 A	STKFL 66/50 ES	52-C	66	50
STKFL 81/65 A	STKFL 81/65 ES	65	81	65
STKFL 89/65 A	STKFL 89/65 ES	75-B	89	65
STKFL 89/80 A	STKFL 89/80 ES	75-B	89	80
STKFL 115/100 A	STKFL 115/100 ES	100	115	100
STKFL 133/100 A	STKFL 133/100 ES	110-A	133	100

* steel flange zinc-plated

Blind couplings with chains

☞ **Optional:** Lockable **-KEY** (available for the types STKV 66 A, STKV 89 A, STKV 133A)

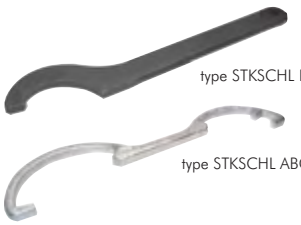
Type alu forged	Type brass	Type AISI 316 (INOX)	Storz size	Lug distance
STKV 31 A[1]	STKV 31 MS	STKV 31 ES	25-D	31
STKV 44 A	STKV 44 MS	STKV 44 ES	32	44
STKV 51 A	STKV 51 MS	STKV 51 ES	38	51
STKV 66 A*[2]	STKV 66 MS	STKV 66 ES	52-C	66
STKV 81 A	STKV 81 MS	STKV 81 ES	65	81
STKV 89 A*[3]	STKV 89 MS[4]	STKV 89 ES	75-B	89
STKV 105 A	---	---	90	105
STKV 115 A	STKV 115 MS	STKV 115 ES	100	115
STKV 133 A*[5]	STKV 133 MS	STKV 133 ES	110-A	133

* optionally lockable -KEY, [1] DIN 14310, [2] DIN 14311, [3] DIN 14312, [4] DIN 86207, [5] DIN 14313

☞ **Order example:** STKV 66 A **

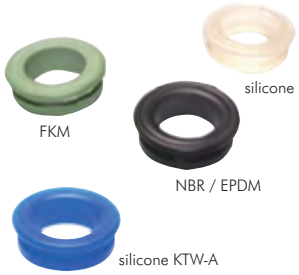
Standard type

Designation for the options:
Lockable . . . . . **-KEY**



Keys for Storz couplings

Type		Material	For Storz size	For lug distance
STKSCHL D		Steel	25-D	31 mm
STKSCHL ABC		Mall. cast iron	52-C, 75-B and 110-A	66, 89 and 133 mm



Replacement seals for Storz couplings

Temperature range: NBR: -40°C to max. +110°C, silicone: -60°C to max. +180°C, FKM: -15°C to max. +200°C, EPDM: -35°C to max. +130°C, silicone (KTW approval category "A"): -60°C to max. +23°C

Type NBR	Type silicone	Type FKM	Type EPDM	Type silicone KTW-A (KTW)	Storz size	Lug distance
STKDR 31 B	STKDR 31 SI	STKDR 31 V	---	STKDR 31 KTW	25-D	31
STKDR 44 B	STKDR 44 SI	STKDR 44 V	---	---	32	44
STKDR 51 B	STKDR 51 SI	STKDR 51 V	---	---	38	51
STKDR 66 B	STKDR 66 SI	STKDR 66 V	STKDR 66 EP	STKDR 66 KTW	52-C	66
STKDR 81 B	STKDR 81 SI	STKDR 81 V	---	---	65	81
STKDR 89 B	STKDR 89 SI	STKDR 89 V	STKDR 89 EP	STKDR 89 KTW	75-B	89
STKDR 105 B	STKDR 105 SI	---	---	---	90	105
STKDR 115 B	STKDR 115 SI	STKDR 115 V	---	---	100	115
STKDR 133 B	STKDR 133 SI	STKDR 133 V	STKDR 133 EP	---	110-A	133

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Multi-purpose jet tubes with Storz connections — DIN 14365

Switching sequence: Hard jet, closed, spray stream

Type	Nozzles Ø	Storz size	Lug distance
Aluminium valve, handle and nozzle: plastic			
STKSR 31 K	4 mm	25-D	31
STKSR 66 K	9 mm	52-C	66
Aluminium valve, gripping area: rubber lined			
STKSR 66	9 mm	52-C	66
STKSR 89	15 mm	75-B	89

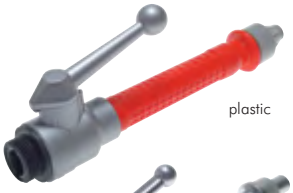
plastic

aluminium

Multi-purpose jet tubes with threaded connections — DIN 14365

Switching sequence: Hard jet, closed, spray stream

Type	Nozzles Ø	Thread male
Aluminium valve, handle and nozzle: plastic		
STKSR 10 K	4 mm	G 1″
STKSR 20 K	9 mm	G 2″
Aluminium valve, gripping area: rubber lined		
STKSR 20	9 mm	G 2″
Aluminium valve, gripping area: rubber lined		
STKSR 20 M	9 mm with protective spray	G 2″
STKSR 212 M	16 mm with protective spray	G 2 1/2″


plastic

aluminium

with protective spray

Fire extinguishing and water hoses are found on page 211

Branch pipe holders for jet tubes — DIN 14368

Version: Lug part on the outlet is rotatable

Type	Storz size	Lug distance
STKKR 89	75-B	89

Safety clamps for Storz couplings

Supply volume: Clamp (yellow) without couplings

Advantages: • Reliably prevents unwanted loosening of Storz couplings without lock

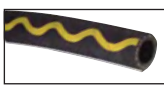
Type	Usage	For Storz size	For lug distance
STKVER C		52-C	66
STKVER B		75-B	89
STKVER A		110-A	133
STKVER B/C*	For transition fittings 75-B/52-C	52-C	66
STKVER A/B*	For transition fittings 110-A/75-B	75-B	89

* secures the transition fitting in connection with the respectively smaller Storz coupling

application example

Power clamps "Band-It" Extremely high clamping strength from page 240

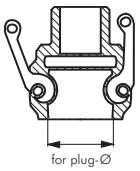
Fire extinguishing hoses on page 211


Water hoses - Goldschlange® on page 212

Ball valves from page 280

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Kamlock couplings



Quick couplings — MIL-C-27487

Temperature range: -10°C to max. +80°C

Advantages: • Full throughway • Low pressure loss • Also suitable for solid materials, as there are no int. valves • Dimensions globally standardised according to MIL-C-27487

Materials:

Body	Seal	Handles	Rings, safety pins, chains
Stainless steel AISI 316	NBR	Stainless steel	Stainless steel
Polypropylene	EPDM*	Stainless steel	Stainless steel
Brass	NBR	Brass	Stainless steel
Aluminium	NBR	Stainless steel	Zinc-plated steel

* 1¼" (plug Ø 45 mm): NBR

Operating pressure:

	1/2"	3/4" - 2"	2 1/2"	3"	4"	5" - 6"
Stainless steel AISI 316	11 bar	18 bar	16 bar	14 bar	7 bar	7 bar
Polypropylene (+40°C)	---	6 bar	6 bar	6 bar	6 bar	---
Brass & aluminium	11 bar	18 bar	11 bar	9 bar	7 bar	5 bar

Quick coupling sockets with male threads — Type B

Type AISI 316	Type polypropylene[1]	Type brass	Type aluminium	Thread	DN	For plug Ø
KLDG 12 ES[4]	---	KLDG 12 MS[5]	---	R 1/2"	15 (1/2")	25
KLDG 34 ES	KLDG 34 PP	KLDG 34 MS	KLDG 34 A	R 3/4"	20 (3/4")	32
KLDG 10 ES	KLDG 10 PP	KLDG 10 MS	KLDG 10 A	R 1"	25 (1")	37
KLDG 114 ES	KLDG 114 PP[4]	KLDG 114 MS	KLDG 114 A	R 1 1/4"	32 (1 1/4")	45
---	KLDG 114 PP B[2]	---	---	R 1 1/4"	40 (1 1/2")	53
KLDG 112 ES	KLDG 112 PP	KLDG 112 MS	KLDG 112 A	R 1 1/2"	40 (1 1/2")	53
KLDG 20 ES	KLDG 20 PP	KLDG 20 MS	KLDG 20 A	R 2"	50 (2")	63
KLDG 212 ES	---	KLDG 212 MS	KLDG 212 A	R 2 1/2"	60 (2 1/2")	76
KLDG 30 ES	KLDG 30 PP	KLDG 30 MS	KLDG 30 A	R 3"	75 (3")	92
KLDG 40 ES	KLDG 40 PP[3]	KLDG 40 MS	KLDG 40 A	R 4"	90 (4")	120
KLDG 50 ES	---	KLDG 50 MS	KLDG 50 A	R 5"	120 (5")	145
KLDG 60 ES	---	KLDG 60 MS	KLDG 60 A	R 6"	140 (6")	175

Quick coupling sockets with female threads — Type D

Type AISI 316	Type polypropylene[1]	Type brass	Type aluminium	Thread	DN	For plug Ø
KLDGi 12 ES[4]	---	KLDGi 12 MS[5]	---	Rp 1/2"	15 (1/2")	25
KLDGi 34 ES	KLDGi 34 PP	KLDGi 34 MS	KLDGi 34 A	Rp 3/4"	20 (3/4")	32
KLDGi 10 ES	KLDGi 10 PP	KLDGi 10 MS	KLDGi 10 A	Rp 1"	25 (1")	37
KLDGi 114 ES	KLDGi 114 PP[4]	KLDGi 114 MS	KLDGi 114 A	Rp 1 1/4"	32 (1 1/4")	45
---	KLDGi 114 PP B[2]	---	---	Rp 1 1/4"	40 (1 1/2")	53
KLDGi 112 ES	KLDGi 112 PP	KLDGi 112 MS	KLDGi 112 A	Rp 1 1/2"	40 (1 1/2")	53
KLDGi 20 ES	KLDGi 20 PP	KLDGi 20 MS	KLDGi 20 A	Rp 2"	50 (2")	63
KLDGi 212 ES	---	KLDGi 212 MS	KLDGi 212 A	Rp 2 1/2"	60 (2 1/2")	76
KLDGi 30 ES	KLDGi 30 PP	KLDGi 30 MS	KLDGi 30 A	Rp 3"	75 (3")	92
KLDGi 40 ES	KLDGi 40 PP[3]	KLDGi 40 MS	KLDGi 40 A	Rp 4"	90 (4")	120
KLDGi 50 ES	---	KLDGi 50 MS	KLDGi 50 A	Rp 5"	120 (5")	145
KLDGi 60 ES	---	KLDGi 60 MS	KLDGi 60 A	Rp 6"	140 (6")	175

Quick coupling sockets with hose nozzles — Type C

Type AISI 316	Type polypropylene[1]	Type brass	Type aluminium	Hose Ø internal	DN	For plug Ø
KLDS 13 ES[4]	---	KLDS 13 MS[5]	---	13	15 (1/2")	25
KLDS 19 ES	KLDS 19 PP	KLDS 19 MS	KLDS 19 A	19	20 (3/4")	32
KLDS 25 ES	KLDS 25 PP	KLDS 25 MS	KLDS 25 A	25	25 (1")	37
KLDS 32 ES	KLDS 32 PP[4]	KLDS 32 MS	KLDS 32 A	32	32 (1 1/4")	45
---	KLDS 32 PP B[2]	---	---	32	40 (1 1/2")	53
KLDS 38 ES	KLDS 38 PP	KLDS 38 MS	KLDS 38 A	38	40 (1 1/2")	53
KLDS 50 ES	KLDS 50 PP	KLDS 50 MS	KLDS 50 A	50	50 (2")	63
KLDS 63 ES	---	KLDS 63 MS	KLDS 63 A	63	60 (2 1/2")	76
KLDS 75 ES	KLDS 75 PP	KLDS 75 MS	KLDS 75 A	75	75 (3")	92
KLDS 100 ES	KLDS 100 PP[3]	KLDS 100 MS	KLDS 100 A	100	90 (4")	120
KLDS 125 ES	---	KLDS 125 MS	KLDS 125 A	127	120 (5")	145
KLDS 150 ES	---	KLDS 150 MS	KLDS 150 A	150	140 (6")	175

End caps for quick action chucks — Type DC

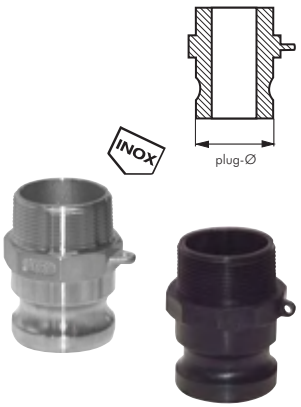
Type AISI 316	Type polypropylene[1]	Type brass	Type aluminium	Size	DN	For plug Ø
KLDV 12 ES[4]	---	KLDV 12 MS[5]	---	1/2"	15 (1/2")	25
KLDV 34 ES	KLDV 34 PP	KLDV 34 MS	KLDV 34 A	3/4"	20 (3/4")	32
KLDV 10 ES	KLDV 10 PP	KLDV 10 MS	KLDV 10 A	1"	25 (1")	37
KLDV 114 ES	KLDV 114 PP[4]	KLDV 114 MS	KLDV 114 A	1 1/4"	32 (1 1/4")	45
KLDV 112 ES	KLDV 112 PP	KLDV 112 MS	KLDV 112 A	1 1/2"	40 (1 1/2")	53
KLDV 20 ES	KLDV 20 PP	KLDV 20 MS	KLDV 20 A	2"	50 (2")	63
KLDV 212 ES	---	KLDV 212 MS	KLDV 212 A	2 1/2"	60 (2 1/2")	76
KLDV 30 ES	KLDV 30 PP	KLDV 30 MS	KLDV 30 A	3"	75 (3")	92
KLDV 40 ES	KLDV 40 PP[3]	KLDV 40 MS	KLDV 40 A	4"	90 (4")	120
KLDV 50 ES	---	KLDV 50 MS	KLDV 50 A	5"	120 (5")	145
KLDV 60 ES	---	KLDV 60 MS	KLDV 60 A	6"	140 (6")	175

[1] For liquids, please use your preferred stainless steel, brass or aluminium. [2] Plug Ø 53 mm with reduced connection. This does not comply with the standard! [3] Four hand levers. [4] Without safety pin. [5] One hand lever without safety pin.

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Quick action chucks with male threads — Type F

Type AISI 316 (INOX)	Type polypropylene[1]	Type brass	Type aluminium	Thread	DN	Plug Ø
KLSG 12 ES	---	KLSG 12 MS	---	R 1/2"	15 (1/2")	25
KLSG 34 ES	KLSG 34 PP	KLSG 34 MS	KLSG 34 A	R 3/4"	20 (3/4")	32
KLSG 10 ES	KLSG 10 PP	KLSG 10 MS	KLSG 10 A	R 1"	25 (1")	37
KLSG 114 ES	KLSG 114 PP	KLSG 114 MS	KLSG 114 A	R 1 1/4"	32 (1 1/4")	45
---	KLSG 114 PP B[2]	---	---	R 1 1/4"	40 (1 1/2")	53
KLSG 112 ES	KLSG 112 PP	KLSG 112 MS	KLSG 112 A	R 1 1/2"	40 (1 1/2")	53
KLSG 20 ES	KLSG 20 PP	KLSG 20 MS	KLSG 20 A	R 2"	50 (2")	63
KLSG 212 ES	---	KLSG 212 MS	KLSG 212 A	R 2 1/2"	60 (2 1/2")	76
KLSG 30 ES	KLSG 30 PP	KLSG 30 MS	KLSG 30 A	R 3"	75 (3")	92
KLSG 40 ES	KLSG 40 PP	KLSG 40 MS	KLSG 40 A	R 4"	90 (4")	120
KLSG 50 ES	---	KLSG 50 MS	KLSG 50 A	R 5"	120 (5")	145
KLSG 60 ES	---	KLSG 60 MS	KLSG 60 A	R 6"	140 (6")	175



Quick action chucks with female threads — Type A

Type AISI 316 (INOX)	Type polypropylene[1]	Type brass	Type aluminium	Thread	DN	Plug Ø
KLSGi 12 ES	---	KLSGi 12 MS	---	Rp 1/2"	15 (1/2")	25
KLSGi 34 ES	KLSGi 34 PP	KLSGi 34 MS	KLSGi 34 A	Rp 3/4"	20 (3/4")	32
KLSGi 10 ES	KLSGi 10 PP	KLSGi 10 MS	KLSGi 10 A	Rp 1"	25 (1")	37
KLSGi 114 ES	KLSGi 114 PP	KLSGi 114 MS	KLSGi 114 A	Rp 1 1/4"	32 (1 1/4")	45
---	KLSGi 114 PP B[2]	---	---	Rp 1 1/4"	40 (1 1/2")	53
KLSGi 112 ES	KLSGi 112 PP	KLSGi 112 MS	KLSGi 112 A	Rp 1 1/2"	40 (1 1/2")	53
KLSGi 20 ES	KLSGi 20 PP	KLSGi 20 MS	KLSGi 20 A	Rp 2"	50 (2")	63
KLSGi 212 ES	---	KLSGi 212 MS	KLSGi 212 A	Rp 2 1/2"	60 (2 1/2")	76
KLSGi 30 ES	KLSGi 30 PP	KLSGi 30 MS	KLSGi 30 A	Rp 3"	75 (3")	92
KLSGi 40 ES	KLSGi 40 PP	KLSGi 40 MS	KLSGi 40 A	Rp 4"	90 (4")	120
KLSGi 50 ES	---	KLSGi 50 MS	KLSGi 50 A	Rp 5"	120 (5")	145
KLSGi 60 ES	---	KLSGi 60 MS	KLSGi 60 A	Rp 6"	140 (6")	175

Quick action chucks with female threads for IBC containers — Type A

Type polypropylene	Thread	DN	Plug Ø
KLSGi 10 PP-IBC60	S60x6 (FT)	25 (1")	37
KLSGi 10 PP-IBC100	S100x8 (FT)	25 (1")	37
KLSGi 20 PP-IBC60	S60x6 (FT)	50 (2")	63
KLSGi 20 PP-IBC100	S100x8 (FT)	50 (2")	63

Quick action chucks with hose nozzles — Type E

Type AISI 316 (INOX)	Type polypropylene[1]	Type brass	Type aluminium	Hose Ø internal	DN	Plug Ø
KLSS 13 ES	---	KLSS 13 MS	---	13	15 (1/2")	25
KLSS 19 ES	KLSS 19 PP	KLSS 19 MS	KLSS 19 A	19	20 (3/4")	32
KLSS 25 ES	KLSS 25 PP	KLSS 25 MS	KLSS 25 A	25	25 (1")	37
KLSS 32 ES	KLSS 32 PP	KLSS 32 MS	KLSS 32 A	32	32 (1 1/4")	45
---	KLSS 32 PP B[2]	---	---	32	40 (1 1/2")	53
KLSS 38 ES	KLSS 38 PP	KLSS 38 MS	KLSS 38 A	38	40 (1 1/2")	53
KLSS 50 ES	KLSS 50 PP	KLSS 50 MS	KLSS 50 A	50	50 (2")	63
KLSS 63 ES	---	KLSS 63 MS	KLSS 63 A	63	60 (2 1/2")	76
KLSS 75 ES	KLSS 75 PP	KLSS 75 MS	KLSS 75 A	75	75 (3")	92
KLSS 100 ES	KLSS 100 PP	KLSS 100 MS	KLSS 100 A	100	90 (4")	120
KLSS 125 ES	---	KLSS 125 MS	KLSS 125 A	125	120 (5")	145
KLSS 150 ES	---	KLSS 150 MS	KLSS 150 A	150	140 (6")	175

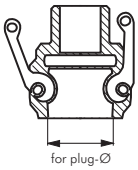
Valved plugs for quick coupling sockets — Type DP

Type AISI 316 (INOX)	Type polypropylene[1]	Type brass	Type aluminium	Size	DN	Plug Ø
KLSV 12 ES	---	KLSV 12 MS	---	1/2"	15 (1/2")	25
KLSV 34 ES	KLSV 34 PP	KLSV 34 MS	KLSV 34 A	3/4"	20 (3/4")	32
KLSV 10 ES	KLSV 10 PP	KLSV 10 MS	KLSV 10 A	1"	25 (1")	37
KLSV 114 ES	KLSV 114 PP	KLSV 114 MS	KLSV 114 A	1 1/4"	32 (1 1/4")	45
KLSV 112 ES	KLSV 112 PP	KLSV 112 MS	KLSV 112 A	1 1/2"	40 (1 1/2")	53
KLSV 20 ES	KLSV 20 PP	KLSV 20 MS	KLSV 20 A	2"	50 (2")	63
KLSV 212 ES	---	KLSV 212 MS	KLSV 212 A	2 1/2"	60 (2 1/2")	76
KLSV 30 ES	KLSV 30 PP	KLSV 30 MS	KLSV 30 A	3"	75 (3")	92
KLSV 40 ES	KLSV 40 PP	KLSV 40 MS	KLSV 40 A	4"	90 (4")	120
KLSV 50 ES	---	KLSV 50 MS	KLSV 50 A	5"	120 (5")	145
KLSV 60 ES	---	KLSV 60 MS	KLSV 60 A	6"	140 (6")	175

[1] For liquids please preferably use stainless steel, brass or aluminium.
[2] Plug Ø 53 mm with reduced connection. This does not comply with the standard!

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

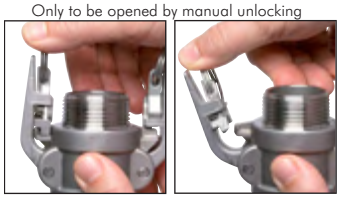
Kamlock couplings



Quick couplings with safety locks — MIL-C-27487

Function: A safety rapid locking mechanism integrated in the hand levers locks the coupling in the coupled state and this is fully automatic. The coupling can only be opened by manually unlocking the safety lever (2 1/2" and 6" with unlocking pins). All quick action chucks (conforming to the MIL-C-27487 standard) can be used as plugs.
Materials: Body: Stainless steel AISI 316, seal: NBR, handle, ring and chain: Stainless steel
Temperature range: -10°C to max. +80°C

Only to be opened by manual unlocking



Advantages:
- Coupling is automatically locked in coupled condition
- Safety pins cannot get lost
- Full throughway
- Low pressure loss
- Also suitable for solid materials, as there are no internal valves
- Dimensions globally standardised according to MIL-C-27487

Quick coupling sockets with safety locks and male threads — Type B

Type AISI 316 (INOX)	Thread	DN	For plug Ø	PN
KLDG 10 ES-S	R 1"	25 (1")	37	16 bar
KLDG 114 ES-S	R 1 1/4"	32 (1 1/4")	45	16 bar
KLDG 112 ES-S	R 1 1/2"	40 (1 1/2")	53	16 bar
KLDG 20 ES-S	R 2"	50 (2")	63	16 bar
KLDG 212 ES-S	R 2 1/2"	60 (2 1/2")	76	16 bar
KLDG 30 ES-S	R 3"	75 (3")	92	14 bar
KLDG 40 ES-S	R 4"	90 (4")	120	7 bar
KLDG 60 ES-S	R 6"	140 (6")	175	7 bar

Quick coupling sockets with safety locks and female threads — Type D

Type AISI 316 (INOX)	Thread	DN	For plug Ø	PN
KLDGi 10 ES-S	Rp 1"	25 (1")	37	16 bar
KLDGi 114 ES-S	Rp 1 1/4"	32 (1 1/4")	45	16 bar
KLDGi 112 ES-S	Rp 1 1/2"	40 (1 1/2")	53	16 bar
KLDGi 20 ES-S	Rp 2"	50 (2")	63	16 bar
KLDGi 212 ES-S	Rp 2 1/2"	60 (2 1/2")	76	16 bar
KLDGi 30 ES-S	Rp 3"	75 (3")	92	14 bar
KLDGi 40 ES-S	Rp 4"	90 (4")	120	7 bar
KLDGi 60 ES-S	Rp 6"	140 (6")	175	7 bar

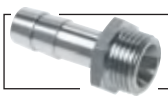
Quick coupling sockets with safety locks and hose nozzles — Type C

Type AISI 316 (INOX)	Hose Ø internal	DN	For plug Ø	PN
KLDS 25 ES-S	25	25 (1")	37	16 bar
KLDS 32 ES-S	32	32 (1 1/4")	45	16 bar
KLDS 38 ES-S	38	40 (1 1/2")	53	16 bar
KLDS 50 ES-S	50	50 (2")	63	16 bar
KLDS 63 ES-S	63	60 (2 1/2")	76	16 bar
KLDS 75 ES-S	75	75 (3")	92	14 bar
KLDS 100 ES-S	100	90 (4")	120	7 bar
KLDS 150 ES-S	150	140 (6")	175	7 bar

End caps with safety locks for quick action chucks — Type DC

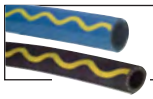
Type AISI 316 (INOX)	Size	DN	For plug Ø	PN
KLDV 10 ES-S	1"	25 (1")	37	16 bar
KLDV 114 ES-S	1 1/4"	32 (1 1/4")	45	16 bar
KLDV 112 ES-S	1 1/2"	40 (1 1/2")	53	16 bar
KLDV 20 ES-S	2"	50 (2")	63	16 bar
KLDV 212 ES-S	2 1/2"	60 (2 1/2")	76	16 bar
KLDV 30 ES-S	3"	75 (3")	92	14 bar
KLDV 40 ES-S	4"	90 (4")	120	7 bar
KLDV 60 ES-S	6"	140 (6")	175	7 bar

LOCTITE Liquid seals, gaskets & tapes from page 549



Threaded nozzles from page 64

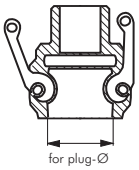
Power clamps "Band-It" Extremely high clamping strength from page 240



Industrial hoses from page 213

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Quick couplings — EN 14420-7 (DIN 2828)

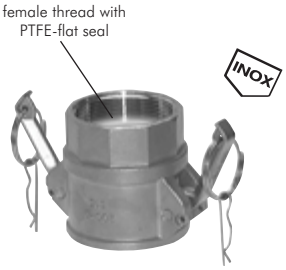


Materials: Body: Stainless steel AISI 316, seal: NBR, handle, ring: Stainless steel (female thread is equipped with PTFE flat seals)
Temperature range: -10°C to max. +80°C

Advantages:
- Full throughway
- Low pressure loss
- Also suitable for solid materials, as there are no internal valves
- Compatible with plugs/sockets according to MIL-C-27487

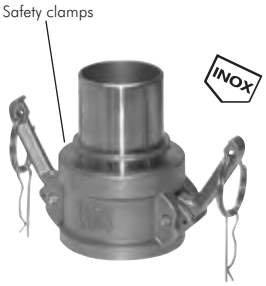
The EN couplings only differ with regard to the version of the female thread and hose connection for standard couplings. They are completely compatible with standard couplings in accordance with MIL-C-27487.

Quick coupling sockets with female threads, EN 14420-7 (DIN 2828) — Type D



Type AISI 316 (INOX)	Thread	DN	For plug Ø	PN
KLDGi 34 ES-DIN	G 3/4"	20 (3/4")	32	18 bar
KLDGi 10 ES-DIN	G 1"	25 (1")	37	18 bar
KLDGi 114 ES-DIN	G 1 1/4"	32 (1 1/4")	45	18 bar
KLDGi 112 ES-DIN	G 1 1/2"	40 (1 1/2")	53	18 bar
KLDGi 20 ES-DIN	G 2"	50 (2")	63	18 bar
KLDGi 212 ES-DIN	G 2 1/2"	60 (2 1/2")	76	16 bar
KLDGi 30 ES-DIN	G 3"	75 (3")	92	14 bar
KLDGi 40 ES-DIN	G 4"	90 (4")	120	7 bar

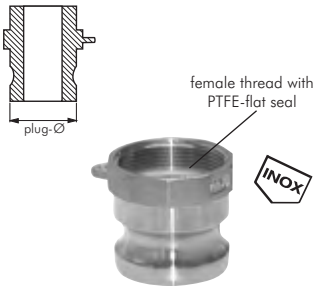
Quick coupling sockets with hose nozzles, EN 14420-7 (DIN 2828) — Type C



Hose assembly is done using shell hose clamps EN 14420-3 (DIN 2817) (see page 239)

Type AISI 316 (INOX)	Hose Ø internal	DN	For plug Ø	PN
KLDS 19 ES-DIN	19	20 (3/4")	32	18 bar
KLDS 25 ES-DIN	25	25 (1")	37	18 bar
KLDS 32 ES-DIN	32	32 (1 1/4")	45	18 bar
KLDS 38 ES-DIN	38	40 (1 1/2")	53	18 bar
KLDS 50 ES-DIN	50	50 (2")	63	18 bar
KLDS 63 ES-DIN	63	60 (2 1/2")	76	16 bar
KLDS 75 ES-DIN	75	75 (3")	92	14 bar
KLDS 100 ES-DIN	100	90 (4")	120	7 bar

Quick action chucks with female threads, EN 14420-7 (DIN 2828) — Type A



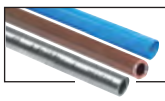
Type AISI 316 (INOX)	Thread	DN	Plug Ø	PN
KLSGi 34 ES-DIN	G 3/4"	20 (3/4")	32	18 bar
KLSGi 10 ES-DIN	G 1"	25 (1")	37	18 bar
KLSGi 114 ES-DIN	G 1 1/4"	32 (1 1/4")	45	18 bar
KLSGi 112 ES-DIN	G 1 1/2"	40 (1 1/2")	53	18 bar
KLSGi 20 ES-DIN	G 2"	50 (2")	63	18 bar
KLSGi 212 ES-DIN	G 2 1/2"	60 (2 1/2")	76	16 bar
KLSGi 30 ES-DIN	G 3"	75 (3")	92	14 bar
KLSGi 40 ES-DIN	G 4"	90 (4")	120	7 bar

Quick action chucks with hose nozzles, EN 14420-7 (DIN 2828) — Type E

Hose assembly is done using shell hose clamps EN 14420-3 (DIN 2817) (see page 239)

Type AISI 316 (INOX)	Hose Ø internal	DN	Plug Ø	PN
KLSS 19 ES-DIN	19	20 (3/4")	32	18 bar
KLSS 25 ES-DIN	25	25 (1")	37	18 bar
KLSS 32 ES-DIN	32	32 (1 1/4")	45	18 bar
KLSS 38 ES-DIN	38	40 (1 1/2")	53	18 bar
KLSS 50 ES-DIN	50	50 (2")	63	18 bar
KLSS 63 ES-DIN	63	60 (2 1/2")	76	16 bar
KLSS 75 ES-DIN	75	75 (3")	92	14 bar
KLSS 100 ES-DIN	100	90 (4")	120	7 bar

Replacement seals for Kamlock couplings can be found in the Online Shop


Aluminium, copper and steel pipes from page 250

Butt weld fittings from page 254

Ball valves from page 280

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Chapter 4 - Hoses - Tubes - Clamps

Hoses from 2 to 28 mm

Polyurethane
PU
Page 192-194

Polyamide
PA
Page 196-197

PTFE hoses
Page 198

Polyethylene
PL
Page 198

DEKABON tube
Page 195

Resistant to welding spatter, heat resistant, electrically conducting
Page 194

Food safe
PU
Page 192

Coil tubes & multiple hoses

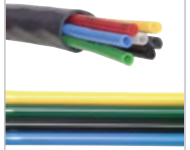
PU coil tubes
Page 200

PU coil tubes
with connections
Page 201

PA coil tubes
Page 202

PA coil tubes
with connections
Page 203

PU+PA
multiple coil tubes
Page 200+202


Polyamide
multiple hoses
Page 199

Shrink tube
Page 219

Hose reels, cable reels & accessories

Hose reels
for compressed air
Page 204

Hose reels
for water
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High pressure
Page 205

Cable winder
Page 204

Hose coil
Page 206

Wall hose holder
Page 207

Hose burst valve
Page 207

Compressed air hoses & water hoses

PVC hoses
Page 208

PVC hoses assembled
with couplings
Page 208

PVC hose
antistatic + food quality
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Fire extinguishing hoses
Page 211

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Page 212-213

Water hoses
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Garden water
hoses
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Steam hoses, silicone hoses & gas hoses

Dampf Trix
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Silicone hoses
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Breathing air hoses
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Propane
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Universal fuel
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Autogenous hoses
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Twin hoses
for oxygen
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All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Cooling system, chemical, heat resistant and special hoses

Hose for cooling systems DIN 73411 Page 217

Chemical hoses EN 12115 Page 218

Sandblast hoses Page 219

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Flame retard Page 215

Heat resistant rubber hoses Page 226

Coolant hoses Page 276

Suction hoses & pressure hoses

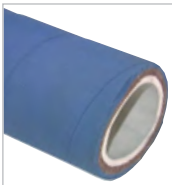
Vacuum plastic coil tubes Page 220

AC and vent hoses Page 220

Lightweight to heavy suction-pressure hoses made of PU Page 221

Suction-pressure hoses made of PVC Page 222

Silicone hot air hose Page 224


Dairy hoses Page 225

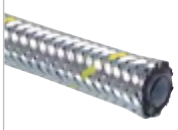
Suction hose for hydraulic oil Page 226

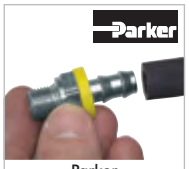
Oil hoses, fuel hoses & hydraulic lines

Fuel hoses Page 226

Fuel hoses for bio-diesel Page 226

Heat resistant rubber hoses Page 226


Silver hoses Page 227



Parker Push-Lock push-in hose program Page 228

Ready-made hydraulic lines Page 231

Ready-made high pressure cleaner washing hoses Page 231

Hose clamps & pipe clamps

Hose clamps worm drives Page 234-235

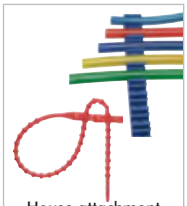
1-ear and 2-ear and retention clamps Page 236

Hinge bolts and wire hose clamps Page 237-238

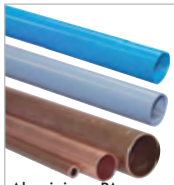
Hose clamps and clamps Page 239

Band-It power clamps Page 240-241

Pipe clamps Page 242-246


House attachment Page 247-249

Tubes, flanges, butt weld fittings & compensators


Aluminium, PA, copper & threaded tubes Page 250-251

Seamless hydraulic tubes Page 252-253

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Butt weld fittings Page 254-259

Flanges Page 260-263

Compensators Page 264-265

PVC adhesive fittings Page 266-275

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Polyurethane hoses

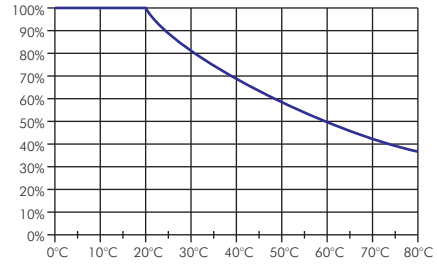
Polyurethane hoses, outside diameter calibrated

PUN hoses

Advantages:
- Small bend radius due to special flexibility
- Very good cold flexibility and reset characteristics
- Kink and abrasion resistant
- Resistant to aliphatic hydrocarbons and most lubricants
- Resistant to ageing in oxygen
- Dragline chain capable (min. bend radius corresponds to 10 x outside dia.)

Material: Polyester polyurethane
Temperature range: -35°C to max. +60°C
Shore hardness: 97 A
Roll length: 50 m

Pressure/temperature diagram for PUN hoses



Usable with:

push-in fittings	CK quick screw fittings	plastic screw fittings	PK push-in nipple	multiple couplings
page no. 24	53	Online Shop	60	41

Type	Hose Ø external x int.	Min. bend radius	Operating pressure	Available types/colours
PUN 3x2 **	3 x 2	10	10 bar	● ● ○ ●
PUN 4x2,5 **	4 x 2.5	10	13 bar	● ● ○ ● ● ● ●
PUN 6x4 **	6 x 4	15	14 bar	● ● ○ ● ● ● ●
PUN 8x5 **	8 x 5 [2)]	23	16 bar	● ● ○ ● ● ● ●
PUN 10x6,5 **	10 x 6.5	30	11 bar	● ● ○ ● ● ● ●
PUN 12x8 **	12 x 8	40	11 bar	● ● ○ ● ● ● ●
PUN 14x10 **	14 x 10	40	11 bar	● ● ○
PUN 16x11 **	16 x 11	55	10 bar	● ● ○ ●

** please enter the required hose colour here. [1)] light grey. [2)] colour silver interior 5.5 mm

TIP *Especially small bend radius possible!*

In your order please enter the required colour here!

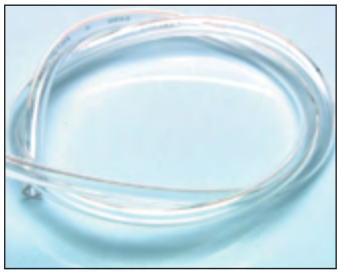
Order example: PUN 3x2 **

Standard type

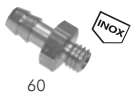
Order supplement for colour:
- black . . . . . .SCHWARZ
- blue . . . . . .BLAU
- clear . . . . . .KLAR
- yellow . . . . . .GELB
- red . . . . . .ROT
- green . . . . . .GRUN
- silver . . . . . .SILBER

Polyurethane hoses, food-safe, outside diameter calibrated

PUN hose made of raw material in accordance with FDA 21 CFR 177.2600, hydrolysis and microbe resistant
Material: Polyether polyurethane
Temperature range: -35°C to max. +60°C
Shore hardness: 53 D (type PUN 12x8 ... 48 D)
Roll length: 50 m



Usable with:

push-in fittings	CK quick screw fittings	plastic screw fittings	PK push-in nipple
			
page no. 24	53	Online Shop	60

Type transparent*	Type transparent blue	Hose Ø external x internal	Min. bend radius	Operating pressure
PUN 4x2,5 LE	PUN 4x2,5 BLAU LE	4 x 2.5	12	17 bar
PUN 6x4 LE	PUN 6x4 BLAU LE	6 x 4	18	16 bar
PUN 8x5 LE	PUN 8x5 BLAU LE	8 x 5	25	17 bar
PUN 8x6 LE	PUN 8x6 BLAU LE	8 x 6	28	12 bar
PUN 10x6,5 LE	PUN 10x6,5 BLAU LE	10 x 6.5	40	16 bar
PUN 10x8 LE	---	10 x 8	55	10 bar
PUN 12x8 LE	PUN 12x8 BLAU LE	12 x 8	50	10 bar

* standard colour, please use in preference

Tube cutters on page 595

Service units FUTURA series from page 330

Valves from page 414

Cylinders from page 460

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Polyurethane hoses, inside diameter calibrated

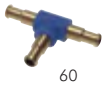
Advantages:
- Small bend radius due to special flexibility
- Very good cold flexibility and reset characteristics
- Kink and abrasion resistant
- Resistant to aliphatic hydrocarbons and most lubricants
- Resistant to ageing in oxygen

Material: Polyester polyurethane
Temperature range: -35°C to +60°C
Shore hardness: 52 D
Roll length: 50 m

Usable with:

CK quick screw fittings page no. 53

plastic screw fittings Online Shop

PK push-in nipple  60

Type meter goods	Type 100 m roll[1]	Hose Ø external x int.	Min. bend radius	Operating pressure	Available types/colours
PU 4x2 **	PU 4x2 ** -100	4 x 2	15	21 bar	● ● ○ ● ● ●
PU 4,3x3 **	PU 4,3x3 ** -100	4.3 x 3	15	12 bar	● ● ○ ● ● ●
PU 5x3 **	---	5 x 3	15	16 bar	● ● ○ ● ● ●
PU 6x4 **	PU 6x4 ** -100	6 x 4	20	14 bar	● ● ○ ● ● ●
PU 8x6 **	PU 8x6 ** -100	8 x 6	25	12 bar	● ● ○ ● ● ●
PU 10x8 **	PU 10x8 ** -100	10 x 8	45	8 bar	● ● ○ ● ● ●
PU 11,6x9 **	---	11.6 x 9	35	8 bar	● ● ○
PU 12x9 **	PU 12x9 ** -100	12 x 9	35	8 bar	● ● ○ ● ● ●

** please enter the required hose colour here. [1] 1 piece is equivalent to 100 m

In your order please enter the required colour here!

Order example: PU 4x2 **
Standard type

Order supplement for colour:
- black . . . . . .SCHWARZ
- blue . . . . . .BLAU
- natural . . . . . .NATUR
- yellow . . . . . .GELB
- red . . . . . .ROT
- green . . . . . .GRUN

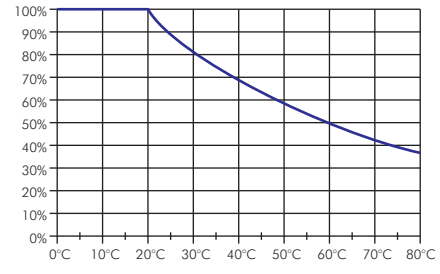
Imperial polyurethane hoses, outside diameter calibrated

PUN hoses

Advantages:
- Small bend radius due to special flexibility
- Very good cold flexibility and reset characteristics
- Kink and abrasion resistant
- Resistant to aliphatic hydrocarbons and most lubricants
- Resistant to ageing in oxygen
- Dragline chain capable (min. bend radius corresponds to 10 x outside dia.)

Material: Polyester polyurethane
Temperature range: -35°C to max. +60°C
Shore hardness: 97 A
Roll length: 50 m

Pressure/temperature diagram for PUN hoses



Type black	Type blue	Hose Ø external x internal	External Ø [mm]	Min. bend radius	Operating pressure
PUN 1/8 SCHWARZ	---	1/8" x 2.0	3.17	8	10 bar
PUN 5/32 SCHWARZ	---	5/32" x 2.0	3.97	10	10 bar
PUN 3/16 SCHWARZ	---	3/16" x 3.2	4.76	12	10 bar
PUN 1/4 SCHWARZ	PUN 1/4 BLAU	1/4" x 4.2	6.35	15	10 bar
PUN 5/16 SCHWARZ	---	5/16" x 5.0	7.94	24	10 bar
PUN 3/8 SCHWARZ	---	3/8" x 6.4	9.52	30	10 bar
PUN 1/2 SCHWARZ	---	1/2" x 8.5	12.70	36	10 bar

You will find hoses from other manufacturers in our Online Shop

Many additional products and sizes are available in our **Online Shop!**

Simply look for the original item number!

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Polyurethane hoses

For the automotive industry

Polyurethane hoses, resistant to welding spatter

These special hoses are designed for all applications related to welding systems, spot welding tongs or flying sparks, e.g. in the vicinity of grinding machines. They have survived the hardest of conditions and proven themselves in the extensive range of practical tests.

Advantages:
- Extremely resistant to all forms of welding spatter and spark flight
- Halogen-free flame retardent, in case of fire self-extinguishing. Fire performance tested by "Underwriters Laboratories Inc.®", classification of UL 94 V2 to V0
- Suitable for all standard push-in connectors
- Resistant to hydrolysis and microbes for applications with or in water
- Simple, fast and economical to assemble, as no time-consuming stripping of double-walled hose is necessary and no expensive special screw connections are needed
- Very tight bend radius possible
- Very good UV resistant
- Extremely high wear and abrasion resistance (compatible with cable carriers)
- Free of paint-wetting impairment substances (PWIS-free)
- Approved for use in the German automotive industry

flamex®

Material: Polyether polyurethane
Temperature range: -30°C to max. +100°C
Hose colour: Black
Roll length: 50 m

Type	Hose Ø external x internal	Min. bend radius	Operating pressure
PUN 4x2 FLAMEX	4 x 2	7	20 bar
PUN 8x4 FLAMEX	8 x 4	15	17 bar
PUN 10x6 FLAMEX	10 x 6	20	12 bar
PUN 12x8 FLAMEX	12 x 8	28	12 bar
PUN 14x10 FLAMEX	14 x 10	45	13 bar
PUN 16x11 FLAMEX	16 x 11	55	12 bar

Flame retardence and insulation hoses on page 224

For building technology, e.g. in cable ducts

Polyurethane hoses, flame resistant

These special hoses are particularly suited for use in cable ducts (building technology) with light to moderate spark flights and moderate UV-radiations. They have survived the hardest of conditions and proven themselves in the extensive range of practical tests.

Advantages:
- Halogen free, flame retardant, self-extinguishing in event of fire, fire performance tested by "Underwriters Laboratories Inc.®", classification fire class as per UL 94 V2
- Suitable for all standard push-in connectors
- Very tight bend radius possible
- Extremely high wear and abrasion resistance (compatible with cable carriers)
- Free of paint-wetting impairment substances (PWIS-free)
- Approved for use in the German automotive industry

KKS

Material: Polyether polyurethane
Temperature range: -30°C to max. +100°C
Hose colour: Blue
Roll length: 50 m
Warning: Not for the direct welding area, or pipelines with high levels of mechanical loading

Type	Hose Ø external x internal	Min. bend radius	Operating pressure
PUN 6x4 KKS	6 x 4	14	12 bar
PUN 8x6 KKS	8 x 5.7	28	11 bar
PUN 10x8 KKS	10 x 7.5	38	10 bar
PUN 12x9 KKS	12 x 9	45	10 bar

Polyurethane hoses, electrically conducting

These electrically conductive special hoses are designed for all applications where static loads are to be avoided. Hence it is used in the manufacture of electronic components, in the coating industry, in explosion-proof areas, in the mining industry or in part conveyance as pneumatic-, conveyor- and as supply hose (e.g. for refrigeration).

Advantages:
- Extremely anti-static design with a surface resistance ≤ 10^6 Ohm
- Tested for conformity to Atex Directive 94/9/EC
- High pressure resistance
- Best mechanical properties
- Suitable for all standard push-in connectors
- Resistant to hydrolysis and microbes for applications with or in water
- Very tight bend radius possible
- Very good UV resistant
- Suitable for vacuum applications

A:S:S®

Material: Polyether polyurethane
Temperature range: -30°C to max. +80°C
Hose colour: Black
Roll length: 50 m

Type	Hose Ø external x internal	Min. bend radius	Operating pressure
PUN 4x2,5 ANTISTAT	4 x 2.5	9	15 bar
PUN 6x4 ANTISTAT	6 x 3.9	15	14 bar
PUN 8x6 ANTISTAT	8 x 5.7	28	10 bar
PUN 10x8 ANTISTAT	10 x 7.5	35	9 bar
PUN 12x9 ANTISTAT	12 x 9	50	9 bar

Push-in fittings Ø 3 - 32 mm from page 24

Push-in connectors made of brass & stainless steel from page 42

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Polyurethane hoses (Stream-Line)

Warning: These hoses are specially manufactured for CEJN-Stream-Line fittings. Coupling sockets and coupling plugs of the Stream-Line program can be found on pages 155 + 157.

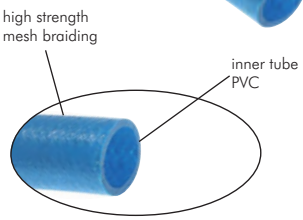
Materials: Polyester polyurethane, fabric braiding: Polyester filament
Temperature range: -30°C to max. +60°C
Roll length: 50 m

Type CEJN	Min. bend radius	Operat. pressure	Type Eco**	Min. bend radius	Operating pressure	Hose Ø external x internal
PU 85 SL*	17	10 bar	---	---	---	8 x 5
PU 106 SL	27	16 bar	PU 106 SL E	40	15 bar	10 x 6.5
PU 128 SL	35	16 bar	PU 128 SL E	45	15 bar	12 x 8
PU 139 SL	48	12 bar	---	---	---	13.5 x 9.5
PU 1611 SL	60	12 bar	PU 1611 SL E	95	12 bar	16 x 11

* without fabric braiding, ** not CEJN brand

PC special pneumatic hoses

Temperature range: -40°C to max. +60°C
Properties: Flexible, thin walled, light and high pressure resistant, smooth interior PVC with impregnated special mesh braiding
Roll length: 50 m



Usable with:

CK quick screw fittings
page no. 63

threaded nozzles
64

Type	Hose Ø external x internal	Min. bend radius	Operating pressure at 20°C	Operating pressure at 60°C
PC 6,2x4	6.2 x 4	50	40 bar	28 bar
PC 7,2x5*	7.2 x 5	55	40 bar	28 bar
PC 8,2x6	8.2 x 6	60	40 bar	28 bar
PC 10,2x8	10.2 x 8	65	35 bar	24 bar
PC 11,6x9	11.6 x 9	70	30 bar	22 bar
PC 12,5x10	12.5 x 10	80	28 bar	20 bar
PC 17,6x13	17.6 x 13	100	28 bar	20 bar

* inner tube: black

DEKABON tubes – the "metal-plastic" lines

DEKABON – the dimensionally stable tube, that can be bent by hand and keeps the shape.

Tube construction: Polyethylene (HD-PE) with aluminium foil layer on both sides
Processing: DEKABON tubes can be cut with tube cutter type SAS 26
Temperature range: -40°C to +80°C
Operating range: Exclusively for compressed air
Roll length: 75 m

Advantages:
- Can be bent by hand and keeps its shape
- Low weight – only weighs a small percentage of conventional metal tubes
- Does not require special tools for processing

Usable with:

push-in fittings
page no. 24

compression ring fittings
70

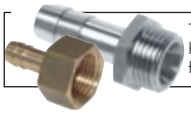
Type	Tube Ø external x internal	Min. bend radius	Operat. pressure at 23°C	Operat. pressure at 80°C	Available types/colours
TKB 6x4 **	6 x 4	19	29 bar	12 bar	● ●
TKB 8x5 **	8 x 5.3	25	29 bar	12 bar	● ●
TKB 10x6 **	10 x 6.2	32	29 bar	12 bar	●
TKB 12x8 **	12 x 8.2	40	25 bar	9 bar	●
TKB 14x10 **	14 x 9.8	50	25 bar	9 bar	●
TKB 15x11 **	15 x 10.8	50	20 bar	8 bar	●

** please enter the required hose colour here.

In your order please enter the required colour here!

Order example: TKB 6x4 **
Standard type
Order supplement for colour:
● black . . . . . .SCHWARZ
● blue . . . . . .BLAU

Tube cutters on page 595


Threaded nozzles & hose nozzles from page 64

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Polyamide hoses

Polyamide hoses, standard

Properties: Semi-rigid, easy to move and kink resistant. Preferably for use with compressed air, hydraulic and fuel lines. Suitable for use in cable carriers. Colour black: UV resistant.
Temperature range: -60°C to max. +100°C (for reference values see table)
Shore hardness: 65 D
Roll length: 50 m

Temperature range	-60 to +20°C	+30°C	+40°C	+50°C	+60°C	+70°C	+80°C	+90°C	+100°C
Utilisation rate	100%	87%	74%	64%	57%	52%	47%	44%	40%

Usable with:

push-in fittings	CK quick screw fittings	PK push-in nipple	cutting/compression ring fittings	in combination with	reinforcing sleeves
page no. 24	53	60	74		99

Type meter goods	Type 25 m roll	Type 100 m roll	Hose Ø external x int.	Min. bend radius	Operating pressure	Available types/colours*
PA 3x1,7 **	PA 3x1,7 **-25	PA 3x1,7 **-100	3 x 1.7	15	35 bar	● ● ○
PA 4x2 **	PA 4x2 **-25	PA 4x2 **-100	4 x 2	15	44 bar	● ● ○ ● ● ●
PA 4x2,7 **	PA 4x2,7 **-25	PA 4x2,7 **-100	4 x 2.7	25	23 bar	● ● ○ ● ● ●
PA 4,3x3 **	---	---	4.3 x 3	20	23 bar	● ● ○ ● ● ●
PA 5x3 **	PA 5x3 **-25	PA 5x3 **-100	5 x 3	30	34 bar	● ● ○ ● ● ●
PA 6x3 **	PA 6x3 **-25	PA 6x3 **-100	6 x 3	50	44 bar	● ● ○ ●
PA 6x4 **	PA 6x4 **-25	PA 6x4 **-100	6 x 4	35	27 bar	● ● ○ ● ● ●
PA 8x5 **	PA 8x5 **-25	PA 8x5 **-100	8 x 5	45	31 bar	● ● ○ ● ● ●
PA 8x6 **	PA 8x6 **-25	PA 8x6 **-100	8 x 6	40	19 bar	● ● ○ ● ● ●
PA 10x6 **	PA 10x6 **-25	PA 10x6 **-100	10 x 6	45	33 bar	● ● ○
PA 10x7 **	PA 10x7 **-25	PA 10x7 **-100	10 x 7	45	23 bar	● ● ○ ●
PA 10x8 **	PA 10x8 **-25	PA 10x8 **-100	10 x 8	60	15 bar	● ● ○ ● ● ●
PA 12x9 **	PA 12x9 **-25	PA 12x9 **-100	12 x 9	70	19 bar	● ● ○ ● ● ●
PA 12x10 **	---	---	12 x 10	85	12 bar	● ● ○ ● ● ●
PA 14x11 **	PA 14x11 **-25	PA 14x11 **-100	14 x 11	95	16 bar	● ● ○ ● ● ●
PA 14x12 **	---	---	14 x 12	95	10 bar	● ○
PA 15x12 **	PA 15x12 **-25	PA 15x12 **-100	15 x 12	100	15 bar	● ● ○
PA 16x12 **	---	---	16 x 12	150	18 bar	● ● ○
PA 18x14 **	---	---	18 x 14	190	17 bar	● ● ○
PA 22x18 **	---	---	22 x 18	200	13 bar	● ● ○
PA 28x23 **	---	---	28 x 23	300	13 bar	● ● ○

* standard colour natural, please use preferentially, ** please enter the required hose colour here.

Please enter the required colour here in your order!

Order example: PA 4x2 **

Standard type

Order supplement for colour:
- ● black . . . . . .SCHWARZ
- ● blue . . . . . .BLAU
- ○ natural . . . . .NATUR
- ● yellow . . . . .GELB
- ● red . . . . . .ROT
- ● green . . . . . .GRUN

Polyamide hoses, flexible

Properties: Superflexible PA tubing without elastomer plasticiser are characterised by greater low-temperature elasticity. They offer a good to outstanding hot air and weather resistance. Suitable for use in cable carriers.
Temperature range: -50°C to max. +60°C (for reference values see table)
Shore hardness: 55 D
Roll length: 50 m

Temperature range	-50 to +20°C	+30°C	+40°C	+50°C	+60°C
Utilisation rate	100%	76%	65%	56%	50%

Usable with:

push-in fittings	CK quick screw fittings	PK push-in nipple
page no. 24	53	60

Type meter goods	Type 100 m roll	Hose Ø external x int.	Min. bend radius	Operating pressure	Available types/colours*
PAFL 4x2,5 **	PAFL 4x2,5 **-100	4 x 2.5	20	24 bar	● ● ○
PAFL 6x4 **	PAFL 6x4 **-100	6 x 4	25	22 bar	● ● ○ ● ●
PAFL 8x6 **	PAFL 8x6 **-100	8 x 6	35	16 bar	● ● ○ ● ●
PAFL 10x8 **	PAFL 10x8 **-100	10 x 8	55	12 bar	● ● ○
PAFL 12x9 **	PAFL 12x9 **-100	12 x 9	55	16 bar	● ● ○
PAFL 14x11 **	PAFL 14x11 **-100	14 x 11	70	14 bar	● ● ○
PAFL 15x12 **	PAFL 15x12 **-100	15 x 12	90	13 bar	● ● ○
PAFL 16x13 **	PAFL 16x13 **-100	16 x 13	100	12 bar	● ● ○

* standard colour natural, please use preferentially, ** please enter the required hose colour here.

In your order please enter the required colour here!

Order example: PAFL 4x2,5 **

Standard type

Order supplement for colour:
- ● black . . . . . .SCHWARZ
- ● blue . . . . . .BLAU
- ○ natural* . . . . .NATUR
- ● yellow . . . . .GELB
- ● red . . . . . .ROT

Pressure gauges from page 366

Ball valves from 280

Tube cutters on page 595

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

High pressure polyamide hoses (up to 136 bar) — PA ... HD

Temperature range: 0°C to max. +100°C
Properties: Suitable for high pressures, (colour black: additionally UV resistant)
Shore hardness: 96 D
Fields of application: Low pressure hydraulic, centralized grease filling systems
Roll length: 100 m

Temperature range	to +23°C	+40°C	+60°C	+80°C	+100°C
Utilisation rate	100%	72%	57%	40%	30%

Usable with:

HD push-in fittings
page no. 936

Brass compression ring fittings
116

Brass cutting ring connections
119b

Cutting ring/compression ring fittings
122

in combination with

Reinforcing rings
163

Type **natur**	Type **black**	Hose Ø external x internal	Min. bend radius	Operating pressure
PA 4x1,5 HD NATUR	PA 4x1,5 HD SCHWARZ	4 x 1,5	35	136 bar
PA 6x3 HD NATUR	PA 6x3 HD SCHWARZ	6 x 3,0	45	100 bar

Polyamide tubes (PA 12 H) - bar products (DIN 73378/DIN 74324)*

Properties: Rigid tube for compressed air, compressed air brake, hydraulic and fuel lines.
Temperature range: -50°C to max. +100°C
Shore hardness: 74 D
Tube length: 3 m

When ordering, please state shipping length!
Parcel service: max. 2 m
Express: max. 3 m

Usable with:

push-in fittings BIG model series
page no. 24

cutting ring fittings
74

in combination with

reinforcing rings
99

Type	Tube Ø external x int.	Operating pressure	Available types/colours
PA 12x9 STG **	12 x 9	38 bar	● ●
PA 15x12 STG **	15 x 12	25 bar	● ●
PA 18x14 STG **	18 x 14	28 bar	● ●
PA 22x18 STG **	22 x 18	22 bar	● ●
PA 28x23 STG **	28 x 23	20 bar	● ●

* Ø 22 and Ø 28 are not covered by DIN, ** please enter the required hose colour here.

Please enter the required colour here in your order!

Order example: PA 12x9 STG **
Standard type

Order supplement for colour:
● black . . . . . .**SCHWARZ**
● blue . . . . . .**BLAU**

Aluminium tubes for push-in connectors

Materials: Aluminium, inside and outside chromated, outside powder coated
Temperature range: -20°C to +80°C
Operating pressure: 20 bar (depending on the connection system)
Media: Compressed air, vacuum
Tube length: 4 m
Application: The tube must be cleanly separated, the exterior deburred and given a slight chamfer. Optimal results are achieved by using a tube cutter (see table).

When ordering, please state shipping length!
Parcel service: max. 2 m
Express: max. 3 m
Freight: max. 6 m

Usable with:

push-in fittings BIG model series
page no. 24

cutting ring fittings
74

in combination with

reinforcing rings
99

Type **blue** (RAL 5015)	Type **grey** (RAL 7001)	Tube Ø external
TPR 15x12 ALU BLAU	TPR 15x12 ALU GRAU	15 x 12
TPR 18x15 ALU BLAU	TPR 18x15 ALU GRAU	18 x 15
TPR 22x19 ALU BLAU	TPR 22x19 ALU GRAU	22 x 19
TPR 28x25 ALU BLAU	TPR 28x25 ALU GRAU	28 x 25
TPR 32x29 ALU BLAU	TPR 32x29 ALU GRAU	32 x 29

Copper tubes on page 251

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

PTFE-/PFA-/polyethylene hoses

PTFE hoses/PFA hoses

Properties: Suitable for high temperatures, resistant to aggressive media, natural colour: Suitable for the food industry
Temperature range: -196°C to max. +260°C
Roll length: 50 m

Temperature range	-196°C to +20°C	+50°C	+75°C	+100°C	+150°C	+200°C	+250°C
Utilisation rate	100%	87%	77%	68%	53%	39%	28%

Usable with:

- push-in fittings page no. 24
- CK quick screw fittings 53
- plastic screw fittings Online Shop
- compression ring fittings 74
- reinforcing sleeves in combination with 99

Type meter goods	Type 100 m roll	Hose Ø external x internal	Min. bend radius	Operating pressure***	Available types/colours*
PTFE hoses					
TFL 3x2 **	---	3 x 2	15	25 bar	○
TFL 4x2 **	TFL 4x2 **-100	4 x 2	20	42 bar	● ● ○ ● ● ●
TFL 4x3 **	TFL 4x3 **-100	4 x 3	20	12 bar	○
TFL 5x3 **	---	5 x 3	25	32 bar	○
TFL 6x4 **	TFL 6x4 **-100	6 x 4	30	25 bar	● ● ○ ● ● ●
TFL 8x5 **	---	8 x 5	60	29 bar	○
TFL 8x6 **	TFL 8x6 **-100	8 x 6	40	18 bar	● ● ○ ● ● ●
TFL 10x8 **	TFL 10x8 **-100	10 x 8	60	14 bar	● ● ○ ● ● ●
TFL 12x9 **	---	12 x 9	100	13 bar	○
TFL 12x10 **	TFL 12x10 **-100	12 x 10	90	12 bar	● ● ○ ● ● ●
TFL 14x12 **	---	14 x 12	110	10 bar	● ○
PFA hoses (weldable)					
PFA 4x2 **	---	4 x 2	40	46 bar	○
PFA 6x4 **	---	6 x 4	60	27 bar	○
PFA 8x6 **	---	8 x 6	80	20 bar	○
PFA 10x8 **	---	10 x 8	120	15 bar	○
PFA 12x10 **	---	12 x 10	180	13 bar	○
PFA 14x12 **	---	14 x 12	210	11 bar	○

* standard colour natural, please use preferably, ** please enter the required hose colour here, *** with 2-fold safety

Please enter the required colour here in your order!

Order example: TFL 3x2 **
Standard type

Order supplement for colour:
- black . . . . . .SCHWARZ
- blue . . . . . .BLAU
- natural* . . . . .NATUR
- yellow . . . . . .GELB
- red . . . . . .ROT
- green . . . . . .GRUN

Especially good value!

Polyethylene hoses

PE plastic hose – the lightweight and acid resistant hose
Temperature range: -10°C to +40°C
Properties: Low weight, shock resistant and mostly resistant to acids, alkalis and salt solutions.
Shore hardness: 45 D
Roll length: 50 m

Usable with:

- CK quick screw fittings page no. 53
- plastic screw fittings Online Shop
- cutting/compression ring fittings 74
- in combination with reinforcing sleeves 99

Type meter goods	Type 100 m roll	Hose Ø external x internal	Min. bend radius	Operating pressure	Available types/colours*
PL 4x2 **	PL 4x2**-100	4 x 2	20	20 bar	● ● ○ ● ●
PL 4,3x3 **	---	4.3 x 3	20	13 bar	● ● ○ ● ●
PL 5x3 **	---	5 x 3	25	15 bar	● ● ○ ● ●
PL 6x4 **	PL 6x4**-100	6 x 4	30	13 bar	● ● ○ ● ● ●
PL 8x6 **	PL 8x6**-100	8 x 6	40	8 bar	● ● ○ ● ●
PL 10x8 **	PL 10x8**-100	10 x 8	60	6 bar	● ● ○ ● ●
PL 11.6x9 **	---	11.6 x 9	50	7 bar	● ● ○ ● ●
PL 12x9 **	---	12 x 9	50	7 bar	● ● ○ ● ●
PL 12x10 **	---	12 x 10	85	5 bar	● ● ○ ● ●
PL 14x11 **	---	14 x 11	90	8 bar	● ● ○
PL 14x12 **	---	14 x 12	85	7 bar	● ○
PL 16x12 **	---	16 x 12	100	9 bar	● ● ○

* standard colour natural, please use preferentially, ** please enter the required hose colour here.

Please enter the required colour here in your order!

Order example: PL 4x2 **
Standard type

Order supplement for colour:
- black . . . . . .SCHWARZ
- blue . . . . . .BLAU
- natural* . . . . .NATUR
- yellow . . . . . .GELB
- red . . . . . .ROT
- green . . . . . .GRUN

Tube cutters on page 595

Pressure gauge from page 366

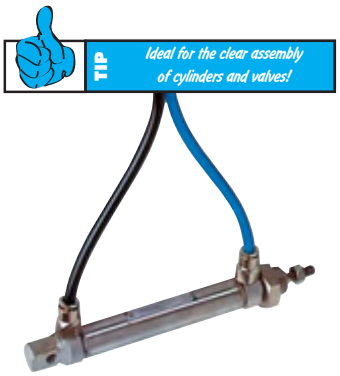
Ball valves with venting from page 287

Ball valves from page 280

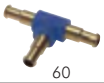
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Polyurethane multiple hoses

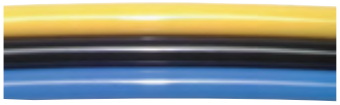
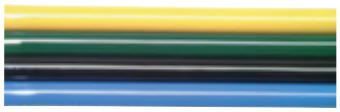
Application: Using PU multiple hoses you can make clearly arranged assemblies - valves to cylinders, for example. For the assembly the hose pair must be cut using a sharp knife at both hose ends, and then fitted to the hose connection. If required, the hose ends should be cleanly cut again.
Material: Polyester polyurethane
Temperature range: -35°C to max. +60°C
Shore hardness: 95- 98 A



Usable with:

push-in fittings	CK quick screw fittings	plastic screw fittings	PK push-in nipple
			
page no. 24	53	Online Shop	60

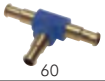
Type	Hose Ø external x internal	Operating pressure	Roll length m
Duo hoses (2-way)			**Standard colours: blue-black**
PUN 4x2 DUO	4 x 2	18 bar	50
PUN 4x2,7 DUO	4 x 2.7	12 bar	50
PUN 4,3x3 DUO	4.3 x 3	12 bar	50
PUN 6x4 DUO	6 x 4	12 bar	50
PUN 8x6 DUO	8 x 6	10 bar	50
PUN 10x8 DUO	10 x 8	7 bar	50
Trio hoses (3-way)			**Standard colours: blue-black-yellow**
PUN 4x2,5 TRIO	4 x 2.5	12 bar	25
PUN 6x4 TRIO	6 x 4	12 bar	25
PUN 8x6 TRIO	8 x 6	10 bar	25
Quattro hoses (4-way)			**Standard colours: blue-black-green-yellow**
PUN 4x2,5 QUAT	4 x 2.5	12 bar	25
PUN 6x4 QUAT	6 x 4	12 bar	25

Polyamide duo hoses

Application: Using PA multiple hoses you can make clearly arranged assemblies - valves to cylinders, for example. For the assembly the hose pair must be cut using a sharp knife at both hose ends, and then fitted to the hose connections. If required, the hose ends should be cleanly cut again. The polyamide material provides good chemical resistance and a high operating pressure even at high temperatures.
Properties: Semi-rigid, easy to move and kink resistant.
Temperature range: -40°C to +90°C
Shore hardness: 61 D

Usable with:

CK quick screw fittings	plastic screw fittings	cutting/compression ring fittings	reinforcing rings	PK push-in nipple
			in combi-nation with	
page no. 53	Online Shop	70	99	60

Type	Hose Ø external x internal	Operating pressure	Roll length m
PA 4x2 DUO	4 x 2	44 bar	50
PA 6x4 DUO	6 x 4	27 bar	50
PA 8x6 DUO	8 x 6	19 bar	50
PA 10x8 DUO	10 x 8	15 bar	50

Polyamide multiple hoses

Application: Specially designed for pneumatic systems. The external UV resistant PVC casing is very rugged and highly resistant against external influences like abrasion, oils, alcohols, acids and other media.
Properties: Coloured, numbered, calibrated polyamide hoses enclosed by a PVC casing, semi-rigid, easily moveable and kink resistant
Temperature range: -40°C to +85°C
Shore hardness: Polyamide: 64 D, PVC: 70 A.

Usable with:

push-in fittings	cutting/compression ring fittings	reinforcing rings	PK push-in nipple	multiple couplings
		in combi-nation with		
page no. 24	70	99	60	41

Type **25 m roll 4-wire**	Type **25 m roll 7-wire**	Type **25 m roll 12-wire**	Hose Ø external x internal	Operating pressure	Min. bend radius
PA 4x2,7 MULTI 4	PA 4x2,7 MULTI 7	PA 4x2,7 MULTI 12	4 x 2.7	20 bar	40
PA 6x4 MULTI 4	PA 6x4 MULTI 7	PA 6x4 MULTI 12	6 x 4	25 bar	70
PA 8x6 MULTI 4	PA 8x6 MULTI 7	PA 8x6 MULTI 12	8 x 6	19 bar	96

No.	Hose colour
1	Natural
2	Red
3	Blue
4	Green
5	Black
6	Dark grey
7	Yellow
8	Orange
9	Light grey
10	Natural*
11	Red*
12	Blue*

* bundled separately

Knives on page 595

Cylinders from page 460

Valves from page 414

Electronic pressure switches from page 391

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Polyurethane coil tubes

Especially good value!

Polyurethane coil tubes

Properties: Polyurethane coil tubes have high wear, pressure and abrasion resistance. They prevent scratching of painted surfaces (bodywork construction), have a lasting return force and at the same time have very good buckling resistance and elasticity.

Polyurethane coil tubes

Material: Polyester polyurethane
Temperature range: -20°C to max. +60°C
Operating pressure: 10 bar

Usable with:

push-in fittings
page no. 24

CK quick screw fittings
53

PK push-in nipple
60

Working length 2 m	Working length 3 m	Working length 6 m	Working length 8 m	Hose Ø external x internal	Winding Ø internal
SP PUN 42/2	SP PUN 42/3	---	---	4 x 2	17
---	SP PUN 64/3	SP PUN 64/6	SP PUN 64/8	6 x 4	30
---	SP PUN 85/3	SP PUN 85/6	SP PUN 85/8	8 x 5	34
---	SP PUN 106/3	SP PUN 106/6	SP PUN 106/8	10 x 6.5	42
---	SP PUN 128/3	SP PUN 128/6	SP PUN 128/8	12 x 8	60

Duo

Trio

Quattro

Polyurethane multiple coil tubes

Material: Polyester polyurethane
Temperature range: -20°C to max. +60°C
Operating pressure: 10 bar

Usable with:

push-in fittings
page no. 24

CK quick screw fittings
53

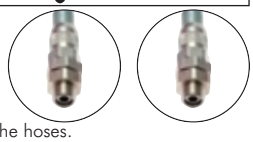
PK push-in nipple
60

Working length 2.5 m	Working length 5 m	Working length 10 m	Hose Ø external x internal	Winding Ø internal
Duo hoses (2-way), axial outlet			**Standard colours: blue-black**	
SP PU DUO 4/2,5	SP PU DUO 4/5	SP PU DUO 4/10	4 x 2	30
SP PU DUO 4,3/2,5	SP PU DUO 4,3/5	SP PU DUO 4,3/10	4.3 x 3	30
SP PU DUO 6/2,5	SP PU DUO 6/5	SP PU DUO 6/10	6 x 4	60
SP PU DUO 8/2,5	SP PU DUO 8/5	SP PU DUO 8/10	8 x 6	80
SP PU DUO 10/2,5*	SP PU DUO 10/5*	SP PU DUO 10/10*	10 x 8	90
Trio hoses (3-way), radial outlet			**Standard colours: blue-black-natural**	
SP PU TRIO 6/2,5	SP PU TRIO 6/5		6 x 4	60
SP PU TRIO 8/2,5	SP PU TRIO 8/5		8 x 6	80
Quattro hoses (4-way), radial outlet			**Standard colours: blue-black-green-natural**	
SP PU QUAT 6/2,5	SP PU QUAT 6/5		6 x 4	60
SP PU QUAT 8/2,5	SP PU QUAT 8/5		8 x 6	80

* radial outlet

Polyurethane coil tubes with bend protection spirals, 360° rotatable

Material: Polyester polyurethane
Temperature range: -20°C to max. +60°C
Operating pressure: 10 bar



Advantages: • With rotary connections for slow rotary movement to avoid twisting the hoses.

Working length 3 m	Working length 6 m	Working length 8 m	Hose Ø external x internal	Thread	Winding Ø internal
SPK PUN 146/3	SPK PUN 146/6	SPK PUN 146/8	6 x 4	G 1/4"	30
SPK PUN 148/3	SPK PUN 148/6	SPK PUN 148/8	8 x 5	G 1/4"	34
SPK PUN 1410/3	SPK PUN 1410/6	SPK PUN 1410/8	10 x 6.5	G 1/4"	42
SPK PUN 3812/3	SPK PUN 3812/6	SPK PUN 3812/8	12 x 8	G 3/8"	60

Polyurethane coil tubes with fabric and bend protection spirals, 360° rotatable

Material: Polyether polyurethane
Temperature range: -20°C to max. +75°C
Operating pressure: Type SPK TX 149/...: 14.5 bar, type SPK TX 3812/...: 12.5 bar

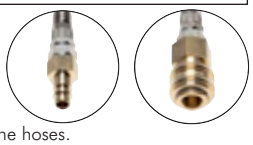
Advantages: • With rotary connections for slow rotary movement to avoid twisting the hoses
• High operating pressure

Working length 3 m	Working length 6 m	Working length 7.5 m	Hose Ø external x int.	Thread	Winding Ø int.	Type replace. fitting
SPK TX 149/3	SPK TX 149/6	SPK TX 149/7,5	9.5 x 6.3	G 1/4"	23	SPK 14/96 PU
SPK TX 3812/3	SPK TX 3812/6	SPK TX 3812/7,5	12 x 8	G 3/8"	31	SPK 38/128 PU

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Polyurethane coil tubes w/ bend protection spirals 360° rot. w/ couplings NW 7.2

Material: Polyester polyurethane
Temperature range: -20°C to max. +60°C
Operating pressure: 10 bar



Advantages:
- With rotary connections for slow rotary movement to avoid twisting the hoses.
- With coupling socket and plug, can be used immediately in the work place.

Working length 3 m	Working length 6 m	Working length 8 m	Hose Ø external x internal	Winding Ø internal
SPK PUN 64/3 KDG	SPK PUN 64/6 KDG	SPK PUN 64/8 KDG	6 x 4	30
SPK PUN 85/3 KDG	SPK PUN 85/6 KDG	SPK PUN 85/8 KDG	8 x 5	34
SPK PUN 106/3 KDG	SPK PUN 106/6 KDG	SPK PUN 106/8 KDG	10 x 6.5	42
SPK PUN 128/3 KDG	SPK PUN 128/6 KDG	SPK PUN 128/8 KDG	12 x 8	60

Polyurethane coil tubes w/ bend protection spirals 360° rot. w/ couplings NW 7.2

Material: Polyether polyurethane
Temperature range: -20°C to max. +75°C
Operating pressure: 8 bar
☞ **Optional:** With push-button safety coupling **-S**

Option **-S** with push-button safety coupling

Advantages:
- With rotary connections for slow rotary movement to avoid twisting the hoses
- With coupling socket and plug, can be used immediately in the work place

Working length 3 m	Working length 6 m	Working length 7.5 m	Working length 10 m	Hose Ø external x int.	Winding Ø int.
SPK PU 148/3 KDG	SPK PU 148/6 KGD	SPK PU 148/7,5 KGD	---	8 x 5	24
SPK PU 149/3 KDG	SPK PU 149/6 KGD	SPK PU 149/7,5 KGD	SPK PU 149/10 KDG	9.5 x 6.3	41
SPK PU 3812/3 KDG	SPK PU 3812/6 KGD	SPK PU 3812/7,5 KGD	SPK PU 3812/10 KDG	12 x 8	56

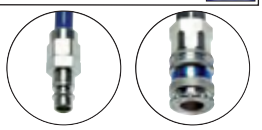
☞ **Order example:** SPK PU 148/3 KDG **

Standard type

Designation for the options:
With push-button valve safety coupling **-S**

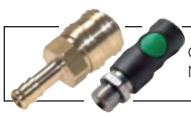
Polyurethane coil tubes (Stream-Line) with couplings NW 7.2/NW 10

Material: Polyester polyurethane
Temperature range: -20°C to max. +60°C
Operating pressure: 10 bar



Advantages:
- With steel coupling socket and plug, can be used immediately in the work place
- Very high quality CEJN safety coupling
- Steel plug, well-suited for applications with high mechanical wear

Working length 4 m	Working length 6 m	Working length 8 m	Hose Ø external x int.	Winding Ø internal
With safety coupling eSafe NW 7				
SP PUC 106/4 KDG-S	SP PUC 106/6 KDG-S	SP PUC 106/8 KDG-S	10 x 6.5	32
SP PUC 128/4 KDG-S	SP PUC 128/6 KDG-S	SP PUC 128/8 KDG-S	12 x 8	41
SP PUC 1611/4 KDG-S	SP PUC 1611/6 KDG-S	SP PUC 1611/8 KDG-S	16 x 11	63
With safety coupling eSafe NW 10				
SP PUC 1611/4 KDG-10	SP PUC 1611/6 KDG-10	SP PUC 1611/8 KDG-10	16 x 11	63


Coupling sockets NW7 from page 150

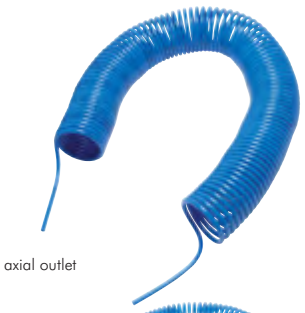
Safety couplings from page 156

Distinctive couplings from page 162

Blow guns from page 524

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Polyamide coil tubes



axial outlet

radial outlet

Polyamide coil tubes — DIN 73378/74324*

Material: PA 12 W
Temperature range: -40°C to max. +90°C
Standard colour: Blue
☞ **Optional:** Colours black, natural, green, red and yellow

Usable with:

push-in fittings page no. 24

CK quick screw fittings 53

cutting/compression ring fittings 74

in combination with 99

Working length 2.5 m	Working length 5 m	Working length 7.5 m	Working length 10 m	Hose Ø external x int.	Operat. pressure	Winding Ø internal
Axial outlet for more workspace						
SP 42,5/2,5 BLAU	SP 42,5/5 BLAU	---	---	4 x 2.5	23 bar	30
SP 53/2,5 BLAU	SP 53/5 BLAU	SP 53/7,5 BLAU	---	5 x 3	34 bar	30
SP 64/2,5 BLAU	SP 64/5 BLAU	SP 64/7,5 BLAU	SP 64/10 BLAU**	6 x 4	27 bar	60
SP 86/2,5 BLAU	SP 86/5 BLAU	SP 86/7,5 BLAU	SP 86/10 BLAU**	8 x 6	19 bar	80
SP 108/2,5 BLAU	SP 108/5 BLAU	SP 108/7,5 BLAU	---	10 x 8	15 bar	90
SP 129/2,5 BLAU	SP 129/5 BLAU	SP 129/7,5 BLAU	---	12 x 9	19 bar	90
SP 1512/2,5 BLAU	SP 1512/5 BLAU	SP 1512/7,5 BLAU	---	15 x 12	15 bar	150

Working length 15 m	Working length 22.5 m**			
Radial outlet				
SP 53/15 BLAU	---	5 x 3	34 bar	30
SP 64/15 BLAU	SP 64/22,5 BLAU	6 x 4	27 bar	60
SP 86/15 BLAU	SP 86/22,5 BLAU	8 x 6	19 bar	80
SP 108/15 BLAU	SP 108/22,5 BLAU	10 x 8	15 bar	90
SP 129/15 BLAU	SP 129/22,5 BLAU	12 x 9	19 bar	90
SP 1512/15 BLAU	---	15 x 12	15 bar	150

* only in black: DIN 74324, ** only available in blue

☞ **Order example:** SP 42,5/25 **
Standard type

Designation for the options:
- colour black . . . . . .SCHWARZ
- blue colour . . . . . .BLAU
- natur colour . . . . . .NATUR
- yellow colour . . . . . .GELB[1)]
- colour red . . . . . .ROT[1)]
- green colour . . . . . .GRUN[1)]

[1)] not for Ø 15 x 12

Polyamide duo coil tubes — DIN 73378

Material: PA 12 W
Temperature range: -40°C to max. +90°C
Standard colours: Blue-black

✓ **Advantages:** • Axial outlets for more workspace

Usable with:

CK quick screw fittings page no. 53

cutting/compression ring fittings 74

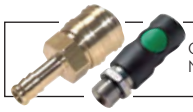
in combination with 99

Working length 2.5 m	Working length 5 m	Working length 7.5 m	Working length 10 m	Hose Ø external x int.	Operat. pressure	Winding Ø internal
SP 64/2,5 DUO	SP 64/5 DUO	SP 64/7,5 DUO	SP 64/10 DUO	6 x 4	27 bar	60
SP 86/2,5 DUO	SP 86/5 DUO	SP 86/7,5 DUO	SP 86/10 DUO	8 x 6	19 bar	80

You will find hoses from other manufacturers in our Online Shop

Many additional products and sizes are available in our **Online Shop!**

Simply look for the original item number!


Coupling sockets NW7 from page 150

Safety couplings from page 156

Distinctive couplings from page 162

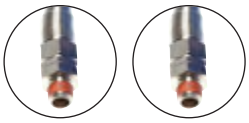
Compressed air tools from page 533

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Polyamide coil tubes with bend protection spirals, 360° rotatable DIN 73378 (Eco)

Especially good value!

Material: PA 12 W
Temperature range: -40°C to max. +90°C
Standard colour: Blue



Advantages: • With rotary connections for slow rotary movements to avoid twisting the hoses.

Working length 3 m	Working length 5 m	Working length 7 m	Hose Ø external x internal	Operating pressure	Thread
SPKD 186/3 E	SPKD 186/5 E	SPKD 186/7 E	6 x 4	27 bar	R 1/8"
SPKD 148/3 E	SPKD 148/5 E	SPKD 148/7 E	8 x 6	19 bar	R 1/4"
SPKD 1410/3 E	SPKD 1410/5 E	SPKD 1410/7 E	10 x 8	15 bar	R 1/4"
SPKD 3812/3 E	SPKD 3812/5 E	SPKD 3812/7 E	12 x 9	19 bar	R 3/8"

Polyamide coil tubes with bend protection spirals, 360° rot. DIN 73378/74324**

Material: PA 12 W
Temperature range: -40°C to max. +90°C
Standard colour: Blue
☞ **Optional:** Colours black, natural, red, yellow

Advantages: • With rotary connections for slow rotary movement to avoid twisting the hoses
• Axial outlets for more workspace

Working length 2.5 m	Working length 5 m	Working length 7.5 m	Hose Ø external x internal	Operating pressure	Thread
SPKD 186/2,5	SPKD 186/5	SPKD 186/7,5	6 x 4	27 bar	G 1/8"
SPKD 148/2,5	SPKD 148/5	SPKD 148/7,5	8 x 6	19 bar	G 1/4"
SPKD 1410/2,5	SPKD 1410/5	SPKD 1410/7,5	10 x 8	15 bar	G 1/4"
SPKD 3812/2,5	SPKD 3812/5	SPKD 3812/7,5	12 x 9	19 bar	G 3/8"
SPK 1215/2,5*	SPK 1215/5*	SPK 1215/7,5*	15 x 12	15 bar	G 1/2"

* star connection, ** only available in black: DIN 74324

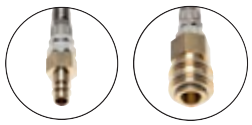
☞ **Order example:** SPKD 186/2,5 **

Standard type

Designation for the options:
● colour black . . . . . .SCHWARZ
○ natur colour . . . . . .NATUR
● colour red . . . . . .ROT
● yellow colour . . . . . .GELB

Polyamide coil tubes with bend protection spirals, 360° rot. with couplings NW 7

Material: PA 12 W
Temperature range: -20°C to max. +90°C
Standard colour: Blue



Advantages: • With rotary connections for slow rotary movement to avoid twisting the hoses
• With coupling socket and plug, can be used immediately in the work place
• Axial outlets for more workspace

Working length 2.5 m	Working length 5 m	Working length 7.5 m	Hose Ø external x internal	Operating pressure
SPKD 148/2,5 KDG	SPKD 148/5 KDG	SPKD 148/7,5 KDG	8 x 6	19 bar
SPKD 1410/2,5 KDG	SPKD 1410/5 KDG	SPKD 1410/7,5 KDG	10 x 8	15 bar
SPKD 3812/2,5 KDG	SPKD 3812/5 KDG	SPKD 3812/7,5 KDG	12 x 9	19 bar

Blow guns from page 524

High performance blow guns from page 531

Hand tyre inflator and accessories from page 533

Service units FUTURA series from page 330

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Automatic hose reels/cable reels

Especially good value!

Automatic hose reels for compressed air — Eco/14 bar

Function: The hose can be drawn out and can be locked with every rotation of the drum. After a pulling a little, the drum retracts the entire hose.
Materials: Body and hood: Plastic, connection: Brass, hose: Polyether polyurethane
Supply volume: Automatic hose reel complete with fabric braided polyurethane hose, stoppers and threaded nozzles on the hose ends, mounting bracket (pivoting)

Type	Hose Ø internal x ext.	Hose length	Operating pressure	Input	Output
SAG 1288 B	8 x 12	7.5 m	0 - 14 bar	R 1/4" MT	R 1/4" MT

type SAD 1098

type SAD 15128

Automatic hose reels for compressed air — up to 15 bar

Function: The hose can be drawn out and can be locked several times with every rotation of the drum. After a pulling a little, the drum retracts the entire hose.
Materials: Body and drum: Plastic, mounting bracket: Steel, painted black, hose: Polyether polyurethane
Supply volume: Automatic hose reel with hose, stopper and threaded nozzles at the hose ends, mounting bracket (pivoting)

Type	Hose Ø internal x ext.	Hose length	Operating pressure	Input	Output
SAD 1098	8 x 12	9 m	0 - 10 bar	G 1/4" FT	G 1/4" MT
SAD 15128	8 x 12	12 m	0 - 15 bar	G 1/4" FT	G 1/4" MT

Hobby

Profi

Automatic hose reels for water — PN 10

Function: The hose can be extended and locked with every rotation (professional type: multiple times) locked. A quick tug causes the drum to retract the entire hose (professional type: with cushioned retraction)
Materials: Body, drum and mounting brackets: Plastic, hose: Fabric-braided PVC
Supply volume: Automatic hose reel complete with fabric-braided PVC hose, stopper, pivoting mounting bracket, couplings (GARDENA system) on the hose ends and a hose connector

Type	Version	Hose Ø internal x ext.	Hose length	Operating pressure	Input	Output
SAW 102010	Hobby	10 x 14	20 m	0 - 10 bar	Coupling (Gardena system)	Coupling (Gardena system)
SAW 102012	Profi	12 x 16	20 m	0 - 10 bar	Coupling (Gardena system)	Coupling (Gardena system)

type SAC 121410/SAC 16168

CEJN Automatic hose reels for compressed air and water — up to 16 bar

Function: The hose can be drawn out and can be locked several times with every rotation of the drum. After a pulling a little, the drum retracts the entire hose.
Materials: Body and drum: Plastic, mounting bracket: Steel, painted black, hose: Fabric-reinforced polyester polyurethane (blue)
Temperature range: -20°C to max. +60°C (water: +5°C to max. +60°C)
Supply volume: Automatic hose reel with PU hose, stopper and threaded nozzles with bend protection on the hose ends, mounting bracket (pivoting) with quick-lock function

Type	Hose Ø internal x ext.	Hose length	Operating pressure	Input	Output
For compressed air					
SAC 121410	9.5 x 13.5	14 m	0 - 12 bar	R 1/4" MT	R 1/4" MT
SAC 121011	11.0 x 16.0	10 m	0 - 12 bar	R 1/2" MT	R 1/2" MT
SAC 1678	8.0 x 12.0	7 m	0 - 16 bar	R 1/4" MT	R 1/4" MT
SAC 16108	8.0 x 12.0	10 m	0 - 16 bar	R 1/4" MT	R 1/4" MT
SAC 16168	8.0 x 12.0	16 m	0 - 16 bar	R 1/4" MT	R 1/4" MT
For water					
SAWC 91410*	9.5 x 13.5	14 m	0 - 9 bar	R 1/4" MT	R 1/4" MT
Resistant to welding spatter					
SAC 121410 SCHWEI	9.5 x 13.5	14 m	0 - 12 bar	R 1/4" MT	R 1/4" MT

* hose: polyether polyurethane, green

type KAC 17315/KAC 10315

type KAR 10315

CEJN Automatic cable reels

Function: The cable can be drawn out and can be locked several times with every rotation of the drum. After a pulling a little, the drum retracts the entire cable.
Materials: Body and drum: Plastic, mounting bracket: Steel, painted black
Voltage: Max 230 volt
Supply volume: Automatic cable winder with cable 3 x 1.5 mm² and Schuko socket and Schuko coupling (CEE 7/4, Typ F), type KAC with free cable end at access, mounting bracket (pivoting).

Type	Cable length	Protection category	Power input Retracted	Power input Unwinded
KAC 10315	10 m	IP 23	1000 W	3500 W
KAC 17315	17 m	IP 23	1000 W	3500 W
KAR 10315*	10 m	IP 24	800 W	2000 W
KAR 15315*	15 m	IP 24	800 W	2000 W

* not CEJN brand

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Automatic hose reels for compressed air and water — up to 15 bar

Function: The hose can be drawn out and can be locked several times with every rotation of the drum. After a pulling a little, the drum retracts the entire hose.
Materials: Body: Cast aluminium, cover: Plastic, connection: Brass, hose: PVC
Supply volume: Automatic hose reel complete with special PVC hose, stopper and runout window.
The closed version is delivered with a hood made from shock proof plastic, for the open design the hose bracket swivels as well.

Type **open**	Type **closed**	Hose length	Nominal width	Thread input	Thread output	PN
---	SAG 151010	10 m	DN 10	R 3/8" MT	G 3/8" MT	15 bar
SA 151210	---	12 m	DN 10	Rp 3/8" FT	R 3/8" MT	15 bar
SA 152010	SAG 152010	20 m	DN 10	Rp 3/8" FT*	R 3/8" MT	15 bar
SA 102012**	--	20 m	DN 12	Gardena including gun		10 bar

* closed design with male threads, ** only for water

Automatic hose reels for compressed air and water — 50 bar

Function: The hose can be drawn out and can be locked several times with every rotation of the drum. After a pulling a little, the drum retracts the entire hose.
Materials: Body: Blue painted steel sheet, stainless steel AISI 304, elbow swivel joint: Die-cast aluminium (brass chemically nickel-plated for type AISI 304, connection: Zinc-plated steel
Supply volume: Automatic hose reel complete with special high rubber hose, stopper and adjustable runout window with PVC rollers.

Type **steel painted**	Type **AISI 304** INOX	Hose length	Nominal width	Thread input	Thread output	PN
SA 501210	SA 501210 ES	12 m	DN 10	G 1/2" MT	G 3/8" MT	50 bar
SA 502010	SA 502010 ES	20 m	DN 10	G 1/2" MT	G 3/8" MT	50 bar
SA 501012	SA 501012 ES	10 m	DN 12	G 1/2" MT	G 1/2" MT	50 bar
SA 501512	SA 501512 ES	15 m	DN 12	G 1/2" MT	G 1/2" MT	50 bar
SA 502012	SA 502012 ES	20 m	DN 12	G 1/2" MT	G 1/2" MT	50 bar
SA 50816	SA 50816 ES	8 m	DN 16	G 1/2" MT	G 3/4" MT	50 bar
SA 501016	SA 501016 ES	10 m	DN 16	G 1/2" MT	G 3/4" MT	50 bar

Automatic hose reels for hydraulic oil and water up to +150°C — 220 bar

Function: The hose can be drawn out and can be locked several times with every rotation of the drum. After a pulling a little, the drum retracts the entire hose.
Materials: Body: Blue painted steel sheet, stainless steel AISI 304, elbow swivel joint: Die-cast aluminium (brass chemically nickel-plated for type AISI 304, connection: Zinc-plated steel
Supply volume: Automatic hose reel complete with special high pressure hose, stopper and adjustable runout window with PVC rollers.

Type **steel painted**	Type **AISI 304** INOX	Hose length	Nominal width	Thread input	Thread output	PN
SA 220128	SA 220128 ES	12 m	DN 8	M 22 x 1.5 MT*	M 22 x 1.5 union nut*	220 bar
SA 220208	SA 220208 ES	20 m	DN 8	M 22 x 1.5 MT*	M 22 x 1.5 union nut*	220 bar

* compatible with Kärcher connections

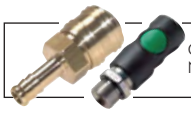
Swivel bracket for hose reels

Type **steel powder-coated/ zinc-plated**	Type **AISI 304** INOX	For retractor type	Slewing range
SAWP 15	---	SA 15.../SA 102012	113°
SAWP 415	---	SAG 15...	175°
SAWP 50	SAWP 50 ES	SA/SAG 50.../220.../400...	165°

Hose balancers

Application: The hose balancers combine the properties of a cable balancer with those of a hose reel. In this case, the load is maintained by the hose instead of a cable. The hose 6.5 x 10 (interior x exterior) is equipped with a male thread R 1/4" and the compressed air is supplied via a female thread Rp 1/4".

Type	Extension length	Capacity
Hose balancer, plastic housing (max. 10 bar, temperature range: -10°C to max. +40°C)		
HW 0	1.3 m	0.5 - 1.5 kg
HW 3	1.3 m	1.5 - 3 kg
HW 5	1.3 m	3 - 5 kg


Coupling sockets
NW7 from page 150

Hydraulic couplings
from page 170

Blow guns
from page 524

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hose reels

Hose reels for compressed air complete with quick couplings NW 7.2

Materials: Drum material: High-strength plastic, frame: Zinc-plated steel pipe, couplings: Brass
Operating pressure: 15 bar
Supply volume: Hose reels complete with 20 m fabric-braided TX hose and a fitted brass one-handed NW 7.2 quick coupling

Advantages: • Winding and unwinding during operation is possible

Type	Hose Ø internal
DST 6-20	6
DST 9-20	9

type WS SAF B (application example)

type WS SAF (application example)

type WS SA SET B

Hose reels and mobile hose coils - standard — up to 7 bar

Supply volume: Reel according to description **without hose**

Type	Description	Capacity up to	Input (connection to water supply)	Output (connection to the hose)
WS SAF B	Mobile hose coil made from zinc-plated steel pipe and shaped plastic, complete with two coupling sockets (made from plastic) with hose connection for 1/2" hose. Working pressure: 6 bar	60 m 1/2" hose	Coupling plug (GARDENA System)	Coupling plug (GARDENA System)
WS SAF	Metallic version mobile hose coil, powder-coated steel pipe. Working pressure: 7 bar	70 m 1/2" hose	Coupling plug (GARDENA System)	Coupling plug (GARDENA System)
WS SA SET B	Wall fixed hose reel complete with wall bracket, hose connection for 1/2" hose, separate hose bracket for wall assembly, working pressure: 6 bar	30 m 1/2" hose	Hose connection (GARDENA System)	Hose connection (GARDENA System)

European branded goods

type WS SAF 34

type WS SAF 34-100

type WS SAF 10

type WS WA 34

Mobile hose coils and wall hose unwinder - profile — 25 bar

Supply volume: Reel according to description **without hose**

Type	Description	Capacity up to	Input (connection to water supply)	Output (connection to the hose)
WS SAF 34	Mobile professional hose coil made of galvanic, zinc-plated steel pipe with plastic profile wheels. Flow throughput 3/4". Brass elbow connections. Easy winding and unwinding due to double-mounted hose drum.	50 m 3/4" hose (100 m 1/2" hose)	G 3/4" (MT)	G 3/4" (MT)
WS SAF 34-100	Mobile professional hose coil made of galvanic, zinc-plated steel pipe with solid rubber wheels and reel blocking. Flow throughput 3/4". Brass elbow connections. Easy winding and unwinding due to double-mounted hose drum.	100 m 3/4" hose (120 m 1/2" hose)	G 3/4" (MT)	G 3/4" (MT)
WS SAF 10	Mobile professional hose coil made of hot-dip galvanised steel pipe with air-filled tyres and reel blocking. Flow throughput 1". Extremely stable. Supporting feet with casters, brass elbow connections. Easy winding and unwinding due to double-mounted hose drum.	60 m 1" hose (100 m 3/4" hose)	G 1" (MT)	G 1" (MT)
WS WA 34	Wall hose unwinder (with wall bracket) made of galvanic, zinc-plated steel pipe. Pivotable and lockable wall bracket. Flow throughput 3/4". Easy winding and unwinding due to double-mounted hose drum.	40 m 3/4" hose (70 m 1/2" hose)	G 3/4" (MT)	G 3/4" (MT)

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Wall hose holders

Type	Material	Usage/quality	Width	Height	Depth
WSH KU	Plastic - black	Standard	260	165	120
WSH A1	Aluminium	Workshop	188	147	70
WSH A2	Aluminium	Workshop	348	257	144
WSH ES	Stainless steel	Food industry	220	130	170

type WSH KU

type WSH ES

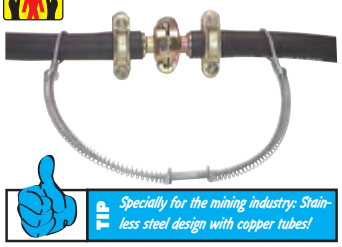
type WSH A1/A2

Whipcheck safety cables

Application: To prevent uncontrolled whiplash of the hose during malfunction of the fitting or integration. For the protection of humans and materials.

Type **zinc-pl. steel with alu tubes**	Type **stainl. steel with copper tubes***	For hose Ø external	Cable length
SIKA 13-35	SIKA 13-35 ES	13 - 35	Approx. 50 cm
SIKA 35-75	SIKA 35-75 ES	35 - 75	Approx. 90 cm

* specially for the mining industry

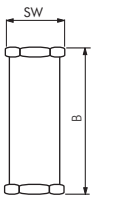


Hose burst protection (meets EN ISO 4414 § 5.4.5.11.1)

Function: The hose guard allows air quantities required for normal operation of compressed air tools to flow through without any hindrance. Should the flow show an abrupt rise, as is typically seen when the hose ruptures or tears off, the hose guard instantly throttles the supply line to the compressed air hose. When replacing the hose, the hose guard opens automatically. This prevents the hose from getting knocked out of alignment or suffering a shock load.
Application: It is recommended to fix the hose guard onto the connecting piece between the solid pipe installation and the flexible pressure hose, e.g. behind one of the air units.
Materials: Housing: Aluminium, piston: POM/aluminium, seal: NBR
Temperature range: -20°C to max. +80°C (G 3/4" - G 2": up to max. +120°C)
Operating pressure: 0 to 18 bar (G 1" - G 2": up to 35 bar)
Media: Oiled and unoiled compressed air

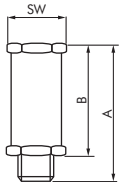
Type **female/female**	Type **female/male**	Thread	Max. flow l/min. (8 bar)	A	B	SW
SBS 14	SBS 14 iA	G 1/4"	660	59	49	22
SBS 38	SBS 38 iA	G 3/8"	1400	70	58	27
SBS 12	SBS 12 iA	G 1/2"	3200	79	65	30
SBS 34	---	G 3/4"	4000	---	76	30/36*
SBS 10	---	G 1"	5200	---	100	41/50*
SBS 20	---	G 2"	13000	---	130	70/80*

* body diameter



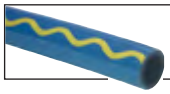
female/female

The compressed air safety fuse!



female/male

Ball valves
from page 280


Industrial hoses
from page 213

GARDENA
Hose sprayers
from page 181

Service units
FUTURA series
from page 330

Bolts, nuts
and washers
from page 615

Compressed
air tools
from page 533

Blow guns
from page 524

Manual tools
can be found in
the Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Compressed air and water hoses

FDA KTW TÜV

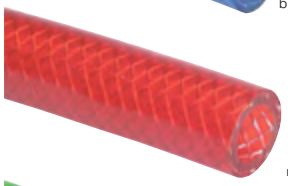
PVC hoses with fabric braiding - food quality

Transparent PVC hoses in food quality (FDA 175.300 and KTW-C)

Materials: Inner tube and outer layer: PVC, fabric braiding: Textile, TÜV-approved, LABS-free production, type transparent and light green, additionally: Food quality checked according to the requirements of Regulation (EC) 1935/2004 and Regulation (EU) 10/2011 (simulants A, B and C). (Only for type transparent with additional KTW-C and FDA 175.300)
Temperature range: -20°C to max. +60°C
Operating range: Water, drinking water (max. 3 h), compressed air, argon, wine, fruit juice, lemonade, mineral water, unfermented fruit juice and alcoholic drinks up to 15% (not for beer in dispensing equipment and greasy products!). The foodstuffs flowing through should not exceed 40°C. A flavour test is advisable. When transporting the foodstuffs and drinking water, it is absolutely necessary to thoroughly clean the hose before initial use.
☞ **Optional:** Roller length 10 metres **-10**, roller length 25 metres **-25**

transparent

blue


red

bright green

Type transparent	Type blue	Type red	Type bright green	Hose Ø internal	Hose Ø external	Operat. press.* at 20°C (40°C)	Roll length m
TX 4	---	---	---	4	10	31 (25) bar	50
TX 6	TX 6 BLAU	TX 6 ROT	TX 6 LGRUN	6	12	27 (21) bar	50
TX 8	---	---	---	8	14	24 (20) bar	50
TX 9	TX 9 BLAU	TX 9 ROT	TX 9 LGRUN	9 (3/8")	15	21 (17) bar	50
TX 10	---	---	---	10	16	19 (16) bar	50
TX 13	TX 13 BLAU	TX 13 ROT	TX 13 LGRUN	13.2 (1/2")	19.8	16 (12) bar	50
TX 16	---	---	---	16.2 (5/8")	23.6	16 (12) bar	50
TX 19	TX 19 BLAU	TX 19 ROT	---	19 (3/4")	26	13 (11) bar	50
TX 25	---	---	---	25.4 (1")	34	11 (9) bar	50
TX 28	---	---	---	28	38	9 (7) bar	25
TX 32	---	---	---	32.4 (1 1/4")	42	9 (7) bar	25
TX 38	---	---	---	38 (1 1/2")	47.6	8 (6) bar	25
TX 50	---	---	---	50 (2")	60	5 (4) bar	25

* with 3-fold safety factory norm

☞ **Order example:** TX 4 **
Standard type
Required roller lengths:
Roll length 10 m . . . . .**-10**
Roll length 25 m . . . . .**-25**

standard design

PVC hoses with fabric braiding with coupling sockets and plugs NW 7.2

Materials: Hose: PVC inner and outer tubes with fabric braiding - food quality, TÜV tested, silicone free, coupling socket and plug: Brass body with NBR seals
Temperature range: -10°C to max. +60°C
Media: Compressed air

Hose length 5 m	Hose length 10 m	Hose length 15 m	Hose length 20 m	Hose length 25 m	Hose Ø int.	Hose Ø ext.	Operat. press. at 20°C
Standard design with standard coupling							
TX 6-5 KDG	TX 6-10 KDG	TX 6-15 KDG	TX 6-20 KDG	TX 6-25 KDG	6	12	27 bar
TX 9-5 KDG	TX 9-10 KDG	TX 9-15 KDG	TX 9-20 KDG	TX 9-25 KDG	9 (3/8")	15	21 bar
TX 13-5 KDG	TX 13-10 KDG	---	---	TX 13-25 KDG	13 (1/2")	20	16 bar
Safety version: light green with push-button valve safety coupling							
TX 6-5 SiP	TX 6-10 SiP	---	TX 6-20 SiP	---	6	12	12 bar
TX 9-5 SiP	TX 9-10 SiP	---	TX 9-20 SiP	---	9 (3/8")	15	12 bar

with coupling set

Polyurethane hose sets with CEJN couplings NW 7.2/male threads

Materials: Hose: Resistant to hydrolysis, high-quality fabric-reinforced polyester polyurethane hose. Coupling plug: Steel, CEJN coupling socket: Steel/brass nickel-plated
Operating pressure: 14 bar
Temperature range: -20°C to max. +70°C

✓ **Advantages:**
- Polyurethane hose with extreme abrasion resistance and flexibility even at low temperatures
- Hose of polyurethane, bend protection of Thermoplast - prevents scratching when rubbed
- Durable CEJN coupling with robust steel plug
- Hose ends are provided with male threads - the coupling and plug can be replaced easily

with male threads

Type with coupling set*	Type with male threads	Connection thread	Hose Ø internal	Hose Ø external	Hose length m
TXPU 148-10 KDG	TXPU 148-10	G 1/4" (MT)	8.0	12	10
TXPU 148-15 KDG	TXPU 148-15	G 1/4" (MT)	8.0	12	15
TXPU 389-10 KDG	TXPU 389-10	G 3/8" (MT)	9.5	14	10
TXPU 389-15 KDG	TXPU 389-15	G 3/8" (MT)	9.5	14	15
TXPU 1212-10 KDG**	TXPU 1212-10**	G 1/2" (MT)	12.7	18	10
TXPU 1212-15 KDG**	TXPU 1212-15**	G 1/2" (MT)	12.7	18	15

* coupling plugs and coupling sockets are supplied loose. ** supplied without bend protection.

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PVC hoses without fabric braiding - food quality

KTW TÜV FDA

Materials: Transparent PVC, food quality checked according to the requirements of regulation (EC) 1935/2004 and regulation (EU) 10/2011, KTW-C tested, TÜV tested, LABS-free production
Temperature range: -20°C to max. +60°C (from +40°C approximately pressure-less)
Operating range: Water, drinking water (max. 3 h), compressed air, argon, wine, fruit juice, lemonade, mineral water, unfermented fruit juice and alcoholic drinks up to 15% (not for beer in dispensing equipment and greasy products!) The foodstuffs flowing through should not exceed 40°C. A flavour test is advisable. When transporting the foodstuffs and drinking water, it is absolutely necessary to thoroughly clean the hose before initial use.

All PVC hoses in food quality! (FDA § 175.300)

Type meter goods	Roll length m	Type 25 m roll[1]	Hose Ø internal	Hose Ø external	Short term[2] can be loaded at +20°C
PVC 24	100	PVC 24-25	2	4	13.0 bar
PVC 35	100	PVC 35-25	3	5	9.5 bar
PVC 46	100	PVC 46-25	4	6	7.5 bar
PVC 47	100	PVC 47-25	4	7	10.5 bar
PVC 57	100	---	5	7	6.0 bar
PVC 58	100	PVC 58-25	5	8	8.5 bar
PVC 69	100	PVC 69-25	6	9	7.5 bar
PVC 610	50	PVC 610-25	6	10	9.5 bar
PVC 710	50	PVC 710-25	7	10	6.5 bar
PVC 711	50	PVC 711-25	7	11	8.5 bar
PVC 810	100	---	8	10	4.0 bar
PVC 812	50	PVC 812-25	8	12	7.5 bar
PVC 913	50	PVC 913-25	9	13	6.5 bar
PVC 1013	50	---	10	13	4.5 bar
PVC 1014	50	PVC 1014-25	10	14	6.0 bar
PVC 1216	50	---	12	16	5.0 bar
PVC 1318	50	---	13	18	6.0 bar
PVC 1319	50	---	13	19	7.0 bar
PVC 1418	50	---	14	18	5.5 bar
PVC 1620	50	---	16	20	4.0 bar
PVC 1822	50	---	18	22	3.5 bar
PVC 1926	50	---	19	26	5.5 bar
PVC 1927	50	---	19	27	6.5 bar
PVC 2533	50	---	25	33	5.0 bar
PVC 3240	25	---	32	40	5.0 bar
PVC 3848	25	---	38	48	4.0 bar
PVC 5060	25	---	50	60	3.0 bar
PVC 6070	25	---	60	70	2.5 bar

[1] 1 piece is equivalent to 25 m, [2] <5 min.

Compressed air-water PVC hoses with fabric braiding for high pressures 40 bar

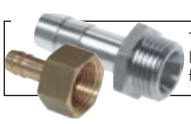
Materials: Inner tube: Soft PVC black, outer cover: Soft PVC blue, fabric braiding: Polyester filament
Temperature range: -15°C to max. +60°C
Operating pressure: 40 bar (20°C), 24 bar (40°C), 16 bar (60°C)
Operating range: UV resistant, flexible multiple-purpose hose for compressed air operating at low temperatures, cold water, industry and agriculture, shock-free and non-slip
Roll length: 50 m

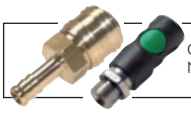
Type	Hose Ø internal	Hose Ø external	Burst pressure	Min. bend radius
TX 6/40	6.3	12.5	120 bar	22
TX 8/40	8.0	14.5	120 bar	28
TX 9/40	9.0 (3/8")	16.0	120 bar	32
TX 10/40	10.0	17.0	120 bar	35
TX 12/40	12.0	20.0	120 bar	42
TX 16/40	16.0 (5/8")	24.0	115 bar	56
TX 19/40	19.0 (3/4")	28.0	115 bar	67
TX 25/40	25.0 (1")	35.0	110 bar	88

Compressed air-water PVC hoses with 2-ply fabric braiding for high pressures 80 bar

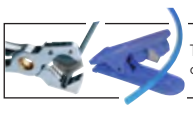
Materials: Inner tube: Soft PVC black, outer cover: Soft PVC blue, fabric braiding: Polyester filament
Temperature range: -15°C to max. +60°C
Operating pressure: 80 bar (20°C), 48 bar (40°C), 32 bar (60°C)
Operating range: UV resistant, flexible multiple-purpose hose for compressed air operating at low temperatures, cold water, industry and agriculture, shock-free and non-slip, high pressure impulse capacity
Roll length: 50 m

Type	Hose Ø internal	Hose Ø external	Burst pressure	Min. bend radius
TX 8/80	8	16.5	240 bar	28
TX 10/80	10	19.0	240 bar	35
TX 12/80	12	22.0	240 bar	42
TX 16/80	16 (5/8")	26.5	240 bar	56
TX 19/80	19 (3/4")	30.5	240 bar	77


Threaded nozzles & hose nozzles from page 64


Coupling sockets NW7 from page 150

Hose clamps from page 234


Tube cutters on page 595

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Compressed air and water hoses

standard

oil resistant

PVC compressed air hoses with fabric braiding, highly flexible

Materials: Inner tube: PVC black (type oil resistant: red), outer cover: PVC blue (type oil resistant: black), fabric braiding: Polyester filament, produced silicone free
Temperature range: -20°C to +60°C
Operating pressure: 15 bar (type oil resistant: 16 bar), burst pressure: Approx. 60 bar (type oil resistant: Approx. 64 bar)
Operating range: Compressed air hose for industries, factories and petrol stations. Extremely flexible in all weather conditions, UV resistant
Roll length: 50 m

Type **standard**	Min. bend radius	Type **oil resistant**	Min. bend radius	Hose Ø internal	Hose Ø external
P 6 SOFT	23	P 6 SOFT OL	18	6.3	11.0
P 8 SOFT	28	P 8 SOFT OL	25	8.0	13.0
P 9 SOFT	32	P 9 SOFT OL	25	9.0 (3/8")	14.5
P 10 SOFT	35	P 10 SOFT OL	35	10.0	15.5
P 13 SOFT	45	P 13 SOFT OL	50	12.7 (1/2")	19.0
P 16 SOFT	56	P 16 SOFT OL	70	16.0 (5/8")	23.0
P 19 SOFT	67	P 19 SOFT OL	70	19.0 (3/4")	26.5
P 25 SOFT	88	P 25 SOFT OL	120	25.0 (1")	33.5

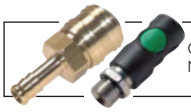
with standard coupling

with push-button safety coupling

PVC hoses with fabric braiding with coupling sockets and plugs NW 7.2

Materials: Inner tube: PVC black, outer cover: PVC blue, fabric braiding: Polyester filament, produced silicone-free, certified by TÜV, coupling socket and coupling plug: Brass body with NBR seal
Temperature range: -20°C to +60°C (with push-button safety coupling: -15°C to max. +60°C)
Operating pressure: 15 bar (with push-button safety coupling: 12 bar)
Operating range: Compressed air hose for industries, factories and petrol stations. Extremely flexible in all weather conditions, UV resistant.

Hose length 5 m	**Hose length 10 m**	**Hose length 15 m**	**Hose length 20 m**	**Hose length 25 m**	Hose Ø internal	Hose Ø external
With standard coupling						
P 6 SOFT-5 KDG	P 6 SOFT-10 KDG	P 6 SOFT-15 KDG	P 6 SOFT-20 KDG	P 6 SOFT-25 KDG	6.3	11.0
P 9 SOFT-5 KDG	P 9 SOFT-10 KDG	P 9 SOFT-15 KDG	P 9 SOFT-20 KDG	P 9 SOFT-25 KDG	9.0	14.5
With push-button safety coupling						
P 6 SOFT-5 KDG-S	P 6 SOFT-10 KDG-S	---	P 6 SOFT-20 KDG-S	---	6.3	11.0
P 9 SOFT-5 KDG-S	P 9 SOFT-10 KDG-S	---	P 9 SOFT-20 KDG-S	---	9.0	14.5


Coupling sockets NW7 from page 150

Hose clamps from page 234

Hose cutter page 595

PVC compressed air hoses with fabric braiding, antistatic

Materials: Inner tube: PVC black, smooth, anti-static, outer cover: PVC blue, smooth, weather- and oil resistant, fabric braiding: Polyester filament
Temperature range: -20°C to max. +90°C
Operating pressure: 16 bar, burst pressure: Approx. 60 bar
Electrical resistance: ≤10^6 Ohm/m
Operating range: Compressed air hose for industry, factories, petrol stations and paint systems as an anti-static version. Weather resistant outdoor blanket, good temperature resistance also suitable for non aggressive liquids.
Roll length: 20 m

Type	Hose Ø internal	Hose Ø external	Min. bend radius
P 7 ANTISTATIK	7	14.0	21
P 8 ANTISTATIK	8	15.0	24
P 9 ANTISTATIK	9 (3/8")	16.0	27
P 10 ANTISTATIK	10	17.5	30
P 12 ANTISTATIK	12	20.0	36

CEJN Polyurethane hoses (Stream-Line)

Warning: These hoses are specially manufactured for CEJN-Stream-Line fittings. Coupling sockets and coupling plugs of the Stream-Line program can be found from page 250.
Materials: Polyester polyurethane, fabric braiding: Polyester filament
Temperature range: -30°C to max. +60°C
Roll length: 50 m

Type **CEJN**	Min. bend radius	Operat. pressure	Type **Eco****	Min. bend radius	Operating pressure	Hose Ø external x internal
PU 85 SL*	17	10 bar	---	---	---	8 x 5
PU 106 SL	27	16 bar	PU 106 SL E	40	15 bar	10 x 6.5
PU 128 SL	35	16 bar	PU 128 SL E	45	15 bar	12 x 8
PU 139 SL	48	12 bar	---	---	---	13.5 x 9.5
PU 1611 SL	60	12 bar	PU 1611 SL E	95	12 bar	16 x 11

* without fabric braiding, ** not CEJN brand

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Flat compressed air-water hoses

Storz couplings from page 182

Temperature range: Water: -20°C to max. +100°C, air: -20°C to max. +75°C
Operating range: For water, air, oil and petrol, conditionally resistant to alkalis and acid.
The hose can be retracted flat, ozone and aging resistant. It can be exposed to great loads due to textile insert with high tear strength. The outside cover is wear stabilised due to the longitudinal protection ribs.

Type	Wall thickness	Hose Ø internal	PN*	Burst pressure	Roll length m
GSF 19	2.0	20 (3/4")	30 bar	90 bar	60
GSF 25	2.0	26 (1")	30 bar	90 bar	60
GSF 32	2.0	32 (1 1/4")	25 bar	80 bar	60
GSF 38	2.0	38 (1 1/2")	20 bar	60 bar	60
GSF 52	2.2	52 (2")	16 bar	50 bar	60
GSF 65	2.2	65 (2 1/2")	16 bar	50 bar	20
GSF 75	2.4	76 (3")	16 bar	50 bar	20
GSF 90	2.5	90	15 bar	45 bar	20
GSF 102	2.5	102 (4")	13 bar	40 bar	20
GSF 125	3.0	125 (5")	15 bar	45 bar	20
GSF 150	3.0	150 (6")	13 bar	35 bar	20

* operating pressure for water, for compressed air, the operating pressure is 25% of the burst pressure maximum

Industrial construction hoses with Storz couplings

Materials: Polyester yarn rubber lined, Storz coupling: Aluminium (cast) with rotating NBR seals
Temperature range: 0°C to max. +40°C
Operating pressure: 10 bar (burst pressure: 30 bar)
Properties: Rot resistant, abrasion resistant, flexible, enhanced flame resistance, no approvals!

Especially good value!

Assembled with coupling!

Working length 5 m	Working length 10 m	Working length 15 m	Working length 20 m	Working length 30 m	Hose Ø internal	Storz alu. coupling	Lug distance
FiRE 25-5 B	FiRE 25-10 B	FiRE 25-15 B	FiRE 25-20 B	FiRE 25-30 B	25	25-D	31
FiRE 52-5 B	FiRE 52-10 B	FiRE 52-15 B	FiRE 52-20 B	FiRE 52-30 B	52	52-C	66
FiRE 75-5 B	FiRE 75-10 B	FiRE 75-15 B	FiRE 75-20 B	FiRE 75-30 B	75	75-B	89

Fire extinguishing hoses with Storz couplings and meter goods DIN 14811 (2008)

Materials: Inner tube: High quality, light, synthetic EPDM based internal lining, outer coating: Oil and petrol resistant, abrasion resistant and flame resistant, fabric: 100% polyester yarn, Storz coupling: Aluminium (forged) with rotating NBR seals
Temperature range: -30°C to max. +60°C
Operating pressure: 17 bar (burst pressure: 60 bar)
Properties: DIN-Fire extinguishing hose, very flexible, rot resistant, lower space requirement, requires no service or maintenance, cold resistant
Approvals/standards: DIN 14811 (2008), SIS, ÖNORM, SBG, Loba

Assembled with coupling!

Working length 5 m	Working length 10 m	Working length 15 m	Working length 20 m	Working length 30 m	Hose Ø internal	Storz alu. coupling	Lug distance
Colour: white, class 1-L1							
FiRE 25-5	FiRE 25-10	FiRE 25-15	FiRE 25-20	FiRE 25-30	25	25-D	31
FiRE 42-5	FiRE 42-10	FiRE 42-15	FiRE 42-20	FiRE 42-30	42	52-C	66
FiRE 52-5	FiRE 52-10	FiRE 52-15	FiRE 52-20	FiRE 52-30	52	52-C	66
FiRE 75-5	FiRE 75-10	FiRE 75-15	FiRE 75-20	FiRE 75-30	75	75-B	89
Colour: red, class 2							
FiRE 25-5 rot	FiRE 25-10 rot	FiRE 25-15 rot	FiRE 25-20 rot	FiRE 25-30 rot	25	25-D	31
FiRE 42-5 rot	FiRE 42-10 rot	FiRE 42-15 rot	FiRE 42-20 rot	FiRE 42-30 rot	42	52-C	66
FiRE 52-5 rot	FiRE 52-10 rot	FiRE 52-15 rot	FiRE 52-20 rot	FiRE 52-30 rot	52	52-C	66
FiRE 75-5 rot	FiRE 75-10 rot	FiRE 75-15 rot	FiRE 75-20 rot	FiRE 75-30 rot	75	75-B	89

Goods

Type white class 1-L1	Type red class 2	Hose Ø internal	Roll length m**
FiRE 25	FiRE 25 rot	25	20
FiRE 42	FiRE 42 rot	42	20
FiRE 52	FiRE 52 rot	52	20
FiRE 75	FiRE 75 rot	75	20

** other lengths on request

Drinking water flat hoses with Storz couplings and meter goods

KTW

Materials: Thermoplastic polyurethane, fabric: 100% polyester yarn, Storz coupling: Lug: Aluminium (forged), rotatable brass connectors with silicone seal (KTW approved)
Temperature range: -30°C to max. +60°C (KTW approval category "A" to max. +23°C)
Operating pressure: 17 bar (burst pressure: 50 bar)
Properties: Drinking water hose, ageing- and ozone resistant, high abrasion resistance
Approvals/standards: KTW recommendation category "A" (cold water up to max. +23°C), DVGW-W270

Assembled with coupling!

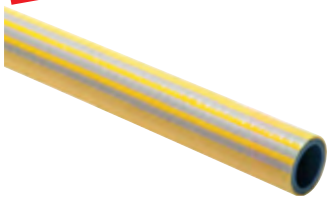
Working length 5 m	Working length 10 m	Working length 15 m	Working length 20 m	Working length 30 m	Hose Ø internal	Storz alu. coupling	Lug distance
FiRE 25-5 KTW	FiRE 25-10 KTW	FiRE 25-15 KTW	FiRE 25-20 KTW	FiRE 25-30 KTW	25	25-D	31
FiRE 52-5 KTW	FiRE 52-10 KTW	FiRE 52-15 KTW	FiRE 52-20 KTW	FiRE 52-30 KTW	52	52-C	66
FiRE 75-5 KTW	FiRE 75-10 KTW	FiRE 75-15 KTW	FiRE 75-20 KTW	FiRE 75-30 KTW	75	75-B	89

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Compressed air and water hoses

★★☆☆☆

Especially good value!



Garden water hoses - QUATTROFLEX®-PLUS -20°C to +60°C

Materials: Cover: PVC, armouring: Synthetic fibre, diagonal reinforcement
Temperature range: -20°C to +60°C
Operating range: Gardening, nursery, hobby sector, industry, councils, sports grounds
Properties: Extremely pressure resistant and flexible at low temperatures, no twisting or distorting by diagonal reinforcement, free of cadmium, barium and lead, no algal formation

Type	Hose Ø internal	Wall thickness	Hose Ø external	Operating pressure	Burst pressure	Roll length m
Quattroflex-Plus (PUR inner tube, prevents deposits and soiling)						
WS 13 GELB-25	12.4 (1/2")	2.5	17.4	16 bar	50 bar	25
WS 13 GELB-50	12.4 (1/2")	2.5	17.4	16 bar	50 bar	50
WS 19 GELB-25	18.6 (3/4")	3.1	24.8	12 bar	35 bar	25
WS 25 GELB-25	25.0 (1")	4.0	33.0	10 bar	30 bar	25

★★★☆☆

type GS 6 - GS 32

type GS 38 - GS 76

Compressed air-water rubber hoses DIN 20018*

Temperature range: **6 - 32 mm:** -30°C to +50°C, **38 - 76 mm:** -20°C to +70°C
Operating pressure: **6 - 32 mm:** Air: 10 bar, water: 16 bar, burst pressure approx. 54 bar (Ø 32: 40 bar) at 20°C,
38 - 76 mm: Air and water: 20 bar, burst pressure approx. 60 bar at 20°C
Operating range: **6 - 32 mm:** For compressed air and process water containing lubricants using medium heavy insert,
38 - 76 mm: For compressed air and process water containing lubricants using heavy insert

Type	Colour	Hose Ø internal	Hose Ø external	Roll length m
GS 6	Black	6	13	40
GS 9	Black	9 (3/8")	16	40
GS 13	Black	13 (1/2")	23	40
GS 15	Black	15	27	40
GS 19	Black	19 (3/4")	31	40
GS 25	Black	25 (1")	39	40
GS 32	Black	32 (1 1/4")	48	40
GS 38	Yellow	38 (1 1/2")	52	40
GS 51	Yellow	51 (2")	66	40
GS 63	Yellow	63 (2 1/2")	82	40
GS 76	Yellow	76 (3")	95	40

* valid for the types from GS 6 to GS 32

★★★★☆

TRIX ROTSTRAHL

EURO TRIX

Water hoses - TRIX ROTSTRAHL®/EURO TRIX® up to 20 bar

Materials: Inner tube: Black, non-porous, smooth EPDM inner layer, pressure carrier: Synthetic yarns, cover: Black, smooth EPDM outer layer, ozone-, weather- and UV resistant, as of DN 32, fabric-finished.
Temperature range: -40°C to max. +100°C (EURO TRIX: -20°C to max. +100°C)
Bursting pressure: 3-fold operating pressure
Operating range: Cold and hot water, soap solutions, as well as most aqueous salt solutions and a large number of chemicals, DN 25 LABS, separating agent and fat-free production

Type	Hose Ø internal	Hose Ø external	Min. bend radius	Operating pressure	Roll length m
TRIX ROTSTRAHL®					
WS 13	13 (1/2")	19.6	50	20 bar	40
WS 16	16 (5/8")	23.0	60	20 bar	40
WS 19	19 (3/4")	27.0	65	20 bar	40
WS 25	25 (1")	34.0	110	20 bar	40
WS 32	32 (1 1/4")	43.0	170	15 bar	40
WS 38	38 (1 1/2")	50.0	200	15 bar	40
WS 50	50 (2")	64.0	300	10 bar	40
EURO TRIX®					
WS 13 ET	13 (1/2")	20.0	50	15 bar	40
WS 16 ET	16 (5/8")	23.6	65	15 bar	40
WS 19 ET	19 (3/4")	27.0	70	15 bar	40
WS 25 ET	25 (1")	34.0	120	15 bar	40

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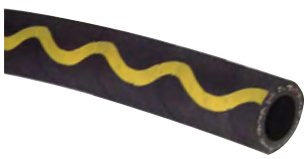


Water hoses - Goldschlange® up to 30 bar

Materials: Inner tube: Black, non-porous, smooth EPDM inner layer, pressure carrier: Synthetic yarns, cover: Black, fabric-finished CR outer layer, ozone-, weather-, UV-, oil-, grease- and chemical resistant, abrasion resistant
Temperature range: -30°C to max. +100°C, sterilisation possible by using steam (temporary to +130°C)
Operating pressure: See table (bursting pressure: 3-fold operating pressure)
Operating range: Kinking, impact and weather resistant high performance water and cleaning hoses for demanding applications in machines and apparatus engineering, as well as the construction industry and agriculture.
Media: Water, technical alcohols, weak bases and acids and glycols, **roller length:** 40 m

Type	Hose Ø internal	Hose Ø external	Min. bend radius	Operating pressure
GOLDSCHLANGE 10	10 (3/8")	17.2	45	30 bar
GOLDSCHLANGE 13	13 (1/2")	20.8	50	30 bar
GOLDSCHLANGE 16	16 (5/8")	23.2	70	25 bar
GOLDSCHLANGE 19	19 (3/4")	27.8	80	25 bar
GOLDSCHLANGE 22	22 (7/8")	31.0	100	20 bar
GOLDSCHLANGE 25	25 (1")	34.0	110	20 bar
GOLDSCHLANGE 32	32 (1 1/4")	43.0	175	12 bar
GOLDSCHLANGE 38	38 (1 1/2")	51.0	250	12 bar
GOLDSCHLANGE 45	45 (1 3/4")	60.0	290	10 bar
GOLDSCHLANGE 50	50 (2")	65.0	300	10 bar

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

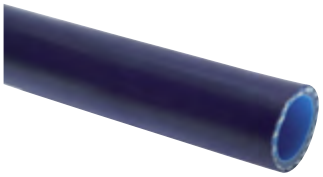
Drinking water hoses elastomer PE — 20 bar

★★★☆☆

KTW

Economical!

Drinking water PE hose tested according to the KTW recommendation, category "A" & DVGW-W270
Materials: Cover and intermediate structure of elastomeric PE with polyester fabric braiding and smooth PE inner tube
Temperature range: -15°C to max. +50°C
Operating pressure: 20 bar (bursting pressure: 60 bar)
Operating range: Drinking water hose with increased dimensional stability, can be used at festivals, trade fairs and dispensing equipment, as well as in communal water supply. Suitable for the transport of drinking water, juices, wines, alcohols, milk and vegetable oils, colours and many chemicals.
Roll length: 50 m



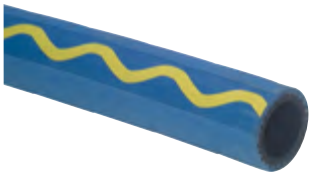
Type	Hose Ø internal	Hose Ø external	Min. bend radius
AQUAPLUS 10	10	15	35
AQUAPLUS 13	13 (1/2")	20	70
AQUAPLUS 19	19 (3/4")	27	108
AQUAPLUS 25	25 (1")	35	148

Drinking water hoses - AQUAPAL® flexible rubber hoses — 20 bar

★★★★★

FDA KTW

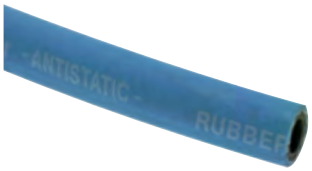
Drinking water rubber hose tested according to the KTW recommendation, category "A" & DVGW-W270
Materials: Inner tube: Special transparent, plasticiser-free inner layer, pressure carrier: Synthetic yarns, cover: Blue, fabric-finished NBR outer layer, ozone-, weather-, UV-, oil- and grease resistant, abrasion resistant
Temperature range: -30°C to max. +90°C, sterilisation possible by using steam (temporary to 130°C)
Operating pressure: 20 bar (bursting pressure: 60 bar)
Operating range: Highly flexible drinking water hose for commercial kitchens, folk festivals and trade fair events, in the communal water supply, food and beverage industry as well as filling drinking water containers
Roll length: 40 m



Type	Hose Ø internal	Hose Ø external	Min. bend radius
AQUAPAL 10	10 (3/8")	17.2	60
AQUAPAL 13	13 (1/2")	20.2	75
AQUAPAL 19	19 (3/4")	27.4	110
AQUAPAL 25	25 (1")	34.0	145
AQUAPAL 32	32 (1 1/4")	43.0	280
AQUAPAL 38	38 (1 1/2")	51.0	330

Compressed air rubber hoses, antistatic

Materials: Inner tube: NBR/SBR black, smooth, anti-static, outer cover: SBR/EPDM blue, smooth, abrasion, weather and oil resistant, fabric braiding: Spiralled, synthetic textile threads
Temperature range: -20°C to +80°C
Operating pressure: 20 bar, burst pressure: Approx. 60 bar
Electrical resistance: ≤10^6 Ohm/m
Operating range: Compressed air hose for industry, factories and petrol stations as an anti-static version. Weather resistant outdoor blanket, good temperature resistance also suitable for non aggressive liquids.
Roll length: 20 m

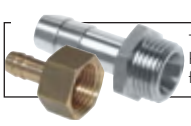


Type	Hose Ø internal	Hose Ø external	Min. bend radius
GS 6 ANTISTATIK	6	13	50
GS 8 ANTISTATIK	8	15	65
GS 9 ANTISTATIK	9 (3/8")	16	70
GS 13 ANTISTATIK	12 (1/2")	20	100

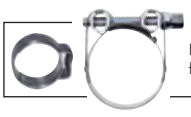
Rubber compressed air brake hoses — DIN 74310

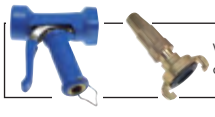
Materials: Cover: EPDM, black, smooth, abrasion resistant, non-ageing and weather resistant, nitrosamine-free, pressure carrier: High-rigidity, synthetic textile threads, inner tube: EPDM, black, smooth, nitrosamine-free
Temperature range: -40°C to +70°C
Operating pressure: 10 bar, burst pressure approx. 40 bar
Operating range: Compressed air-braking systems in motor vehicles
Roll length: 40 m

Type	Hose Ø internal	Hose Ø external
GSB 9	9 (3/8")	16
GSB 11	11	18
GSB 13	13 (1/2")	25


Threaded nozzles & hose nozzles from page 64

Garden hose couplings from page 178


Hose clamps from page 234


Water guns on page 532

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Steam hoses

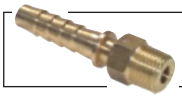
Especially good value!

2-part clamps for steam hoses on page 239

Low pressure steam hoses — up to +164°C

Materials: Cover: EPDM, black, patterned and perforated material, inner tube: EPDM, black, smooth
Properties: Good resistance to acids and alkalis. After use, drain water or steam!
Temperature range: -40°C to max. +164°C
Operating pressure: Max. 7 bar constant at +164°C, water to max. 20 bar
Operating range: Hot water and saturated steam
Roll length: 40 m

Type	Hose Ø internal	Hose Ø external	Min. bend radius
WSH 10 ND	10 (3/8")	21	60
WSH 13 ND	13 (1/2")	24	80
WSH 19 ND	19 (3/4")	33	115
WSH 25 ND	25 (1")	39	150
WSH 32 ND	32 (1 1/4")	47	195
WSH 38 ND	38 (1 1/2")	56	230
WSH 50 ND	51 (2")	69	300



Steam fittings from page 69

Steam hoses DAMPF-TRIX® 6000, DIN EN ISO 6134-2A — up to +210°C

Materials: Cover: EPDM external layer, insensitive to ozone, weathering and UV radiations, abrasion resistant pressure carrier: 2 steel wire mesh inner tube: Smooth, non-porous EPDM
Temperature range/operating pressure: 18 bar constant at +210°C, temporary 23 bar at +220°C
Electrical resistance: R <10^6 Ohm/m
Operating range: Saturated steam
Roll length: 40 m

Type	Hose Ø internal	Hose Ø external	Min. bend radius
WSH 13	13 (1/2")	25	130
WSH 19	19 (3/4")	33	190
WSH 25	25 (1")	40	250
WSH 32	32 (1 1/4")	48	320
WSH 38	38 (1 1/2")	54	380
WSH 50	50 (2")	68	500

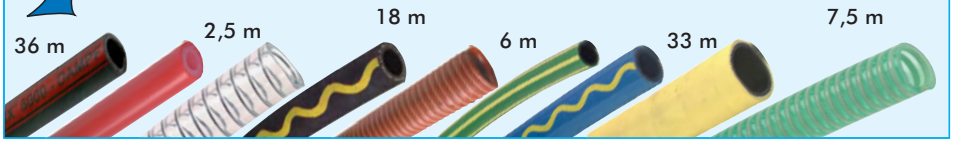
Oil resistant (external) steam hoses DAMPF-TRIX® 6000, DIN EN ISO 6134-2B — to +210°C

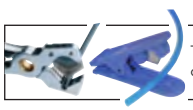
Materials: Cover: Special oil resistant external layer, insensitive to ozone, weathering and UV radiations, abrasion resistant, pressure carrier: 2 steel wire mesh inner tube: Smooth, non-porous EPDM
Temperature range/operating pressure: 18 bar constant at +210°C, temporary 23 bar at +220°C
Electrical resistance: R <10^6 Ohm/m
Operating range: Saturated steam
Roll length: 40 m

Type	Hose Ø internal	Hose Ø external	Min. bend radius
WSH 13 OL	13 (1/2")	25	130
WSH 19 OL	19 (3/4")	33	190
WSH 25 OL	25 (1")	40	250
WSH 32 OL	32 (1 1/4")	48	320
WSH 38 OL	38 (1 1/2")	54	380
WSH 50 OL	50 (2")	68	500

We cut our hoses to your required length!

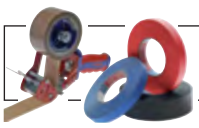
You can also select already pre-cut parts in our **Online Shop** to special conditions.



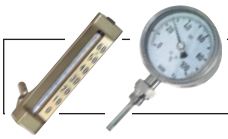


Tube cutters on page 595

Oil binding agents & oil binding cloths from page 581



tesa®-adhesive technology from page 585



Thermometer from page 396

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Silicone hoses (industrial quality)

FDA

Version: Transparent, 60° Shore hardness (±5°), talc-powered, without fabric braiding, material according to FDA 21 CFR 177.2600
Temperature range: -60°C to max. +200°C, with steam to 135°C sterilisation possible
Pressure range: For passing through liquids and gases not exposed to pressure
Roll length: 25 m

Type	Hose Ø internal x ext.
Sili 12	1 x 2
Sili 13	1 x 3
Sili 1.52.5	1.5 x 2.5
Sili 23	2 x 3
Sili 24	2 x 4
Sili 25	2 x 5
Sili 26	2 x 6
Sili 34	3 x 4
Sili 35	3 x 5
Sili 36	3 x 6
Sili 37	3 x 7
Sili 45	4 x 5
Sili 46	4 x 6
Sili 47	4 x 7
Sili 48	4 x 8
Sili 410	4 x 10

Type	Hose Ø internal x ext.
Sili 56	5 x 6
Sili 57	5 x 7
Sili 58	5 x 8
Sili 59	5 x 9
Sili 67	6 x 7
Sili 68	6 x 8
Sili 69	6 x 9
Sili 610	6 x 10
Sili 612	6 x 12
Sili 710	7 x 10
Sili 711	7 x 11
Sili 810	8 x 10
Sili 811	8 x 11
Sili 812	8 x 12
Sili 814	8 x 14
Sili 913	9 x 13

Type	Hose Ø internal x ext.
Sili 1012	10 x 12
Sili 1014	10 x 14
Sili 1015	10 x 15
Sili 1016	10 x 16
Sili 1018	10 x 18
Sili 1216	12 x 16
Sili 1218	12 x 18
Sili 1418	14 x 18
Sili 1519	15 x 19
Sili 1521	15 x 21
Sili 1620	16 x 20
Sili 1824*	18 x 24
Sili 2024	20 x 24
Sili 2533	25 x 33

* not according to FDA

Silicone hoses with fabric braiding

up to 200°C

FDA

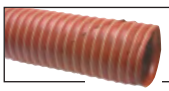
Version: Inner tube transparent, outer layer red, polyester fabric braiding, 70° Shore hardness (± 5°), material according to FDA 21 CFR 177.2600
Temperature range: -50°C to max. +180°C (temporary to max. +200°C)
Operating pressure: Approx. 1/3 of the burst pressure

Type	Hose Ø internal x external	Burst pressure	Roll length m
TX 3 Sili	3 x 8	60 bar	50
TX 4 Sili	4 x 10	60 bar	50
TX 6 Sili	6 x 12	40 bar	50
TX 8 Sili	8 x 15	30 bar	50
TX 10 Sili	10 x 17	25 bar	50
TX 12 Sili	12 x 20	19 bar	50
TX 14 Sili	14 x 22	17 bar	50
TX 16 Sili	16 x 26	15 bar	50
TX 19 Sili	19 x 29	12 bar	25

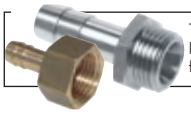
Flame retardence and insulation hoses (industrial quality)

Application: Protects against the effects of external heat and prevents heat loss, repels liquid metal splashes (foundry glass processing)
Materials: Outside mantle: Temperature resistant special silicone, internal mantle: Special glass fibre mesh
Temperature range: -60°C to max. +260°C (cont. temp.), +1090°C (approx. 15-20 min), +1650°C (approx. 15-30 sec.)
Note: Fix the protective hose at the ends using FSS TAPE, with 50% overlapping

Type	Internal Ø
Flame retardant hose (roller length 15 m)	
FSS 6	6
FSS 8	8
FSS 10	10
FSS 13	13
FSS 16	16
FSS 19	19
FSS 22	22
FSS 25	25
FSS 29	29
FSS 32	32
FSS 35	35
FSS 38	38
FSS 41	41
FSS 44	44
FSS 51	51
Approx. 11 m tape band to seal and fix the ends, max. +246°C	
FSS TAPE 25	25 mm wide, 0.5 mm thick
FSS TAPE 38	38 mm wide, 1.5 mm thick

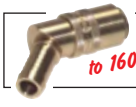


Silicone hot air hoses from page 224



Threaded nozzles & hose nozzles from page 64

Distributor bars from page 132



Mould couplings from page 164

Hose clamps from page 234

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Gas hoses

Autogenous hoses for oxygen — DIN EN ISO 3821 (DIN 8541/EN 559)

Materials: Inner tube: Rubber, black, smooth, outer cover: Rubber, blue, smooth
Temperature range: -20°C to max. +60°C
Operating pressure: 20 bar, burst pressure: 60 bar
Operating range: For the connection of oxygen fittings
Roll length: 40 m

Type	Hose Ø internal	Wall thickness	Hose Ø external
SAU 635	6	3.5	13
SAU 650	6	5	16

Autogenous hoses for acetylene gas — DIN EN ISO 3821 (DIN 8541/EN 559)

Materials: Inner tube: Rubber, black, smooth, outer cover: Rubber, red, smooth
Temperature range: -20°C to max. +60°C
Operating pressure: 20 bar, burst pressure: 60 bar
Operating range: For the connection of gas fittings
Roll length: 40 m

Type	Hose Ø internal	Wall thickness	Hose Ø external
GAS 6	6	3.5	13
GAS 9	9	3.5	16

Double hose clamps on page 247

Twin hoses for oxygen and acetylene gas — DIN EN ISO 3821 (DIN 8541/EN 559)

Materials: Inner tube for both types, synthetic rubber, black, smooth, outer cover: Synthetic rubber, oxygen blue, smooth, acetylene red, smooth
Temperature range: -20°C to max. +60°C
Operating pressure: 20 bar, burst pressure: 60 bar
Operating range: For the connection of gas and oxygen fittings

Type	Colour	Dimensions (Ø internal x wall thickness)	Roll length m
DUO GSAU 66	Blue/red	6 x 3.5/6 x 3.5	40
DUO GSAU 69	Blue/red	6 x 5.0/9 x 3.5	40
DUO GSAU 99	Blue/red	9 x 3.5/9 x 3.5	50

Breathing air hoses — EN 14593/EN 14594

Materials: Inner tube: Plastic, black, smooth, outer cover: Plastic blue, smooth, no staining, oil resistant, polyester fabric braiding
Temperature range: -20°C to max. +70°C
Electrical resistance: $<10^6$ Ohm/m
Operating range: Breathing air hose, carbon dioxide
Operating pressure: 15 bar, burst pressure: Approx. 60 bar
Roll length: 50 m

Type	Hose Ø internal	Wall thickness	Hose Ø external
ATEM 6 ANTISTATIK	6	3.0	12
ATEM 8 ANTISTATIK	8	3.0	14
ATEM 10 ANTISTATIK	10 (3/8")	3.0	16
ATEM 13 ANTISTATIK	13 (1/2")	3.0	19
ATEM 19 ANTISTATIK	19 (3/4")	4.5	28

Propane-Butane-hoses — EN 16436-1 DVGW (DIN 4815)

Materials: Inner tube: NBR, black, smooth, knurled textile inlays, outer cover: SBR/NBR, orange, smooth
Temperature range: -30°C to max. +70°C
Operating pressure: 10 bar, burst pressure: 30 bar
Operating range: For example, for propane gas burners, that are resistant to ageing, ozone and the weather
Roll length: 40 m

Type	Hose Ø internal	Wall thickness	Hose Ø external
PROPAN 6	6.3	3.5	13.3
PROPAN 9	9.0	3.5	16.0

Universal fuel gas hoses — DIN EN ISO 3821 (EN 559)

Materials: Inner tube: Black, non-porous, smooth NBR inner layer, press. carrier: Synthetic yarns, cover: Red-orange, smooth NBR outer layer, ozone-, weather- and UV- resistant, abrasion resistant, LABS, separating agent and grease free production
Temperature range: -40°C to max. +60°C
Electrical resistance: $<10^6$ Ohm/m
Operating pressure: 20 bar, burst pressure: 60 bar
Operating range: Highly flexible, buckle resistant and dimensionally stable hose for all fuel gasses including liquid gas according to DIN 51622, Propane/Butane, DMF, MPS, LPG and natural gas
Roll length: 40 m

Type	Hose Ø internal	Wall thickness	Hose Ø external
ALLBRENN 6	6.3	3.5	13.3
ALLBRENN 9	9.0	3.5	16.0
ALLBRENN 11	11.0	3.8	18.6

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Hoses for cooling systems — similar to DIN 73411/96

Materials: Inner tube: EPDM, black, smooth, cover: EPDM, black, smooth, from DN 28 fabric covered, heat, ageing and weather resistance in accordance with DIN 73411
Temperature range: -40°C to max. +125°C (internal Ø > 50 mm: -40°C to max. +100°C), short term up to +140°C
Operating pressure: 6 bar, burst pressure: 18 bar, (internal Ø > 50 mm: 3 bar, burst pressure: 9 bar)
☞ **Optional:** 1 m piece **-1**

Type	Hose Ø internal	Hose Ø external	Roll length m
KU 10x17	10	17	40
KU 13x20	13	20	40
KU 15x22	15	22	40
KU 18x25	18	25	40
KU 20x27	20	27	40
KU 22x29	22	29	40
KU 25x34	25	34	40
KU 28x36	28	36	40
KU 30x38	30	38	40
KU 32x40	32	40	40
KU 35x43	35	43	40
KU 38x48	38	48	40

Type	Hose Ø internal	Hose Ø external	Roll length m
KU 40x50	40	50	40
KU 42x52	42	52	40
KU 50x60	50	60	40
KU 55x65	55	65	40
KU 60x70	60	70	40
KU 65x76	65	76	20
KU 70x81	70	81	20
KU 75x86	75	86	20
KU 80x92	80	92	20
KU 90x102	90	102	20
KU 100x113	100	113	20
KU 120x134*	120	134	20

* chloroprene outside cover, temp. range: -30°C to max. +130°C, operating pressure: 4 bar, burst pressure: 12 bar, acc. to DIN 73411/79

☞ **Order example:** KU 10x17 **
Standard type
Designation for the options:
1 m piece . . . . . **-1**

Wire retention clamps on page 234

Oil resistant hoses for cooling systems — similar to DIN 73411/79

Materials: Inner tube: NBR mixture, black, smooth, cover: CR mixture, black, fabric finished, heat, ageing and weather resistant in accordance with DIN 73411
Properties: Resistant to oils of ASTM I/II/III group up to +100°C, temporary to +120°C, resistant to diesel fuel up to +50°C
Temperature range: -40°C to max. +100°C
Operating pressure: 5 bar, burst pressure: 15 bar

Type	Hose Ø internal	Hose Ø external	Roll length m
KU 12x19 OL	12	19	40
KU 15x22 OL	15	22	40
KU 18x25 OL	18	25	40
KU 22x29 OL	22	29	40
KU 25x32 OL	25	32	40
KU 28x35 OL	28	35	40
KU 30x37 OL	30	37	40

Type	Hose Ø internal	Hose Ø external	Roll length m
KU 32x39 OL	32	39	40
KU 35x42 OL	35	42	40
KU 38x45 OL	38	45	40
KU 40x51 OL	40	51	20
KU 42x53 OL	42	53	20
KU 50x61 OL	50	61	20

☞ **Order example:** KU 12x19 OL **
Standard type
Designation for the options:
1 m piece . . . . . **-1**

Wire retention clamps on page 234

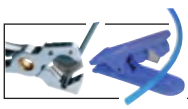
Flexible cooling system repair hoses

Materials: Nitrile propylene, black
Properties: Resistant to water, light leaches and acids. Oil and ageing resistant
Temperature range: -30°C to max. +120°C
Operating pressure: Max. 1.5 bar
Note: These hoses are intended for short-term repairs and should be replaced at the latest 3 months after installation by the original hoses.

✓ **Advantages:** • Should be laid without kinks in tight radii.

Delivery length: 1 m

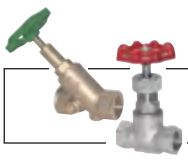
Type	Hose Ø internal	Suitable for mm Ø	Min. bend radius
KU 25 FLEX	25.0	25.0 - 31	85
KU 32 FLEX	31.5	31.5 - 36	105
KU 37 FLEX	37.0	37.0 - 44	115
KU 44 FLEX	44.0	44.0 - 48	120
KU 48 FLEX	48.0	48.0 - 55	125



Tube cutters on page 595

Butterfly valves from page 316

Strainers made of stainless steel on page 359



Shut-off valves on page 295

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Chemical suction-pressure hoses

Especially good value!

Chemical pressure hoses made of EPDM — EN 12115*

Materials: Inner tube: EPM, black, smooth; cover: EPDM, black, extruded (as of DN 32, fabric finished), abrasion and weather resistant; insert: Cord fabric with copper strands (DN 13: without copper strands)
Temperature range: -35°C to max. +100°C (chemicals: max. +25°C), can be sterilised with steam (temporary to +130°C)
Operating pressure: 16 bar, burst pressure: 64 bar
Electrical resistance: R <10^6 Ohm/m
Operating range: For strong acids and alkalis (DN 13: air, water, mild chemicals). Not resistant to hydrocarbons. Please ask specifically for the resistance of your medium. As of DN 19: Flame resistance in accordance with TRbf 131, Section 2, Paragraph 5.5.

Type	Hose Ø internal	Hose Ø external	Roll length m
CHS 13	13 (1/2")	20	40
CHS 19	19 (3/4")	31	40
CHS 25	25 (1")	37	40
CHS 32	32 (1 1/4")	44	40
CHS 38	38 (1 1/2")	51	40
CHS 50	50 (2")	66	40

* DN 13: EN ISO 1307

Chemical suction-pressure hoses made of EPDM — EN 12115

Materials: Inner tube: EPM, black, smooth; cover: EPDM, black, fabric finished; anti-static, abrasion and weather resistant; inserts: insert: Textile braid, steel coil with copper strands
Temperature range: -35°C to max. +100°C (chemicals: max. +25°C), can be sterilised with steam (temporary to +130°C)
Electrical resistance: R < 10^6 Ohm/m
Operating range: For strong acids and alkalis. Not resistant to hydrocarbons. Please ask specifically for the resistance of your medium. Flame resistance in accordance with TRbf 131, Section 2, Paragraph 5.5.

Type	Hose Ø internal	Hose Ø external	Vacuum/pressure	Burst pressure	Roll length m
CHSSP 19	19.0 (3/4")	31	-0.9 to 16 bar	64 bar	40
CHSSP 25	25.0 (1")	37	-0.9 to 16 bar	64 bar	40
CHSSP 32	32.0 (1 1/4")	44	-0.9 to 16 bar	64 bar	40
CHSSP 38	38.0 (1 1/2")	51	-0.9 to 16 bar	64 bar	40
CHSSP 50	50.0 (2")	66	-0.9 to 16 bar	64 bar	40
CHSSP 63	63.5 (2 1/2")	79	-0.9 to 16 bar	64 bar	40
CHSSP 75	75.0 (3")	91	-0.8 to 16 bar	64 bar	40
CHSSP 100	100.0 (4")	116	-0.8 to 12 bar	48 bar	40

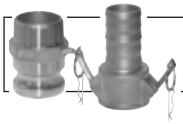
TIP Also resistant to hydrocarbons!

Chemical suction-pressure hoses made of EPDM Heavy-duty design — EN 12115

Materials: Inner tube: Cross-linked polyethylene, smooth, black, conductive, FDA food-safe approval, cover: EPDM, black, fabric finished, anti-static, abrasion and weather resistant; inserts: Fabric braid, steel coil and copper strands
Temperature range: -35°C to max. +100°C (chemicals: max. +25°C), can be sterilised with steam (temporary to +130°C)
Electrical resistance: R < 10^6 Ohm/m
Operating range: Conducting a large number of chemicals. Suitable for most acids, lyes, mineral products and solvents used in the industry. Can also be used as a flexible connection in paint systems. Please ask specifically for the resistance of your medium. Flame resistance in accordance with TRbf 131, Section 2, Paragraph 5.5.

Type	Hose Ø internal	Hose Ø external	Operating pressure	Burst pressure	Roll length m
CHSSP 19 PL	19.0 (3/4")	31	-0.9 to 16 bar	64 bar	40
CHSSP 25 PL	25.0 (1")	37	-0.9 to 16 bar	64 bar	40
CHSSP 32 PL	32.0 (1 1/4")	44	-0.9 to 16 bar	64 bar	40
CHSSP 38 PL	38.0 (1 1/2")	51	-0.9 to 16 bar	64 bar	40
CHSSP 51 PL	50.0 (2")	66	-0.9 to 16 bar	64 bar	40
CHSSP 63 PL	63.5 (2 1/2")	79	-0.9 to 16 bar	64 bar	40
CHSSP 75 PL	75.0	91	-0.8 to 16 bar	64 bar	40

Stainless steel ball valves with welded ends from page 290


Kamlock couplings from page 186

Tanker truck couplings from page 169

Clamp brackets and steel cable clamps of page 257-259

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Tanker truck suction-pressure hoses made of NBR — EN 12115

Materials: Inner tube: NBR, black, extruded, insert: With steel wire coil and copper strand, cover: NBR/SBR, black, fabric finished, abrasion resistant, anti-static
Temperature range: -25°C to max. +80°C (oil to max. +100°C; biodiesel left natural or esterified max. +40°C)
Operating pressure: 16 bar, burst pressure: 64 bar (100 mm: 12 bar, burst pressure: 48 bar)
Vacuum range: -0.9 bar (> 63 mm: - 0.8 bar)
Electrical resistance: R <10^6 Ohm/m
Operating range: Oil and petrol resistant suction and pressure hose for mineral oil products with a maximum aromatic content of 50%. Suitable for a tank truck hose for various media such as petrol (DIN EN 228), diesel (DIN EN 590), Biodiesel (DIN EN 14214), heating oil, natural vegetable oils, turpentine and ester products (RME). Flame resistance in accordance with TRbF 131, Section 2, Paragraph 5.5.

Type	Hose Ø internal	Hose Ø external	Min. bend radius	Roll length m
TWSSP 19	19.0 (3/4")	31.0	125	40
TWSSP 25	25.0 (1")	37.0	150	40
TWSSP 32	32.0 (1 1/4")	44.0	175	40
TWSSP 38	38.0 (1 1/2")	51.0	225	40
TWSSP 50	50.0 (2")	66.0	275	40
TWSSP 63	63.5 (2 1/2")	79.0	300	40
TWSSP 75	75.0 (3")	91.0	350	40
TWSSP 100	100.0 (4")	116.0	450	20

Tanker truck couplings from page 169

Sandblast hoses with abrasion resistant inner tubes — EN ISO 3861:2008

Materials: Inner tube: Abrasion resistant NR/SBR/BR, black, smooth, anti-static, abrasion value: Max. 50 mm^3 in accordance with ISO 4649, pressure carrier: Wounded textile inlays, cover: SBR, black, fabric finished, anti-static
Temperature range: -35°C to +80°C
Operating pressure: 12 bar, burst pressure approx. 40 bar
Electrical resistance: ≤10^6 Ohm/m
Operating range: Conducting dry or wet commercially available blasting abrasives like sand, steel grit, corundum or quartz powder
Roll length: 40 m

Type	Hose Ø internal	Hose Ø external
SSGS 13	13 (1/2")	27
SSGS 19	19 (3/4")	33
SSGS 25	25 (1")	39
SSGS 32	32 (1 1/4")	48
SSGS 38	38 (1 1/2")	56
SSGS 42	42 (1 3/4")	60
SSGS 50	50 (2")	70

Sandblast couplings from page 177

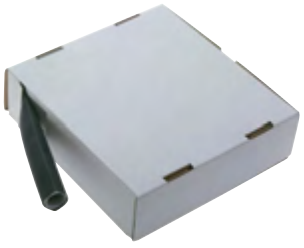
Note: This hose is designed to take a pressure of 12 bar. As a safety precaution EN ISO 3861 specifies a max. working pressure of 6.3 bar.

Shrink tubes

Material: Polyolefin, black, flame resistant in accordance with UL 224
Temperature range: -55°C to max. +125°C
Shrink temperature: Min. 90°C
Shrink ratio: 2:1

Advantages: • Supplied in practical dispenser box
• Flame resistance to UL 224

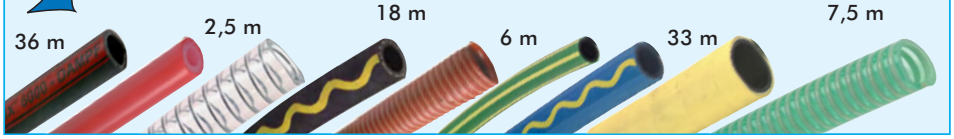
Type	Inside Ø unshrunk	Amount
SCHRUMPF 1,2	1.2	20 m box
SCHRUMPF 1,6	1.6	20 m box
SCHRUMPF 2,4	2.4	15 m box
SCHRUMPF 3,2	3.2	11.5 m box
SCHRUMPF 4,8	4.8	10 m box
SCHRUMPF 6,4	6.4	10 m box
SCHRUMPF 9,5	9.5	6.5 m box
SCHRUMPF 12,7	12.7	6 m box
SCHRUMPF 15,9	15.9	5 m box
SCHRUMPF 19,1	19.1	3 m box
SCHRUMPF 25,4	25.4	3 m box



Hot air blowers are found on page 642

We cut our hoses to your required length!

You can also select already pre-cut parts in our **Online Shop** to special conditions.



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Suction hoses and pressure hoses

Vacuum plastic coil tubes made of PVC-Superflex

Materials: Soft PVC light grey, support coil made of hard PVC white (smooth on the inside, corrugated on the outside)
Temperaturbereich: -15°C to max. +50°C
Application: As connection between ventilators and work stations, vacuum cleaner industry, aerating and venting, mechanical engineering, air conditioning. For suction of small wood or plastic shavings.. Can also ideally be used as cable protection hose.

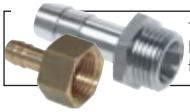
Type	Hose Ø internal	Min. bend radius	Operating pressure	Roll length m
VU 13 FLEX	13	13	-0,5 bis 0 bar	30
VU 19 FLEX	19	19	-0,5 bis 0 bar	50
VU 25 FLEX	25	25	-0,5 bis 0 bar	50
VU 30 FLEX	30	30	-0,5 bis 0 bar	50
VU 32 FLEX	32	32	-0,5 bis 0 bar	50
VU 35 FLEX	35	35	-0,5 bis 0 bar	50
VU 38 FLEX	38	38	-0,5 bis 0 bar	50
VU 40 FLEX	40	40	-0,5 bis 0 bar	50
VU 45 FLEX	45	45	-0,5 bis 0 bar	50
VU 50 FLEX	50	50	-0,5 bis 0 bar	50
VU 60 FLEX	60	60	-0,5 bis 0 bar	50
VU 70 FLEX	70	70	-0,5 bis 0 bar	50
VU 76 FLEX	76	76	-0,5 bis 0 bar	50
VU 80 FLEX	80	80	-0,5 bis 0 bar	50
VU 90 FLEX	90	90	-0,5 bis 0 bar	50
VU 100 FLEX	100	100	-0,5 bis 0 bar	30
VU 110 FLEX	110	110	-0,2 bis 0 bar	30
VU 120 FLEX	120	120	-0,2 bis 0 bar	30
VU 125 FLEX	125	125	-0,2 bis 0 bar	30
VU 150 FLEX	150	150	-0,2 bis 0 bar	30
VU 180 FLEX	180	180	-0,1 bis 0 bar	20
VU 203 FLEX	203	203	-0,1 bis 0 bar	20

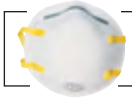
AC and vent hoses made of PVC coated polyester meshes

Materials: PVC coated polyester mesh with a bronzed steel wire coil embedded in the wall
Temperature range: -30°C to max. +80°C (temporary +100°C)
Wall thickness: Approx. 0.4 mm
Application: HVAC, welding gas extraction, solar systems, household equipment, good flexibility, self-extinguishing, low-temperature flexibility, good expansion ratio.

Type	Hose Ø internal	Operating pressure	Roller length m
LUFLEX 40	40	-0.20 to 0.90 bar	30
LUFLEX 50	50	-0.20 to 0.80 bar	15
LUFLEX 60	60	-0.16 to 0.80 bar	15
LUFLEX 70	70	-0.14 to 0.70 bar	15
LUFLEX 75	75	-0.10 to 0.60 bar	15
LUFLEX 80	80	-0.10 to 0.60 bar	15
LUFLEX 90	90	-0.09 to 0.50 bar	15
LUFLEX 100	100	-0.09 to 0.50 bar	15
LUFLEX 120	120	-0.08 to 0.50 bar	15
LUFLEX 125	125	-0.08 to 0.50 bar	15
LUFLEX 140	140	-0.06 to 0.35 bar	15
LUFLEX 150	150	-0.06 to 0.20 bar	15
LUFLEX 160	160	-0.05 to 0.20 bar	10
LUFLEX 175	175	-0.05 to 0.20 bar	10
LUFLEX 200	200	-0.05 to 0.20 bar	10
LUFLEX 250	250	-0.04 to 0.10 bar	10

Wire hose clamps from page 238


Threaded nozzles & hose nozzles from page 64


Respirator page 590

Dustpans and hand sweepers on page 584

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

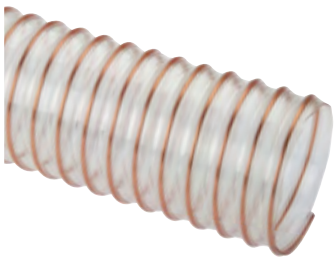
Suction-pressure PU coil tubes - flame retardant, antistatic & hydrolysis resistant

Materials: Polyether polyurethane coating with a coppered/bronze steel wire coil incorporated in the wall.
temperature range: -40°C to max. +90°C, temporary to +125°C
Properties: High quality permanent anti-static PU hose (not option **-LE**), high tear and abrasion resistance, high elasticity and ageing resistance. Halogen and plasticiser additives free, to a large extent resistant against solvents, oils, grease, wax, petrol, hydrolysis and microbes, bend resistant. The transparency helps to monitor the working processes very effectively.
Field of application: Suction (industrial suction unit) of gases, chippings, oil mist, paint mist or dust, for passing granulate, gravel, sand, dust, wood, grains, cement or oil, in chemical industry, paint and lacquer industry, lumber industry (also can be used in areas exposed to the risk of fire.

Advantages:
- PU hose is often more abrasion resistant than the common rubber hose
- Minor settling of the transported material by relatively smooth inner walls
- flame-resistant according to DIN 4102 B1, compliant with TRGS 727 (not option **-LE**)
- permanent anti-static (R<10 8 Ohm/m), conductive acc. to BGI 739-2 when the coils are grounded (not option **-LE**)
- hydrolysis and microbe resistant, thus also use for moist media

☞ **Optional:** food-safe according to regulations (EC) no. 1935/2004 & (EU) no. 10/2011, FDA 21 CFR 177.2600 & 178.2010, not anti-static, without B1 approval/TRGS **-LE**

Typ		Hose Ø internal	Min. bend radius	Operating pressure	Roll length m
Lightweight, wall thickness: ca. 0.4 mm					
PUSPL 25 AS		25	18	-0,30 to 0,60 bar	10
PUSPL 30 AS		30	21	-0,30 to 0,60 bar	30
PUSPL 40 AS		40	28	-0,25 to 0,50 bar	30
PUSPL 50 AS		50	35	-0,20 to 0,40 bar	15
PUSPL 60 AS		60	42	-0,16 to 0,40 bar	15
PUSPL 70 AS		70	49	-0,14 to 0,35 bar	15
PUSPL 75 AS		75	53	-0,10 to 0,30 bar	15
PUSPL 80 AS		80	56	-0,10 to 0,27 bar	15
PUSPL 90 AS		90	63	-0,09 to 0,23 bar	15
PUSPL 100 AS		100	70	-0,09 to 0,20 bar	15
PUSPL 120 AS		120	85	-0,08 to 0,19 bar	15
PUSPL 125 AS		125	88	-0,08 to 0,19 bar	15
PUSPL 140 AS		140	95	-0,07 to 0,15 bar	15
PUSPL 150 AS		150	105	-0,06 to 0,11 bar	15
PUSPL 160 AS		160	112	-0,06 to 0,12 bar	10
PUSPL 175 AS		175	123	-0,05 to 0,10 bar	10
PUSPL 200 AS		200	140	-0,05 to 0,08 bar	10
PUSPL 250 AS		250	175	-0,04 to 0,05 bar	10
PUSPL 300 AS		300	210	-0,03 to 0,03 bar	10
PUSPL 350 AS		350	245	-0,02 to 0,02 bar	10
PUSPL 400 AS		400	280	-0,02 to 0,02 bar	10
PUSPL 450 AS		450	315	-0,01 to 0,01 bar	10
PUSPL 500 AS		500	350	-0,01 to 0,01 bar	10
Medium heavy, wall thickness: ca. 0.5 - 0.6 mm					
PUSPM 50 AS		50	50	-0,35 to 1,2 bar	30
PUSPM 60 AS		60	60	-0,30 to 1,0 bar	30
PUSPM 70 AS		70	70	-0,25 to 0,8 bar	30
PUSPM 75 AS		75	75	-0,20 to 0,8 bar	30
PUSPM 80 AS		80	80	-0,20 to 0,7 bar	30
PUSPM 90 AS		90	90	-0,20 to 0,7 bar	30
PUSPM 100 AS		100	100	-0,15 to 0,6 bar	30
PUSPM 110 AS		110	110	-0,15 to 0,6 bar	30
PUSPM 125 AS		125	125	-0,15 to 0,5 bar	30
PUSPM 130 AS		130	130	-0,15 to 0,5 bar	30
PUSPM 140 AS		140	140	-0,15 to 0,5 bar	30
PUSPM 150 AS		150	150	-0,10 to 0,4 bar	30
PUSPM 160 AS		160	160	-0,10 to 0,4 bar	30
PUSPM 170 AS		170	170	-0,10 to 0,4 bar	30
PUSPM 180 AS		180	180	-0,10 to 0,4 bar	30
PUSPM 200 AS		200	200	-0,10 to 0,3 bar	30
PUSPM 250 AS		250	250	-0,05 to 0,2 bar	15
PUSPM 300 AS		300	300	-0,04 to 0,2 bar	15
Heavy, wall thickness: ca. 1.0 mm					
PUSPS 13 AS		13	19	-0,80 to 3,0 bar	10
PUSPS 20 AS		20	30	-0,70 to 2,3 bar	10
PUSPS 25 AS		25	38	-0,50 to 1,9 bar	10
PUSPS 30 AS		30	45	-0,40 to 1,6 bar	10
PUSPS 40 AS		40	66	-0,70 to 2,6 bar	30
PUSPS 50 AS		50	83	-0,60 to 2,0 bar	30
PUSPS 60 AS		60	99	-0,50 to 1,8 bar	30
PUSPS 70 AS		70	116	-0,45 to 1,5 bar	30
PUSPS 75 AS		75	123	-0,40 to 1,3 bar	30
PUSPS 80 AS		80	132	-0,40 to 1,2 bar	30
PUSPS 100 AS		100	150	-0,30 to 1,0 bar	30
PUSPS 125 AS		125	185	-0,25 to 0,8 bar	30
PUSPS 150 AS		150	225	-0,25 to 0,8 bar	30
PUSPS 175 AS		175	260	-0,11 to 0,25 bar	10
PUSPS 200 AS		200	300	-0,10 to 0,2 bar	10
PUSPS 250 AS		250	375	-0,07 to 0,12 bar	10



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Suction hoses and pressure hoses

Suction-pressure plastic coil tubes made of PVC

Materials: PVC, green transparent, support coil PVC white
Temperature range: -10°C to max. +60°C (temporary)
Application: Hose is suitable for cleaning agents, partially for acids and alkalis, water and compressed air as well as vacuum. Irrigation and drainage projects in industry, agriculture and horticulture, agricultural sprayers.

Type	Hose Ø internal	Min. bend radius	Wall thickness	Operating pressure	Roll length m
VD 13	13	70	2.5	-0.7 to 8 bar	50
VD 19	19	100	2.8	-0.7 to 8 bar	50
VD 25	25	120	3.2	-0.7 to 8 bar	50
VD 32	32	160	3.4	-0.7 to 7.5 bar	50
VD 35	35	180	3.5	-0.7 to 7 bar	50
VD 38	38	190	3.6	-0.7 to 7 bar	50
VD 40	40	200	3.6	-0.7 to 6.5 bar	50
VD 45	45	230	3.8	-0.7 to 6 bar	50
VD 50	50	250	4.2	-0.7 to 5.5 bar	50
VD 60	60	320	4.3	-0.7 to 5 bar	50
VD 63	63	330	4.4	-0.7 to 5 bar	50
VD 70	70	350	4.5	-0.7 to 4.5 bar	50
VD 76	76	400	4.6	-0.7 to 4 bar	50
VD 80	80	430	4.7	-0.6 to 4 bar	30
VD 90	90	490	5.1	-0.6 to 4 bar	30
VD 100	100	550	5.3	-0.6 to 3.5 bar	30
VD 110	110	600	5.5	-0.6 to 3.5 bar	30
VD 150	150	820	6.8	-0.5 to 2 bar	20

Flexible suction-pressure PVC hoses

Materials: PVC, transparent with integrated steel spring coil, food quality checked according to the requirements of Regulation (EU) 10/2011 (simulants A, B and C)
Temperature range: -15°C to +65°C (temporary)
Application: The smooth inner walls make it suitable for transporting liquid and solid media under high vacuum and high pressure. The transparency allows a good optical check for the process in the hose when in operation.
Roll length: 30 m

Type	Hose Ø internal	Min. bend radius	Wall thickness	Operating pressure
VDSP 10	10	25	3.0	-0.9 to 9 bar
VDSP 12	12	27	3.0	-0.9 to 9 bar
VDSP 13	14	30	3.2	-0.9 to 8 bar
VDSP 16	16	35	3.3	-0.9 to 8 bar
VDSP 19	19	40	3.5	-0.9 to 7 bar
VDSP 25	25	55	4.0	-0.9 to 6 bar
VDSP 32	32	75	4.1	-0.9 to 5 bar
VDSP 38	38	90	4.5	-0.9 to 4 bar
VDSP 40	40	95	4.5	-0.9 to 4 bar
VDSP 51	51	120	5.2	-0.8 to 3 bar
VDSP 60	60	150	6.0	-0.8 to 3 bar
VDSP 76	76	190	6.0	-0.8 to 2 bar
VDSP 102	102	280	7.5	-0.7 to 2 bar
VDSP 127	127	410	8.0	-0.6 to 2 bar
VDSP 152	152	490	8.4	-0.6 to 1 bar

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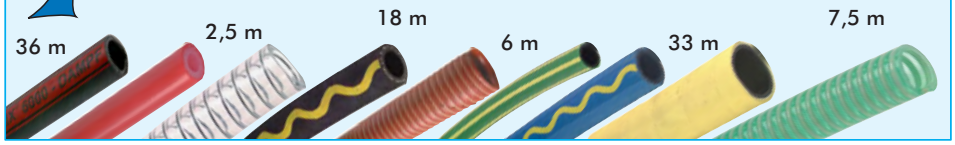
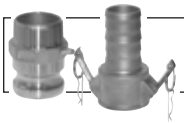


Wire hose clamps
from page 238

Stainless steel ball bearings
from page 284

Pressure gauge
from page 366



Kamlock couplings
from page 186

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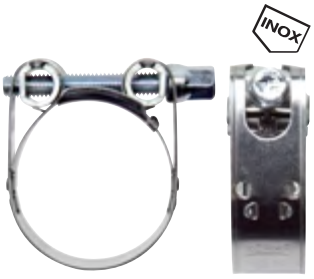
Hinge bolt clamps

NORMA

Suitable: For use in demanding applications, such as the mounting of suction and pressure hoses with high Shore hardness or with plastic or steel inserts. Ideal for commercial vehicle construction, industry, construction machinery, farming, mining, ...
Material: Tape and housing: AISI 430 (W2), screw: Zinc-plated steel
☞ **Optional:** Material complete AISI 304 (W4) **-2A**

✓ **Advantages:** • Hollow bolt reduces load on screw and tape. Increased service life



Type INOX	Ø Clamping range	Tape width
SSB 19 ES	17 - 19	18
SSB 21 ES	19 - 21	18
SSB 23 ES	21 - 23	18
SSB 25 ES	23 - 25	18
SSB 27 ES	25 - 27	18
SSB 29 ES	27 - 29	18
SSB 31 ES	29 - 31	18
SSB 34 ES	31 - 34	18
SSB 37 ES	34 - 37	18
SSB 40 ES	37 - 40	18
SSB 43 ES	40 - 43	18
SSB 47 ES	43 - 47	20
SSB 51 ES	47 - 51	20
SSB 55 ES	51 - 55	20
SSB 59 ES	55 - 59	20
SSB 63 ES	59 - 63	20
SSB 68 ES	63 - 68	20
SSB 73 ES	68 - 73	25

Type INOX	Ø Clamping range	Tape width
SSB 79 ES	73 - 79	25
SSB 85 ES	79 - 85	25
SSB 91 ES	85 - 91	25
SSB 97 ES	91 - 97	25
SSB 104 ES	97 - 104	25
SSB 112 ES	104 - 112	25
SSB 121 ES	112 - 121	25
SSB 130 ES	121 - 130	25
SSB 140 ES	130 - 140	30
SSB 150 ES	140 - 150	30
SSB 162 ES	150 - 162	30
SSB 174 ES	162 - 174	30
SSB 187 ES	174 - 187	30
SSB 200 ES	187 - 200	30
SSB 213 ES	200 - 213	30
SSB 226 ES	213 - 226	30
SSB 239 ES	226 - 239	30
SSB 252 ES	239 - 252	30

☞ **Order example:** SSB 19 ES **

Standard type

Designation for the options:
Material AISI 304 (W4) . **-2A**

Wire hose clamps for mounting hoses with spiral inlay

AISI 304 (< 70 mm)

Type AISI 304 INOX	Type zinc-plated steel	Ø Clamping range
SSDS 16 ES	SSDS 16	13 - 16
SSDS 18 ES	SSDS 18	15 - 18
SSDS 21 ES	SSDS 21	18 - 21
SSDS 23 ES	SSDS 23	20 - 23
SSDS 25 ES	SSDS 25	22 - 25
SSDS 27 ES	SSDS 27	24 - 27
SSDS 31 ES	SSDS 31	27 - 31
SSDS 35 ES	SSDS 35	31 - 35
SSDS 37 ES	SSDS 37	33 - 37
SSDS 40 ES	SSDS 40	35 - 40
SSDS 43 ES	SSDS 43	38 - 43
SSDS 48 ES	SSDS 48	43 - 48
SSDS 50 ES	SSDS 50	45 - 50
SSDS 55 ES	SSDS 55	49 - 55
SSDS 60 ES	SSDS 60	54 - 60
SSDS 65 ES	SSDS 65	59 - 65
SSDS 70 ES	SSDS 70	65 - 70
SSDS 75 ES	SSDS 75	70 - 75
SSDS 80 ES	SSDS 80	75 - 80
SSDS 85 ES	---	80 - 85
SSDS 90 ES	---	84 - 90
SSDS 100 ES	---	92 - 100

Type AISI 304 INOX	Type zinc-plated steel	Ø Clamping range
SSDS 110 ES	---	100 - 110
SSDS 115 ES	---	105 - 115
SSDS 120 ES	---	110 - 120
SSDS 125 ES	---	115 - 125
SSDS 130 ES	---	120 - 130
SSDS 140 ES	---	130 - 140
SSDS 150 ES	---	140 - 150
SSDS 160 ES	---	153 - 160
SSDS 165 ES	---	158 - 165
SSDS 170 ES	---	163 - 170
SSDS 180 ES	---	173 - 180
SSDS 185 ES	---	178 - 185
SSDS 195 ES	---	185 - 195
SSDS 208 ES	---	195 - 208
SSDS 260 ES	---	247 - 260
SSDS 270 ES	---	257 - 270
SSDS 315 ES	---	302 - 315
SSDS 360 ES	---	347 - 360
SSDS 413 ES	---	400 - 413
SSDS 450 ES	---	437 - 450
SSDS 500 ES	---	487 - 500

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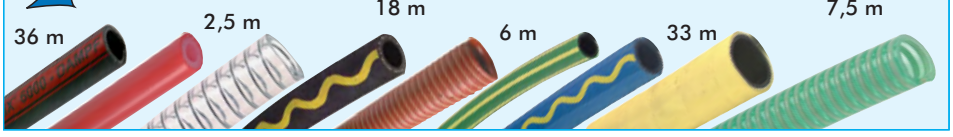
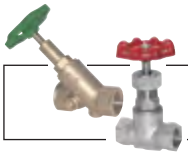
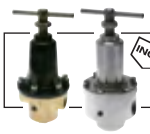


Hose clamps
on page 239

Power clamps "Band-It" extremely high clamping strength from page 240


Shut-off valves
on page 295



Pressure regulators made of stainless steel & brass from page 355

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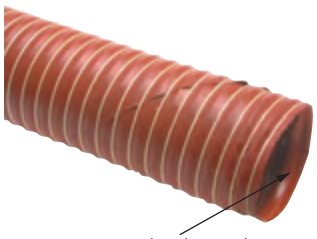
Heat resistant hoses

Flame retardence and insulation hoses (industrial quality)

Application: Protects against the effects of external heat and prevents heat loss, repels liquid metal splashes (foundry glass processing)
Materials: Outside mantle: Temperature resistant special silicone, internal mantle: Special glass fibre mesh
Temperature range: -60°C to max. +260°C (cont. temp.), +1090°C (approx. 15-20 min), +1650°C (approx. 15-30 sec.)
Note: Fix the protective hose at the ends using FSS TAPE, with 50% overlapping

Type	Internal Ø
Flame retardant hose (roller length 15 m)	
FSS 6	6
FSS 8	8
FSS 10	10
FSS 13	13
FSS 16	16
FSS 19	19
FSS 22	22
FSS 25	25
FSS 29	29
FSS 32	32
FSS 35	35
FSS 38	38
FSS 41	41
FSS 44	44
FSS 51	51
Approx. 11 m tape band to seal and fix the ends, max. +246°C	
FSS TAPE 25	25 mm wide, 0.5 mm thick
FSS TAPE 38	38 mm wide, 1.5 mm thick

Silicone hot air hoses up to +310°C, single-layer — up to 1.8 bar

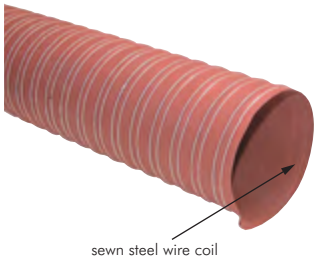


Materials: Silicone-coated glass fibre fabric with interior exposed spring coil
Temperature range: -80°C to max. +310°C
Manufacturer length: 4 m (may be extended by splicing at factory)

Type	Hose Ø internal	Operating pressure
SIFLEX 13	13	-0.58 to 1.8 bar
SIFLEX 19	19	-0.53 to 1.5 bar
SIFLEX 25	25	-0.53 to 1.4 bar
SIFLEX 32	32	-0.50 to 1.4 bar
SIFLEX 38	38	-0.50 to 1.4 bar
SIFLEX 44	44	-0.44 to 1.2 bar
SIFLEX 51	51	-0.44 to 1.2 bar
SIFLEX 63	63	-0.40 to 1.1 bar
SIFLEX 65	65	-0.40 to 1.1 bar
SIFLEX 70	70	-0.35 to 1.1 bar
SIFLEX 76	76	-0.35 to 1.0 bar

Type	Hose Ø internal	Operating pressure
SIFLEX 83	83	-0.30 to 1.0 bar
SIFLEX 89	89	-0.295 to 0.9 bar
SIFLEX 95	95	-0.27 to 0.9 bar
SIFLEX 102	102	-0.26 to 0.9 bar
SIFLEX 114	114	-0.21 to 0.8 bar
SIFLEX 127	127	-0.17 to 0.8 bar
SIFLEX 152	152	-0.14 to 0.6 bar
SIFLEX 178	178	-0.10 to 0.6 bar
SIFLEX 203	203	-0.07 to 0.5 bar
SIFLEX 254	254	-0.05 to 0.4 bar
SIFLEX 305	305	-0.03 to 0.1 bar

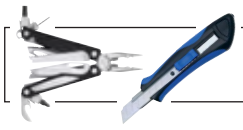
Silicone hot air hoses up to +310°C, two-layer — up to 2.5 bar

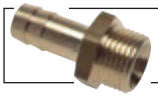


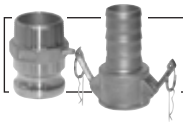
Materials: Silicone-coated glass fibre fabric with interior exposed spring coil and additional internal coating. Thus the hose is smooth on the inside.
Temperature range: -80°C to max. +310°C
Manufacturer length: 4 m (may be extended by splicing at factory)

Type	Hose Ø internal	Operating pressure
SIFLEX 13/2	13	-0.70 to 2.5 bar
SIFLEX 19/2	19	-0.70 to 2.5 bar
SIFLEX 25/2	25	-0.70 to 2.5 bar
SIFLEX 32/2	32	-0.58 to 2.5 bar
SIFLEX 38/2	38	-0.58 to 2.4 bar
SIFLEX 44/2	44	-0.58 to 2.4 bar
SIFLEX 51/2	51	-0.53 to 2.4 bar
SIFLEX 60/2	60	-0.46 to 2.2 bar
SIFLEX 63/2	63	-0.46 to 2.2 bar
SIFLEX 65/2	65	-0.46 to 2.2 bar
SIFLEX 70/2	70	-0.46 to 2.2 bar
SIFLEX 76/2	76	-0.44 to 2.1 bar

Type	Hose Ø internal	Operating pressure
SIFLEX 83/2	83	-0.40 to 2.1 bar
SIFLEX 89/2	89	-0.40 to 2.1 bar
SIFLEX 95/2	95	-0.40 to 2.0 bar
SIFLEX 102/2	102	-0.35 to 1.8 bar
SIFLEX 114/2	114	-0.28 to 1.7 bar
SIFLEX 127/2	127	-0.21 to 1.5 bar
SIFLEX 152/2	152	-0.17 to 1.1 bar
SIFLEX 178/2	178	-0.14 to 0.8 bar
SIFLEX 203/2	203	-0.10 to 0.6 bar
SIFLEX 254/2	254	-0.07 to 0.4 bar
SIFLEX 305/2	305	-0.05 to 0.2 bar


Knives on page 595


Threaded nozzles from page 64


Kamlock couplings from page 186

Wire hose clamps from page 238

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Conveyor/cleaning/steam hoses for the food industry

Permission: BfR (previously BGVV) XXI 2002 Cat 2 and FDA (CFR 21)

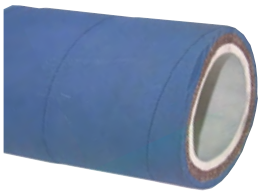
Materials: Inner tube: NBR, white, smooth, food-safe, temperature and cleaning agent resistant, pressure carrier: Braided textile inserts, cover: NVC, smooth, blue, grease and oil resistant, abrasion resistant
Temperature range: -35°C to max. +100°C, saturated steam to max. +164°C
Operating pressure: 20 bar (saturated steam 6 bar), burst pressure approx. 60 bar
Operating range: To deliver steam and hot water for cleaning purposes, as well as liquid foods such as milk.
Roll length: 40 m

Type	Hose Ø internal	Hose Ø external	Min. bend radius
GSMR 13 NBR	13 (1/2")	23	65
GSMR 19 NBR	19 (3/4")	31	100

Dairy hoses

Permission: BfR (previously BGVV) XXI 2002 Cat 2 and FDA (CFR 21)

Materials: Inner tube: NBR, white, smooth, food-safe, grease and oil resistant, pressure carrier: Coiled textile inserts, cover: NVC, blue, grease and oil resistant, material imprint
Temperature range: Type BGVVL: -30°C to max. +80°C, steam-sterilisable (temporary to +110°C, max. 30 min., max. 1.5 bar)
Type BGVV: -35°C to max. +95°C, saturated steam to max. 164°C
Operating pressure: Type BGVVL: 10 bar, burst pressure approx. 30 bar, type BGVV: 18 bar, (saturated steam 6 bar), burst pressure approx. 55 bar
Operating range: For passing liquid foods, especially milk and dairy products, as well as animal and vegetable oils and fats. The BGVV type can also be used as a steam hose. Resistant to standard cleaning agents for sterilisation.
Roll length: 40 m



Type **BGVVL**	Hose Ø internal	Hose Ø external	Min. bend radius
GSM 19 BGVVL	19 (3/4")	29	120
GSM 25 BGVVL	25 (1")	35	150
GSM 32 BGVVL	32 (1 1/4")	44	190
GSM 38 BGVVL	38 (1 1/2")	50	240
GSM 40 BGVVL	40	52	250
GSM 51 BGVVL	51 (2")	64	350
GSM 63 BGVVL	63	77	450
GSM 76 BGVVL	76 (3")	89	600

Type **BGVV**	Hose Ø internal	Hose Ø external	Min. bend radius
GSM 13 BGVV	13 (1/2")	23	80
GSM 19 BGVV	19 (3/4")	31	115
GSM 25 BGVV	25 (1")	39	150
GSM 32 BGVV	32 (1 1/4")	46	195
GSM 38 BGVV	38 (1 1/2")	56	230
GSM 40 BGVV	40	58	240
GSM 50 BGVV	50 (2")	70	300
GSM 65 BGVV	65 (2 1/2")	89	390
GSM 75 BGVV	75 (3")	99	450

Dairy suction-pressure hoses with steel coils

Permission: BfR (previously BGVV) XXI 2002 Cat 2 and FDA (CFR 21)

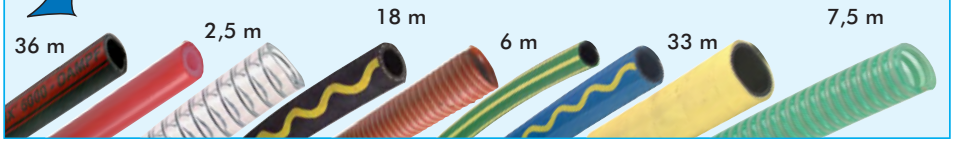
Materials: Inner tube: NBR, white, smooth, food-safe, grease and oil resistant, pressure carrier: Coiled textile inserts, steel wire coil, zinc-plated, cover: NVC, blue, abrasion resistant, age resistant, material imprint
Temperature range: Type BGVVL: -30°C to max. +80°C, steam-sterilisable (temporary to +110°C, max. 10 min., max. 1.5 bar)
Type BGVV: -35°C to max. +95°C, steam-sterilisable (temporary to +130°C, max. 30 min., without pressure)
Operating pressure: -0.8 to 10 bar, burst pressure approx. 30 bar
Operating range: For passing liquid foods, especially milk and dairy products, as well as animal and vegetable oils and fats. Resistant to standard cleaning agents for sterilisation.
Roll length: 40 m (type GSMSP 102 BGVVL: 20 m)

Type **BGVVL**	Hose Ø internal	Hose Ø external	Min. bend radius
GSMSP 19 BGVVL	19 (3/4")	29	38
GSMSP 25 BGVVL	25 (1")	35	50
GSMSP 32 BGVVL	32 (1 1/4")	44	64
GSMSP 38 BGVVL	38 (1 1/2")	50	76
GSMSP 40 BGVVL	40	52	80
GSMSP 51 BGVVL	51 (2")	64	102
GSMSP 65 BGVVL	65 (2 1/2")	79	170
GSMSP 76 BGVVL	76 (3")	89	190
GSMSP 102 BGVVL	102 (4")	116	380

Type **BGVV**	Hose Ø internal	Hose Ø external	Min. bend radius
GSMSP 25 BGVV	25 (1")	37	85
GSMSP 32 BGVV	32 (1 1/4")	44	105
GSMSP 38 BGVV	38 (1 1/2")	51	120
GSMSP 40 BGVV	40	50	140
GSMSP 50 BGVV	50 (2")	64	160
GSMSP 63 BGVV	63	76	210
GSMSP 65 BGVV	65 (2 1/2")	79	210
GSMSP 75 BGVV	75 (3")	90	250

We cut our hoses to your required length!

You can also select already pre-cut parts in our **Online Shop** to special conditions.



Power clamps "Band-It" extremely high clamping strength from page 240

Hose clamps on page 239

Tanker truck couplings from page 169

Dairy thread screw connections are found in the Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Oil and fuel hoses

Fuel hoses with vulcanised textile braid — DIN 73379 (3/82)

Temperature range: Diesel, water, air and heating oil: -30°C to +80°C (fuels with up to 50% benzene content: -30°C to +70°C)
Operating range: For commercially available fuels such as petrol (E10 suited), diesel, heating oil, air and water
Roll length: 20 m

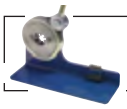
Type	Hose Ø internal	Hose Ø external	Operating pressure
KRAFT 47	3.2	7.0	7 bar
KRAFT 510	4.5	9.5	7 bar
KRAFT 611	5.5	10.5	7 bar
KRAFT 813	7.5	12.5	7 bar
KRAFT 915	9.0	15.0	7 bar
KRAFT 1117	11.0	17.0	7 bar
KRAFT 1523	15.0	23.0	10 bar
KRAFT 2533	25.0	33.0	7 bar

TIP *Approved for use by many auto manufacturers!*

Fuel hoses for bio-diesels — DIN 73379-3E (11/97)

Materials: Inner layer: FKM, intermediate and outer layer: ECO with poly-aramide insert, ozone, oil and ozone crack resistant
Temperature range: -30°C to max. +110°C, temporary to max. +135°C (type KRAFT 49 OKO, KRAFT 814 OKO and KRAFT 1422 OKO: -40°C to max. +125°C, temporary to +140°C)
Operating range: For all commercially available fuels including RME (rape seed methyl ester), alcohol fuels and E10
Roll length: 20 m

Type	Hose Ø internal	Hose Ø external	Operating pressure
KRAFT 49 OKO	3.2	9.0	10 bar
KRAFT 612 OKO	5.5	11.5	6 bar
KRAFT 814 OKO	7.3	13.5	10 bar
KRAFT 1017 OKO	9.3	15.3	10 bar
KRAFT 1118 OKO	11.3	18.0	6 bar
KRAFT 1422 OKO	14.0	22.0	10 bar



Low pressure fittings & presses can be found in the Online Shop

Heat resistant rubber hoses OLN M1L (up to +100°C)

Materials: Liner hose fitting: Synthetic rubber (NBR), reinforcement carrier: 1 Rayon braiding (from DN 25: 2 rayon braids with steel wire coil), outer layer: Abrasion proof synthetic rubber (CR), ozone and tear resistant
Temperature range: Mineral oil, hydraulic fluids and grease nipples, -40°C to max. +100°C (temporary to max. +120°C), oil bearing air -40°C to max. +100°C, heating oil (EL/L), diesel fuel: -40°C to max. +40°C
Operating range: Engine lubricants, hydraulic fluids, grease nipple, diesel fuels, heating oil (EL/L), oil bearing air and vacuum. Please inquire as to other media. Not suitable for glycol and glycol-water mixes, as well as biodiesel and rape seed methyl ester (RME).

Type	Hose Ø internal	Hose Ø external	Min. bend radius	Operating pressure
OLN M1L 4	4	10.0	30	-0.9 bar to 40 bar
OLN M1L 6	6	12.0	40	-0.9 bar to 60 bar
OLN M1L 8	8	14.0	50	-0.9 bar to 50 bar
OLN M1L 9	9	15.0	50	-0.9 bar to 40 bar
OLN M1L 11	11	18.0	65	-0.9 bar to 30 bar
OLN M1L 13	13	22.0	90	-0.9 bar to 30 bar
OLN M1L 16	16	25.0	110	-0.9 bar to 20 bar
OLN M1L 20	20	30.0	130	-0.8 bar to 30 bar
OLN M1L 25	25	35.5	150	-0.9 bar to 33 bar
OLN M1L 32	32	42.5	180	-0.9 bar to 25 bar

Heat resistant rubber hoses OLN M4M (up to +135°C)

Materials: Liner hose fitting: Synthetic rubber (AEM), reinforcement carrier: 1 polyamide braiding (from DN 25: 2 polyamide braids with steel wire coil), outer layer: Abrasion proof synthetic rubber (AEM), ozone and tear resistant
Temperature range: -40°C to max. +135°C, (temporary to max. +150°C)
Operating range: Engine lubricants, hydraulic fluids, grease nipple, oil bearing air and vacuum.
Please inquire as to other media. Not suitable for glycol and glycol-water mixes, diesel and biodiesel fuels, rape seed methyl ester (RME), and heating oil (EL/L).

Type	Hose Ø internal	Hose Ø external	Min. bend radius	Operating pressure
OLN M4M 6	6.0	12.0	40	-0.9 bar to 50 bar
OLN M4M 8	8.0	14.0	50	-0.9 bar to 35 bar
OLN M4M 9	9.5	15.5	55	-0.9 bar to 30 bar
OLN M4M 12	12.0	19.0	70	-0.9 bar to 30 bar
OLN M4M 13	13.0	20.0	75	-0.9 bar to 25 bar
OLN M4M 16	16.0	24.0	90	-0.9 bar to 25 bar
OLN M4M 20	20.0	30.0	130	-0.9 bar to 20 bar
OLN M4M 25	25.0	35.5	130	-0.9 bar to 25 bar
OLN M4M 32	32.0	43.5	160	-0.9 bar to 20 bar

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Suction hoses for hydraulic oil acc. to SAE 100 R 4 with ribbed outer covers

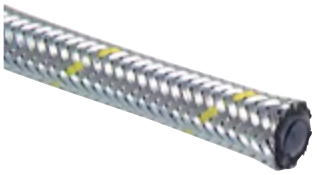
Materials: Inner and outer cover made from synthetic rubber, pressure carrier: Two highly resistant textile meshes and a spring steel coil
Temperature range: -40°C to max. +100°C (temporary to max. +120°C)
Operating pressure: 10 bar, burst pressure: 30 bar (vacuum up to -0.9 bar)
Properties: Outside cover is especially abrasion resistant, oil, grease, ozone and weather resistant
Resistance: Mineral oils, mineral oils with up to 40% aromatic content, polyglycol based oils, rapeseed oil, bio oil, water, water/glycol emulsions, water/oil emulsions
Roll length: 60 m

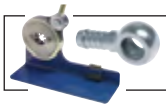
Advantages: • Low bend radius and high flexibility thanks to the ribbed outer cover.

Type	Hose Ø internal	Hose Ø external	Min. bend radius
R 4-19	19.0	28.0	70
R 4-25	25.4	34.0	85
R 4-31	32.0	42.0	105
R 4-38	38.2	48.0	130
R 4-51	50.8	61.0	165
R 4-63	63.5	73.5	220
R 4-76	76.2	90.0	270
R 4-90	90.0	104.0	340
R 4-102	101.6	116.0	390

Silver hoses with galvanised steel wire braiding (fuel hoses)

Temperature range: Diesel, water, air and heating oil: -30°C to max. +80°C (fuels with up to 30% benzene content: -30°C to max. +40°C)
Operating range: For commercial fuels such as petrol, diesel, heating oil, water, and air. Not suitable for biodiesel or rapeseed methyl ester (RME).





Low pressure fittings & presses can be found in the Online Shop

Type	Rubber hose Ø internal	Rubber hose Ø external	Operating pressure	Roll length m
SILBER 49	3.5	8.5	32 bar	20
SILBER 47	4.0	7.0	12 bar	50
SILBER 510	4.5	9.5	20 bar	20
SILBER 611	5.5	10.5	20 bar	20
SILBER 69	6.0	9.0	12 bar	50
SILBER 813	7.5	12.5	15 bar	20
SILBER 912	9.0	12.0	12 bar	50
SILBER 914	9.0	14.0	15 bar	20
SILBER 1015	9.5	15	20 bar	20
SILBER 1118	11.0	17.5	20 bar	20
SILBER 1422	14.0	21.2	15 bar	20
SILBER 1826	17.5	26.0	14 bar	20
SILBER 2132	20.5	32.0	14 bar	20
SILBER 2435	24.0	35.0	12 bar	20

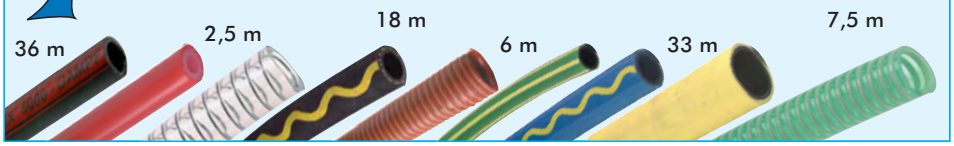
Silver hoses with stainless steel wire braiding (fuel hoses)

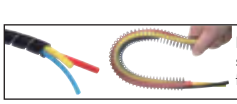
Temperature range: Diesel, water, air and heating oil: -30°C to max. +80°C (fuels with up to 30% benzene content: -30°C to max. +40°C)
Operating range: For commercial fuels such as petrol, diesel, heating oil, water, and air. Not suitable for biodiesel or rapeseed methyl ester (RME).

INOX Type	Rubber hose internal	Rubber hose Ø external	Operating pressure	Roll length m
SILBER 611 ES	5.5	10.5	20 bar	50
SILBER 813 ES	7.5	12.5	15 bar	50
SILBER 915 ES	9.0	15.0	15 bar	50
SILBER 1218 ES	11.5	18.0	15 bar	50
SILBER 1522 ES	14.5	22.0	15 bar	50
SILBER 2129 ES	21.0	29.0	10 bar	20
SILBER 2533 ES	25.0	33.0	10 bar	20

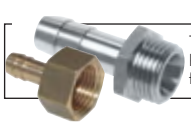
We cut our hoses to your required length!

You can also select already pre-cut parts in our **Online Shop** to special conditions.





Bundle and steel spirals from p. 247



Threaded nozzles & hose nozzles from page 64

Compression ring screw connections from page 77

Hydraulic couplings from page 170

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GSP push-in hose programs

Tubes with pressure carriers made from high strength textile braiding

Materials: Abrasion resistant, oil and weather resistance outside layer from synthetic rubber, inner layer from synthetic rubber, a textile insert as pressure carrier
Temperature range: -40°C to +100°C, air and oils max: +70°C, water up to max. +85°C
Media: Air, water, mineral oil based hydraulic oils, lubricating oils, water-oil emulsion, water-glycol.

Type	Colours	Hose Ø internal	Hose Ø external	Operating pressure	Burst pressure	Min. bend radius	Roll length m
GSP 6 **	● ● ● ● ●	6.4	12.7	-0.95 to 24 bar	97 bar	65	100
GSP 10 **	● ● ● ● ●	9.5	15.9	-0.95 to 24 bar	97 bar	75	100
GSP 12 **	● ● ● ● ●	12.7	19.8	-0.95 to 21 bar	84 bar	125	100
GSP 16 **	● ● ● ● ●	15.9	23.0	-0.51 to 21 bar	84 bar	150	80
GSP 20 **	● ● ● ● ●	19.1	26.2	-0.51 to 21 bar	84 bar	180	80
GSP 25 **	● ● ● ● ●	25.4	32.5	-0.51 to 14 bar	56 bar	250	50

In your order please enter the required colour here!

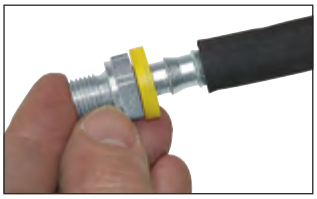
Order example: GSP 6 **

Standard type

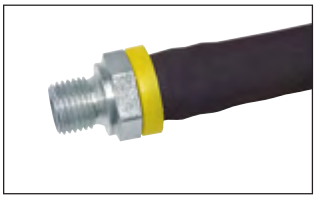
Order supplement for colour:
- black . . . . . -SCHWARZ
- blue . . . . . -BLAU
- red . . . . . -ROT
- green . . . . . -GRUN
- grey . . . . . -GRAU

Assembling

Cut hose at a right angle.
For easy assembly spray the nipple with soap solution.

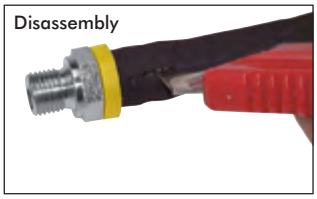


Push the nipple in the hose and push in firmly to the stop.



Hose is completely assembled and pressure can be applied.

Disassembly



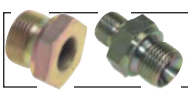
Cut the hose with a knife on the side, while not damaging the nipple ribs - risk of leaks!

Push-in fittings with union nuts, metric threads — 24° cone

Type zinc-plated steel straight	Type zinc-plated steel 90°	Type zinc-plated steel 45°	Tube connection	Thread	Hose Ø internal	PN
STP M126	STPW90 M126	STPW45 M126	6 L	M 12 x 1.5	6.4	25 bar
STP M146	STPW90 M146	STPW45 M146	8 L	M 14 x 1.5	6.4	25 bar
STP M166	STPW90 M166	---	10 L	M 16 x 1.5	6.4	25 bar
STP M1610	STPW90 M1610	STPW45 M1610	10 L	M 16 x 1.5	9.5	20 bar
STP M1810	STPW90 M1810	STPW45 M1810	12 L	M 18 x 1.5	9.5	20 bar
STP M1812	---	---	12 L	M 18 x 1.5	12.7	16 bar
STP M2212	STPW90 M2212	STPW45 M2212	15 L	M 22 x 1.5	12.7	16 bar
STP M2216	---	STPW45 M2216	15 L	M 22 x 1.5	15.9	16 bar
STP M2616	STPW90 M2616	STPW45 M2616	18 L	M 26 x 1.5	15.9	16 bar
STP M3020	STPW90 M3020	STPW45 M3020	22 L	M 30 x 2	19.1	12 bar
STP M3625	STPW90 M3625	STPW45 M3625	28 L	M 36 x 2	25.4	12 bar

Push-in fittings with male threads, metric threads — 24° cone

Type zinc-plated steel	Tube connection	Thread	Hose Ø internal	PN
GTP M126	6 L	M 12 x 1.5	6.4	25 bar
GTP M146	8 L	M 14 x 1.5	6.4	25 bar
GTP M1610	10 L	M 16 x 1.5	9.5	20 bar
GTP M1810	12 L	M 18 x 1.5	9.5	20 bar
GTP M2212	15 L	M 22 x 1.5	12.7	16 bar
GTP M2616	18 L	M 26 x 1.5	15.9	16 bar
GTP M3020	22 L	M 30 x 2	19.1	12 bar


Hydraulic adapter from page 103

Distributor bars up to 315 bar on page 133

Hydraulic couplings from page 170

HYDAC Pipe clamps from page 244

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Push-in fittings with union nuts, imperial threads cylindrical — 60° cone

Type zinc-plated steel straight	Type zinc-plated steel 90°	Type zinc-plated steel 45°	Thread	Hose Ø internal	PN
STP 146	STPW90 146	STPW45 146	G 1/4"	6.4	25 bar
STP 3810	STPW90 3810	STPW45 3810	G 3/8"	9.5	20 bar
STP 1212	STPW90 1212	STPW45 1212	G 1/2"	12.7	16 bar
STP 3420	STPW90 3420	STPW45 3420	G 3/4"	19.1	12 bar
STP 1025	STPW90 1025	STPW45 1025	G 1"	25.4	12 bar

Push-in fittings with male threads, imperial threads cylindrical — 60° cone

Type zinc-plated steel	Thread	Hose Ø internal	PN
GTP 186	G 1/8"	6.4	25 bar
GTP 146	G 1/4"	6.4	25 bar
GTP 1410	G 1/4"	9.5	20 bar
GTP 3810	G 3/8"	9.5	20 bar
GTP 1212	G 1/2"	12.7	16 bar
GTP 1216	G 1/2"	15.9	16 bar
GTP 3420	G 3/4"	19.1	12 bar
GTP 1025	G 1"	25.4	12 bar

4

Push-in fittings threaded nozzles — PN 15

Type brass	Thread	Hose Ø internal	Spanner width
GTP 186 MS	G 1/8"	6.4	14
GTP 1810 MS	G 1/8"	9.5	14
GTP 146 MS	G 1/4"	6.4	17
GTP 1410 MS	G 1/4"	9.5	17
GTP 1412 MS	G 1/4"	12.7	17
GTP 3810 MS	G 3/8"	9.5	17
GTP 3812 MS	G 3/8"	12.7	17
GTP 1210 MS	G 1/2"	9.5	22
GTP 1212 MS	G 1/2"	12.7	22
GTP 1216 MS	G 1/2"	15.9	22
GTP 3416 MS	G 3/4"	15.9	27
GTP 3419 MS	G 3/4"	19.1	27

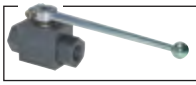
Push-in fittings hose connectors — PN 15

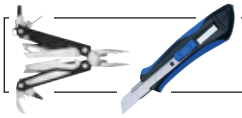
Type brass	Hose Ø internal
SVRP 12 MS	12.7
SVRP 16 MS	15.9

LOCTITE Liquid seals, gaskets & tapes from page 549

Roller bearing from p. 603

Oil binding agents & oil binding cloths from page 581


High pressure ball valves from page 292


Knives on page 595

Tube cutters on page 595

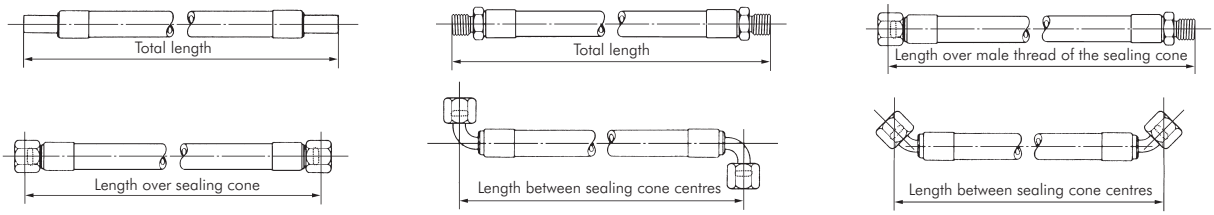
Hydraulic valves from page 452

Manual tools can be found in the Online Shop

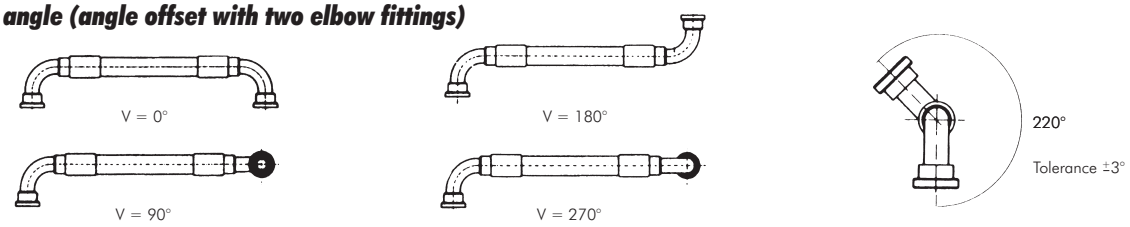
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Practical tips for determining the hose connections

Measurement examples - tubes

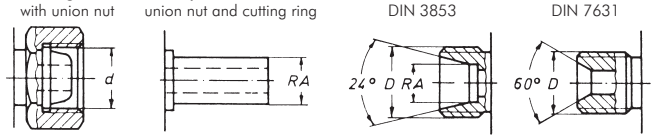


Twist angle (angle offset with two elbow fittings)



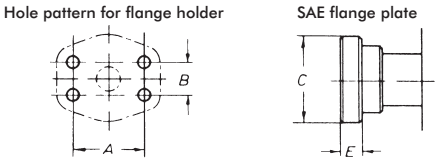
4

Connections with metric threads



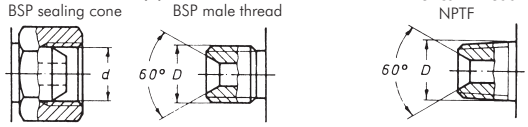
Thread Nominal dimension	D	d	DIN 7606/7631 Hose nom. width	Cutting ring fitting DIN 2353, RA/model series Very light	Light	Heavy	Cutting ring connection French GAZ	RA
M 8 x 1	8.0	6.9	DN 2.5	4 LL				
M 10 x 1	10.0	8.9	DN 3	6 LL				
M 12 x 1	12.0	10.9		8 LL				
M 12 x 1.5	12.0	10.4	DN 4		6 L			
M 14 x 1.5	14.0	12.4	DN 6		8 L	6 S		
M 16 x 1.5	16.0	14.4	DN 8		10 L	8 S	1/8"	10.00
M 18 x 1.5	18.0	16.4	DN 10		12 L	10 S		
M 20 x 1.5	20.0	18.4				12 S	1/4"	13.25
M 22 x 1.5	22.0	20.4	DN 12		15 L	14 S		
M 24 x 1.5	24.0	22.4				16 S	3/8"	16.75
M 26 x 1.5	26.0	24.4	DN 16		18 L			
M 30 x 1.5	30.0	28.4	DN 20				1/2"	21.25
M 30 x 2	30.0	27.8			22 L	20 S		
M 36 x 1.5	36.0	34.4					3/4"	26.75
M 36 x 2	36.0	33.8			28 L	25 S		
M 38 x 1.5	38.0	36.4	DN 25					
M 42 x 2	42.0	39.8				30 S		
M 45 x 1.5	45.0	43.3	DN 32				1"	33.50
M 45 x 2	45.0	42.8			35 L			
M 52 x 1.5	52.0	50.4	DN 40				1 1/4"	42.25
M 52 x 2	52.0	49.8			42 L	38 S		

Connections with SAE flanges



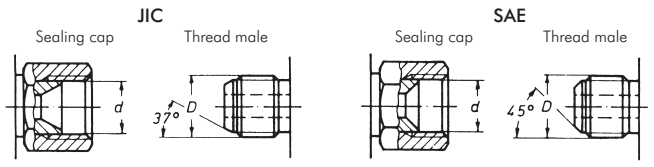
Flange Nom. size	Para-meter	Standard model series 3000 PSI A	W	C	E	High pressure model series 6000 PSI A	W	C	E
1/2"	8	38.1	17.5	30.2	6.7	40.5	18.2	31.7	7.8
3/4"	12	47.6	22.2	38.1	6.7	50.8	23.8	41.3	8.8
1"	16	52.4	26.2	44.5	8.0	57.2	27.8	47.6	9.5
1 1/4"	20	58.7	30.2	50.8	8.0	66.7	31.8	54.0	10.3
1 1/2"	24	69.9	35.7	60.3	8.0	79.4	36.5	63.5	12.6
2"	32	77.8	42.9	71.4	9.5	96.8	44.5	79.4	12.6
3"	48	106.4	61.9	101.6	9.5				

Connections with inch threads



Thread Nominal dimension	No. of turns to 1"	D	d	Thread Nominal dimension	No. of turns to 1"	D
R 1/8"	28	9.7	8.6	1/8" NPTF	27	10.3
R 1/4"	19	13.2	11.5	1/4" NPTF	18	13.7
R 3/8"	19	16.7	15.0	3/8" NPTF	18	17.2
R 1/2"	14	21.0	18.6	1/2" NPTF	14	21.3
R 5/8"	14	22.9	20.6	3/4" NPTF	14	26.7
R 3/4"	14	26.4	24.1	1" NPTF	11	33.4
R 1"	11	33.3	30.3	1 1/4" NPTF	11	42.2
R 1 1/4"	11	41.9	39.0	1 1/2" NPTF	11	48.3
R 1 1/2"	11	47.8	44.9	2" NPTF	11	60.3
R 2"	11	59.6	56.7	2 1/2" NPTF	8	73.0
R 2 1/2"	11	75.2	72.2	3" NPTF	8	88.9
R 3"	11	87.9	84.9			

Connections with American UNF and JIC threads



External Ø inch	Thread No. of turns to 1"	Class	D mm	d mm	Parameter JIC	SAE
5/16	24	UNF	7.9	6.8	2	2
3/8	24	UNF	9.5	8.4	3	3
7/16	20	UNF	11.1	9.8	4	4
1/2	20	UNF	12.7	11.4	5	5
9/16	18	UNF	14.3	12.8	6	
5/8	18	UNF	15.9	14.4		6
3/4	16	UNF	19.1	17.4	8	8
7/8	14	UNF	22.2	20.3	10	10
1 1/16	12	UN	27.0	24.8	12	
1 1/16	14	UNS	27.0	25.1		12
1 3/16	12	UN	30.2	28.0	14	
1 5/16	12	UN	33.3	31.1	16	
1 5/8	12	UN	41.3	39.0	20	
1 7/8	12	UN	47.6	45.4	24	
2 1/2	12	UN	63.5	61.3	32	
3	12	UN	76.2	74.0	40	
3 1/2	12	UN	88.9	86.7	48	

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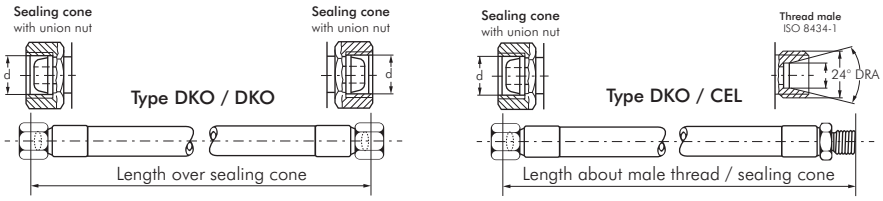
Ready made high pressure hoses with 2 steel wire meshes — EN 853

Materials: Synthetic internal and external rubber, with two braided steel wire inserts
Temperature range: -40° to max. +100°C, temporary to max. +120°C
Operating range: High pressure hydraulic systems
Resistance: Hydraulic oils on basis of mineral oil, air, water, lubricants and fuels
☞ **Optional:** Hose for compressed air applications up to 40 bar **-G**



Type DKO/DKO	Type DKO/CEL	Tube connection	Thread d/D	Smallest bend radius	Operating press. (bar)
2SN6-6L-**	2SN6-6L-**-iA	6 L	M 12 x 1.5	100	315
2SN6-8L-**	2SN6-8L-**-iA	8 L	M 14 x 1.5	100	315
2SN8-10L-**	2SN8-10L-**-iA	10 L	M 16 x 1.5	115	315
2SN10-12L-**	2SN10-12L-**-iA	12 L	M 18 x 1.5	130	315
2SN12-15L-**	2SN12-15L-**-iA	15 L	M 22 x 1.5	180	275
2SN16-18L-**	2SN16-18L-**-iA	18 L	M 26 x 1.5	200	250
2SN19-22L-**	2SN19-22L-**-iA	22 L	M 30 x 2.0	240	215
2SN25-28L-**	2SN25-28L-**-iA	28 L	M 36 x 2.0	300	165

☞ **Order example:** 2SN6-6L- ** - **
Standard type

Designation for the options:
For compressed air . . . **-G**
Due to a higher flexibility 1 SN hose is used.

Required hose length:

300 mm . . . . . **-300**	900 mm . . . . . **-900**	1500 mm . . . . **-1500**	2200 mm . . . . **-2200**
400 mm . . . . . **-400**	1000 mm . . . . . **-1000**	1600 mm . . . . **-1600**	2400 mm . . . . **-2400**
500 mm . . . . . **-500**	1100 mm . . . . . **-1100**	1700 mm . . . . **-1700**	2600 mm . . . . **-2600**
600 mm . . . . . **-600**	1200 mm . . . . . **-1200**	1800 mm . . . . **-1800**	2800 mm . . . . **-2800**
700 mm . . . . . **-700**	1300 mm . . . . . **-1300**	1900 mm . . . . **-1900**	3000 mm . . . . **-3000**
800 mm . . . . . **-800**	1400 mm . . . . . **-1400**	2000 mm . . . . **-2000**	3200 mm . . . . **-3200**

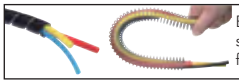
More lengths and sizes can be found in our Online Shop!

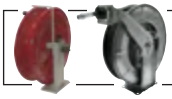
TIP *We produce your required hose within ONE day! We will be pleased to advise you!*

Ready-made high pressure cleaner water hoses

Materials: Synthetic internal and external rubber with one braided steel wire insert
Temperature: Max. +150°C
Nominal pressure: 210 bar
Supply volume: High pressure cleaner hoses with double-sided bend protection
Suitable: For high-pressure cleaners with high operating pressures and temperatures in connection with standard cleaning agents.

Type	NW	Length	Connection 1	Connection 2
Black - standard				
HRS M22-10	8	10 m	FT M 22 x 1.5 (Kärcher)	FT M 22 x 1.5 (Kärcher)
HRS M22-15	8	15 m	FT M 22 x 1.5 (Kärcher)	FT M 22 x 1.5 (Kärcher)
HRS M22-20	8	20 m	FT M 22 x 1.5 (Kärcher)	FT M 22 x 1.5 (Kärcher)
HRS 38-10	8	10 m	G 3/8" MT	G 3/8" MT
HRS 38-15	8	15 m	G 3/8" MT	G 3/8" MT
HRS 38-20	8	20 m	G 3/8" MT	G 3/8" MT
HRS 12-10	10	10 m	G 1/2" MT	G 1/2" MT
HRS 12-15	10	15 m	G 1/2" MT	G 1/2" MT
HRS 12-20	10	20 m	G 1/2" MT	G 1/2" MT
HRS 12/15L-10	10	10 m	G 1/2" MT	15 L union nut
HRS 12/15L-15	10	15 m	G 1/2" MT	15 L union nut
HRS 12/15L-20	10	20 m	G 1/2" MT	15 L union nut
Blue - grease resistant				
HRS M22-10 BLAU	8	10 m	FT M 22 x 1.5 (Kärcher)	FT M 22 x 1.5 (Kärcher)
HRS M22-15 BLAU	8	15 m	FT M 22 x 1.5 (Kärcher)	FT M 22 x 1.5 (Kärcher)
HRS M22-20 BLAU	8	20 m	FT M 22 x 1.5 (Kärcher)	FT M 22 x 1.5 (Kärcher)
HRS 38-10 BLAU	8	10 m	G 3/8" MT	G 3/8" MT
HRS 38-15 BLAU	8	15 m	G 3/8" MT	G 3/8" MT
HRS 38-20 BLAU	8	20 m	G 3/8" MT	G 3/8" MT
HRS 12-10 BLAU	10	10 m	G 1/2" MT	G 1/2" MT
HRS 12-15 BLAU	10	15 m	G 1/2" MT	G 1/2" MT
HRS 12-20 BLAU	10	20 m	G 1/2" MT	G 1/2" MT
HRS 12/15L-10 BLAU	10	10 m	G 1/2" MT	15 L union nut
HRS 12/15L-15 BLAU	10	15 m	G 1/2" MT	15 L union nut
HRS 12/15L-20 BLAU	10	20 m	G 1/2" MT	15 L union nut


Bundle and steel spirals from p. 247


Hose reel up to 400 bar from page 205

Hydraulic couplings from page 170

Compression ring screw connections from page 77

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Washing devices/washing accessories

type SSP WASCH

type SSP WASCH ES

rotary joint

Spray guns for high pressure cleaning works

Materials: Plastic/brass or AISI 304
Temperature range: 0°C to max. +160°C (AISI 304: max. +150°C)

Type brass (PN 280)	Type AISI 304 (PN 310)	Version
Spray gun		
SSP WASCH	SSP WASCH ES	G 3/8" (FT) input, G 1/4" (FT) outlet (lance connection)
Rotary joint		
WS DREH 38 HD MSV	WS DREH 38 HD ES	Connection: G 3/8" (FT/MT)

type SSP LANZE 900

type SSP LANZE 300

type SSP DUSENHALTER and type SSP DUSE

type SSP DUSENSCHUTZ

Lances with attached insulated handles for guns SSP WASCH and SSP WASCH ES

Materials: Zinc-plated steel
Temperature range: 0°C to max. +160°C
Operating pressure: Max. 280 bar

Type	Version	Connection
SSP LANZE 900	Lance with nozzle holder and protection (900 mm long)	G 1/4" (MT)
SSP LANZE 300	Lance (300 mm long)	G 1/4" (MT)
Accessories for lances with insulated handles		
SSP DUSENHALTER 14	Nozzle holder	Input G 1/4" (FT), output: NPT 1/4" (FT) (to connect lance and nozzle)
SSP DUSE*	Flat nozzle (assemble only with nozzle holder on the lance)	NPT 1/4" (MT)
SSP DUSENSCHUTZ	Safety cap for nozzle	

* stainless steel

foam application gun

rotary joint

Foam application guns — PN 60

Materials: AISI 304/plastic
Temperature range: 0°C to max. +150°C

Type	Version
Foam application gun	
SSP SCHAUM ES	G 1/2" female thread for hose connection to coupling socket for connection of foam lance or rinsing lance, with damper to reduce pressure thrusts
Rotary joint	
WS DREH 12 HD ES	Connection: G 1/2" (FT/MT)

Foam lances for foam application guns

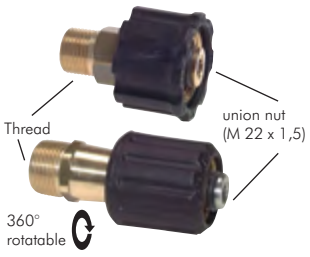
Materials: AISI 304/AISI 420/brass

Type	Version
SSP LANZE 300 ES	300 mm long, with coupling plug for foam application gun SSP SCHAUM ES

Rinsing lances for foam application guns

Materials: AISI 304/AISI 420/plastic

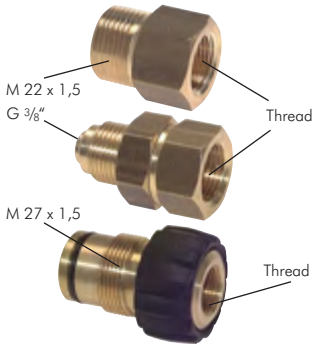
Type	Version
SSP LANZE 800 ES	800 mm long, of this 400 mm insulated, with coupling plug for foam application gun SSP SCHAUM ES, used for rinsing work



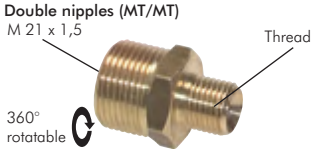
Connecting nipples with union nuts for washing devices

Union nut M 22 x 1.5	Union nut M 21 x 1.5	Thread
SSPMU M2214	SSPMU M2114	G 1/4" (FT)
SSPMU M2238	SSPMU M2138	G 3/8" (FT)
SSPST M2214	SSPST M2114	R 1/4" (MT)
SSPST M2238	SSPST M2138	R 3/8" (MT)
Rotatable		
SSPST M2222D	---	M 22 x 1.5 (MT)

Reducing nipples (MT/FT)



Double nipples (MT/MT)



Double nipples - connecting nipples for washing devices

Materials: Brass
Temperature range: Up to max. +90°C
Operating pressure: Max. 250 bar

Thread male M 22 x 1.5	Thread male M 21 x 1.5	Thread male M 27 x 1.5	Thread male G 3/8"rotatable	Thread
Reducing nipples (MT/FT)				
SSPRN M2214	SSPRN M2114	---	WS DREH 3814 HD MS	G 1/4" (FT)
SSPRN M2238	SSPRN M2138	SSPRN M2738	WS DREH 38 HD MS	G 3/8" (FT)
Double nipples (MT/MT)				
SSPDN M2214	SSPDN M2114	---	---	G 1/4" (MT)
SSPDN M2238	SSPDN M2138	---	---	G 3/8" (MT)
SSPDN M2212	---	---	---	G 1/2" (MT)
SSPDN M22M22	---	---	---	M 22 x 1.5 (MT)
---	SSPDM M21M21	---	---	M 21 x 1.5 (MT)

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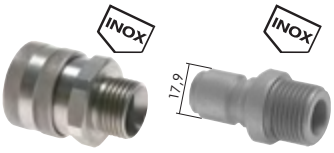
Couplings for foam or spray guns — without shut-off valve

Materials: Coupling sockets: AISI 303, coupling plugs: AISI 420, seal: EPDM
Temperature range: 0°C to max. +150°C, **operating pressure:** Max. 200 bar

Type **socket** AISI 303	Type **plug** AISI 420	Thread	NW
KDG 12 ESWA	KSG 12 ESWA	G 1/2" (MT)	12 mm
---	KSGI 14 ESWA	G 1/4" (FT)	12 mm
---	KSGI M18 ESWA	M 18 (FT)	12 mm
KDGI 38 ESWA	---	G 3/8" (FT)	12 mm
KDGI 12 ESWA	KSGI 12 ESWA	G 1/2" (FT)	12 mm

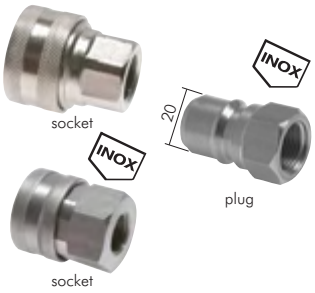


socket plug

Couplings for washing device hoses — without shut-off valve

Materials: Seal: FKM
Temperature range: 0°C to max. +150°C, **operating pressure:** Max. 250 bar

Type **socket** brass nickel-pl.	Type **socket** AISI 304	Type **plug** AISI 420	Thread	NW
WGK 38 MSV	WGK 38 ES	WGS 38 ES	G 3/8"	10 mm

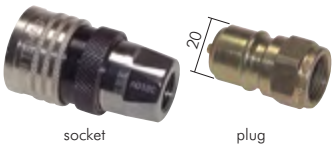


socket plug socket

Couplings for washing device hoses — with shut-off valve

Materials: Seals: NBR (AISI 316: FKM)
Temperature range: -40°C to max. +100°C (FKM: to max. +200°C), **operating pressure:** Max. 300 bar

Type **socket** brass chrome-pl.	Type **plug** zinc-plated steel	Type **socket** AISI 316	Type **plug** AISI 316	Thread	NW
WGKV 38 MSV	WGSV 38 ST	WGKV 38 ES	WGSV 38 ES	G 3/8"	10 mm



socket plug

Water conserving guns — 24 bar

Materials: Stainless steel/brass combination rubber jacketing (type stainless steel: stainless steel complete, rubber jacketed), rubber jacketing: EPDM
Temperature range: Max. +95°C
Operating pressure: Max. 24 bar
Flow: Max. 80 l/min.
☞ **Optional:** Insulated stainless steel safety bracket **-S**

✓ **Advantages:**
- Variable regulation of the water jet from a fine spray mist to a concentrated jet
- Optimum protection against heat, cold and impact by the thick rubber jacketing
- Mounting clamp for continuous operation

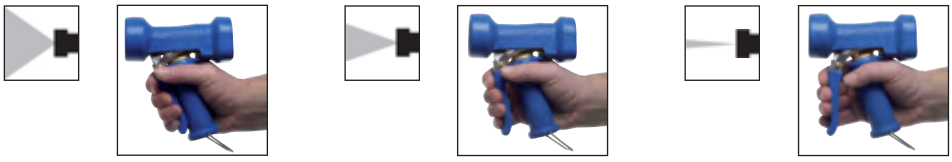
Type **stainless steel/brass**	Type **stainless steel complete**	Connection
WSP 12	WSP 12 ES	G 1/2" (FT)
Replace. parts, blue	**Replace. parts, white**	
WSP 12 GRIFF	WSP 12 GRIFF WS	Grip sleeve
WSP 12 SCHUTZ	WSP 12 SCHUTZ WS	Protective sleeve
Hot water rotary joint		
WS DREH 12 MS	WS DREH 12 ES	G 1/2" (FT/MT)

type WSP 12 type WSP 12 ES

type WSP 12 -S type WSP 12 ES -S

type WSP 12 HANDLE type WSP 12 SCHUTZ

type WSP 12 DREH ES



Safety washing guns — 40 bar

Materials: Body: Aluminium, lever: Brass, grip plates: Polyamide, safety bar: Zinc-plated steel
Temperature range: Max. +90°C
Operating pressure: Max. 40 bar
Flow: Nozzles Ø 2 mm (standard): At 6 bar - 5 l/min., at 16 bar - 8 l/min., at 40 bar - 13 l/min.
Nozzles Ø 4 mm (optional): At 6 bar - 20 l/min., at 16 bar - 32 l/min., at 40 bar - 50 l/min.

✓ **Advantages:**
- Variable regulation of the water jet from a fine spray mist to a concentrated jet
- Operating pressure up to 40 bar
- Actuating lever secured by safety bar

☞ **Optional:** Nozzle Ø 4 mm **-4**

Type	Connection
WSPH 13	13 mm hose connection
WSPH 19	19 mm hose connection
Replacement nozzles	
WSPH DUSE 2	Nozzles Ø 2 mm
WSPH DUSE 4	Nozzles Ø 4 mm

☞ **Order example:** WSPH 13 **

Standard type

Designation for the options:
Nozzles Ø 4mm . . . . . **-4**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hose clamps

Clamping jaw clamps (DIN 3017) — Band width 9 mm

Suitable: For mounting soft compressed air, petrol or oil hoses.

Type **zinc-plated steel (W1)**	Ø Clamping range	Nominal Ø	SW
SSM 8*	6 - 8	7	7
SSM 9	7 - 9	8	7
SSM 10	8 - 10	9	7
SSM 11	9 - 11	10	7
SSM 12	10 - 12	11	7
SSM 13	11 - 13	12	7
SSM 14	12 - 14	13	7
SSM 15	13 - 15	14	7
SSM 16	14 - 16	15	7

Type **zinc-plated steel (W1)**	Ø Clamping range	Nominal Ø	SW
SSM 17	15 - 17	16	7
SSM 18	16 - 18	17	7
SSM 19	17 - 19	18	7
SSM 20	18 - 20	19	7
SSM 21	19 - 21	20	7
SSM 22	20 - 22	21	7
SSM 23	21 - 23	22	7
SSM 24	22 - 24	23	7

* not according to the DIN

Clamping jaw clamps (DIN 3017) — Band width 12 mm

Suitable: For mounting rubber braking hoses.

Type **zinc-plated steel (W1)**	Ø Clamping range	Nominal Ø	SW
SSB 17	15 - 17	16	8
SSB 19	17 - 19	18	8
SSB 21	19 - 21	20	8
SSB 26	24 - 26	25	10

Assembling

Disassembly

Snap hose clamps

Material: Nylon

Advantages: • Easy assembly with pliers, • Remove by sliding the teeth apart at the sides

Type	Ø Clamping range
SSK 6.5	6 - 6.5
SSK 9	8 - 9
SSK 10	9 - 10
SSK 11	10 - 11
SSK 13	11 - 13
SSK 14	12 - 14
SSK 15	13 - 15

Type	Ø Clamping range
SSK 17	15 - 17
SSK 19	17 - 19
SSK 20	18 - 20
SSK 23	20 - 23
SSK 25	22 - 25
SSK 30	27 - 30
SSK 32	29 - 32

Type	Ø Clamping range
SSK 35	32 - 35
SSK 38	34 - 38
SSK 41	38 - 41
SSK 44	40 - 44
SSK 46	43 - 46
SSK 50	46 - 50

Wire retention clamps

Materials: Zinc-plated spring steel

Suitable: Made of steel wire, the self re-tensioning hose clamp can handle pressures up to a max. 4 bar. To open the clamp, simply use pliers to press the clamp's legs together. The clamp tightens itself by spring force, and so holds hoses safely and reliably, even in a widely fluctuating range of temperatures, and materials with a high thermal expansion coefficient. Prior to finalising a connection, we recommend a thorough inspection of the clamp strength.

opened clamp

closed clamp

Type	Clamping Ø ideal	Ø Clamping range	Width
DNSS 6.8	6.8	6.6 - 7.0	5.0
DNSS 7.3	7.3	7.0 - 7.5	5.2
DNSS 7.6	7.6	7.3 - 7.8	5.2
DNSS 8.1	8.1	7.8 - 8.3	5.5
DNSS 8.6	8.6	8.3 - 8.8	5.5
DNSS 9.1	9.1	8.8 - 9.3	5.5
DNSS 9.6	9.6	9.3 - 9.9	5.5
DNSS 10.1	10.1	9.8 - 10.4	6.3
DNSS 10.7	10.7	10.4 - 11.0	6.3
DNSS 11.3	11.3	11.0 - 11.6	6.3
DNSS 11.9	11.9	11.6 - 12.3	7.3
DNSS 12.8	12.8	12.1 -13.1	7.3
DNSS 13.3	13.3	12.9 - 13.6	7.3
DNSS 13.7	13.7	13.3 - 14.1	7.3
DNSS 14.0	14.0	13.6 - 14.4	7.3
DNSS 14.8	14.8	14.4 - 15.1	8.4
DNSS 15.6	15.6	14.8 - 15.9	8.4
DNSS 15.8	15.8	15.5 - 16.2	8.4
DNSS 16.4	16.4	15.9 - 16.8	8.4
DNSS 17.3	17.3	16.8 - 17.7	8.4
DNSS 18.2	18.2	17.7 - 18.7	9.1
DNSS 19.2	19.2	18.7 - 19.6	9.1
DNSS 20.2	20.2	19.6 - 20.6	9.1
DNSS 21.2	21.2	20.6 - 21.6	9.1
DNSS 22.1	22.1	21.5 - 22.6	10.7
DNSS 22.6	22.6	22.0 - 23.1	10.7
DNSS 23.1	23.1	22.5 - 24.0	10.7
DNSS 24.2	24.2	23.5 - 24.7	10.7

Type	Clamping Ø ideal	Ø Clamping range	Width
DNSS 25.3	25.3	24.4 - 26.0	11.4
DNSS 25.8	25.8	25.1 - 26.4	11.4
DNSS 26.8	26.8	25.8 - 27.4	11.4
DNSS 27.5	27.5	26.7 - 28.1	11.4
DNSS 28.7	28.7	27.9 - 29.4	11.4
DNSS 30.0	30.0	29.3 - 30.9	12.8
DNSS 31.3	31.3	30.4 - 32.0	12.8
DNSS 32.7	32.7	32.0 - 34.1	12.8
DNSS 34.1	34.1	33.2 - 34.8	12.8
DNSS 35.0	35.0	33.9 - 35.7	12.8
DNSS 35.6	35.6	34.6 - 36.4	14.0
DNSS 37.2	37.2	36.2 - 38.0	14.0
DNSS 38.8	38.8	37.7 - 39.7	14.8
DNSS 40.0	40.0	38.0 - 41.0	14.8
DNSS 40.5	40.5	39.4 - 41.4	14.8
DNSS 42.9	42.9	41.0 - 44.0	14.8
DNSS 44.4	44.4	42.5 - 45.5	14.8
DNSS 46.0	46.0	44.0 - 47.0	14.8
DNSS 47.0	47.0	46.0 - 49.0	14.8
DNSS 49.8	49.8	48.4 - 50.9	15.9
DNSS 52.0	52.0	50.6 - 53.2	15.9
DNSS 54.2	54.2	52.7 - 55.4	15.9
DNSS 56.0	56.0	54.4 - 57.4	15.9
DNSS 57.4	57.4	56.0 - 58.8	15.9
DNSS 59.6	59.6	58.2 - 61.0	15.9
DNSS 64.0	64.0	62.0 - 66.0	17.2
DNSS 69.0	69.0	67.0 - 71.0	17.2

Water pump pliers and pliers wrenches in the Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hose clamps - worm drives (DIN 3017-1) — Band width 9 mm

Suitable: Multi-purpose clamp with wide clamping range. For standard use, e.g. in mechanical engineering, sanitation, household appliances, fuel lines, commercial vehicles.
☞ **Optional:** With butterfly handle ***-FG

Type NORMA zinc-plated steel (W1)	Type NORMA AISI 304* (W4) INOX	Type IDEAL zinc-plated steel (W1)	Type ABA zinc-plated steel (W1)	Ø Clamping range	SW
SS 12	SS 12 ES	SS 12 I	SS 12 A	8 - 12	7
SS 16	SS 16 ES	SS 16 I	SS 16 A	10 - 16	7
SS 22	SS 22 ES	SS 20 I**	SS 20 A**	12 - 22 (IDEAL/ABA: 12 - 20)	7
SS 27	SS 27 ES	SS 25 I**	SS 25 A**	16 - 27 (IDEAL/ABA: 16 - 25)	7
SS 32	SS 32 ES	SS 32 I	SS 32 A	20 - 32	7
SS 40	SS 40 ES	SS 40 I	SS 40 A	25 - 40	7
SS 50	SS 50 ES	SS 50 I**	SS 50 A**	35 - 50 (IDEAL/ABA: 32 - 50)	7
SS 60	SS 60 ES	SS 60 I	SS 60 A	40 - 60	7
SS 70	SS 70 ES	SS 70 I	SS 70 A	50 - 70	7
SS 80	SS 80 ES	---	SS 80 A	60 - 80	7
SS 90	SS 90 ES	SS 90 I	---	70 - 90	7
SS 100	SS 100 ES	---	---	80 - 100	7
SS 110	SS 110 ES	---	---	90 - 110	7

* slotted screw and stainless steel tape, ** similar to DIN 3017-1, *** not for type IDEAL, ABA or clamping range 8 - 12 mm

☞ **Order example:** SS 16 **

Standard type

Designation for the options:
With butterfly handle *** . **-FG**

option: butterfly handle

Hose clamps - worm drives (DIN 3017-1) — Band width 12 mm

Suitable: Multi-purpose clamp with wide clamping range. For standard use, e.g. in mechanical engineering, sanitation, household appliances, fuel lines, commercial vehicles.
☞ **Optional:** With butterfly handle ***-FG

Type NORMA zinc-plated steel (W1)	Type NORMA AISI 304* (W4) INOX	Type IDEAL zinc-plated steel (W1)	Type ABA zinc-plated steel (W1)	Ø Clamping range	SW
---	---	SS 20/12 I**	---	12 - 20	7
SS 27/12	SS 27/12 ES	SS 25/12 I**	SS 25/12 A**	16 - 27 (IDEAL/ABA: 16 - 25)	7
SS 32/12	SS 32/12 ES	SS 32/12 I	SS 32/12 A	20 - 32	7
SS 40/12	SS 40/12 ES	SS 40/12 I	SS 40/12 A	25 - 40	7
SS 50/12	SS 50/12 ES	SS 50/12 I**	SS 50/12 A**	35 - 50 (IDEAL/ABA: 32 - 50)	7
SS 60/12	SS 60/12 ES	SS 60/12 I	SS 60/12 A	40 - 60	7
SS 70/12	SS 70/12 ES	SS 70/12 I	SS 70/12 A	50 - 70	7
SS 80/12	SS 80/12 ES	SS 80/12 I	SS 80/12 A	60 - 80	7
SS 90/12	SS 90/12 ES	SS 90/12 I	SS 90/12 A	70 - 90	7
SS 100/12	SS 100/12 ES	SS 100/12 I	SS 100/12 A	80 - 100	7
SS 110/12	SS 110/12 ES	SS 110/12 I	SS 110/12 A	90 - 110	7
---	---	SS 120/12 I	SS 120/12 A	100 - 120	7
SS 130/12	SS 130/12 ES	SS 130/12 I	SS 130/12 A	110 - 130	7
---	---	SS 140/12 I	SS 140/12 A	120 - 140	7
SS 150/12	SS 150/12 ES	SS 150/12 I	SS 150/12 A	130 - 150	7
---	---	SS 160/12 I	SS 160/12 A	140 - 160	7
SS 170/12	SS 170/12 ES	SS 170/12 I	SS 170/12 A	150 - 170	7
---	---	SS 180/12 I	SS 180/12 A	160 - 180	7
SS 190/12	SS 190/12 ES	SS 190/12 I	SS 190/12 A	170 - 190	7
---	---	SS 210/12 I	SS 210/12 A	190 - 210	7
---	---	SS 230/12 I	SS 230/12 A	210 - 230	7
---	---	SS 250/12 I	SS 250/12 A	230 - 250	7
---	---	SS 270/12 I	SS 270/12 A	250 - 270	7
---	---	SS 290/12 I	SS 290/12 A	270 - 290	7
---	---	SS 310/12 I	SS 310//12 A	290 - 310	7
---	---	SS 330/12 I	---	310 - 330	7
---	---	SS 350/12 I	---	330 - 350	7

* slotted screw and stainless steel tape, ** similar to DIN 3017-1, *** not for type IDEAL and ABA

☞ **Order example:** SS 27/12 **

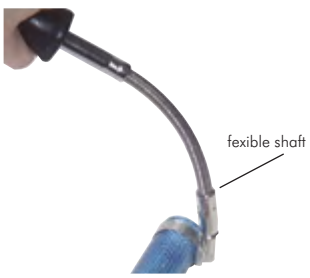
Standard type

Designation for the options:
With butterfly handle *** . **-FG**

option: butterfly handle

Hose clamp drivers, flexible

Type	SW
SS DREH 5	5
SS DREH 6	6
SS DREH 7	7
SS DREH 8	8



Threaded nozzles & hose nozzles from page 64
Coupling sockets NW7 from page 150
PVC-fabric hoses with coupling & plug on page 208
Ball valves from page 280

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hose clamps - 1-ear

Materials: AISI 304L (W4), insert ring: AISI 301
Suitable: 1 ear clamps are assembled by squeezing closed using clamping pliers, and can only be released by squeezing opening with a diagonal cutter. The insert ring ensures an absolutely secure all-around setting and is favoured for the assembly of soft and sensitive, or very stiff hoses. The clamp cannot be reused.

Advantages:
- Small design
- "Self-suspended"
- No protruding thread tongues (no risk of injury)
- Insoluble

standard

with insert

Type standard (INOX)	Ø Clamping range	Width
SSO 3,3-1 ES	2.9 - 3.3	3
SSO 4,1-1 ES	3.3 - 4.1	4
SSO 5,1-1 ES	4.1 - 5.1	4
SSO 6,1-1 ES	5.1 - 6.1	4
SSO 7-1 ES	6.1 - 7.0	5
SSO 8-1 ES	6.8 - 8.0	5
SSO 9,5-1 ES	8.1 - 9.5	6
SSO 10,5-1 ES	9.1 - 10.5	6
SSO 11,8-1 ES	10.1 - 11.8	6
SSO 12,8-1 ES	10.8 - 12.8	6
SSO 13,8-1 ES	11.8 - 13.8	6
SSO 15-1 ES	13.0 - 15.0	6
SSO 16-1 ES	13.8 - 16.0	6
SSO 16,8-1 ES	14.6 - 16.8	6
SSO 17,5-1 ES	15.3 - 17.5	6
SSO 19,5-1 ES	17.2 - 19.5	6
SSO 21-1 ES	18.7 - 21.0	7
SSO 21,8-1 ES	19.5 - 21.8	7
SSO 23,5-1 ES	21.0 - 23.5	7
SSO 26,3-1 ES	23.6 - 26.3	7
SSO 27-1 ES	24.1 - 27.0	7
SSO 30,7-1 ES	27.2 - 30.7	7

Type with insert ring (INOX)	Ø Clamping range	Width
SSOE 2,9-1 ES	2.5 - 2.9	5.5
SSOE 3,7-1 ES	2.9 - 3.7	5.5
SSOE 4,7-1 ES	3.7 - 4.7	5.5
SSOE 5,7-1 ES	4.7 - 5.7	5.5
SSOE 6,5-1 ES	5.6 - 6.5	6.4
SSOE 7,5-1 ES	6.3 - 7.5	6.4
SSOE 9-1 ES	7.5 - 9.0	7.4
SSOE 10,8-1 ES	9.1 - 10.8	7.4
SSOE 12,3-1 ES	10.3 - 12.3	7.4
SSOE 13,3-1 ES	11.3 - 13.3	8.2
SSOE 14,3-1 ES	12.3 - 14.3	8.2
SSOE 15,3-1 ES	13.1 - 15.3	8.2
SSOE 16,1-1 ES	13.9 - 16.1	8.2
SSOE 16,8-1 ES	14.6 - 16.8	8.2
SSOE 17,8-1 ES	15.6 - 17.8	8.2
SSOE 19,3-1 ES	17.1 - 19.3	9.2
SSOE 21,1-1 ES	18.8 - 21.1	9.2
SSOE 21,8-1 ES	19.2 - 21.8	9.2
SSOE 23,8-1 ES	21.0 - 23.8	9.2
SSOE 25,6-1 ES	23.0 - 25.6	9.2
SSOE 26,3-1 ES	23.3 - 26.3	9.2
SSOE 30-1 ES	26.5 - 30.0	9.2

Hose clamps - 2-ears

Suitable: 2 ear clamps are assembled by squeezing closed using clamping pliers, and can only be released by squeezing opening with a diagonal cutter. The clamp cannot be reused.

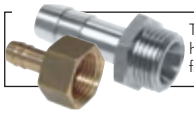
Advantages:
- Small design
- "Self-suspended"
- No protruding thread tongues (no risk of injury)
- Insoluble
- Larger clamping range than 1-ear clamps

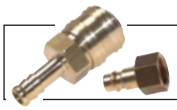
Type zinc-plated steel (W1)	Type AISI 304L (W4) (INOX)	Ø Clamping range	Width
SSO 5	SSO 5 ES	3.4 - 5	5
SSO 7	SSO 7 ES	5 - 7	6
SSO 9/4	---	7 - 9	4
SSO 9	SSO 9 ES	7 - 9	7
SSO 11/3	---	9 - 11	3
SSO 11	SSO 11 ES	9 - 11	7
SSO 13/4	---	11 - 13	4
SSO 13	SSO 13 ES	11 - 13	7
SSO 15	SSO 15 ES	12.5 - 15	7.5
SSO 17/4	---	14 - 17	4
SSO 17	SSO 17 ES	14 - 17	8
SSO 18/4	---	15 - 18	4

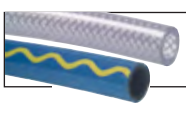
Type zinc-plated steel (W1)	Type AISI 304L (W4) (INOX)	Ø Clamping range	Width
SSO 20/4	---	16 - 20	4
SSO 20	SSO 20 ES	16 - 20	8.5
SSO 22	SSO 22 ES	18 - 22	9
SSO 23	SSO 23 ES	19 - 23	9
SSO 25	SSO 25 ES	21 - 25	10
SSO 28	SSO 28 ES	24 - 28	10
SSO 31	SSO 31 ES	27 - 31	10
SSO 34	SSO 34 ES	29.3 - 34	10
SSO 37	SSO 37 ES	32 - 37	10
SSO 40	SSO 40 ES	35 - 40	10
SSO 43	SSO 43 ES	37.6 - 43	10
SSO 46	SSO 46 ES	40.6 - 46	10

Clamping pliers for ear clamps

Type	Clamping
KZ SSO	Front
KZS SSO	Front and side


Threaded nozzles & hose nozzles from page 64


Coupling sockets and plugs from page 150


Compressed air and water hoses from page 208

Ball valves from page 280

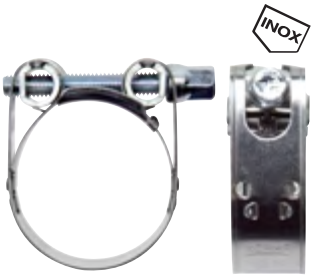
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hinge bolt clamps

NORMA

Suitable: For use in demanding applications, such as the mounting of suction and pressure hoses with high Shore hardness or with plastic or steel inserts. Ideal for commercial vehicle construction, industry, construction machinery, farming, mining, ...
Material: Tape and housing: AISI 430 (W2), screw: Zinc-plated steel
☞ **Optional:** Material complete AISI 304 (W4) **-2A**

✓ **Advantages:** • Hollow bolt reduces load on screw and tape. Increased service life



Type INOX	Ø Clamping range	Tape width
SSB 19 ES	17 - 19	18
SSB 21 ES	19 - 21	18
SSB 23 ES	21 - 23	18
SSB 25 ES	23 - 25	18
SSB 27 ES	25 - 27	18
SSB 29 ES	27 - 29	18
SSB 31 ES	29 - 31	18
SSB 34 ES	31 - 34	18
SSB 37 ES	34 - 37	18
SSB 40 ES	37 - 40	18
SSB 43 ES	40 - 43	18
SSB 47 ES	43 - 47	20
SSB 51 ES	47 - 51	20
SSB 55 ES	51 - 55	20
SSB 59 ES	55 - 59	20
SSB 63 ES	59 - 63	20
SSB 68 ES	63 - 68	20
SSB 73 ES	68 - 73	25

Type INOX	Ø Clamping range	Tape width
SSB 79 ES	73 - 79	25
SSB 85 ES	79 - 85	25
SSB 91 ES	85 - 91	25
SSB 97 ES	91 - 97	25
SSB 104 ES	97 - 104	25
SSB 112 ES	104 - 112	25
SSB 121 ES	112 - 121	25
SSB 130 ES	121 - 130	25
SSB 140 ES	130 - 140	30
SSB 150 ES	140 - 150	30
SSB 162 ES	150 - 162	30
SSB 174 ES	162 - 174	30
SSB 187 ES	174 - 187	30
SSB 200 ES	187 - 200	30
SSB 213 ES	200 - 213	30
SSB 226 ES	213 - 226	30
SSB 239 ES	226 - 239	30
SSB 252 ES	239 - 252	30

☞ **Order example:** SSB 19 ES **

Standard type | **Designation for the options:** Material AISI 304 (W4) . **-2A**

Hinge bolt clamps, 2-part

NORMA

Suitable: For use in demanding applications, such as the mounting of suction and pressure hoses with high Shore hardness or with plastic or steel inserts. Ideal for commercial vehicle construction, industry, construction machinery, farming, mining, ...
Material: Tape and housing: AISI 430 (W2), screw: Zinc-plated steel
☞ **Optional:** Material complete AISI 304 (W4) **-2A**

✓ **Advantages:** • Hollow bolt reduces load on screw and tape. Increased service life
• Improved clamping strength thanks to 2-part design
• Greater clamping range

Type INOX	Ø Clamping range	Tape width
SSBP 67 ES	59 - 67	18
SSBP 75 ES	67 - 75	18
SSBP 83 ES	75 - 83	20
SSBP 91 ES	83 - 91	20
SSBP 101 ES	87 - 101	20
SSBP 115 ES	101 - 115	20
SSBP 129 ES	115 - 129	20
SSBP 143 ES	129 - 143	20
SSBP 157 ES	143 - 157	20
SSBP 171 ES	157 - 171	20
SSBP 185 ES	171 - 185	20

Type INOX	Ø Clamping range	Tape width
SSBP 196 ES	176 - 196	25
SSBP 216 ES	196 - 216	25
SSBP 236 ES	216 - 236	25
SSBP 256 ES	236 - 256	25
SSBP 276 ES	256 - 276	25
SSBP 296 ES	276 - 296	25
SSBP 316 ES	296 - 316	25
SSBP 336 ES	316 - 336	25
SSBP 356 ES	336 - 356	25
SSBP 376 ES	356 - 376	25

☞ **Order example:** SSBP 67 ES **

Standard type | **Designation for the options:** Material AISI 304 (W4) . **-2A**

Consoles for hose clamps

NORMA

Suitable: This console and a hose clamp add stability to the foot for round containers and a stable mounting of tubes.
Clamps that can be used: SS ... (page 235), SSB ... (see above on this page), SSSI ... (page 238) - please observe the width!

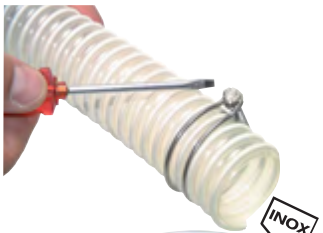
Type **zinc-plated steel**	For tube Ø	Max. clamp width	Length x width	Mounting - long hole width x length
SSBK 62	40 - 62	20	120 x 40	9 x 8
SSBK 80	63 - 80	20	120 x 40	9 x 8
SSBK 100	81 - 100	20	120 x 40	9 x 8
SSBK 118	101 - 118	25	156 x 50	9 x 18
SSBK 136	119 - 136	25	156 x 50	9 x 18
SSBK 163	137 - 163	25	156 x 50	9 x 18
SSBK 180	163 - 180	25	236 x 60	9 x 32
SSBK 207	181 - 207	25	236 x 60	9 x 32
SSBK 234	208 - 234	25	236 x 60	9 x 32
SSBK 259	235 - 259	30	300 x 60	11 x 32

Order accessories at the same time!

1 piece hose clamp

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hose clamps



AISI 304 (< 70 mm)

AISI 304 (> 70 mm)

Wire hose clamps for mounting hoses with spiral inlay

Type AISI 304 (INOX)	Type zinc-plated steel	Ø Clamping range
SSDS 16 ES	SSDS 16	13 - 16
SSDS 18 ES	SSDS 18	15 - 18
SSDS 21 ES	SSDS 21	18 - 21
SSDS 23 ES	SSDS 23	20 - 23
SSDS 25 ES	SSDS 25	22 - 25
SSDS 27 ES	SSDS 27	24 - 27
SSDS 31 ES	SSDS 31	27 - 31
SSDS 35 ES	SSDS 35	31 - 35
SSDS 37 ES	SSDS 37	33 - 37
SSDS 40 ES	SSDS 40	35 - 40
SSDS 43 ES	SSDS 43	38 - 43
SSDS 48 ES	SSDS 48	43 - 48
SSDS 50 ES	SSDS 50	45 - 50
SSDS 55 ES	SSDS 55	49 - 55
SSDS 60 ES	SSDS 60	54 - 60
SSDS 65 ES	SSDS 65	59 - 65
SSDS 70 ES	SSDS 70	65 - 70
SSDS 75 ES	SSDS 75	70 - 75
SSDS 80 ES	SSDS 80	75 - 80
SSDS 85 ES	---	80 - 85
SSDS 90 ES	---	84 - 90
SSDS 100 ES	---	92 - 100

Type AISI 304 (INOX)	Type zinc-plated steel	Ø Clamping range
SSDS 110 ES	---	100 - 110
SSDS 115 ES	---	105 - 115
SSDS 120 ES	---	110 - 120
SSDS 125 ES	---	115 - 125
SSDS 130 ES	---	120 - 130
SSDS 140 ES	---	130 - 140
SSDS 150 ES	---	140 - 150
SSDS 160 ES	---	153 - 160
SSDS 165 ES	---	158 - 165
SSDS 170 ES	---	163 - 170
SSDS 180 ES	---	173 - 180
SSDS 185 ES	---	178 - 185
SSDS 195 ES	---	185 - 195
SSDS 208 ES	---	195 - 208
SSDS 260 ES	---	247 - 260
SSDS 270 ES	---	257 - 270
SSDS 315 ES	---	302 - 315
SSDS 360 ES	---	347 - 360
SSDS 413 ES	---	400 - 413
SSDS 450 ES	---	437 - 450
SSDS 500 ES	---	487 - 500

Safety hose clamps with optical overload protection — Band width 12 mm

Materials: Tape and housing: AISI 304, screw: AISI 303
This new type of safety hose clamp is opened fully by the quick fastener for pretensioning and prepositioning. An optical overload protection reliably displays any impending overload.

Type (INOX)	Ø Clamping range
SSSi 80 ES	50 - 80
SSSi 110 ES	80 - 110
SSSi 140 ES	110 - 140

Type (INOX)	Ø Clamping range
SSSi 170 ES	140 - 170
SSSi 200 ES	170 - 200
SSSi 230 ES	200 - 230

1. Open lock and position tape.

2. Close lock.

3. Tighten and finish.

Screw locks and hand locks with tension tapes (10 and 18 mm tape width)

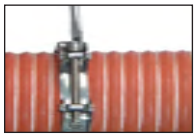
Assembly with a screw lock:

Measure tape and cut approx. 10 cm longer than hose coil...

...clip screw lock and fold back approx. 3 cm behind the main tape...

...place around the hose...

...place around the hose and clip into safety hinge,...



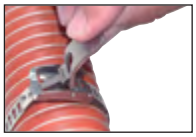
...tighten and finish.

Assembly with a manual turnbuckle:

Measure tape and cut approx. 10 cm longer than hose coil...

...clip hand retention lock and fold back approx. 3 cm behind the main tape, place around the hose and...

...place around the hose...



... clip into safety hinge, tighten and...

...finished.

screw lock

hand retention lock

10 mm width

Type AISI 304 (INOX)	Ø Clamping range
Screw lock 10 mm	
SSS 40/10 ES	40 - 100
SSS 100/10 ES	Over 100
Hand retention lock 10 mm	
SSH 35/10 ES	35 - 60
SSH 60/10 ES	Over 60

Type AISI 304 (INOX)	Roller length
Clamping band roller 10 mm wide	
SSKB 10/10 ES	10 m
SSKB 20/10 ES	20 m

18 mm width

Type AISI 304 (INOX)	Ø Clamping range
Screw lock 18 mm	
SSS 80/18 ES	80 - 150
SSS 150/18 ES	Over 150

Type AISI 304 (INOX)	Roller length
Clamping band roller 18 mm wide	
SSKB 10/18 ES	10 m
SSKB 20/18 ES	20 m

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

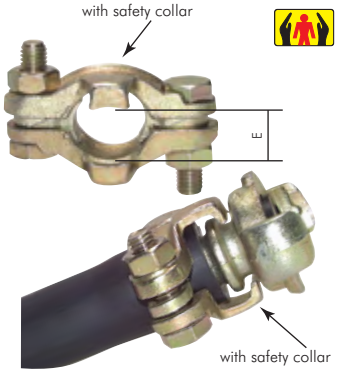
Hose clamps 2-part with free tongues — similar to DIN 20039 A

Advantages: • High clamping strength - even hose clamping from all sides from the laterally free tongues.

Type **malleable cast iron galv.**	Type **AISI 316** INOX	Ø Clamping range	Type **malleable cast iron galv.**	Ø Clamping range
SL 22*	---	17 - 22	SL 101	89 - 101
---	SL 26 ES	18 - 26	SL 115	94 - 115
SL 29	---	22 - 29	SL 127	113 - 127
---	SL 33 ES	26 - 33	SL 140	130 - 140
SL 34	---	28 - 34	SL 145	115 - 145
SL 40	SL 40 ES	32 - 40	SL 155	135 - 155
SL 49	---	39 - 49	SL 175	155 - 175
SL 60	---	48 - 60	SL 195	175 - 195
SL 72	---	56 - 72	SL 225	210 - 225
SL 76	---	60 - 76	SL 250	227 - 250
SL 94	---	77 - 94		

* no loose tongues

Hose clamps 2-part with free tongues and safety catches — DIN 20039 B



Advantages: • High clamping strength - even hose clamping from all sides from the laterally free tongues.
• Additional security from the safety catches in conjunction with the hose fittings with safety collars.

Warning: The claws should be at least 3 mm in the insert. Check during assembly!

Type **malleable cast iron galv.**	Hose Ø internal	E	Ø Clamping range
SL 29 SB	13 (1/2")	15.0 - 22.0	22 - 29
SL 32 SB	19 (3/4")	22.5 - 26.5	28 - 32
SL 42 SB	25 (1")	27.0 - 34.0	35 - 42
SL 45 SB	28	29.0 - 36.0	42 - 45
SL 53 SB	35	36.0 - 42.0	45 - 53
SL 60 SB	42 (1 3/4")	43.0 - 48.0	55 - 60
SL 73 SB	50 (2")	54.0 - 67.0	60 - 73

Clamps 2-part — Dimensions acc. to EN 14420-3 (DIN 2817)

Advantages: • High clamping strength due to hexagon socket screws. For smooth hose connections and hose connections with safety collar according to EN 14420.

Type **aluminium**	Type **AISI 316** INOX	Hose Ø internal	Wall thickness	Ø Clamping range
SSA 24	SSA 24 ES	13 (1/2")	5	22 - 24
SSA 33	SSA 33 ES	19 (3/4")	6	30 - 33
SSA 39	SSA 39 ES	25 (1")	6	36 - 39
SSA 43 [2]	---	25 (1")	8.5	41 - 43
SSA 46	SSA 46 ES	32 (1 1/4")	6	43 - 46
SSA 50 [2]	---	32 (1 1/4")	8	47 - 50
SSA 52	SSA 52 ES	38 (1 1/2")	6.5	50 - 52
SSA 56 [2]	---	38 (1 1/2")	8	53 - 56
SSA 60 [2]	---	38 (1 1/2")	10	57 - 60
SSA 67	SSA 67 ES	50 (2")	8	63 - 67
SSA 71 [2]	---	50 (2")	10	69 - 71
SSA 76 [2]	SSA 76 ES [2]	63 (2 1/2")	6	74 - 76
SSA 82	SSA 82 ES	63 (2 1/2")	8	78 - 82
SSA 87 [1]	---	63 (2 1/2")	10	84 - 87
SSA 93	SSA 93 ES	75 (3")	8	89 - 93
SSA 97	---	75 (3")	10	94 - 97
SSA 101 [2]	---	75 (3")	12	98 - 101
SSA 119	SSA 119 ES	100 (4")	8	114 - 119
SSA 122	---	100 (4")	10	118 - 122
SSA 148	---	125 (5")	10	143 - 148
SSA 174	---	150 (6")	10	168 - 174
SSA 180 [2]	---	150 (6")	13	174 - 180
SSA 229	---	200 (8")	12	222 - 229

[1] hot-pressed brass [2] intermediate size (not standard)

Clamps 2-part for steam hoses — Dimensions acc. to EN 14423 (DIN 2826)

Suitable: Safety clamp fittings for steam hoses in accordance with EN ISO 6134
Temperature range: Up to max. +210°C (for saturated steam), to max. +120°C (for hot water)
Operating pressure: 18 bar

Warning: Please note the burst strength of the hose at the operating temperature!

Supply volume: 2 shell halves with 4 screws

Type **brass**	Type **AISI 316** INOX	Hose Ø internal x external	Ø Clamping range
SSA 25 HD MS	SSA 25 HD ES	13 x 25	24 - 26
SSA 33 HD MS	SSA 33 HD ES	19 x 33	32 - 34
SSA 40 HD MS	SSA 40 HD ES	25 x 40	39 - 41
SSA 48 HD MS	SSA 48 HD ES	32 x 48	47 - 50
SSA 54 HD MS	SSA 54 HD ES	38 x 54	53 - 56
SSA 68 HD MS	SSA 68 HD ES	50 x 68	67 - 69

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

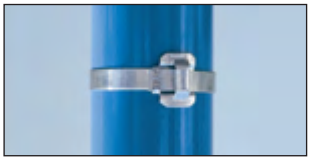
Band-It - The power clamp

Band-It - assembly example

Pull the buckle with ears to the tape end on the tape. Form clamps and place tape on tape. Pull the buckle over both tapes and bend the tape end approx. 30 mm under the buckle. When there are high loads on the clamps (e.g. for hose assembly) pull the tape twice through the buckle.

Insert tape in the clamping tool from the side, press on the cam lever and tighten the crank clamps by rotating them. The maximum tension is reached when the tape can no longer be pulled under the buckle (this is easily "fulfilled" by applying a finger).

After reaching the required tension, bend the tool slowly over the buckle. At the same time, loosen the crank by approx. a half rotation in order to prevent loss of tension and cracks in the tape. In order to crop the tape, pull the cutting lever backwards.

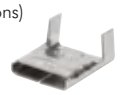


Hit the tape onto the buckle with the hammer and fold both buckle ears over to secure the tape end.

Especially good value! INOX

Band-It tapes — Type Valustrap

Application: For light loading, e.g. sign fastener, cable bundling, (not recommended for hose connections)
Assembly tool: C001, C003, C075 (can be found on page 241)
Assembly: See example at the top of this page
Materials: Rust-free, austenitic stainless steel with fully rounded edges



Type **tape** (30.5 m roller) INOX	Width	Thickness	Tearing forces	Type **strap*** INOX
C133	9.5 mm (3/8")	0.38 mm	2000 N	C153
C134	12.7 mm (1/2")	0.38 mm	2670 N	C154
C135	15.9 mm (5/8")	0.38 mm	3338 N	C155
C136	19.1 mm (3/4")	0.38 mm	4005 N	C156

* packing unit: 100 unit

Especially strong! INOX

Band-It tapes — Type 201

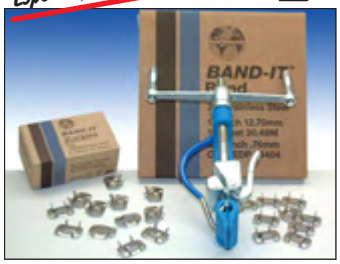
Application: For high loading, e.g. hose connections, tube fixations where high loading occurs
Assembly tool: C001, C003 (can be found on page 241)
Materials: Rust-free stainless steel AISI 201with fully rounded edges and high tensile strength (about 25% higher than AISI 316) (the tearing force table can be found in our Online Shop)

Advantages:
- More stable than "normal" V2A with similar corrosion resistance – easily formed
- Patented imprint allows specific cutting to length of the strap and avoids waste
- Can be supplied in practical plastic container

Type **tape** (30.5 m roller) carton INOX	Type **tape** (30.5 m roller) KU container INOX	Width	Thickness	Container colour	Type **strap*** INOX
C202	--	6.4 mm (1/4")	0.51 mm	---	C252**
C203	C203Y	9.5 mm (3/8")	0.64 mm	Yellow	C253
C204	C204B	12.7 mm (1/2")	0.76 mm	Blue	C254
C205	C205G	15.9 mm (5/8")	0.76 mm	Green	C255
C206	C206R	19.1 mm (3/4")	0.76 mm	Red	C256

* packing unit: 100 pcs., ** design similar to Valustrap

Especially corrosion resistant! INOX



Band-It tapes — Type 316

Application: For all applications where high corrosion resistance is required
Assembly tool: C001, C003 (can be found on page 241)
Materials: Rust-free stainl. steel AISI 316 w/ fully rounded edges and high corrosion resistance

Type **tape** (30.5 m roller) INOX	Width	Thickness	Tearing forces	Type **strap*** INOX
C403	9.5 mm (3/8")	0.64 mm	3335 N	C453
C404	12.7 mm (1/2")	0.76 mm	5340 N	C454
C405	15.9 mm (5/8")	0.76 mm	6675 N	C455
C406	19.1 mm (3/4")	0.76 mm	8010 N	C456

* packing unit: 100 unit

Band-It scru-lokt buckles — Type 201

Application: For the manufacturing of clamps that can be retightened, along with "type 201" straps
Assembly tool: C001, C003 (can be found on page 241)
Assembly: Like in the example on top of the page, however, the strap is not bent after tension, but rather fixed with the hexagon socket screw. In order to allow further tension, the tape should protrude approx. 100 mm from behind the loop.

Warning: Avoid injuries caused by folding the end of the loop!

Materials: Rust-free stainless steel AISI 201 (1.4372)

Type INOX	Width	Tearing forces	Packing unit
C720	6.4 mm (1/4")	2225 N	50 unit
C722	9.5 mm (3/8")	4005 N	50 unit
C724	12.7 mm (1/2")	6675 N	25 unit
C726	19.1 mm (3/4")	10013 N	25 unit

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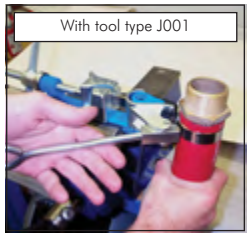
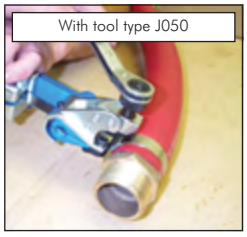
Ready-made clamps - assembly instructions

Clamp the clamping tool in the vise press. Set the adapter on the tool nosepiece Guide the clamp into the tool. Hold the end of the tape with the cam lever.

Push the hose through the clamp and turn the crank of the clamping to the right until the
required tension is reached. The maximum tension is reached when the tape can no longer be pulled through the buckle.
Movement of the tape can be "felt" slightly by placing on the fingers.



Turn the hose with the clamp so far back that the shear hooks can grip behind the strap. Parallel to that loosen the crank by a quarter to a half turn (depending on hose type and size).



With tool type J001: Move the cutting lever with a strong jerk forward, so that the end of the tape is cut.

With tool type J050:
Pull the spindle of the adapter by hand on the knurled disk until the strap is firmly clamped. Set the ratchet on the hexagon and turn until the end of the tape is cut.

The finish assembled ready made clamp does not require any subsequent hitting or hammering.

Band-It ready prefabricated clamps — Type Junior 201

Especially strong!

Application: For high loading, e.g. hose connections
Assembly tool: C001 & J001, C001 & J050, C003 & J050
Materials: Rust-free stainless steel AISI 201 (1.4372) with fully rounded edges and high tensile strength (about 25% higher than AISI 316), (the tearing force table can be found in our Online Shop)

Advantages:
- Patented, gap-free design of interior surface avoids leaks especially in thin walled hoses
- High vibration resistance
- Easy and quick manual processing - closed by means of a simple handle movement
- Semi-automatic and automatic processing is possible
- Easy to store because small clamps can be manufactured from large clamps

Type **1/4"** INOX (6.4 x 0.51 mm)	Type **3/8"** INOX (9.5 x 0.64 mm)	Type **1/2"** INOX (12.7 x 0.76 mm)	Type **5/8"** INOX (15.9 x 0.76 mm)	Type **3/4"** INOX (19.1 x 0.76 mm)	Clamps Ø internal max.
JS240	JS201	---	---	---	20.6
JS242	JS243	JS203	---	---	25.4
---	---	JS204	---		31.8
JS241	JS202	---	---	---	34.9
JS252	---	JS231	JS205	---	38.1
---	---	JS236	JS206	---	44.5
JS253	JS245	JS237	JS207	JS227	50.8
---	---	---	JS208	---	57.2
JS220	JS221	JS233	JS209	---	63.5
JS256	---	JS230	---	JS210	69.9
JS244	JS246	JS234	---	JS211	76.2
JS257	JS255	JS247	---	JS212	88.9
JS258	JS248	JS249	---	JS213	101.6
JS259	---	---	---	JS214	114.3
---	---	---	---	JS215	127.0
---	---	---	---	JS270	133.4
---	---	---	---	JS216	152.4
---	---	---	---	JS217	165.1
---	---	---	---	JS218	177.8
---	---	---	---	JS219	203.2

Band-It assembly tools

Type	Description	Suitable for tape **201/316**	Suitable for ready-made clamps **Junior 201**	Suitable for **Valustrap**
C001	Standard clamping tool	Yes	Yes (only with J001 or J050)	Yes
C003	Heavy-duty clamping tool	Yes	Yes (only with J050)	Yes
C075	"Bantam" tool	No	No	Yes
J001	Standard adapter for C001 when processing junior clamps (cut using the lever)	No	Yes (only with C001)	No
J050	Heavy-duty adapter for C001/C003, when processing junior clamps (cut using the ratchets)	No	Yes (only with C001 or C003)	No

type C001

type C003

type J050

type J001

type C075

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Pipe clamps

Rubber-coated pipe clamps — DIN 3016-1 (Form D1)

Suitable: For easy mounting of hoses, cables and pipes.
Materials: Clamp: Zinc-plated steel, insert: NBR/CR
Temperature range: -35°C to max. +100°C

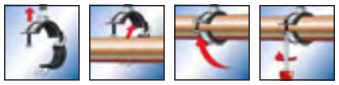
Type zinc-plated steel (W1)	For pipe Ø	Tape width	Mounting hole
RGSS 6	6	9	4.3
RGSS 8	8	12	5.3
RGSS 10	10	12	5.3
RGSS 12	12	12	5.3
RGSS 14	14	12	5.3
RGSS 15	15	12	5.3
RGSS 18	18	12	5.3
RGSS 20	20	12	5.3
RGSS 22	22	12	5.3
RGSS 25	25	12	5.3

Type zinc-plated steel (W1)	For pipe Ø	Tape width	Mounting hole
RGSS 28*	28	12	5.3
RGSS 30*	30	12	5.3
RGSS 32	32	20	8.4
RGSS 34	34	20	8.4
RGSS 35	35	20	8.4
RGSS 38	38	20	8.4
RGSS 40	40	20	8.4
RGSS 42	42	25	10.5
RGSS 45	45	25	10.5
RGSS 48	48	25	10.5

* similar to DIN 3016-1

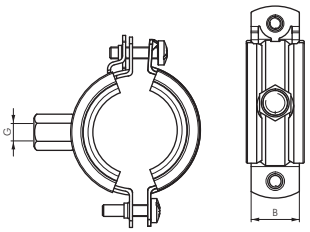
fischer

Pipe clamps made of galvanised steel



Materials: Clamp: Steel zinc plated, insert: EPDM
Temperature range: -40°C to max. +100°C

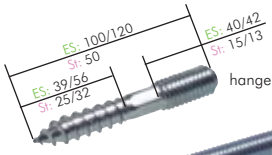
Advantages:
- Sound insulation for DIN 4109
- patented quick fastener guarantees a simple and quick assembly
- large opening angle for easy inserting of tubes (pipe clamp is opened by folding down)
- with reliable engaging, the tube can be pre-assembled and adjusted before tightening the clamp



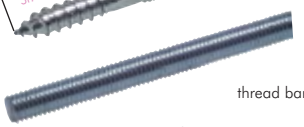
Typ	Ø Spann-bereich	Gewinde G*	Breite B	Zulässige Belastung
RSF 15	12 - 15	M 8 & M 10	20	800 N
RSF 19	15 - 19	M 8 & M 10	20	800 N
RSF 24	20 - 24	M 8 & M 10	20	800 N
RSF 30	25 - 30	M 8 & M 10	20	800 N
RSF 37	32 - 37	M 8 & M 10	20	800 N
RSF 45	40 - 45	M 8 & M 10	20	1000 N
RSF 52	46 - 52	M 8 & M 10	18	1000 N
RSF 54	48 - 54	M 8 & M 10	20	1000 N
RSF 61	55 - 61	M 8 & M 10	20	1000 N
RSF 67	63 - 67	M 8 & M 10	20	1000 N
RSF 73	68 - 73	M 8 & M 10	20	1800 N
RSF 80	72 - 80	M 8 & M 10	20	1800 N
RSF 86	80 - 86	M 8 & M 10	20	1800 N
RSF 92	87 - 92	M 8 & M 10	20	1800 N
RSF 103	95 - 103	M 8 & M 10	20	1800 N
RSF 116	108 - 116	M 8 & M 10	20	1800 N
RSF 129	120 - 129	M 8 & M 10	25	1500 N
RSF 137	130 - 137	M 8 & M 10	25	1500 N
RSF 145	138 - 145	M 8 & M 10	25	1500 N
RSF 155	146 - 155	M 8 & M 10	25	1500 N
RSF 163	156 - 163	M 8 & M 10	25	1500 N
RSF 172	164 - 172	M 8 & M 10	25	1500 N

* Threaded socket with two usable fastening threads

Bolts and threaded bars for pipe clamps



hanger bolt



thread bar

connection socket

Hanger bolt

Type zinc-pl. steel	Type AISI 304 (INOX)	Thread	For dowel Ø
KK STS 8	KK STS 8 ES	M 8	10 mm
KK STS 10	KK STS 10 ES	M 10	12 mm

Threaded bar, 1000 mm long

Type zinc-pl. steel	Type AISI 304 (INOX)	Thread
GWS 8	GWS 8 ES	M 8
GWS 10	GWS 10 ES	M 10

Connection sockets for threaded bars

Type zinc-pl. steel	Thread	Length
GWS 8 VM	M 8	30 mm
GWS 10 VM	M 10	30 mm

Beam clamps for pipe clamps M 8/M 10

Suitable: Assembly of pipes, sprinkler systems, aeration channels on T-beams, U and elbow profiles

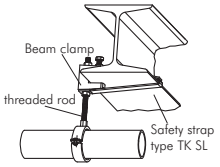
Advantages:
- Beam clamps for easy mounting of pipe clamps without drilling and welding
- VdS approval

Type malleable cast iron galv.	Thread female	Clamping range	Statically tested max. load
Beam clamp made of malleable cast iron galvanised			
TK M8	M 8	1-23 mm	2500 N
TK M10	M 10	1-20 mm	2500 N
Safety strap made of zinc-plated steel*			
TK SL	Safety strap suitable for beam clamps M 8 and M 10		

* VdS regulation for sprinkler systems as of tube diameter DN 65

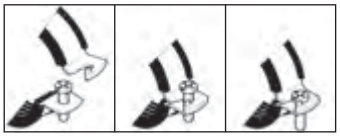
Order accessories at the same time!

Safety strap



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pipe clamps made of stainless steel



Materials: Clamp: AISI 316L, insert: EPDM
Temperature range: -50°C to max. +110°C

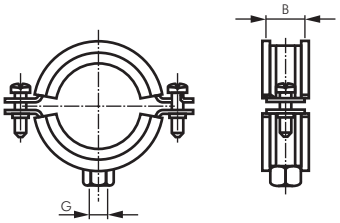
Advantages:
- Type with insert: Sound insulation for DIN 4109
- Pipe clamp is flipped open to the side before pipe assembly, making it easy to insert the tube
- Engaging the tube securely allows it to be pre-fit and adjusted before tightening the clamp

Type with insert (INOX)	Type without insert (INOX)	Ø Clamping range	Thread G	Width W	Permitted load**
RS 14 G ES	---	11 - 14	M8	20	900 N
RS 19 G ES	RS 19 ES	15 - 19	M8	20	900 (1000) N
---	RS 22 ES	20 - 22	M8	20	1000 N
RS 23 G ES	---	20 - 23	M8	20	900 N
RS 28 G ES	RS 28 ES	25 - 28	M8	20	900 (1000) N
RS 35 G ES	---	31 - 35	M10	20	900 N
RS 35 G ES M8	RS 35 ES	31 - 35	M8	20	900 (1000) N
RS 43 G ES	---	40 - 43	M10	20	900 N
RS 43 G ESM8	RS 43 ES	40 - 43	M8	20	900 (1000) N
RS 51 G ES	---	47 - 51	M10	20	900 N
RS 51 G ESM8	RS 51 ES	47 - 51	M8	20	900 (1000) N
RS 56 G ES	---	52 - 56	M10	20	900 N
RS 56 G ESM8	---	52 - 56	M8	20	900 N
---	RS 60 ES	54 - 60	M8	20	1000 N
RS 64 G ES	---	57 - 64	M10	20	900 N
RS 64 G ESM8	---	57 - 64	M8	20	900 N
RS 67 G ES	---	64 - 67	M10	20	1350 N
RS 67 G ESM8	---	64 - 67	M8	20	1350 N
RS 76 G ES	---	70 - 76	M10	20	1350 N
RS 76 G ESM8	---	70 - 76	M8	20	1350 N
---	RS 76 ES	72 - 76	M8	20	1500 N
RS 85 G ES	---	79 - 85	M10	20	1350 N
---	RS 89 ES	85 - 89	M8	20	1500 N
RS 91 G ES	---	86 - 91	M10	20	1350 N
RS 91 G ESM8	---	86 - 91	M8	20	1350 N
RS 106 G ES	---	100 - 106	M10	20	1350 N
RS 106 G ESM8	---	100 - 106	M8	20	1350 N
RS 116 G ES	---	108 - 116	M10	20	1710 N
RS 116 G ESM8	---	108 - 116	M8	20	1710 N
RS 132 G ES	---	124 - 132	M10	20	1710 N
RS 141 G ES	---	133 - 141	M10	20	1710 N
RS 168 G ES	---	159 - 168	M10	25	1710 N
RS 219 G ES	---	210 - 219	M10	25	1710 N
RS 250 G ES	---	244 - 250	M10	25	1710 N

** values in brackets apply for clamps without an insert

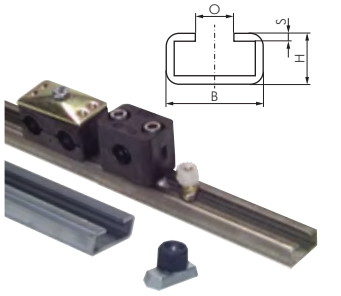
with insert

without insert



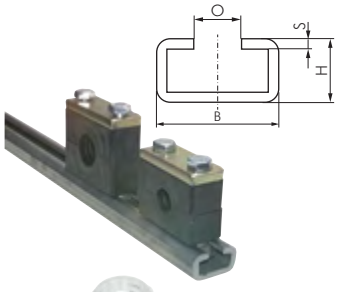
C type carrier rails for type 4 - lightweight model series — DIN 3015 T1

Type steel	Type zinc-plated steel	Type AISI 316Ti (INOX)	W	H	O	S	For size	Length
TS 28 x 11	TS 28 x 11 V	TS 28 x 11 ES	28	11	11	2	0 to 6	1 m
TS 28 x 11/2	TS 28 x 11/2 V	TS 28 x 11/2 ES	28	11	11	2	0 to 6	2 m
TS 28 x 14	TS 28 x 14 V	TS 28 x 14 ES	28	14	11	2	0 to 6	1 m
TS 28 x 14/2	TS 28 x 14/2 V	TS 28 x 14/2 ES	28	14	11	2	0 to 6	2 m
TS 28 x 30	TS 28 x 30 V	---	28	30	11	2	0 to 6	1 m
TS 28 x 30/2	TS 28 x 30/2 V	---	28	30	11	2	0 to 6	2 m



C type carrier rails for type 4 - heavy model series — DIN 3015 T2

Type steel	Type zinc-plated steel	Type AISI 316Ti (INOX)	W	H	O	S	For size	Length
TS 40x22	TS 40x22 V	TS 40x22 ES	40	22	12.5	5	1 to 4	1 m
TS 40x22/2	TS 40x22/2 V	TS 40x22/2 ES	40	22	12.5	5	1 to 4	2 m



Carrier rails nuts for lightweight model series — DIN 3015 T1

Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread	For size	For carrier rails (type)
KMA M6	KMA M6 ES	M 6	0 to 6 (light model series)	TS 28 ...
KMA M8	KMA M8 ES	M 8	GR ... DOTM (double pipe clamps)	TS 28 ...

type KMA M6

type KMA M8 ES

Carrier rails nuts for heavy model series — DIN 3015 T2

Type zinc-plated steel	Type AISI 316Ti (INOX)	Thread	For size	For carrier rails (type)
KMA M10	KMA M10 ES	M 10	1 to 3	TS 40 ...
KMA M12	KMA M12 ES	M 12	4	TS 40 ...

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pipe clamps - light model series

plastic 1
clamps with welding plate

plastic 2
like 1 but with cover plate

plastic 3
like 1 but with extended welding and drilled mounting plates

plastic 4
clamps with carrier rail nuts KMA type to assemble on C carrier rails TS 28 ... (page 243)

aluminium
aluminium clamp with weld-on plate

Pipe clamps - light model series — DIN 3015 T1

Type plastic 1	Type plastic 2	Type plastic 3	Type plastic 4	Type aluminium	Pipe Ø external
Size 0 (only one side fastening screw)					
GR 06 L	GR 06 LDP	GR 06 LAPV	GR 06 LTM	---	6
GR 08 L	GR 08 LDP	GR 08 LAPV	GR 08 LTM	---	8
GR 010 L	GR 010 LDP	GR 010 LAPV	GR 010 LTM	---	10 (1/8")
GR 012 L	GR 012 LDP	GR 012 LAPV	GR 012 LTM	---	12
Size 1					
GR 16 L	GR 16 LDP	GR 16 LAPV	GR 16 LTM	GR 16 LALU	6
GR 18 L	GR 18 LDP	GR 18 LAPV	GR 18 LTM	GR 18 LALU	8
GR 110 L	GR 110 LDP	GR 110 LAPV	GR 110 LTM	GR 110 LALU	10 (1/8")
GR 112 L	GR 112 LDP	GR 112 LAPV	GR 112 LTM	GR 112 LALU	12
Size 2					
GR 2137 L	GR 2137 LDP	GR 2137 LAPV	GR 2137 LTM	GR 2137 LALU	13.7 (1/4")
GR 214 L	GR 214 LDP	GR 214 LAPV	GR 214 LTM	GR 214 LALU	14
GR 215 L	GR 215 LDP	GR 215 LAPV	GR 215 LTM	GR 215 LALU	15
GR 216 L	GR 216 LDP	GR 216 LAPV	GR 216 LTM	GR 216 LALU	16
GR 2171 L	GR 2171 LDP	GR 2171 LAPV	GR 2171 LTM	GR 2171 LALU	17.1 (3/8")
GR 218 L	GR 218 LDP	GR 218 LAPV	GR 218 LTM	GR 218 LALU	18
Size 3					
GR 319 L	GR 319 LDP	GR 319 LAPV	GR 319 LTM	GR 319 LALU	19
GR 320 L	GR 320 LDP	GR 320 LAPV	GR 320 LTM	GR 320 LALU	20
GR 3213 L	GR 3213 LDP	GR 3213 LAPV	GR 3213 LTM	GR 3213 LALU	21.3 (1/2")
GR 322 L	GR 322 LDP	GR 322 LAPV	GR 322 LTM	GR 322 LALU	22
GR 325 L	GR 325 LDP	GR 325 LAPV	GR 325 LTM	GR 325 LALU	25
Size 4					
GR 4269 L	GR 4269 LDP	GR 4269 LAPV	GR 4269 LTM	GR 4269 LALU	26.9 (3/4")
GR 428 L	GR 428 LDP	GR 428 LAPV	GR 428 LTM	GR 428 LALU	28
GR 430 L	GR 430 LDP	GR 430 LAPV	GR 430 LTM	GR 430 LALU	30
Size 5					
GR 532 L	GR 532 LDP	GR 532 LAPV	GR 532 LTM	GR 532 LALU	32
GR 5337 L	GR 5337 LDP	GR 5337 LAPV	GR 5337 LTM	GR 5337 LALU	33.7 (1")
GR 535 L	GR 535 LDP	GR 535 LAPV	GR 535 LTM	GR 535 LALU	35
GR 538 L	GR 538 LDP	GR 538 LAPV	GR 538 LTM	GR 538 LALU	38
GR 540 L	GR 540 LDP	GR 540 LAPV	GR 540 LTM	GR 540 LALU	40
GR 542 L	GR 542 LDP	GR 542 LAPV	GR 542 LTM	GR 542 LALU	42 (1 1/4")
Size 6					
GR 6483 L	GR 6483 LDP	GR 6483 LAPV	GR 6483 LTM	GR 6483 LALU	48.3 (1 1/2")
GR 6508 L	GR 6508 LDP	GR 6508 LAPV	GR 6508 LTM	GR 6508 LALU	50.8

Please take the dimensions from the Measurement Chart in our Online Shop.

type 1
clamps with welding plate

type 2
like 1 but with cover plate

type 3
like 1 but with extended welding and drilled mounting plates

type 4
clamps with carrier rail nuts KMA type to assemble on C carrier rails TS 28 ...(page 243)

Stainless steel pipe clamps - lightweight model series — DIN 3015 T1

Materials: Metal parts: AISI 316Ti, screws: AISI 304, clamp: Polypropylene (PP)

Type 1 (INOX)	Type 2 (INOX)	Type 3 (INOX)	Type 4 (INOX)	Pipe Ø external
Size 1				
GR 16 L ES	GR 16 LDP ES	GR 16 LAPV ES	GR 16 LTM ES	6
GR 18 L ES	GR 18 LDP ES	GR 18 LAPV ES	GR 18 LTM ES	8
GR 110 L ES	GR 110 LDP ES	GR 110 LAPV ES	GR 110 LTM ES	10 (1/8")
GR 112 L ES	GR 112 LDP ES	GR 112 LAPV ES	GR 112 LTM ES	12
Size 2				
GR 2137 L ES	GR 2137 LDP ES	GR 2137 LAPV ES	GR 2137 LTM ES	13.7 (1/4")
GR 214 L ES	GR 214 LDP ES	GR 214 LAPV ES	GR 214 LTM ES	14
GR 215 L ES	GR 215 LDP ES	GR 215 LAPV ES	GR 215 LTM ES	15
GR 216 L ES	GR 216 LDP ES	GR 216 LAPV ES	GR 216 LTM ES	16
GR 2171 L ES	GR 2171 LDP ES	GR 2171 LAPV ES	GR 2171 LTM ES	17.1 (3/8")
GR 218 L ES	GR 218 LDP ES	GR 218 LAPV ES	GR 218 LTM ES	18
Size 3				
GR 320 L ES	GR 320 LDP ES	GR 320 LAPV ES	GR 320 LTM ES	20
GR 3213 L ES	GR 3213 LDP ES	GR 3213 LAPV ES	GR 3213 LTM ES	21.3 (1/2")
GR 322 L ES	GR 322 LDP ES	GR 322 LAPV ES	GR 322 LTM ES	22
GR 325 L ES	GR 325 LDP ES	GR 325 LAPV ES	GR 325 LTM ES	25
Size 4				
GR 4269 L ES	GR 4269 LDP ES	GR 4269 LAPV ES	GR 4269 LTM ES	26.9 (3/4")
GR 428 L ES	GR 428 LDP ES	GR 428 LAPV ES	GR 428 LTM ES	28
GR 430 L ES	GR 430 LDP ES	GR 430 LAPV ES	GR 430 LTM ES	30
Size 5				
GR 532 L ES	GR 532 LDP ES	GR 532 LAPV ES	GR 532 LTM ES	32
GR 5337 L ES	GR 5337 LDP ES	GR 5337 LAPV ES	GR 5337 LTM ES	33.7 (1")
GR 535 L ES	GR 535 LDP ES	GR 535 LAPV ES	GR 535 LTM ES	35
GR 538 L ES	GR 538 LDP ES	GR 538 LAPV ES	GR 538 LTM ES	38
GR 540 L ES	GR 540 LDP ES	GR 540 LAPV ES	GR 540 LTM ES	40
GR 542 L ES	GR 542 LDP ES	GR 542 LAPV ES	GR 542 LTM ES	42 (1 1/4")
Size 6				
GR 6483 L ES	GR 6483 LDP ES	GR 6483 LAPV ES	GR 6483 LTM ES	48.3 (1 1/2")

Please take the dimensions from the Measurement Chart in our Online Shop.

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Pipe clamps - heavy model series — DIN 3015 T2

Type plastic 1	Type plastic 2	Type plastic 3	Type plastic 4	Type aluminium	Pipe Ø external
Size 1					
GR 16 S	GR 16 SDP	GR 16 SAPV	GR 16 STM	GR 16 SALU	6
GR 18 S	GR 18 SDP	GR 18 SAPV	GR 18 STM	GR 18 SALU	8
GR 110 S	GR 110 SDP	GR 110 SAPV	GR 110 STM	GR 110 SALU	10 (1/8")
GR 112 S	GR 112 SDP	GR 112 SAPV	GR 112 STM	GR 112 SALU	12
GR 1137 S	GR 1137 SDP	GR 1137 SAPV	GR 1137 STM	GR 1137 SALU	13.7 1/4")
GR 114 S	GR 114 SDP	GR 114 SAPV	GR 114 STM	GR 114 SALU	14
GR 115 S	GR 115 SDP	GR 115 SAPV	GR 115 STM	GR 115 SALU	15
GR 116 S	GR 116 SDP	GR 116 SAPV	GR 116 STM	GR 116 SALU	16
GR 1171 S	GR 1171 SDP	GR 1171 SAPV	GR 1171 STM	GR 1171 SALU	17.1 (3/8")
GR 118 S	GR 118 SDP	GR 118 SAPV	GR 118 STM	GR 118 SALU	18
Size 2					
GR 220 S	GR 220 SDP	GR 220 SAPV	GR 220 STM	GR 220 SALU	20
GR 2213 S	GR 2213 SDP	GR 2213 SAPV	GR 2213 STM	GR 2213 SALU	21.3 (1/2")
GR 222 S	GR 222 SDP	GR 222 SAPV	GR 222 STM	GR 222 SALU	22
GR 225 S	GR 225 SDP	GR 225 SAPV	GR 225 STM	GR 225 SALU	25
GR 2269 S	GR 2269 SDP	GR 2269 SAPV	GR 2269 STM	GR 2269 SALU	26.9 (3/4")
GR 228 S	GR 228 SDP	GR 228 SAPV	GR 228 STM	GR 228 SALU	28
GR 230 S	GR 230 SDP	GR 230 SAPV	GR 230 STM	GR 230 SALU	30
Size 3					
GR 325 S	GR 325 SDP	GR 325 SAPV	GR 325 STM	GR 325 SALU	25
GR 330 S	GR 330 SDP	GR 330 SAPV	GR 330 STM	GR 330 SALU	30
GR 332 S	GR 332 SDP	GR 332 SAPV	GR 332 STM	GR 332 SALU	32
GR 3337 S	GR 3337 SDP	GR 3337 SAPV	GR 3337 STM	GR 3337 SALU	33.7 (1")
GR 335 S	GR 335 SDP	GR 335 SAPV	GR 335 STM	GR 335 SALU	35
GR 338 S	GR 338 SDP	GR 338 SAPV	GR 338 STM	GR 338 SALU	38
GR 342 S	GR 342 SDP	GR 342 SAPV	GR 342 STM	GR 342 SALU	42
Size 4					
GR 430 S	GR 430 SDP	GR 430 SAPV	GR 430 STM	GR 430 SALU	30
GR 438 S	GR 438 SDP	GR 438 SAPV	GR 438 STM	GR 438 SALU	38
GR 442 S	GR 442 SDP	GR 442 SAPV	GR 442 STM	GR 442 SALU	42 (1 1/4")
GR 4483 S	GR 4483 SDP	GR 4483 SAPV	GR 4483 STM	GR 4483 SALU	48.3 (1 1/2")
GR 4603 S	GR 4603 SDP	GR 4603 SAPV	GR 4603 STM	GR 4603 SALU	60.3 (2")
GR 465 S	GR 465 SDP	GR 465 SAPV	GR 465 STM	---	65
Size 5					
GR 566 S	GR 566 SDP	---	---	---	66

Please take the dimensions from the Measurement Chart in our Online Shop.

HYDAC

plastic 1
clamps with welding plate

plastic 2
like 1 but with cover plate

plastic 3
like 2 but with extended welding and drilled mounting plates

plastic 4
clamps with carrier rail nuts KMA type to assemble on C carrier rails TS 40 ... (page 243)

aluminium
aluminium clamp with weld-on and cover plate

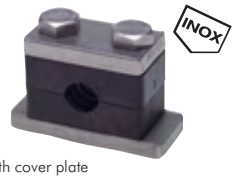
Stainless steel pipe clamps - heavy model series — DIN 3015 T2

Materials: Metal parts: AISI 316Ti, screws: AISI 304, clamp: Polypropylene (PP)

Type 1 INOX	Type 2 INOX	Type 3 INOX	Type 4 INOX	Pipe Ø external
Size 1				
GR 16 S ES	GR 16 SDP ES	GR 16 SAPV ES	GR 16 STM ES	6
GR 18 S ES	GR 18 SDP ES	GR 18 SAPV ES	GR 18 STM ES	8
GR 110 S ES	GR 110 SDP ES	GR 110 SAPV ES	GR 110 STM ES	10 (1/8")
GR 112 S ES	GR 112 SDP ES	GR 112 SAPV ES	GR 112 STM ES	12
GR 1137 S ES	GR 1137 SDP ES	GR 1137 SAPV ES	GR 1137 STM ES	13.7 (1/4")
GR 114 S ES	GR 114 SDP ES	GR 114 SAPV ES	GR 114 STM ES	14
GR 115 S ES	GR 115 SDP ES	GR 115 SAPV ES	GR 115 STM ES	15
GR 116 S ES	GR 116 SDP ES	GR 116 SAPV ES	GR 116 STM ES	16
GR 1171 S ES	GR 1171 SDP ES	GR 1171 SAPV ES	GR 1171 STM ES	17.1 (3/8")
GR 118 S ES	GR 118 SDP ES	GR 118 SAPV ES	GR 118 STM ES	18
Size 2				
GR 220 S ES	GR 220 SDP ES	GR 220 SAPV ES	GR 220 STM ES	20
GR 2213 S ES	GR 2213 SDP ES	GR 2213 SAPV ES	GR 2213 STM ES	21.3 (1/2")
GR 222 S ES	GR 222 SDP ES	GR 222 SAPV ES	GR 222 STM ES	22
GR 225 S ES	GR 225 SDP ES	GR 225 SAPV ES	GR 225 STM ES	25
GR 2269 S ES	GR 2269 SDP ES	GR 2269 SAPV ES	GR 2269 STM ES	26.9 (3/4")
GR 228 S ES	GR 228 SDP ES	GR 228 SAPV ES	GR 228 STM ES	28
GR 230 S ES	GR 230 SDP ES	GR 230 SAPV ES	GR 230 STM ES	30
Size 3				
GR 325 S ES	GR 325 SDP ES	GR 325 SAPV ES	GR 325 STM ES	25
GR 330 S ES	GR 330 SDP ES	GR 330 SAPV ES	GR 330 STM ES	30
GR 332 S ES	GR 332 SDP ES	GR 332 SAPV ES	GR 332 STM ES	32
GR 3337 S ES	GR 3337 SDP ES	GR 3337 SAPV ES	GR 3337 STM ES	33.7 (1")
GR 335 S ES	GR 335 SDP ES	GR 335 SAPV ES	GR 335 STM ES	35
GR 338 S ES	GR 338 SDP ES	GR 338 SAPV ES	GR 338 STM ES	38
GR 342 S ES	GR 342 SDP ES	GR 342 SAPV ES	GR 342 STM ES	42
Size 4				
GR 430 S ES	GR 430 SDP ES	GR 430 SAPV ES	GR 430 STM ES	30
GR 438 S ES	GR 438 SDP ES	GR 438 SAPV ES	GR 438 STM ES	38
GR 442 S ES	GR 442 SDP ES	GR 442 SAPV ES	GR 442 STM ES	42 (1 1/4")
GR 4483 S ES	GR 4483 SDP ES	GR 4483 SAPV ES	GR 4483 STM ES	48.3 (1 1/2")
GR 4603 S ES	GR 4603 SDP ES	GR 4603 SAPV ES	GR 4603 STM ES	60.3 (2")

Please take the dimensions from the Measurement Chart in our Online Shop.

type 1
clamps with welding plate



type 2
like 1 but with cover plate

type 3
like 2 but with extended welding and drilled mounting plates

type 4
clamps with carrier rail nuts KMA type to assemble on C carrier rails TS 40 ... (page 243)

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Double pipe clamps/elastomer clamps

plastic 2
double pipe clamp with welding and cover plate

plastic 4
double pipe clamp with cover plate and carrier rail nuts KMA type to assemble on C carrier rails TS 28 ... (page 243)

Double pipe clamps — DIN 3015 T3

Type plastic 2	Type plastic 4	Pipe Ø external
Size 1		
GR 16 DO	GR 16 DOTM	6
GR 18 DO	GR 18 DOTM	8
GR 110 DO	GR 110 DOTM	10 (1/8")
GR 112 DO	GR 112 DOTM	12
Size 2		
GR 2137 DO	GR 2137 DOTM	13.7 (1/4")
GR 214 DO	GR 214 DOTM	14
GR 215 DO	GR 215 DOTM	15
GR 216 DO	GR 216 DOTM	16
GR 2171 DO	GR 2171 DOTM	17.1 (3/8")
GR 218 DO	GR 218 DOTM	18
Size 3		
GR 320 DO	GR 320 DOTM	20
GR 3213 DO	GR 3213 DOTM	21.3 (1/2")
GR 322 DO	GR 322 DOTM	22
GR 325 DO	GR 325 DOTM	25
Size 4		
GR 4269 DO	GR 4269 DOTM	26.9 (3/4")
GR 428 DO	GR 428 DOTM	28
GR 430 DO	GR 430 DOTM	30
Size 5		
GR 5337 DO	GR 5337 DOTM	33.7 (1")
GR 535 DO	GR 535 DOTM	35
GR 538 DO	GR 538 DOTM	38
GR 540 DO	GR 540 DOTM	40
GR 542 DO	GR 542 DOTM	42 (1 1/4")

Pipe clamps with elastomer inserts — DIN 3015 T1/T2

Materials: Shell halves: PP, elastomer insert: Chloroprene rubber (thermoelastic elastomer)
Application: The elastomer insert absorbs the pressure thrusts in the tubes. It is recommended to use an elastic hose in the problem-affected network of tubes.

Light model series

Type without cover plate	Type with cover plate	Pipe Ø external
Size 4		
GR 46 L EL	GR 46 LDP EL	6
GR 48 L EL	GR 48 LDP EL	8
GR 410 L EL	GR 410 LDP EL	10 (1/8")
GR 412 L EL	GR 412 LDP EL	12
GR 4127 L EL	GR 4127 LDP EL	12.7
GR 414 L EL	GR 414 LDP EL	14 (1/4")
GR 415 L EL	GR 415 LDP EL	15
GR 416 L EL	GR 416 LDP EL	16
GR 4172 L EL	GR 4172 LDP EL	17.2 (3/8")
GR 418 L EL	GR 418 LDP EL	18
GR 419 L EL	GR 419 LDP EL	19

Type without cover plate	Type with cover plate	Pipe Ø external
Size 6		
GR 620 L EL	GR 620 LDP EL	20
GR 622 L EL	GR 622 LDP EL	22
GR 623 L EL	GR 623 LDP EL	23
GR 625 L EL	GR 625 LDP EL	25
GR 6269 L EL	GR 6269 LDP EL	26.9 (3/4")
GR 628 L EL	GR 628 LDP EL	28
GR 630 L EL	GR 630 LDP EL	30
GR 632 L EL	GR 632 LDP EL	32

Heavy model series

Type without cover plate	Type with cover plate	Pipe Ø external (inch)
Size 2		
GR 26 S EL	GR 26 SDP EL	6
GR 28 S EL	GR 28 SDP EL	8
GR 210 S EL	GR 210 SDP EL	10 1/8")
GR 212 S EL	GR 212 SDP EL	12
GR 214 S EL	GR 214 SDP EL	14 (1/4")
GR 215 S EL	GR 215 SDP EL	15
GR 216 S EL	GR 216 SDP EL	16
GR 2172 S EL	GR 2172 SDP EL	17.2 (3/8")
GR 218 S EL	GR 218 SDP EL	18
Size 3		
GR 320 S EL	GR 320 SDP EL	20
GR 3213 S EL	GR 3213 SDP EL	21.3 (1/2")
GR 322 S EL	GR 322 SDP EL	22
GR 325 S EL	GR 325 SDP EL	25
GR 3269 S EL	GR 3269 SDP EL	26.9 (3/4")
GR 328 S EL	GR 328 SDP EL	28
GR 330 S EL	GR 330 SDP EL	30
GR 332 S EL	GR 332 SDP EL	32
Size 4		
GR 4337 S EL	GR 4337 SDP EL	33.7 (1")
GR 435 S EL	GR 435 SDP EL	35
GR 438 S EL	GR 438 SDP EL	38

Type without cover plate	Type with cover plate	Pipe Ø external (inch)
Size 4		
GR 440 S EL	GR 440 SDP EL	40
GR 442 S EL	GR 442 SDP EL	42 (1 1/4")
GR 4455 S EL	GR 4455 SDP EL	45.5
GR 448 S EL	GR 448 SDP EL	48 (1 1/2")
GR 451 S EL	GR 451 SDP EL	51
GR 4534 S EL	GR 4534 SDP EL	53.4
GR 4564 S EL	GR 4564 SDP EL	56.4
Size 5		
---	GR 560 SDP EL	60
---	GR 565 SDP EL	65
---	GR 570 SDP EL	70
---	GR 573 SDP EL	73
---	GR 576 SDP EL	76
Size 6		
GR 683 S EL	GR 683 SDP EL	83
GR 689 S EL	GR 689 SDP EL	89
GR 694 S EL	GR 694 SDP EL	94
GR 6101 S EL	GR 6101 SDP EL	101
Size 7		
GR 7108 S EL	GR 7108 SDP EL	108
GR 7114 S EL	GR 7114 SDP EL	114
GR 7133 S EL	GR 7133 SDP EL	133
GR 7140 S EL	GR 7140 SDP EL	140

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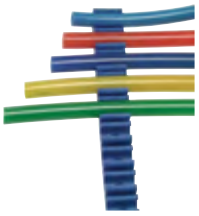
Hose terminal strips

Type **multi pipe holder**	Hose Ø external	Number of clamps	Packing unit
KK 410	4 - 5	10	10
KK 610	6	10	10
KK 810	8	10	10
KK 106	10	6	10
KK 116	11.6	6	10

Type **notched nails f. mounting**	Shaft Ø	Length	Packing unit
KN 3	2.0	6	100
KN 4	2.5	8	100
KN 4	2.5	8	100
KN 4	2.5	8	100
KN 4	2.5	8	100

Order accessories at the same time!

notched nails



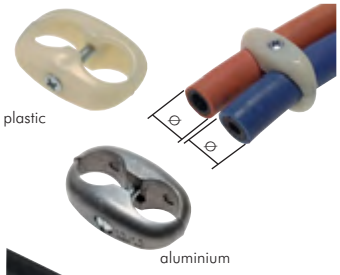
Hose supports for elbow installations

Type **hose supports**	Hose Ø external	Mean radius	Packing unit
PKS 6	6	10	10
PKS 8	8	21	10
PKS 11	11.6	33.5	10

Type **notched nails f. mounting**	Shaft Ø	Length	Packing unit
KN 3	2.0	6	100
KN 4	2.5	8	100
KN 4	2.5	8	100

Double hose clamps

Type **plastic**	Type **aluminium**	Hose Ø external	Used for:
GSAU 13	GSAU 13 A	13	Gas oxygen hose (6/6)
GSAU 16	GSAU 16 A	16	Gas oxygen hose (6/9)



Mounting clips for pipes — M 6 (female thread)

Type **1-way**	Type **2-way**	For pipe Ø external
KK 6	KK 6-2	6
KK 8	KK 8-2	8
KK 10	KK 10-2	10
KK 12	KK 12-2	12
KK 15	KK 15-2	14 - 15
KK 18	KK 18-2	16 - 18
KK 22	KK 22-2	20 - 22
KK 28	KK 28-2	28

Order accessories at the same time!

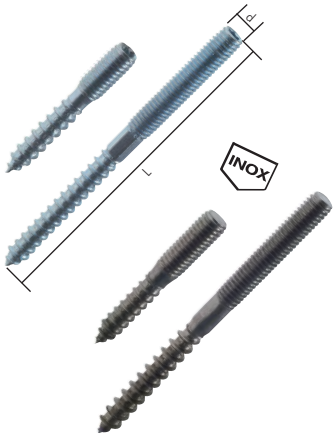
Hanger bolts

Hanger bolts

Information: Only zinc-plated steel version provided with TORX drive

Type **zinc-pl. steel (TORX)**	Type **stainless steel A2**	d	L
STS 6x50	STS 6x50 ES	M 6	50
STS 8x50	STS 8x50 ES	M 8	50
STS 8x60	STS 8x60 ES	M 8	60
STS 8x80	STS 8x80 ES	M 8	80
STS 8x100	STS 8x100 ES	M 8	100
STS 8x120	STS 8x120 ES	M 8	120
STS 8x140	STS 8x140 ES	M 8	140
STS 10x50	---	M 10	50
STS 10x80	STS 10x80 ES	M 10	80
STS 10x100	STS 10x100 ES	M 10	100
STS 10x120	STS 10x120 ES	M 10	120
STS 10x140	STS 10x140 ES	M 10	140

Type **suitable dowel**
DUBEL SX8x40
DUBEL SX10x50
DUBEL SX10x50
DUBEL SX10x50
DUBEL SX10x50
DUBEL SX10x50
DUBEL SX10x50
DUBEL SX12x60
DUBEL SX12x60
DUBEL SX12x60
DUBEL SX12x60
DUBEL SX12x60



Pipe clamps with mounting holes

Materials: Body: PE (black, UV stabilised) or PP (grey), bar: PVC-U
Temperature range: PE: -20°C to max. +50°C, PP: -10°C to max. +80°C

Type **PE (black)**	Type **PP (grey)**	Pipe Ø external	Ø Mounting hole	Packing unit
KK 16 PE	KK 16 PP	16	5.0	10
KK 20 PE	KK 20 PP	20	5.0	10
KK 25 PE	KK 25 PP	25	5.5	10
KK 32 PE	KK 32 PP	32	5.5	10
KK 40 PE	KK 40 PP	40	7.0	10
KK 50 PE	KK 50 PP	50	7.0	10
KK 63 PE	KK 63 PP	63	9.0	10
KK 75 PE	KK 75 PP	75	9.0	10
KK 90 PE	KK 90 PP	90	9.0	10
KK 110 PE	KK 110 PP	110	9.0	10

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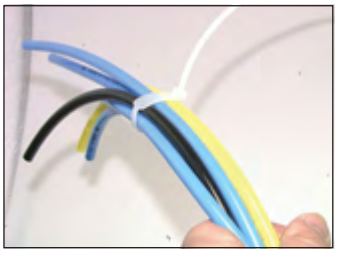
Pipe/hose mountings

Cable straps

Materials: PA 66 (Nylon)
Temperature range: -40°C to max. +110°C (temporary)
Approvals: UL 94 V2, Germ. Lloyd, MIL-S-23190E
Packing unit: 100 pcs.

Type natural	Type black	Strap-length	Tape-width	Max. connective area Ø
KB 98	KB 98 S	98	2.5	21
KB 140	KB 140 S	140	3.5	35
KB 178	KB 178 S	178	4.8	45
KB 200	KB 200 S	200	4.5	50
KB 360	KB 360 S	360	4.5	103
KB 450	KB 450 S	450	7.5	130
KB 750	KB 750 S	750	7.5	200



interior label field

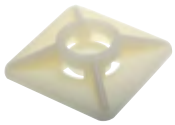
external label field type

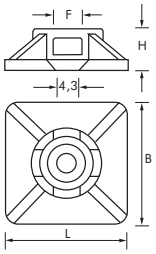
internal label field - long type

Cable straps with label fields

Advantage: • For marking and mounting hoses and cables. The marking is done using a marker or label.
Materials: Polyamide
Temperature range: -40°C to max. +80°C
Packing unit: 100 pcs.

Type	Tape length	Tape width	Max. connective area Ø
Internal label field			
KBKZI 100	100	2.5	20
KBKZI 200	200	2.5	50
External label field			
KBKZA 110	110	2.5	20
KBKZA 210	210	2.5	52
Internal label field - long			
KBKZIL 190	190	4.8	48
KBKZIL 270	270	4.8	68





Cable strap bases

Materials: Body: Natural ABS, stick-on base: Resin and rubber with PE foam
Temperature range: -10°C to max. +60°C (temporary to max. +95°C)
Packing unit: 100 pcs.

Type screw on base	Type glue on base	Max. cable strap width F	L	W	H
KB SOCKEL 36	KB SOCKEL 36 K	3.6	19.0	19.0	6.0
KB SOCKEL 48	KB SOCKEL 48 K	4.8	26.5	26.5	4.3

Releasable cable straps/bag ties

Advantage: • Almost unlimitedly releasable. Can also be used as a bag or sack closure, gripping strap, for all agricultural, orchard and vineyard purposes.

Materials: Polyethylene
Packing unit: 100 pcs.

one fixing eye

two fixing eyes

Type red	Type natural	Length	Cord Ø	Withdrawal force
With 1 fixing eye				
KBL 140 ROT	KBL 140 NATUR	140	3.9	170 N
With 2 fixing eyes				
KBLD 120 ROT	KBLD 120 NATUR	120	3.5	130 N
KBLD 180 ROT	KBLD 180 NATUR	180	3.5	150 N
KBLD 240 ROT	KBLD 240 NATUR	240	3.9	180 N
KBLD 290 ROT	KBLD 290 NATUR	290	8.7	420 N
KBLD 320 ROT	KBLD 320 NATUR	320	4.4	230 N
KBLD 500 ROT	KBLD 500 NATUR	500	5.7	250 N
KBLD 665 ROT	KBLD 665 NATUR	665	6.6	370 N

Metal protection hoses against welding spatter and hot turnings

Operating range: As protective hose of pneumatic and electrical pipelines to welding equipment.

Type zinc-pl. steel	Internal Ø	Min. bend radius	For hose Ø external
MK 400	7.0	20	6
MK 600	9.0	25	8
MK 900	13.0	35	12
MK 1300	21.5	50	19

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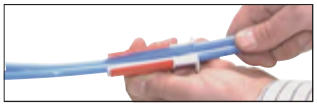
Cable protection hoses for quick assemblies

Advantage: • Cost effective and time saving bundling of hoses and cables by using an innovative assembly tool.

Material: Halogen free polypropylene
Temperature range: -30°C to +110°C (temporary to +140°C)

Type **black**	Type **white**	Type **grey**	Max. bundle area	Supply volume
PKBS 10 SCHWARZ	PKBS 10 WEISS	PKBS 10 GRAU	10	100 m (incl. assembly tool)
PKBS 15 SCHWARZ	PKBS 15 WEISS	PKBS 15 GRAU	15	50 m (incl. assembly tool)
PKBS 20 SCHWARZ	PKBS 20 WEISS	PKBS 20 GRAU	20	30 m (incl. assembly tool)
PKBS 25 SCHWARZ	PKBS 25 WEISS	PKBS 25 GRAU	25	20 m (incl. assembly tool)
PKBS 32 SCHWARZ	PKBS 32 WEISS	PKBS 32 GRAU	32	15 m (incl. assembly tool)


Schläuche einlegen...

...Werkzeug in Schlauch einführen, verriegeln und ziehen...

...fertig.

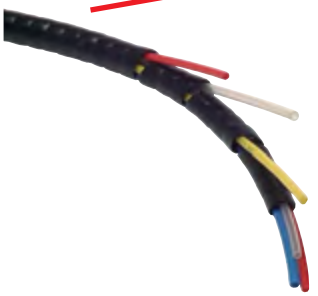
assembly tool (included in the scope of delivery)

Bundle spirals made of PE

Especially good value!

Materials: PE hose spiral cut
Application: Grouping of hoses, small pipes, electrical cables etc., protection against abrasion and wear
Temperature range: -50°C to +85°C

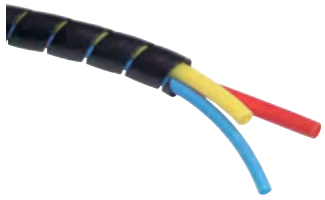
Type **natural**	Type **blue**	Type **black**	External Ø	Internal Ø	Bundle area	Coil width	Roller length m
PKB 4 NATUR	PKB 4 BLAU	PKB 4 SCHWARZ	6	4	5 - 40	7	50
PKB 7 NATUR	PKB 7 BLAU	PKB 7 SCHWARZ	9	7	8 - 45	11	50
PKB 9 NATUR	PKB 9 BLAU	PKB 9 SCHWARZ	12	9	11 - 55	14	50
PKB 12 NATUR	PKB 12 BLAU	PKB 12 SCHWARZ	15	12	13 - 90	18	25
PKB 16 NATUR	PKB 16 BLAU	PKB 16 SCHWARZ	19	16	17 - 130	22	25



Bundle spirals made of HD-PE *extruded*

Materials: HD-PE, coiled, extruded, rounded edges
Application: Bundling of hoses, abrasion protection on hydraulic hoses
Temperature range: -50°C to max. +100°C

Type	External Ø	Internal Ø	Bundle area	Coil width	Roller length m
PKB 10 SCHWARZ	12	9.5	9 - 13	12.5	25
PKB 13 SCHWARZ	16	13.0	13 - 18	11.0	25
PKB 15 SCHWARZ	20	16.0	16 - 22	17.0	25
PKB 20 SCHWARZ	25	20.0	20 - 27	19.0	25
PKB 25 SCHWARZ	32	27.0	27 - 36	23.0	25
PKB 30 SCHWARZ	42	35.0	34 - 44	27.0	25
PKB 40 SCHWARZ	50	44.0	43 - 55	31.0	25
PKB 50 SCHWARZ	63	55.5	55 - 67	40.0	25
PKB 65 SCHWARZ	76	67.0	66 - 79	43.0	10
PKB 80 SCHWARZ	90	80.0	78 - 100	46.0	10
PKB 100 SCHWARZ	111	100.0	99 - 114	52.0	10



Abrasion protection hoses for high pressure hoses

Materials: High-quality polyester mesh, abrasion resistance acc. to ISO 6945, burst protection tested acc. to ISO 3457
Application: Burst protection against uncontrolled oil flow (pin-hole effect), wear protection
Temperature range: -40°C to max. +100°C
Roller length: 100 m

Type	Internal Ø*
SSS 20	20
SSS 22	22
SSS 25	25
SSS 28	28
SSS 32	32
SSS 35	35

Type	Internal Ø*
SSS 38	38
SSS 45	45
SSS 50	50
SSS 70	70
SSS 90	90

* the inside diameter should be at least 10 mm larger than the hose

Steel round coils

Prevents the kinking of hose bundles!

Application: To be used for the bundling of several hoses or as abrasion protection of hoses in difficult installation situations, such as lorries for tipper trailers as well as in excavators to the grippers.
Roller length: 10 m

Type	Internal Ø	Wire Ø
900-8	17.3	2
900-10	21.3	2
900-12	25.0	2
900-16	29.0	2

Type	Internal Ø	Wire Ø
900-19	34.2	2
900-25	41.0	3
900-31	51.5	3
900-38	55.6	3

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When ordering, please state shipping length!

Parcel service:	max. 2 m
Express:	max. 3 m
Freight:	max. 6 m

Aluminium tubes for push-in connectors

Materials: Aluminium, inside and outside chromated, outside powder coated
Temperature range: -20°C to +80°C
Operating pressure: 20 bar (depending on the connection system)
Media: Compressed air, vacuum
Tube length: 4 m
Application: The tube must be cleanly separated, the exterior deburred and given a slight chamfer. Optimal results are achieved by using a tube cutter (see table).

Usable with:

push-in fittings BIG model series	cutting ring fittings		reinforcing rings
		in combi-nation with	
Sides 24	74		99

Type **blue** (RAL 5015)	Type **grey** (RAL 7001)	Tube Ø external
TPR 15x12 ALU BLAU	TPR 15x12 ALU GRAU	15 x 12
TPR 18x15 ALU BLAU	TPR 18x15 ALU GRAU	18 x 15
TPR 22x19 ALU BLAU	TPR 22x19 ALU GRAU	22 x 19
TPR 28x25 ALU BLAU	TPR 28x25 ALU GRAU	28 x 25
TPR 32x29 ALU BLAU*	TPR 32x29 ALU GRAU	32 x 29

When ordering, please state shipping length!

Parcel service:	max. 2 m
Express:	max. 3 m

Polyamide tubes (PA 12 H) - bar products (DIN 73378/DIN 74324)*

Properties: Rigid tube for compressed air, compressed air brake, hydraulic and fuel lines.
Temperature range: -50°C to max. +100°C
Shore hardness: 74 D
Tube length: 3 m

Usable with:

push-in fittings BIG model series	cutting ring fittings		reinforcing rings
		in combi-nation with	
Sides 24	74		99

Type	Tube Ø external x int.	Operating pressure	Available types/colours
PA 12x9 STG **	12 x 9	38 bar	● ●
PA 15x12 STG **	15 x 12	25 bar	● ●
PA 18x14 STG **	18 x 14	28 bar	● ●
PA 22x18 STG **	22 x 18	22 bar	● ●
PA 28x23 STG **	28 x 23	20 bar	● ●

* Ø 22 and Ø 28 are not covered by DIN, ** please enter the required hose colour here.

Please enter the required colour here in your order!

Order example: PA 12x9 STG **

Standard type

Order supplement for colour:
● black . . . . . .**SCHWARZ**
● blue . . . . . .**BLAU**

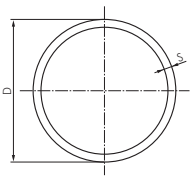
When ordering, please state shipping length!

Parcel service:	max. 2 m
Express:	max. 3 m
Freight:	arbitrary

Tubes PVC-U DIN 8062/EN 1452-2 PN 16

Materials: PVC-U
Colour: RAL 7011 - dark grey
Tube lengths: 5 m (with smooth ends)

Warning: Not suitable for compressed air or other gases under pressure!



Type	External Ø D	Wall thickness S
PVCHR 16x1.5	16	1.5
PVCHR 20x1.5	20	1.5
PVCHR 25x1.9	25	1.9
PVCHR 32x2.4	32	2.4
PVCHR 40x3.0	40	3.0
PVCHR 50x3.7	50	3.7
PVCHR 63x4.7	63	4.7
PVCHR 75x5.6	75	5.6
PVCHR 90x6.7	90	6.7
PVCHR 110x8.1	110	8.1

up to Ø 160 in PN16 and up to Ø 315 in PN10 upon request

HYDAC
Pipe clamps from page 244

Clamp brackets and steel cable clamps on pages 257-259

INOX
Pipe clamps from page 242

Pressure gauge from page 366

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Copper installation tubes in rings, soft (R 220) — DIN EN 1057/DVGW

Type copper	Tube Ø external	Wall thickness	Ring length	Operating pressure***
CUR 4x1 R*	4	1	50 m	382 bar
CUR 6x1 R	6	1	50 m	229 bar
CUR 8x1 R	8	1	50 m	163 bar
CUR 10x1 R	10	1	50 m	127 bar
CUR 12x1 R	12	1	50 m	104 bar
CUR 15x1 R	15	1	50 m	82 bar
CUR 18x1 R**	18	1	25 m	67 bar
CUR 22x1 R**	22	1	25 m	54 bar

* industrial quality EN 12449 (R 200), ** only complete rolls are available, *** the maximum permitted operating pressure was calculated based on soft copper tubes (R 200) and a safety value of 3.5 at an operating temperature of +100 °C. The permitted operating pressure is based on the copper tube, not on the connecting parts! The values for harder tubes are higher.

Copper installation tubes in rods, hard (R 290), semi-hard (R 250) — DIN EN 1057/DVGW

Rod length: 5 m

Type copper	Tube Ø external	Wall thickness	Strength	Operating pressure**
CUR 4x1*	4	1	R 290	382 bar
CUR 6x1	6	1	R 290	229 bar
CUR 8x1	8	1	R 290	163 bar
CUR 10x1	10	1	R 290	127 bar
CUR 12x1	12	1	R 250	104 bar
CUR 14x1*	14	1	R 290	89 bar
CUR 14x1.5*	14	1.5	R 290	135 bar
CUR 15x1	15	1	R 250	82 bar
CUR 16x1*	16	1	R 290	76 bar
CUR 16x1.5*	16	1.5	R 290	116 bar
CUR 18x1	18	1	R 250	67 bar
CUR 22x1	22	1	R 250	54 bar
CUR 28x1	28	1	R 250	42 bar
CUR 35x1.2	35	1.2	R 290	41 bar
CUR 42x1.2	42	1.2	R 290	34 bar
CUR 54x1.5	54	1.5	R 290	33 bar

* industrial quality EN 12449, ** the maximum permitted operating pressure was based on the use of soft copper tubes (R 200) and a safety value of 3.5 at an operating temperature of +100 °C. The permitted operating pressure is based on the copper tube, not on the connecting parts! The values for harder tubes are higher.

When ordering, please state shipping length!

Parcel service:	max. 2 m
Express:	max. 3 m
Freight:	max 6 m

Tube cutter

Suitable: For cutting of aluminium, copper, steel and stainless steel pipes, as well as plastic and composite pipes. Pipe cutter with 4 guide rollers for optimum holding of the pipes, incl. replacement cutting wheel in the handle. Do not use to cut tubes for cutting ring fittings!

Note: Type Ø 6 - 76 mm only has a practical quick adjustment. The pipe cutters are colour coded:
red - for copper, brass & aluminium pipes
grey - for steel & stainless steel pipe
black - for plastic & composite pipes

Ø 3 - 35 mm

Ø 6 - 76 mm

Type Ø 3 - 35 mm	Type Ø 6 - 76 mm	for material	max. wall thickness
RAS 35	RAS 76	Copper, brass, aluminium	2
RAS 35 ES	RAS 76 ES	Steel, stainless steel	2,5
---	RAS 76 KU	Plastic, composite pipes	8,6

Type Replacement cutting wheel	Ø x width
RAS KL	19 x 6,2
RAS KL ES	19 x 6,2
RAS KL KU	30 x 6,2

Deburrer

Materials: Standard: Plastic body with stainless steel blades, Heavy Duty: Aluminium with black stainless steel graters
Suitable: For deburring (inside and outside) of pipes. Standard design can be used for soft materials, such as plastic, copper, aluminium, etc. Heavy Duty design is suitable also for steel and stainless steel.

Type	Design	for tubes Ø external
ENTGR 36	Standard	4 - 36
ENTGR 35 ES	Heavy Duty	8 - 35
ENTGR 56 ES	Heavy Duty	10 - 56

Standard — Heavy Duty

Threaded tubes — DIN EN 10255-M (DIN 2440)

Description: Tube made of non-alloy steel, suited for welding and tapping
Operating range: Transport of liquids, air and non-hazardous gases
Version: Black finish or hot-dip galvanised, with smooth tube ends without thread or sleeve (OO)
Materials: S 195 T (ST 33), all tubes are subjected to cold-water pressure testing or eddy-current testing under 50 bar
Operating pressure: Liquids up to max. 25 bar, gas and compressed air up to max. 10 bar
Manufacturer lengths: 6 m ± 0,15 m (seamless ± 1 m)

Type welded black	Type seamless black	Type welded hot-dip galv.	Type seamless hot-dip galv.	Thread size	Tube Ø external	Wall thick.
GWR 14 G	---	GWR 14 V G	---	1/4"	13.5	2.35
GWR 38 G	GWR 38	GWR 38 V G	GWR 38 V	3/8"	17.2	2.35
GWR 12 G	GWR 12	GWR 12 V G	GWR 12 V	1/2"	21.3	2.65
GWR 34 G	GWR 34	GWR 34 V G	GWR 34 V	3/4"	26.9	2.65
GWR 10 G	GWR 10	GWR 10 V G	GWR 10 V	1"	33.7	3.25
GWR 114 G	GWR 114	GWR 114 V G	GWR 114 V	1 1/4"	42.4	3.25
GWR 112 G	GWR 112	GWR 112 V G	GWR 112 V	1 1/2"	48.3	3.25
GWR 20 G	GWR 20	GWR 20 V G	GWR 20 V	2"	60.3	3.65
GWR 212 G	GWR 212	GWR 212 V G	GWR 212 V	2 1/2"	76.1	3.65
GWR 30 G	GWR 30	GWR 30 V G	GWR 30 V	3"	88.9	4.05
GWR 40 G	GWR 40	GWR 40 V G	GWR 40 V	4"	114.3	4.50

When ordering, please state shipping length!

Parcel service:	max. 2 m
Express:	max. 3 m
Freight:	max 6 m

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

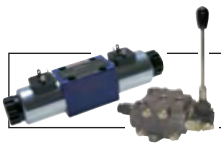
When ordering, please state shipping length!

Parcel service:	max. 2 m
Express:	max. 3 m
Freight:	max 6 m

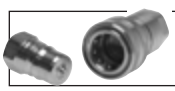
Precision hydraulic tubes - seamless — EN 10305-4 (DIN 2445/2)

Materials: E 235+N (ST 37.4 normally annealed - NBK), all tubes undergo eddy current or ultrasound testing, tolerances in accordance with DIN 2391, quality grade C, operating pressure in accordance with DIN 2413
Manufacturer lengths: 6 m ±1 m
Temperature range: 0°C to +120°C without pressure reductions, higher temperatures are possible for reduced pushing

Type **black phosphatised**	Type **zinc-plated/ chromatised**	Tube Ø external	Wall thickness	Calculated pressure*
HR 4 x 1**	HR 4 x 1 V	4	1	502 bar
HR 5 x 1**	---	5	1	416 bar
HR 6 x 1**	HR 6 x 1 V	6	1	374 bar
HR 6 x 1.5**	HR 6 x 1.5 V	6	1.5	528 bar
HR 6 x 2**	---	6	2	665 bar
HR 8 x 1**	HR 8 x 1 V	8	1	289 bar
HR 8 x 1.5**	HR 8 x 1.5 V	8	1.5	414 bar
HR 8 x 2**	HR 8 x 2 V	8	2	528 bar
HR 10 x 1	HR 10 x 1 V	10	1	249 bar
HR 10 x 1.5	HR 10 x 1.5 V	10	1.5	358 bar
HR 10 x 2**	---	10	2	460 bar
HR 12 x 1	HR 12 x 1 V	12	1	210 bar
HR 12 x 1.5	HR 12 x 1.5 V	12	1.5	305 bar
HR 12 x 2	HR 12 x 2 V	12	2	393 bar
HR 12 x 2.5	HR 12 x 2.5 V	12	2.5	476 bar
HR 14 x 2	---	14	2	343 bar
HR 15 x 1	---	15	1	171 bar
HR 15 x 1.5	HR 15 x 1.5 V	15	1.5	249 bar
HR 15 x 2	HR 15 x 2 V	15	2	323 bar
HR 15 x 2.5	---	15	2.5	393 bar
HR 15 x 3	---	15	3	460 bar
HR 16 x 1.5	HR 16 x 1.5 V	16	1.5	234 bar
HR 16 x 2	HR 16 x 2 V	16	2	305 bar
HR 16 x 3	---	16	3	435 bar
HR 18 x 1	---	18	1	143 bar
HR 18 x 1.5	HR 18 x 1.5 V	18	1.5	210 bar
HR 18 x 2	HR 18 x 2 V	18	2	274 bar
HR 18 x 2.5	---	18	2.5	335 bar
HR 20 x 1	HR 20 x 1 V	20	1	100 bar
HR 20 x 1.5	HR 20 x 1.5 V	20	1.5	191 bar
HR 20 x 2	HR 20 x 2 V	20	2	249 bar
HR 20 x 2.5	HR 20 x 2.5 V	20	2.5	305 bar
HR 20 x 3	HR 20 x 3 V	20	3	358 bar
HR 20 x 4	---	20	4	460 bar
HR 22 x 1.5	HR 22 x 1.5 V	22	1.5	174 bar
HR 22 x 2	HR 22 x 2 V	22	2	228 bar
HR 22 x 2.5	HR 22 x 2.5 V	22	2.5	280 bar
HR 22 x 3	---	22	3	329 bar
HR 25 x 1.5	HR 25 x 1.5 V	25	1.5	154 bar
HR 25 x 2	HR 25 x 2 V	25	2	202 bar
HR 25 x 2.5	HR 25 x 2.5 V	25	2.5	249 bar
HR 25 x 3	HR 25 x 3 V	25	3	294 bar
HR 25 x 4	---	25	4	379 bar
HR 25 x 4.5	---	25	4.5	420 bar
HR 28 x 1.5	HR 28 x 1.5 V	28	1.5	139 bar
HR 28 x 2	HR 28 x 2 V	28	2	182 bar
HR 28 x 3	---	28	3	265 bar
HR 30 x 2.5	HR 30 x 2.5 V	30	2.5	210 bar
HR 30 x 3	HR 30 x 3 V	30	3	249 bar
HR 30 x 4	---	30	4	323 bar
HR 30 x 5	---	30	5	393 bar
HR 35 x 2	HR 35 x 2 V	35	2	147 bar
HR 35 x 2.5	HR 35 x 2.5 V	35	2.5	182 bar
HR 35 x 3	---	35	3	216 bar
HR 35 x 4	---	35	4	281 bar
HR 35 x 5	---	35	5	343 bar
HR 38 x 3	---	38	3	200 bar
HR 38 x 4	HR 38 x 4 V	38	4	261 bar
HR 38 x 5	---	38	5	319 bar
HR 38 x 6	---	38	6	375 bar
HR 42 x 2	HR 42 x 2 V	42	2	124 bar
HR 42 x 3	HR 42 x 3 V	42	3	182 bar
HR 42 x 4	---	42	4	238 bar



Hydraulic valves from page 452



Hydraulic couplings from page 170

Cutting ring fittings from page 77

Functional nut on page 99

Pressure gauge from page 366

Electric tube bending device on page 545

* calculated acc. to DIN 2413 Validity range III for dynamic loading $P=\frac{20 \times K \times s \times c}{S \times (da + s \times c)}$ (bar).
material parameter K = 226 N/mm² (torsional endurance).
safety factor S = 1.5 for static and dynamic loading. Factor c to take into account the wall thickness deviation for static and dynamic loading = 0.8 for tubes with outside diameters of 4 and 5; 0.85 for tubes with outside diameters of 6 and 8; and 0.9 for larger tube outside diameters.
Notes:
The stated calculated pressures do not take into account any corrosion surcharge. Tubes with a diameter ratio of $\frac{\text{since}}{\text{diam. max.}} \geq 1.35$ have also been calculated for a predominantly static load in accordance with DIN 2413 Validity range III,

however with K = 235 N/mm².

** oiled instead of phosphatised

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Stainless steel line tubes - seamless — DIN EN ISO 1127

Materials: AISI 304/AISI 321/AISI 316Ti, heat treated (mat, or blank tempered[1]), all tubes are 100% eddy current tested below 80 bar pressure, tolerances according to DIN EN ISO 1127 D4/T3 (>42 mm D3/T3)
Manufacturer lengths: 6 m ±1 m

Type AISI 304*	Type AISI 321	Type AISI 316Ti	Tube Ø external	Wall thickness	Operating pressure[2]
HR 4x1 ES2A	---	HR 4x1 ES6A	4	1	460 bar
HR 6x1 ES2A	HR 6x1 ES4A	HR 6x1 ES6A	6	1	460 bar
HR 6x1.5 ES2A	HR 6x1.5 ES4A	HR 6x1.5 ES6A	6	1.5	460 bar
HR 8x1 ES2A	HR 8x1 ES4A	HR 8x1 ES6A	8	1	345 bar
HR 8x1.5 ES2A	HR 8x1.5 ES4A	HR 8x1.5 ES6A	8	1.5	518 bar
HR 10x1 ES2A	HR 10x1 ES4A	HR 10x1 ES6A	10	1	276 bar
HR 10x1.5 ES2A	HR 10x1.5 ES4A	HR 10x1.5 ES6A	10	1.5	414 bar
HR 10x2 ES2A	HR 10x2 ES4A	HR 10x2 ES6A	10	2	552 bar
HR 12x1 ES2A	HR 12x1 ES4A	HR 12x1 ES6A	12	1	230 bar
HR 12x1.5 ES2A	HR 12x1.5 ES4A	HR 12x1.5 ES6A	12	1.5	345 bar
HR 12x2 ES2A	HR 12x2 ES4A	HR 12x2 ES6A	12	2	460 bar
HR 14x2 ES2A	HR 14x2 ES4A	HR 14x2 ES6A	14	2	394 bar
HR 15x1.5 ES2A	HR 15x1.5ES4A	HR 15x1.5ES6A	15	1.5	276 bar
HR 15x2 ES2A	HR 15x2 ES4A	HR 15x2 ES6A	15	2	368 bar
HR 16x1.5 ES2A	---	---	16	1.5	259 bar
HR 16x2 ES2A	HR 16x2 ES4A	HR 16x2 ES6A	16	2	345 bar
---	HR 16x3 ES4A	HR 16x3 ES6A	16	3	518 bar
HR 18x1.5 ES2A	HR 18x1.5 ES4A	HR 18x1.5 ES6A	18	1.5	230 bar
HR 18x2 ES2A	HR 18x2 ES4A	HR 18x2 ES6A	18	2	307 bar
HR 20x2 ES2A	HR 20x2 ES4A	HR 20x2 ES6A	20	2	276 bar
HR 20x2.5 ES2A	HR 20x2.5 ES4A	HR 20x2.5 ES6A	20	2.5	345 bar
HR 20x3 ES2A	HR 20x3 ES4A	HR 20x3 ES6A	20	3	414 bar
HR 22x1.5 ES2A	HR 22x1.5 ES4A	HR 22x1.5 ES6A	22	1.5	188 bar
HR 22x2 ES2A	HR 22x2 ES4A	HR 22x2 ES6A	22	2	251 bar
HR 25x2 ES2A	HR 25x2 ES4A	HR 25x2 ES6A	25	2	221 bar
HR 25x2.5 ES2A	HR 25x2.5 ES4A	HR 25x2.5 ES6A	25	2.5	276 bar
HR 25x3 ES2A	HR 25x3 ES4A	HR 25x3 ES6A	25	3	331 bar
HR 28x1.5 ES2A	HR 28x1.5 ES4A	HR 28x1.5 ES6A	28	1.5	148 bar
HR 28x2 ES2A	HR 28x2 ES4A	HR 28x2 ES6A	28	2	197 bar
HR 30x3 ES2A	HR 30x3 ES4A	HR 30x3 ES6A	30	3	276 bar
HR 30x4 ES2A	HR 30x4 ES4A	HR 30x4 ES6A	30	4	368 bar
HR 35x2 ES2A	HR 35x2 ES4A	HR 35x2 ES6A	35	2	153 bar
HR 38x2 ES2A	HR 38x2 ES4A	HR 38x2 ES6A	38	2	145 bar
---	HR 38x4 ES4A	HR 38x4 ES6A	38	4	291 bar
HR 38x5 ES2A	HR 38x5 ES4A	HR 38x5 ES6A	38	5	363 bar
HR 42x2 ES2A	---	HR 42x2 ES6A	42	2	130 bar
HR 42x3 ES2A	HR 42x3 ES4A	HR 42x3 ES6A	42	3	169 bar
---	---	HR 57x2 ES6A	57	2	97 bar
---	HR 57x2.9 ES4A	---	57	2.9	140 bar

* standard delivery program, [1] depends on the diameter and current market situation, [2] the operating pressures are given for AISI 304 calculated acc. to DIN 2413, Validity range I, at 20°C

When ordering, please state shipping length!

Parcel service:	max. 2 m
Express:	max. 3 m
Freight:	max 6 m

TIP *To be used with cutting ring fittings!*

Stainless steel screw connections from page 78

Stainless steel line tubes - welded — DIN EN ISO 1127

Materials: AISI 304/AISI 321/AISI 316Ti straight bead welded stainless steel tubes, metallic clean, tolerances according to DIN EN ISO 1127 D3/T3 (>168.3 mm tolerances upon request)
Manufacturer lengths: 6 m ±1 m

Type AISI 304*	Type AISI 321	Type AISI 316Ti*	Tube Ø external	Wall thickness	Operating pressure[2]
HR 8x1 GES2A	HR 8x1 GES4A	HR 8x1 GES6A	8	1	330 bar
HR 10x1 GES2A	HR 10x1 GES4A	HR 10x1 GES6A	10	1	251 bar
HR 12x1 GES2A	HR 12x1 GES4A	HR 12x1 GES6A	12	1	209 bar
HR 12x1.5 GES2A	HR 12x1.5 GES4A	HR 12x1.5 GES6A	12	1.5	314 bar
HR 15x1 GES2A	HR 15x1 GES4A	HR 15x1 GES6A	15	1	167 bar
HR 15x1.5 GES2A	HR 15x1.5 GES4A	HR 15x1.5 GES6A	15	1.5	251 bar
HR 16x1 GES2A	HR 16x1 GES4A	HR 16x1 GES6A	16	1	157 bar
HR 16x1.5 GES2A	HR 16x1.5 GES4A	HR 16x1.5 GES6A	16	1.5	235 bar
HR 17.2x1.6 GES2A	---	---	17.2	1.6	233 bar
HR 18x1.5 GES2A	HR 18x1.5 GES4A	HR 18x1.5 GES6A	18	1.5	209 bar
HR 20x1.5 GES2A	HR 20x1.5 GES4A	HR 20x1.5 GES6A	20	1.5	188 bar
HR 20x2 GES2A	HR 20x2 GES4A	HR 20x2 GES6A	20	2	251 bar
HR 21.3x1.6 GES2A	HR 21.3x1.6 GES4A	HR 21.3x1.6 GES6A	21.3	1.6	188 bar
HR 21.3x2 GES2A	HR 21.3x2 GES4A	HR 21.3x2 GES6A	21.3	2	236 bar
HR 21.3x2.6 GES2A	HR 21.3x2.6 GES4A	HR 21.3x2.6 GES6A	21.3	2.6	306 bar
HR 22x1.5 GES2A	HR 22x1.5 GES4A	HR 22x1.5 GES6A	22	1.5	170 bar
HR 25x1.5 GES2A	HR 25x1.5 GES4A	HR 25x1.5 GES6A	25	1.5	151 bar
HR 25x2 GES2A	HR 25x2 GES4A	HR 25x2 GES6A	25	2	201 bar
HR 26.9x1.6 GES2A	HR 26.9x1.6 GES4A	HR 26.9x1.6 GES6A	26.9	1.6	149 bar
HR 26.9x2 GES2A	HR 26.9x2 GES4A	HR 26.9x2 GES6A	26.9	2	187 bar
HR 26.9x2.6 GES2A	HR 26.9x2.6 GES4A	HR 26.9x2.6 GES6A	26.9	2.6	242 bar
HR 28x1.5 GES2A	HR 28x1.5 GES4A	HR 28x1.5 GES6A	28	1.5	134 bar
HR 30x1.5 GES2A	HR 30x1.5 GES4A	HR 30x1.5 GES6A	30	1.5	125 bar
HR 30x2 GES2A	HR 30x2 GES4A	HR 30x2 GES6A	30	2	167 bar
HR 30x2.5 GES2A	---	HR 30x2.5 GES6A	30	2.5	207 bar

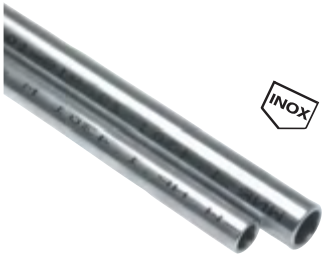
More sizes can be found in the Online Shop!

When ordering, please state shipping length!

Parcel service:	max. 2 m
Express:	max. 3 m
Freight:	max 6 m

Do not use welded tube with cutting ring fittings!

Especially good value!



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Butt weld fittings

Stainless steel ball valves with welded ends from page 290

Flanges from page 260

Butterfly valves from page 316

HYDAC Pipe clamps from page 244

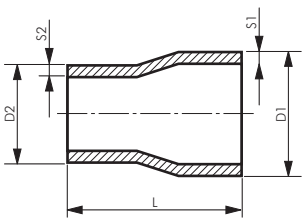
4

Tube dimensions

NW mm	Inches	DIN 11850-R2 external Ø (mm)	ISO external Ø (mm)	Metric measurements* in mm
10	3/8″	13	17.2	12 x 1.0
15	1/2″	19	21.3	18 x 1.5
20	3/4″	23	26.9	23 x 1.5
25	1″	29	33.7	28 x 1.5
32	1 1/4″	35	42.4	35 x 1.5
40	1 1/2″	41	48.3	43 x 1.5
50	2″	53	60.3	54 x 2.0
65	2 1/2″	70	76.1	69 x 2.0
80	3″	85	88.9	84 x 2.0
100	4″	104	114.3	104 x 2.0
125	5″	129	139.7	129 x 2.0
150	6″	154	168.3	154 x 2.0
200	8″	204	219.1	204 x 2.0
250	10″		273.0	254 x 2.0
300	12″		323.9	304 x 2.0
350	14″		355.6	354 x 2.0
400	16″		406.4	406 x 3.0
450	18″		457.2	
500	20″		508.0	
600	24″		609.6	
700	28″		711.2	
800	32″		812.8	
900	36″		914.4	
1000	40″		1016.0	

* nominal width = inside width (dependant on wall thickness)

Reducers, concentric — EN 10253 type B (DIN 2616)



Type AISI 316Ti*	Type AISI 321	Type P235GH-TC1 steel black	Connection D1 x S 1	Connection D 2 x S 2	L	Version
R21,320/17KA6	R21,320/17KA4	---	21.3 x 2.0	17.2 x 1.6	30	Welded
R26,920/21KA6	---	---	26.9 x 2.0	21.3 x 2.0	38	Welded
R26,923/21KA6	R26,923/21KA4	R26,923/21KST	x 2.3	x 2.0		Seamless
R26,929/21KA6	R26,929/21KA4	---	x 2.9	x 2.6		Seamless
R33,720/21KA6	---	---	33.7 x 2.0	21.3 x 2.0	50	Welded
R33,726/21KA6	R33,726/21KA4	R33,726/21KST	x 2.6	x 2.3		Seamless
R33,740/21KA6	R33,740/21KA4	R33,740/21KST	x 4.0	x 4.0		Seamless
R33,720/26KA6	---	---	33.7 x 2.0	26.9 x 1.6	50	Welded
R33,726/26KA6	---	R33,726/26KST	x 2.6	x 2.3		Seamless
R33,740/26KA6	R33,740/26KA4	---	x 4.0	x 2.9		Seamless
R42,420/21KA6	R42,420/21KA4	---	42.4 x 2.0	21.3 x 2.0	50	Welded
R42,426/21KA6	R42,426/21KA4	R42,426/21KST	x 2.6	x 2.0		Seamless
R42,420/26KA6	R42,420/26KA4	---	42.4 x 2.0	26.9 x 2.0	50	Welded
R42,426/26KA6	R42,426/26KA4	---	x 2.6	x 2.3		Seamless
R42,420/33KA6	---	---	42.4 x 2.0	33.7 x 2.0	50	Welded
R42,426/33KA6	R42,426/33KA4	R42,426/33KST	x 2.6	x 2.6		Seamless
R48,320/26KA6	R48,320/26KA4	---	48.3 x 2.0	26.9 x 2.0	64	Welded
R48,326/26KA6	R48,326/26KA4	R48,326/26KST	x 2.6	x 2.3		Seamless
R48,320/33KA6	---	---	48.3 x 2.0	33.7 x 2.0	64	Welded
R48,326/33KA6	R48,326/33KA4	R48,326/33KST	x 2.6	x 2.6		Seamless
R48,351/33KA6	R48,351/33KA4	---	x 5.1	x 4.5		Seamless
R48,320/42KA6	R48,320/42KA4	---	48.3 x 2.0	42.4 x 2.0	64	Welded
R48,326/42KA6	R48,326/42KA4	R48,326/42KST	x 2.6	x 2.6		Seamless
R60,320/26KA6	R60,320/26KA4	---	60.3 x 2.0	26.9 x 2.0	76	Welded
R60,329/26KA6	R60,329/26KA4	R60,329/26KST	x 2.9	x 2.3		Seamless
R60,320/33KA6	R60,320/33KA4	---	60.3 x 2.0	33.7 x 2.0	76	Welded
R60,329/33KA6	R60,329/33KA4	R60,329/33KST	x 2.9	x 2.6		Seamless
R60,320/42KA6	R60,320/42KA4	---	60.3 x 2.0	42.4 x 2.0	76	Welded
R60,329/42KA6	R60,329/42KA4	R60,329/42KST	x 2.9	x 2.6		Seamless
R60,340/42KA6	---	---	x 4.0	x 3.6		Seamless
R60,320/48KA6	R60,320/48KA4	---	60.3 x 2.0	48.3 x 2.0	76	Welded
R60,329/48KA6	R60,329/48KA4	R60,329/48KST	x 2.9	x 2.6		Seamless
R60,340/48KA6	---	---	x 4.0	x 3.6		Seamless
R60,356/48KA6	R60,356/48KA4	R60,356/48KST	x 5.6	x 5.1		Seamless
R76,123/33KA6	R76,123/33KA4	---	76.1 x 2.3	33.7 x 2.0	90	Welded
R76,129/33KA6	R76,129/33KA4	R76,129/33KST	x 2.9	x 2.6		Seamless
R76,123/42KA6	R76,123/42KA4	---	76.1 x 2.3	42.4 x 2.0	90	Welded
R76,129/42KA6	R76,129/42KA4	R76,129/42KST	x 2.9	x 2.6		Seamless
R76,123/48KA6	R76,123/48KA4	---	76.1 x 2.3	48.3 x 2.0	90	Welded
R76,129/48KA6	R76,129/48KA4	R76,129/48KST	x 2.9	x 2.6		Seamless
R76,123/60KA6	---	---	76.1 x 2.3	60.3 x 2.0	90	Welded
R76,129/60KA6	R76,129/60KA4	R76,129/60KST	x 2.9	x 2.9		Seamless

For more see next page

* standard delivery program

More sizes on the next page

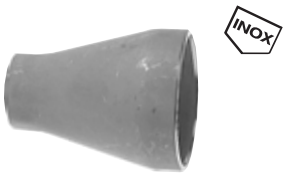
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

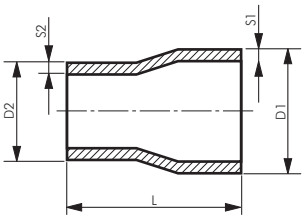
Reducers, concentric — EN 10253 type B (DIN 2616)

Continued from previous page

Type AISI 316Ti* (INOX)	Type AISI 321 (INOX)	Type P235GH-TC1 steel black	Connection D1 x S 1	Connection D 2 x S 2	L	Version
R88,923/33KA6	R88,923/33KA4	---	88.9 x 2.3	33.7 x 2.0	90	Welded
R88,923/42KA6	R88,923/42KA4	---	88.9 x 2.3	42.4 x 2.0	90	Welded
R88,923/48KA6	R88,923/48KA4	---	88.9 x 2.3	48.3 x 2.0	90	Welded
R88,923/60KA6	R88,923/60KA4	---	88.9 x 2.3	60.3 x 2.0	90	Welded
R88,923/76KA6	R88,923/76KA4	---	88.9 x 2.3	76.1 x 2.3	90	Welded
R88,932/60KA6	R88,932/60KA4	R88,932/60KST	88.9 x 3.2	60.3 x 2.9	90	Seamless
R88,956/60KA6	R88,956/60KA4	R88,956/60KST	x 5.6	x 4.0		Seamless
R88,932/76KA6	R88,932/76KA4	R88,932/76KST	88.9 x 3.2	76.1 x 2.9	90	Seamless
R88,956/76KA6	R88,956/76KA4	---	x 5.6	x 5.6		Seamless
R88,980/76KA6	R88,980/76KA4	R88,980/76KST	x 8.0	x 7.1		Seamless
R114,326/48KA6	R114,326/48KA4	---	114.3 x 2.6	48.3 x 2.0	100	Welded
R114,336/48KA6	R114,336/48KA4	R114,336/48KST	x 3.6	x 2.6		Seamless
R114,388/48KA6	R114,388/48KA4	---	x 8.8	x 5.0		Seamless
R114,326/60KA6	R114,326/60KA4	---	114.3 x 2.6	60.3 x 2.0	100	Welded
R114,336/60KA6	R114,336/60KA4	R114,336/60KST	x 3.6	x 2.9		Seamless
R114,326/76KA6	R114,326/76KA4	---	114.3 x 2.6	76.1 x 2.3	100	Welded
R114,336/76KA6	R114,336/76KA4	R114,336/76KST	x 3.6	x 2.9		Seamless
R114,363/76KA6	R114,363/76KA4	R114,363/76KST	x 6.3	x 5.6		Seamless
R114,326/88KA6	R114,326/88KA4	---	114.3 x 2.6	88.9 x 2.3	100	Welded
R114,336/88KA6	R114,336/88KA4	R114,336/88KST	x 3.6	x 3.2		Seamless
R139,726/60KA6	R139,726/60KA4	---	139.7 x 2.6	60.3 x 2.0	127	Welded
R139,740/60KA6	R139,740/60KA4	R139,740/60KST	x 4.0	x 2.9		Seamless
R139,729/76KA6	R139,729/76KA4	---	139.7 x 2.9	76.1 x 2.3	127	Welded
R139,740/76KA6	R139,740/76KA4	R139,740/76KST	x 4.0	x 2.9		Seamless
---	R139,763/76KA4	R139,763/76KST	x 6.3	x 5.0		Seamless
R139,710/76KA6	---	R139,710/76KST	x 10.0	x 7.1		Seamless
R139,729/88KA6	R139,729/88KA4	---	139.7 x 2.9	88.9 x 2.6	127	Welded
R139,740/88KA6	R139,740/88KA4	R139,740/88KST	x 4.0	x 3.2		Seamless
R139,729/114KA6	R139,729/114KA4	---	139.7 x 2.9	114.3 x 2.6	127	Welded
R139,740/114KA6	R139,740/114KA4	R139,740/114KST	x 4.0	x 3.6		Seamless
R168,326/88KA6	R168,326/88KA4	---	168.3 x 2.6	88.9 x 2.6	140	Welded
R168,329/88KA6	---	---	x 2.9	x 2.3		Welded
R168,345/88KA6	R168,345/88KA4	R168,345/88KST	x 4.5	x 3.2		Seamless
R168,326/114KA6	R168,326/114KA4	---	168.3 x 2.6	114.3 x 2.6	140	Welded
R168,326/139KA6	---	---	168.3 x 2.6	139.7 x 2.6	140	Welded
R168,345/139KA6	R168,345/139KA4	R168,345/139KST	x 4.5	x 4.0		Seamless
R219,129/114KA6	R219,129/114KA4	---	219.1 x 2.9	114.3 x 2.6	152	Welded
R219,129/139KA6	R219,129/139KA4	---	219.1 x 2.9	139.7 x 2.6	152	Welded
R219,129/168KA6	---	---	219.1 x 2.9	168.3 x 2.9	152	Welded
R219,163/168KA6	R219,163/168KA4	R219,163/168KST	x 6.3	x 4.5		Seamless

* standard delivery program

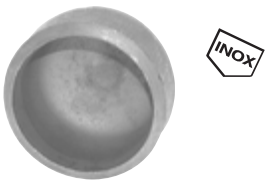


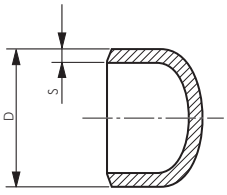


Tube caps — DIN 28011/EN 10253 (DIN 2617)

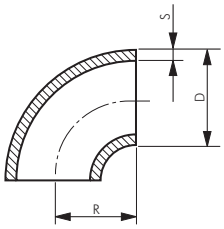
Type AISI 316Ti* (INOX)	Type AISI 321 (INOX)	Connection D x S	Type P235GH-TC1 steel black	Connection D x S
VK 21,320 ESA6	VK 21,320 ESA4	21.3 x 2.0	VK 21,320ST	21.3 x 2.0
VK 26,920 ESA6	---	26.9 x 2.0	VK 26,923ST	26.9 x 2.3
VK 33,720 ESA6	VK 33,720 ESA4	33.7 x 2.0	VK 33,726ST	33.7 x 2.6
VK 33,730 ESA6	VK 33,730 ESA4	33.7 x 3.0	VK 33,740ST	33.7 x 4.0
VK 42,420 ESA6	VK 42,420 ESA4	42.4 x 2.0	VK 42,426ST	42.4 x 2.6
VK 42,430 ESA6	VK 42,430 ESA4	42.4 x 3.0	---	---
VK 48,320 ESA6	VK 48,320 ESA4	48.3 x 2.0	VK 48,326ST	48.3 x 2.6
VK 48,330 ESA6	VK 48,330 ESA4	48.3 x 3.0	VK 48,340ST	48.3 x 4.0
VK 60,320 ESA6	VK 60,320 ESA4	60.3 x 2.0	VK 60,329ST	60.3 x 2.9
VK 60,330 ESA6	VK 60,330 ESA4	60.3 x 3.0	VK 60,345ST	60.3 x 4.5
VK 76,120 ESA6	VK 76,120 ESA4	76.1 x 2.0	VK 76,129ST	76.1 x 2.9
VK 76,130 ESA6	VK 76,130 ESA4	76.1 x 3.0	VK 76,150ST	76.1 x 5.0
VK 88,920 ESA6	VK 88,920 ESA4	88.9 x 2.0	---	---
VK 88,930 ESA6	VK 88,930 ESA4	88.9 x 3.0	VK 88,932ST	88.9 x 3.2
VK 114,320 ESA6	VK 114,320 ESA4	114.3 x 2.0	---	---
VK 114,330 ESA6	VK 114,330 ESA4	114.3 x 3.0	VK 114,336ST	114.3 x 3.6
VK 139,730 ESA6	VK 139,730 ESA4	139.7 x 3.0	VK 139,740ST	139.7 x 4.0
VK 168,330 ESA6	VK 168,330 ESA4	168.3 x 3.0	VK 168,345ST	168.3 x 4.5
VK 219,130 ESA6	VK 219,130 ESA4	219.1 x 3.0	VK 219,163ST	219.1 x 6.3
VK 273,030 ESA6	VK 273,030 ESA4	273.0 x 3.0	VK 273,063ST	273.0 x 6.3
VK 323,930 ESA6	VK 323,930 ESA4	323.9 x 3.0	VK 323,971ST	323.9 x 7.1
VK 355,630 ESA6	VK 355,630 ESA4	355.6 x 3.0	---	---
VK 406,430 ESA6	VK 406,430 ESA4	406.4 x 3.0	VK 406,488ST	406.4 x 8.8
VK 508,030 ESA6	VK 508,030 ESA4	508.0 x 3.0	---	---

*standard delivery program





All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



Tube elbows 90° design type 3S[1)] — **EN 10253 type A (DIN 2605)**

Type AISI 316Ti* INOX	Type AISI 321 INOX	Type AISI 316Ti* INOX	Type AISI 321 INOX	Type P235GH-TC1 steel black	Connection D x S
Welded design		Seamless design			
---	---	W1215A6	W1215A4	---	12.0 x 1.5
---	---	W1515A6	W1515A4	---	15.0 x 1.5
---	---	W1520A6	W1520A4	---	x 2.0
W17,216GA6	W17,216GA4	---	---	---	17.2 x 1.6
---	---	W17,220A6	---	---	x 2.0
---	---	W17,223A6	W17,223A4	---	x 2.3
W1815GA6	W1815GA4	---	---	---	18.0 x 1.5
W1820GA6	---	W1820A6	W1820A4	---	x 2.0
W2015GA6	W2015GA4	---	---	---	20.0 x 1.5
W2020GA6	W2020GA4	W2020A6	W2020A4	---	x 2.0
W21,316GA6	W21,316GA4	---	---	---	21.3 x 1.6
W21,320GA6	W21,320GA4	W21,320A6	W21,320A4	W21,320ST	x 2.0
W21,326GA6	W21,326GA4	W21,326A6	W21,326A4	---	x 2.6
---	---	W21,332A6	W21,332A4	W21,332ST	x 3.2
W2315GA6	W2315GA4	---	---	---	23.0 x 1.5
W2515GA6	W2515GA4	---	---	---	25.0 x 1.5
W2520GA6	W2520GA4	W2520A6	W2520A4	W2520ST	x 2.0
---	---	W2525A6	W2525A4	---	x 2.5
---	---	W2530A6	W2530A4	---	x 3.0
---	---	W2540A6	W2540A4	---	x 4.0
W26,916GA6	W26,916GA4	---	---	---	26.9 x 1.6
W26,920GA6	W26,920GA4	W26,920A6	---	---	x 2.0
---	---	W26,923A6	W26,923A4	W26,923ST	x 2.3
W26,926GA6	W26,926GA4	W26,926A6	W26,926A4	W26,926ST	x 2.6
---	---	W26,932A6	W26,932A4	W26,932ST	x 3.2
---	---	W26,940A6	W26,940A4	W26,940ST	x 4.0
W2815GA6	W2815GA4	W2815A6	W2815A4	---	28.0 x 1.5
W2820GA6	W2820GA4	W2820A6	---	---	x 2.0
W3020GA6	---	W3020A6	W3020A4	---	30.0 x 2.0
---	---	W3025A6	W3025A4	W3025ST	x 2.5
---	---	W3030A6	W3030A4	---	x 3.0
---	---	W3040A6	W3040A4	---	x 4.0
---	---	W3050A6	W3050A4	---	x 5.0
W33,720GA6	W33,720GA4	W33,720A6	W33,720A4	---	33.7 x 2.0
W33,726GA6	W33,726GA4	W33,726A6	W33,726A4	W33,726ST	x 2.6
W33,732GA6	W33,732GA4	W33,732A6	W33,732A4	W33,732ST	x 3.2
---	---	W33,736A6	W33,736A4	---	x 3.6
---	---	W33,740A6	W33,740A4	W33,740ST	x 4.0
W3515GA6	W3515GA4	---	---	---	35.0 x 1.5
W3520GA6	W3520GA4	---	---	---	x 2.0
W3820GA6	W3820GA4	---	---	---	38.0 x 2.0
---	---	W3826A6	W3826A4	W3826ST	x 2.6
		W3830A6	---	---	x 3.0
---	---	W3850A6	W3850A4	---	x 5.0
W4020GA6	W4020GA4	W4020A6	---	---	40.0 x 2.0
W42,420GA6	W42,420GA4	W42,420A6	W42,420A4	---	42.4 x 2.0
W42,426GA6	W42,426GA4	W42,426A6	W42,426A4	W42,426ST	x 2.6
W42,432GA6	W42,432GA4	W42,432A6	W42,432A4	W42,432ST	x 3.2
---	---	W42,436A6	W42,436A4	W42,436ST	x 3.6
---	---	W42,440A6	---	---	x 4.0
W4315GA6	W4315GA4	---	---	---	43.0 x 1.5
W44,520GA6	W44,520GA4	W44,520A6	W44,520A4	---	44.5 x 2.0
W48,320GA6	---	W48,320A6	W48,320A4	---	48.3 x 2.0
W48,326GA6	W48,326GA4	W48,326A6	W48,326A4	W48,326ST	x 2.6
---	---	W48,329A6	W48,329A4	---	x 2.9
W48,332GA6	W48,332GA4	W48,332A6	W48,332A4	W48,332ST	x 3.2
---	---	W48,336A6	---	W48,336ST	x 3.6
---	---	W48,340A6	W48,340A4	W48,340ST	x 4.0
W5120GA6	W5120GA4	---	---	---	51.0 x 2.0
---	---	W5126A6	W5126A4	W5126ST	x 2.6
---	---	W5140A6	W5140A4	---	x 4.0
W5315GA6	W5315GA4	---	---	---	53.0 x 1.5
W5420GA6	W5420GA4	---	---	---	54.0 x 2.0
W5720GA6	W5720GA4	---	---	---	57.0 x 2.0
---	---	W5726A6	---	---	x 2.6
---	---	W5729A6	W5729A4	W5729ST	x 2.9
W5730GA6	W5730GA4	---	---	---	x 3.0
W60,320GA6	W60,320GA4	W60,320A6	W60,320A4	---	60.3 x 2.0
W60,326GA6	W60,326GA4	W60,326A6	W60,326A4	---	x 2.6
W60,329GA6	W60,329GA4	W60,329A6	W60,329A4	W60,329ST	x 2.9
W60,336GA6	W60,336GA4	W60,336A6	W60,336A4	W60,336ST	x 3.6
W7020GA6	W7020GA4	---	---	---	70.0 x 2.0

For more see next page

More sizes on the next page

* standard delivery program, [1)] design type 3S: R=1.5D_n, design type 5S: R=2.5D_n on request

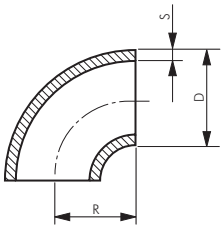
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Tube elbows 90° design type 3S[1] — EN 10253 type A (DIN 2605)

Continued from previous page

Type AISI 316Ti* (INOX)	Type AISI 321 (INOX)	Type AISI 316Ti* (INOX)	Type AISI 321 (INOX)	Type P235GH-TC1 steel black	Connection D x S
Welded design		Seamless design			
W76,120GA6	W76,120GA4	W76,120A6	---	---	76.1 x 2.0
W76,126GA6	W76,126GA4	W76,126A6	W76,126A4	---	x 2.6
W76,129GA6	W76,129GA4	W76,129A6	W76,129A4	W76,129ST	x 2.9
W76,136GA6	W76,136GA4	W76,136A6	W76,136A4	W76,136ST	x 3.6
---	---	W76,140A6	W76,140A4	W76,140ST	x 4.0
---	---	W76,150A6	W76,150A4	W76,150ST	x 5.0
W88,920GA6	W88,920GA4	---	---	---	88.9 x 2.0
W88,923GA6	W88,923GA4	---	---	---	x 2.3
W88,926GA6	W88,926GA4	W88,926A6	W88,926A4	---	x 2.6
W88,929GA6	W88,929GA4	W88,929A6	W88,929A4	---	x 2.9
W88,932GA6	W88,932GA4	W88,932A6	W88,932A4	W88,932ST	x 3.2
W88,940GA6	W88,940GA4	W88,940A6	W88,940A4	W88,940ST	x 4.0
W101,630GA6	---	---	---	---	101.6 x 3.0
W10420GA6	W10420GA4	---	---	---	104.0 x 2.0
W10820GA6	W10820GA4	---	---	---	108.0 x 2.0
W10830GA6	W10830GA4	W10830A6	W10830A4	---	x 3.0
W114,320GA6	W114,320GA4	---	---	---	114.3 x 2.0
W114,326GA6	W114,326GA4	W114,326A6	W114,326A4	---	x 2.6
W114,330GA6	W114,330GA4	---	---	---	x 3.0
W114,336GA6	W114,336GA4	W114,336A6	W114,336A4	W114,336ST	x 3.6
W114,340GA6	W114,340GA4	---	---	W114,340ST	x 4.0
---	---	W114,345A6	W114,345A4	W114,345ST	x 4.5
W12920GA6	W12920GA4	---	---	---	129.0 x 2.0
W13330GA6	W13330GA4	---	---	---	133.0 x 3.0
---	---	W13340A6	W13340A4	W13340ST	x 4.0
W139,720GA6	W139,720GA4	---	---	---	139.7 x 2.0
W139,726GA6	W139,726GA4	---	---	---	x 2.6
W139,730GA6	W139,730GA4	---	---	---	x 3.0
W139,740GA6	W139,740GA4	W139,740A6	W139,740A4	W139,740ST	x 4.0
W15420GA6	W15420GA4	---	---	---	154.0 x 2.0
W15930GA6	W15930GA4	---	---	---	159.0 x 3.0
W168,320GA6	W168,320GA4	---	---	---	168.3 x 2.0
W168,326GA6	W168,326GA4	---	---	---	x 2.6
W168,330GA6	W168,330GA4	---	---	---	x 3.0
W168,340GA6	W168,340GA4	---	---	---	x 4.0
---	---	W168,345A6	W168,345A4	W168,345ST	x 4.5
W20420GA6	---	---	---	---	204.0 x 2.0
W219,120GA6	W219,120GA4	---	---	---	219.1 x 2.0
W219,126GA6	---	---	---	---	x 2.6
W219,130GA6	W219,130GA4	---	---	---	x 3.0
W25420GA6	W25420GA4	---	---	---	254.0 x 2.0
W27330GA6	W27330GA4	---	---	---	273.0 x 3.0
W323,930GA6	W323,930GA4	---	---	---	323.9 x 3.0
W355,630GA6	W355,630GA4	---	---	---	355.6 x 3.0
W406,430GA6	W406,430GA4	---	---	---	406.4 x 3.0

* standard delivery program, [1] design type 3S: R=1.5D_n, design type 5S: R=2.5D_n on request

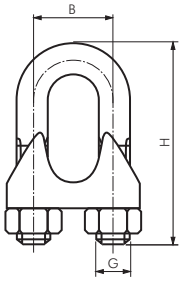


Steel cable clamps — similar to DIN 741

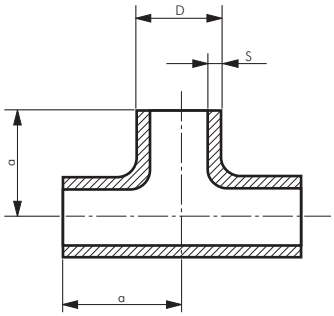
Suitable: Steel cable clamps are designed for the manufacture of removable cable-end connections.

Type zinc-plated steel	For cable Ø	G	H	W
DSK 3	3	M 4	20	9
DSK 5	5	M 5	24	11
DSK 6	6.5	M 5	28	13
DSK 8	8	M 6	34	16
DSK 9	9.5	M 8	42	19
DSK 11	11	M 8	44	20
DSK 13	13	M 10	55	24
DSK 14	14	M 10	57	25
DSK 16	16	M 12	63	29
DSK 19	19	M 12	75	32
DSK 22	22	M 14	85	37
DSK 26	26	M 14	95	41
DSK 30	30	M 16	110	48
DSK 34	34	M 16	120	52
DSK 40	40	M 16	140	58
DSK 45	45	M 18	165	65
DSK 50	50	M 20	170	72

Type AISI 316 (INOX)	For cable Ø	G	H	W
DSK 2 ES	2	M 3	17	7
DSK 3 ES	3	M 4	20	9
DSK 4 ES	4	M 4	22	10
DSK 5 ES	5	M 5	24	11
DSK 6 ES	6	M 5	28	13
DSK 8 ES	8	M 6	34	16
DSK 10 ES	10	M 8	42	20
DSK 13 ES	13	M 10	55	25
DSK 16 ES	16	M 12	63	30
DSK 19 ES	19	M 12	75	33
DSK 22 ES	22	M 14	85	38
DSK 24 ES	25	M 14	96	41



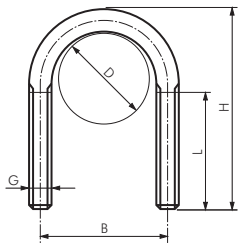
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



T pieces with same outlet — EN 10253 type A (DIN 2615)

Type AISI 316Ti* INOX	Type AISI 321 INOX	Type AISI 316Ti* INOX	Type AISI 321 INOX	Type P235GH-TC1 steel black	Connection D x S	a
Welded design		Seamless design				
T1215GA6**	---	---	---	---	12.0 x 1.5	35
---	---	T17,223A6	---	---	17.0 x 2.3	20
T21,320GA6	T21,320GA4	T21,320A6	T21,320A4	T21,320ST	21.3 x 2.0	25
---	---	T21,329A6	T21,329A4	---	x 2.9	
T26,920GA6	T26,920GA4	T26,920A6	---	---	26.9 x 2.0	29
---	---	T26,923A6	T26,923A4	T26,923ST	x 2.3	
---	---	T26,929A6	T26,929A4	---	x 2.9	
T33,720GA6	T33,720GA4	T33,720A6	T33,720A4	---	33.7 x 2.0	38
T33,726GA6	T33,726GA4	T33,726A6	T33,726A4	T33,726ST	x 2.6	
T42,420GA6	T42,420GA4	T42,420A6	T42,420A4	---	42.4 x 2.0	48
T42,426GA6	T42,426GA4	T42,426A6	T42,426A4	T42,426ST	x 2.6	
---	---	T42,429A6	T42,429A4	---	x 2.9	
T48,320GA6	T48,320GA4	T48,320A6	T48,320A4	---	48.3 x 2.0	57
T48,326GA6	T48,326GA4	T48,326A6	T48,326A4	T48,326ST	x 2.6	
---	---	T48,329A6	T48,329A4	---	x 2.9	
---	---	T48,336A6	T48,336A4	---	x 3.6	
T60,320GA6	T60,320GA4	T60,320A6	T60,320A4	---	60.3 x 2.0	64
T60,326GA6	T60,326GA4	---	---	---	x 2.6	
T60,329GA6	T60,329GA4	T60,329A6	T60,329A4	T60,329ST	x 2.9	
T76,123GA6	T76,123GA4	---	---	---	76.1 x 2.3	76
T76,125GA6	T76,125GA4	---	---	---	x 2.5	
T76,129GA6	T76,129GA4	T76,129A6	T76,129A4	T76,129ST	x 2.9	
T88,923GA6	T88,923GA4	---	---	---	88.9 x 2.3	86
T88,925GA6	T88,925GA4	---	---	---	x 2.5	
T88,930GA6	T88,930GA4	---	---	---	x 3.0	
---	---	T88,932A6	T88,932A4	T88,932ST	x 3.2	
T114,326GA6	T114,326GA4	---	---	---	114.3 x 2.6	105
T114,330GA6	T114,330GA4	---	---	---	x 3.0	
---	---	T114,336A6	T114,336A4	T114,336ST	x 3.6	
T139,726GA6	T139,726GA4	---	---	---	139.7 x 2.6	124
T139,730GA6	T139,730GA4	---	---	---	x 3.0	
---	---	T139,740A6	T139,740A4	T139,740ST	x 4.0	
T168,326GA6	T168,326GA4	---	---	---	168.3 x 2.6	143
T168,330GA6	T168,330GA4	---	---	---	x 3.0	
---	---	T168,345A6	T168,345A4	T168,345ST	x 4.5	
T219,130GA6	T219,130GA4	---	---	---	219.1 x 3.0	178
---	---	T219,163A6	T219,163A4	T219,163ST	x 6.3	

* standard delivery program, ** DIN 11852/AISI 316L



Round steel U-bolt clamps — DIN 3570, Form A

Supply volume: Round steel U-bolt clamps are delivered without shells and nuts.

Type zinc-plated steel	Type AISI 304 INOX	D	G	L	W	H
RSB 15*	RSB 15 ES*	21.3 (1/2")	M 8	20	30	46
RSB 18	RSB 18 ES	18	M 10	30	33	67
RSB 20*	RSB 20 ES*	26.9 (3/4")	M 8	20	35	54
RSB 25*	RSB 25 ES*	33.7 (1")	M 8	25	43	68
RSB 27	RSB 27 ES	25.0 - 26.9 (3/4")	M 10	40	40	70
RSB 32*	RSB 32 ES*	42.4 (1 1/4")	M 8	30	51	68
RSB 34	RSB 34 ES	30.0 - 33.7 (1")	M 10	40	48	76
RSB 40*	RSB 40 ES*	48.3 (1 1/2")	M 8	30	58	88
RSB 42	RSB 42 ES	38.0 - 42.4 (1 1/4")	M 10	50	56	86
RSB 48	RSB 48 ES	44.5 - 48.3 (1 1/2")	M 10	50	62	92
RSB 50*	RSB 50 ES*	60.3 (2")	M 10	35	71	90
RSB 60	RSB 60 ES	57.0 - 60.3 (2")	M 12	50	76	109
RSB 76	RSB 76 ES	76.1	M 12	50	94	125
RSB 89	RSB 89 ES	88.9	M 12	50	106	138
RSB 114	RSB 114 ES	108.0 - 114.3	M 16	60	136	171
RSB 140	RSB 140 ES	133.0 - 139.7	M 16	60	164	191
RSB 168	RSB 168 ES	159.0 - 168.3	M 16	60	192	217
RSB 194	RSB 194 ES	191.0 - 193.7	M 16	60	218	249
RSB 219	RSB 219 ES	216.0 - 219.1	M 20	70	248	283
RSB 273	RSB 273 ES	267.0 - 273.0	M 20	70	302	334
RSB 333	RSB 333 ES	318.0 - 332.9	M 20	70	352	385
RSB 368	RSB 368 ES	356.6 - 368.0	M 24	70	402	435
RSB 419	RSB 419 ES	406.4 - 419.0	M 24	70	452	487
RSB 521	RSB 521 ES	508.0 - 521.0	M 24	70	554	589

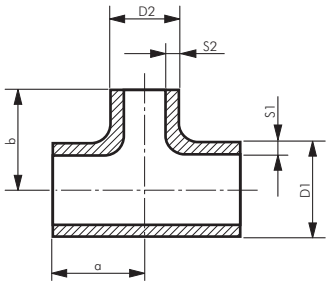
* similar to DIN; we only recommend using them in restricted installation conditions

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

T pieces with reduced outlet — EN 10253 type A (DIN 2615)

Type AISI 316Ti* (INOX)	Type AISI 321 (INOX)	Type P235GH-TC1 steel black	Connection D1 x S 1	Connection D 2 x S 2	a	b	Version
T26,923/21A6	T26,923/21A4	T26,923/21ST	26.9 x 2.3	21.3 x 2.0	29	29	Seamless
T26,932/21A6	---	---	26.9 x 3.2	21.3 x 3.2	29	29	Seamless
T33,720/26GA6	T33,720/26GA4	---	33.7 x 2.0	26.9 x 1.6	38	38	Welded
T33,720/21GA6	T33,720/21GA4	---		21.3 x 1.6	38	38	Welded
T33,726/26A6	T33,726/26A4	T33,726/26ST	33.7 x 2.6	26.9 x 2.3	38	38	Seamless
T33,726/21A6	T33,726/21A4	T33,726/21ST		21.3 x 2.0	38	38	Seamless
---	---	T33,732/26ST	33.7 x 3.2	26.9 x 3.2	38	38	Seamless
T33,736/21A6	T33,736/21A4	---	33.7 x 3.6	21.3 x 2.9	38	38	Seamless
T42,420/33GA6	T42,420/33GA4	---	42.4 x 2.0	33.7 x 2.0	48	48	Welded
T42,420/26GA6	T42,420/26GA4	---		26.9 x 1.6	48	48	Welded
T42,426/33A6	T42,426/33A4	T42,426/33ST	42.4 x 2.6	33.7 x 2.6	48	48	Seamless
T42,426/26A6	T42,426/26A4	T42,426/26ST		26.9 x 2.3	48	48	Seamless
---	T42,436/26A4	T42,436/26ST	42.4 x 3.6	26.9 x 3.2	48	48	Seamless
T48,320/42GA6	T48,320/42GA4	---	48.3 x 2.0	42.4 x 2.0	57	57	Welded
T48,320/33GA6	T48,320/33GA4	---		33.7 x 2.0	57	57	Welded
T48,320/26GA6	T48,320/26GA4	---		26.9 x 2.0	57	57	Welded
T48,326/42A6	T48,326/42A4	T48,326/42ST	48.3 x 2.6	42.4 x 2.6	57	57	Seamless
T48,326/33A6	T48,326/33A4	T48,326/33ST		33.7 x 2.6	57	57	Seamless
T48,326/26A6	T48,326/26A4	T48,326/26ST		26.9 x 2.3	57	57	Seamless
T60,320/48GA6	T60,320/48GA4	---	60.3 x 2.0	48.3 x 2.0	64	60	Welded
T60,320/42GA6	T60,320/42GA4	---		42.4 x 2.0	64	57	Welded
T60,320/33GA6	T60,320/33GA4	---		33.7 x 2.0	64	51	Welded
T60,320/26GA6	T60,320/26GA4	---		26.9 x 2.0	64	44	Welded
T60,329/48A6	T60,329/48A4	T60,329/48ST	60.3 x 2.9	48.3 x 2.6	64	60	Seamless
T60,329/42A6	T60,329/42A4	T60,329/42ST		42.4 x 2.6	64	57	Seamless
T60,329/33A6	---	T60,329/33ST		33.7 x 2.6	64	51	Seamless
T60,329/26A6	T60,329/26A4	T60,329/26ST		26.9 x 2.3	64	44	Seamless
T60,340/48A6	---	T60,340/48ST	60.3 x 4.0	48.3 x 4.0	64	60	Seamless
T60,340/42A6	T60,340/42A4	T60,340/42ST		42.4 x 3.6	64	57	Seamless
T60,340/33A6	---	T60,340/33ST		33.7 x 3.2	64	51	Seamless
T76,123/60GA6	T76,123/60GA4	---	76.1 x 2.3	60.3 x 2.0	76	70	Welded
T76,123/48GA6	T76,123/48GA4	---		48.3 x 2.0	76	67	Welded
T76,129/60A6	T76,129/60A4	T76,129/60ST	76.1 x 2.9	60.3 x 2.9	76	70	Seamless
T76,129/48A6	T76,129/48A4	T76,129/48ST		48.3 x 2.6	76	67	Seamless
T76,129/42A6	T76,129/42A4	T76,129/42ST		42.4 x 2.6	76	64	Seamless
T88,923/76GA6	T88,923/76GA4	---	88.9 x 2.3	76.1 x 2.3	86	83	Welded
T88,923/60GA6	T88,923/60GA4	---		60.3 x 2.0	86	76	Welded
T88,923/48GA6	T88,923/48GA4	---		48.3 x 2.0	86	73	Welded
T88,932/76A6	T88,932/76A4	T88,932/76ST	88.9 x 3.2	76.1 x 2.9	86	83	Seamless
T88,932/60A6	T88,932/60A4	T88,932/60ST		60.3 x 2.9	86	76	Seamless
T88,932/48A6	T88,932/48A4	T88,932/48ST		48.3 x 2.6	86	73	Seamless
T88,956/60A6	T88,956/60A4	---	88.9 x 5.6	60.3 x 4.5	86	76	Seamless
T114,326/88GA6	T114,326/88GA4	---	114.3 x 2.6	88.9 x 2.3	105	98	Welded
T114,326/76GA6	T114,326/76GA4	---		76.1 x 2.3	105	95	Welded
T114,326/60GA6	T114,326/60GA4	---		60.3 x 2.0	105	89	Welded
T114,336/88A6	T114,336/88A4	T114,336/88ST	114.3 x 3.6	88.9 x 3.2	105	98	Seamless
T114,336/76A6	T114,336/76A4	T114,336/76ST		76.1 x 2.9	105	95	Seamless
T114,336/60A6	T114,336/60A4	T114,336/60ST		60.3 x 2.9	105	89	Seamless
T139,726/114GA6	T139,726/114GA4	---	139.7 x 2.6	114.3 x 2.6	124	117	Welded
T139,726/88GA6	T139,726/88GA4	---		88.9 x 2.3	124	111	Welded
T139,729/114GA6	T139,729/114GA4	---	139.7 x 2.9	114.3 x 2.6	124	117	Welded
T139,729/88GA6	---	---		88.9 x 2.3	124	111	Welded
T168,326/114GA6	T168,326/114GA4	---	168.3 x 2.6	114.3 x 2.6	143	130	Welded
T168,326/88GA6	T168,326/88GA4	---		88.9 x 2.3	143	124	Welded
T168,329/114GA6	T168,329/114GA4	---	168.3 x 2.9	114.3 x 2.6	143	130	Welded
T168,329/88GA6	T168,329/88GA4	---		88.9 x 2.3	143	124	Welded
T168,345/114A6	T168,345/114A4	T168,345/114ST	168.3 x 4.5	114.3 x 3.6	143	130	Seamless
T168,345/88A6	T168,345/88A4	T168,345/88ST		88.9 x 3.2	143	124	Seamless
T219,129/168GA6	T219,129/168GA4	---	219.1 x 2.9	168.3 x 2.6	178	168	Welded
T219,129/139GA6	T219,129/139GA4	---		139.7 x 2.6	178	162	Welded
T219,129/114GA6	T219,129/114GA4	---		114.3 x 2.6	178	156	Welded

* standard delivery program



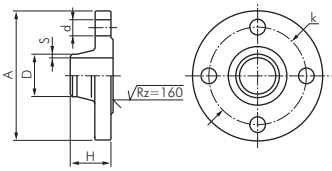
Clamp brackets complete with shells and nuts

Supply volume: Round steel U-bolt clamps are delivered complete with shells and nuts.

Type zinc-plated steel	Max. tube Ø	Type zinc-plated steel	Max. tube Ø
RSBK 28	28	RSBK 50	50
RSBK 32	32	RSBK 52	52
RSBK 36	36	RSBK 54	54
RSBK 38	38	RSBK 58	58
RSBK 40	40	RSBK 60	60
RSBK 42	42	RSBK 65	65
RSBK 45	45	RSBK 70	70
RSBK 48	48	RSBK 75	75

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Welding neck flanges DIN 2633 — PN 16

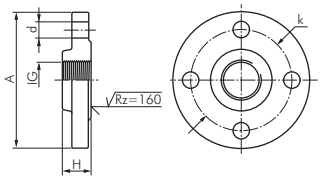


☞ **Optional:** PN 6 (DIN 2631) **-6**, PN 10 (DIN 2632) **-10**, PN 25 (DIN 2634) **-25**, PN 40 (DIN 2635) **-40**, PN 64 (DIN 2636) **-64**, PN 100 (DIN 2637) **-100**, PN 160 (DIN 2638) **-160**, EN 1092-1 (type 11) **-EN**

Type INOX AISI 316Ti	Type steel black	Number of holes*	DN	D	S	A	H	d	k
FL 10 V ES	FL 10 V ST	4	10	17.2	1.8	90	35	14	60
FL 15 V ES	FL 15 V ST	4	15	21.3	2.0	95	35	14	65
FL 20 V ES	FL 20 V ST	4	20	26.9	2.3	105	38	14	75
FL 25 V ES	FL 25 V ST	4	25	33.7	2.6	115	38	14	85
FL 32 V ES	FL 32 V ST	4	32	42.4	2.6	140	40	18	100
FL 40 V ES	FL 40 V ST	4	40	48.3	2.6	150	42	18	110
FL 50 V ES	FL 50 V ST	4	50	60.3	2.9	165	45	18	125
FL 65 V ES	FL 65 V ST	4	65	76.1	2.9	185	45	18	145
FL 80 V ES	FL 80 V ST	8	80	88.9	3.2	200	50	18	160
FL 100 V ES	FL 100 V ST	8	100	114.3	3.6	220	52	18	180
FL 125 V ES	FL 125 V ST	8	125	139.7	4.0	250	55	18	210
FL 150 V ES	FL 150 V ST	8	150	168.3	4.5	285	55	22	240
FL 200 V ES	FL 200 V ST	12	200	219.1	5.9	340	62	22	295
FL 250 V ES	FL 250 V ST	12	250	273.0	6.3	405	70	26	355
FL 300 V ES	FL 300 V ST	12	300	323.9	7.1	460	78	26	410

* number of holes for PN 16

Thread flanges DIN 2566 — PN 16

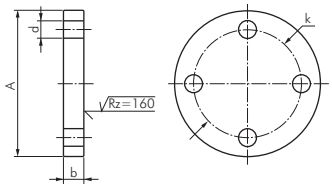


☞ **Optional:** PN 6 (DIN 2565) **-6**, PN 10 (DIN 2566) **-10**, PN 25 (DIN 2567) **-25**, PN 40 (DIN 2567) **-40**, EN 1092-1 (type 13) **-EN**

Type INOX AISI 316Ti	Type **zinc-plated steel**	Number of holes*	DN	A	H	k	d	FT
FL 10 G ES	FL 10 G ST	4	10	90	20	60	14	Rp 3/8"
FL 15 G ES	FL 15 G ST	4	15	95	20	65	14	Rp 1/2"
FL 20 G ES	FL 20 G ST	4	20	105	24	75	14	Rp 3/4"
FL 25 G ES	FL 25 G ST	4	25	115	24	85	14	Rp 1"
FL 32 G ES	FL 32 G ST	4	32	140	26	100	18	Rp 1 1/4"
FL 40 G ES	FL 40 G ST	4	40	150	26	110	18	Rp 1 1/2"
FL 50 G ES	FL 50 G ST	4	50	165	28	125	18	Rp 2"
FL 65 G ES	FL 65 G ST	4	65	185	32	145	18	Rp 2 1/2"
FL 80 G ES	FL 80 G ST	8	80	200	34	160	18	Rp 3"
FL 100 G ES	FL 100 G ST	8	100	220	38	180	18	Rp 4"
FL 125 G ES	FL 125 G ST	8	125	250	on request	210	18	Rp 5"
FL 150 G ES	FL 150 G ST	8	150	285	on request	240	22	Rp 6"

* number of holes for PN 16

Blind flanges DIN 2527 — PN 16



☞ **Optional:** PN 10 **-10**, PN 25 **-25**, PN 40 **-40**, PN 64 **-64**, PN 100 **-100**, PN 160 **-160**, EN 1092-1 (type 5) **-EN**

Type INOX AISI 316Ti	Type **zinc-plated steel**	Number of holes*	DN	A	b	k	d
FL 10 B ES	FL 10 B ST	4	10	90	14	60	14
FL 15 B ES	FL 15 B ST	4	15	95	14	65	14
FL 20 B ES	FL 20 B ST	4	20	105	16	75	14
FL 25 B ES	FL 25 B ST	4	25	115	16	85	14
FL 32 B ES	FL 32 B ST	4	32	140	16	100	18
FL 40 B ES	FL 40 B ST	4	40	150	16	110	18
FL 50 B ES	FL 50 B ST	4	50	165	18	125	18
FL 65 B ES	FL 65 B ST	4	65	185	18	145	18
FL 80 B ES	FL 80 B ST	8	80	200	20	160	18
FL 100 B ES	FL 100 B ST	8	100	220	20	180	18
FL 125 B ES	FL 125 B ST	8	125	250	22	210	18
FL 150 B ES	FL 150 B ST	8	150	285	22	240	22
FL 200 B ES	FL 200 B ST	12	200	340	24	295	22
FL 250 B ES	FL 250 B ST	12	250	405	26	355	26
FL 300 B ES	FL 300 B ST	12	300	460	28	410	26

* number of holes for PN 16

☞ **Order example:** FL 10 V ES **

Standard type

Designation for the options:
PN 6 . . . . . **-6**
PN 10 . . . . . **-10**
PN 25 . . . . . **-25**
PN 40 . . . . . **-40**
PN 64 . . . . . **-64**
PN 100 . . . . . **-100**
PN 160 . . . . . **-160**
EN 1092-1 . . . . . **-EN**

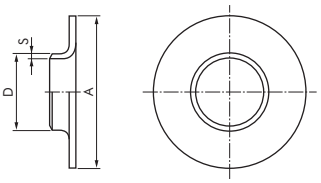
Number of holes depending on nominal width and pressure level

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Welding flared disks DIN 2642 for loose flanges — PN 10

Type AISI 316Ti (INOX)	DN	D	A	S
VB 10-2 ES	10	17.2	40	2.0
VB 15-2 ES	15	21.3	45	2.0
VB 20-2 ES	20	26.9	58	2.0
VB 20-2,5 ES	20	26.9	58	2.5
VB 25-2 ES	25	33.7	68	2.0
VB 25-2,5 ES	25	33.7	68	2.5
VB 25-3 ES	25	33.7	68	3.0
VB 32-2 ES	32	42.4	78	2.0
VB 32-2,5 ES	32	42.4	78	2.5
VB 32-3 ES	32	42.4	78	3.0
VB 40-2 ES	40	48.3	88	2.0
VB 40-2,5 ES	40	48.3	88	2.5
VB 40-3 ES	40	48.3	88	3.0
VB 50-2 ES	50	60.3	102	2.0
VB 50-2,5 ES	50	60.3	102	2.5
VB 50-3 ES	50	60.3	102	3.0
VB 65-2 ES	65	76.1	122	2.0
VB 65-2,5 ES	65	76.1	122	2.5
VB 65-3 ES	65	76.1	122	3.0
VB 65-4 ES	65	76.1	122	4.0
VB 80-2 ES	80	88.9	138	2.0
VB 80-2,5 ES	80	88.9	138	2.5
VB 80-3 ES	80	88.9	138	3.0
VB 80-4 ES	80	88.9	138	4.0
VB 100-2 ES	100	114.3	158	2.0
VB 100-2,5 ES	100	114.3	158	2.5
VB 100-3 ES	100	114.3	158	3.0
VB 125-2 ES	125	139.7	188	2.0
VB 125-2,5 ES	125	139.7	188	2.5
VB 125-3 ES	125	139.7	188	3.0
VB 150-2 ES	150	168.3	212	2.0
VB 150-2,5 ES	150	168.3	212	2.5
VB 150-3 ES	150	168.3	212	3.0
VB 200-2 ES	200	219.1	268	2.0
VB 200-2,5 ES	200	219.1	268	2.5
VB 200-3 ES	200	219.1	268	3.0
VB 200-3,5 ES	200	219.1	268	3.5
VB 200-4 ES	200	219.1	268	4.0
VB 250-3 ES	250	273.0	320	3.0
VB 250-4 ES	250	273.0	320	4.0
VB 300-3 ES	300	323.9	370	3.0
VB 300-4 ES	300	323.9	370	4.0
VB 350-3 ES	350	355.6	430	3.0
VB 350-4 ES	350	355.6	430	4.0
VB 400-3 ES	400	406.4	482	3.0
VB 400-4 ES	400	406.4	482	4.0
VB 500-3 ES	500	508.0	585	3.0
VB 500-4 ES	500	508.0	585	4.0

Type steel ST 35.8	DN	D	A	S
VB 15-2 ST	15	21.3	45	2.0
VB 20-2,3 ST	20	26.9	58	2.3
VB 25-2,6 ST	25	33.7	68	2.6
VB 32-2,6 ST	32	42.4	78	2.6
VB 40-2,6 ST	40	48.3	88	2.6
VB 50-2,9 ST	50	60.3	102	2.9
VB 65-2,9 ST	65	76.1	122	2.9
VB 80-3,2 ST	80	88.9	138	3.2
VB 100-3,6 ST	100	114.3	158	3.6
VB 125-4 ST	125	139.7	188	4.0
VB 150-4,5 ST	150	168.3	212	4.5
VB 200-6,3 ST	200	219.1	268	6.3
VB 250-6,3 ST	250	273.0	320	6.3
VB 300-7,1 ST	300	323.9	370	7.1

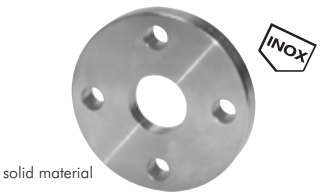


Loose flanges DIN 2642 for welding flared disks — PN 10

Versions: AISI 316Ti and zinc-plated steel: DIN 2642, stainless steel: Metal sheet pressed (similar to DIN 2642)
☞ **Optional:** EN 1092-1 (type 2) **-EN**

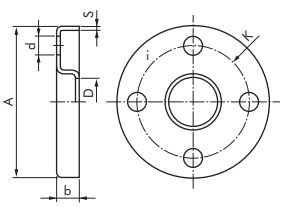
Type zinc-pl. st. solid material	Type AISI 316Ti (INOX) solid material	b	d	Type AISI 304 (INOX) pressed	No. of holes*	S	d	b	DN	A	D	k
FL 10 L ST	FL 10 LS ES	14	14	FL 10 L ES	4	3	14.0	12.0	10	90	19	60
FL 15 L ST	FL 15 LS ES	14	14	FL 15 L ES	4	3	13.5	9.5	15	95	24	65
FL 20 L ST	FL 20 LS ES	14	14	FL 20 L ES	4	3	13.5	12.5	20	105	30	75
FL 25 L ST	FL 25 LS ES	16	14	FL 25 L ES	4	3	13.5	15.0	25	115	37	85
FL 32 L ST	FL 32 LS ES	16	18	FL 32 L ES	4	3	17.5	16.0	32	140	46	100
FL 40 L ST	FL 40 LS ES	16	18	FL 40 L ES	4	4	17.5	17.0	40	150	54	110
FL 50 L ST	FL 50 LS ES	16	18	FL 50 L ES	4	4	17.5	19.5	50	165	65	125
FL 65 L ST	FL 65 LS ES	16	18	FL 65 L ES	4	4	17.5	21.0	65	185	81	145
FL 80 L ST	FL 80 LS ES	18	18	FL 80 L ES	8	5	17.5	21.0	80	200	94	160
FL 100 L ST	FL 100 LS ES	18	18	FL 100 L ES	8	6	17.5	23.0	100	220	119	180
FL 125 L ST	FL 125 LS ES	18	18	FL 125 L ES	8	6	17.5	23.0	125	250	145	210
FL 150 L ST	FL 150 LS ES	18	22	FL 150 L ES	8	7	21.5	25.0	150	285	173	240
FL 200 L ST	FL 200 LS ES	20	22	FL 200 L ES**	8	8	21.5	28.0	200	340	225	295
FL 250 L ST	FL 250 LS ES	22	22	FL 250 L ES	12	8	21.5	34.0	250	395	279	350
FL 300 L ST	FL 300 LS ES	26	22	FL 300 L ES	12	8	21.5	38.0	300	445	329	400

* number of holes for PN 16, ** 8-hole, 12-fold on request



solid material

pressed



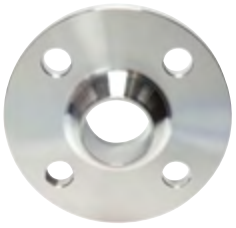
☞ **Order example:** FL 10 L ST **

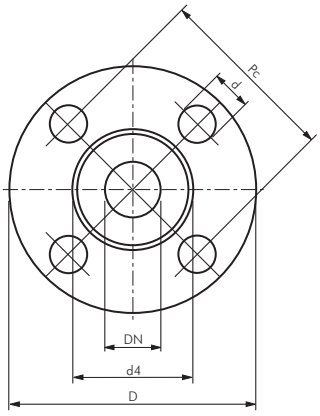
Standard type

Designation for the options: EN 1092-1 . . . . . .-EN

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Main dimensions - Flanges to EN 1092-1 and DIN





Norm	DN	External Ø D	Pitch circle Ø Pc	Srew hole d	Number of srew holes	Ø Sealing surface d4	Flange thickness incl. sealing surface
EN 1092-1 / DIN PN 6	15	80	55	11	4	40	12
	20	90	65	11	4	50	14
	25	100	75	11	4	60	14
	32	120	90	14	4	70	14
	40	130	100	14	4	80	14
	50	140	110	14	4	90	14
	65	160	130	14	4	110	14
	80	190	150	18	4	128	16
	100	210	170	18	4	148	16
	125	240	200	18	8	178	18
	150	265	225	18	8	202	18
	200	320	280	18	8	258	20
	250	375	335	18	12	312	22
	300	440	395	22	12	365	22
EN 1092-1 / DIN PN 10 and PN 16 (values in brackets apply to PN 10)	15	95	65	14	4	45	16/14
	20	105	75	14	4	58	18/16
	25	115	85	14	4	68	18/16
	32	140	100	18	4	78	18/16
	40	150	110	18	4	88	18/16
	50	165	125	18	4	102	18
	65	185	145	18	8/4	122	18
	80	200	160	18	8	138	20
	100	220	180	18	8	158	20
	125	250	210	18	8	188	22
	150	285	240	22	8	212	22
	200	340	295	22	12 (8)	268	24
	250	405 (395)	355 (350)	26 (22)	12	320	26
	300	460 (445)	410 (400)	26 (22)	12	378 (370)	28 (26)
EN 1092-1 / DIN PN 25 and PN 40 (values in brackets apply to PN 25) * EN-Blind flanges, PN 40: 36 mm	15	95	65	14	4	45	16
	20	105	75	14	4	58	18
	25	115	85	14	4	68	18
	32	140	100	18	4	78	18
	40	150	110	18	4	88	18
	50	165	125	18	4	102	20
	65	185	145	18	8	122	22
	80	200	160	18	8	138	24
	100	235	190	22	8	162	24
	125	270	220	26	8	188	26
	150	300	250	26	8	218	28
	200	375 (360)	320 (310)	30 (26)	12	285 (278)	34* (30)
	250	450 (425)	385 (370)	33 (30)	12	345 (335)	38 (32)
	300	515 (485)	450 (430)	33 (30)	16	410 (395)	42 (34)
EN 1092/1 PN 63 DIN PN 64	10	100	70	14	4	40	20
	15	105	75	14	4	45	20
	20	130	90	18	4	58	22
	25	140	100	18	4	68	24
	32	155	110	22	4	78	24
	40	170	125	22	4	88	26
	50	180	135	22	4	102	26
	65	205	160	22	8	122	26
	80	215	170	22	8	138	28
	100	250	200	26	8	162	30
	125	295	240	30	8	188	34
	150	345	280	33	8	218	36
	200	415	345	36	12	285	42
	250	470	400	36	12	345	46
	300	530	460	36	16	410	52
EN 1092-1 / DIN PN 100 and PN 160 (values in brackets apply to PN 160)	10	100	70	14	4	40	20
	15	105	75	14	4	45	20
	25	140	100	18	4	68	24
	32	155	110	22	4	78	24
	40	170	125	22	4	88	26 (28)
	50	195	145	26	4	102	26 (30)/28
	65	220	170	26	8	122	26 (34)/30
	80	230	180	26	8	138	30 (36)/32
	100	265	210	30	8	162	33 (40)/36
	125	315	250	33	8	188	33 (44)/40
	150	355	290	33	12	218	36 (50)/44
	200	430	360	36	12	285	39 (60)/52
	250	505 (515)	430	36 (42)	12	345	42 (68)/60
	300	585	500	42	16	410	48 (78)/68

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Screws, nuts and washers for flanges

Type zinc-plated steel 8.8*	Type zinc-plated steel 8.8*	Type zinc-plated steel 8.8*	Thread	Effective usable length (shaft length - 2 x washers - 1 x nut)
Hex. head screws	**Nuts**	**Washers**		
933-M12x45 **	934-M12	125A-12	M 12	30
933-M12x55	934-M12	125A-12	M 12	40
933-M16x60	934-M16	125A-16	M 16	41
933-M16x65 **	934-M16	125A-16	M 16	46
933-M16x70	934-M16	125A-16	M 16	51
933-M20x70	934-M20	125A-20	M 20	48
933-M20x75 **	934-M20	125A-20	M 20	53
933-M20x80	934-M20	125A-20	M 20	58
More sizes can be found on page 622, 616, 617				
Type **stainless steel A2*** INOX	Type **stainless steel A2*** INOX	Type **stainless steel A2*** INOX	Thread	Effective usable length (shaft length - 2 x washers - 1 x nut)
Hex. head screws	**Nuts**	**Washers**		
933-M12x45 ES**	934-M12 ES	125A-12 ES	M 12	30
933-M12x55 ES	934-M12 ES	125A-12 ES	M 12	40
933-M16x60 ES	934-M16 ES	125A-16 ES	M 16	41
933-M16x65 ES**	934-M16 ES	125A-16 ES	M 16	46
933-M16x70 ES	934-M16 ES	125A-16 ES	M 16	51
933-M20x70 ES	934-M20 ES	125A-20 ES	M 20	48
933-M20x75 ES**	934-M20 ES	125A-20 ES	M 20	53
933-M20x80 ES	934-M20 ES	125A-20 ES	M 20	58
More sizes can be found on page 622, 616, 617				
Type **stainless steel A4** INOX	Type **stainless steel A4** INOX	Type **stainless steel A4** INOX	Thread	Effective usable length (shaft length - 2 x washers - 1 x nut)
Hex. head screws	**Nuts**	**Washers**		
933-M12x45 ES4A**	934-M12 ES4A	125A-12 ES4A	M 12	30
933-M12x55 ES4A	934-M12 ES4A	125A-12 ES4A	M 12	40
933-M16x60 ES4A	934-M16 ES4A	125A-16 ES4A	M 16	41
933-M16x65 ES4A**	934-M16 ES4A	125A-16 ES4A	M 16	46
933-M16x70 ES4A	934-M16 ES4A	125A-16 ES4A	M 16	51
933-M20x70 ES4A	934-M20 ES4A	125A-20 ES4A	M 20	48
933-M20x75 ES4A**	934-M20 ES4A	125A-20 ES4A	M 20	53
933-M20x80 ES4A	934-M20 ES4A	125A-20 ES4A	M 20	58
More sizes can be found on page 622, 616, 617				

* standard delivery program, ** preferred type

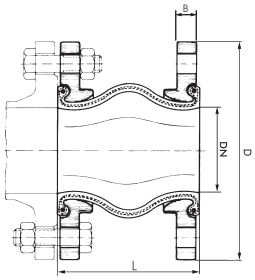
Screw overview for DIN flanges

	Nominal pressure				
Nom. width	PN 6	PN 10	PN 16	PN 25	PN 40
DN 10	4 pcs. M 10 x 35	4 pcs. M 12 x 45	4 pcs. M 12 x 45	4 pcs. M 12 x 50	4 pcs. M 12 x 50
DN 15	4 pcs. M 10 x 35	4 pcs. M 12 x 45	4 pcs. M 12 x 45	4 pcs. M 12 x 50	4 pcs. M 12 x 50
DN 20	4 pcs. M 10 x 40	4 pcs. M 12 x 50	4 pcs. M 12 x 50	4 pcs. M 12 x 55	4 pcs. M 12 x 55
DN 25	4 pcs. M 10 x 40	4 pcs. M 12 x 50	4 pcs. M 12 x 50	4 pcs. M 12 x 55	4 pcs. M 12 x 55
DN 32	4 pcs. M 12 x 45	4 pcs. M 16 x 50	4 pcs. M 16 x 50	4 pcs. M 16 x 55	4 pcs. M 16 x 55
DN 40	4 pcs. M 12 x 45	4 pcs. M 16 x 50	4 pcs. M 16 x 50	4 pcs. M 16 x 55	4 pcs. M 16 x 55
DN 50	4 pcs. M 12 x 45	4 pcs. M 16 x 55	4 pcs. M 16 x 55	4 pcs. M 16 x 60	4 pcs. M 16 x 60
DN 65	4 pcs. M 12 x 45	4 pcs. M 16 x 55	4 pcs. M 16 x 55	8 pcs. M 16 x 65	8 pcs. M 16 x 65
DN 80	4 pcs. M 16 x 50	8 pcs. M 16 x 60	8 pcs. M 16 x 60	8 pcs. M 16 x 70	8 pcs. M 16 x 70
DN 100	4 pcs. M 16 x 50	8 pcs. M 16 x 60	8 pcs. M 16 x 60	8 pcs. M 20 x 70	8 pcs. M 20 x 70
DN 125	8 pcs. M 16 x 55	8 pcs. M 16 x 65	8 pcs. M 16 x 65	8 pcs. M 24 x 80	8 pcs. M 24 x 80
DN 150	8 pcs. M 16 x 55	8 pcs. M 20 x 65	8 pcs. M 20 x 65	8 pcs. M 24 x 80	8 pcs. M 24 x 80
DN 200	8 pcs. M 16 x 60	8 pcs. M 20 x 70	12 pcs. M 20 x 70	12 pcs. M 24 x 90	12 pcs. M 27 x 100
DN 250	12 pcs. M 16 x 65	12 pcs. M 20 x 75	12 pcs. M 24 x 80	12 pcs. M 27 x 90	12 pcs. M 30 x 110
DN 300	12 pcs. M 20 x 65	12 pcs. M 20 x 75	12 pcs. M 24 x 80	16 pcs. M 27 x 100	16 pcs. M 30 x 120

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

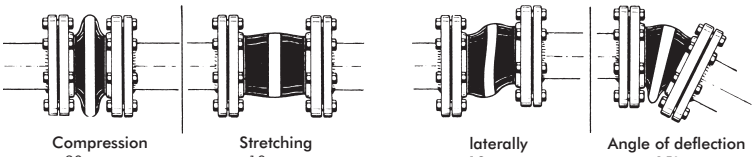
Especially good value!

Elastomer compensators (compact) — PN 10



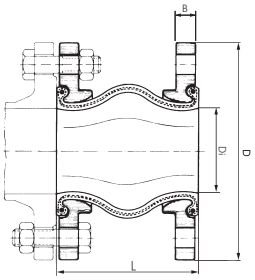
Version: Shallow undulating, form pressed bellows, good elastic with pressure carrier of synthetic fibre and wire enforced rubber flange collar (self-sealing), both sides rotatable steel flange
Materials: Bellows: EPDM (hot water, acid and alkalis resistant), flange: RSt 37.2 galvanised zinc-plated
Temperature range: -10 to max. +105°C (dependent on operating pressure)
Operating pressure: 10 bar (to +90°C), 8 bar (to +105°C) burst pressure 45 bar (for intermittent load the maximum operation pressure is 30 % lower.)
Connection: DIN Flanges PN 16

Type	Number of holes	DN	L	W	D
KOMFLK 40	4	40	130	16	150
KOMFLK 50	4	50	130	16	165
KOMFLK 65	4	65	130	16	185
KOMFLK 80	8	80	130	18	200
KOMFLK 100	8	100	130	18	220
KOMFLK 125	8	125	130	20	250
KOMFLK 150	8	150	130	22	285
KOMFLK 200	12	200	130	24	340



Compression 30 mm | **Stretching** 10 mm | **laterally** 13 mm | **Angle of deflection** 15°

Elastomer compensators — PN 10/16



Version: Shallow undulating, form pressed bellows, good elastic with pressure carrier of synthetic fibre and wire enforced rubber flange collar (self-sealing), both sides rotatable steel flange
Materials: Bellows: EPDM (hot water, acid and alkalis resistant), flange: RSt 37.2 galvanised zinc-plated
Temperature range*: To max. +90°C (dependent on operating pressure)
Operating pressure*: 16 bar (to +50°C), 10 bar (to +80°C), 6 bar (to +90°C), burst pressure: 48 bar (For intermittent load the max. operating pressure is 30% lower.)
Connection: DIN Flanges PN 16 (DN 200 - DN 300: DIN Flanges PN 10)
☞ **Optional:** Bellows from NBR (oil resistant) **-B**, bellows from butyl (for use with drinking water according to KTW recommendation) **-LE**

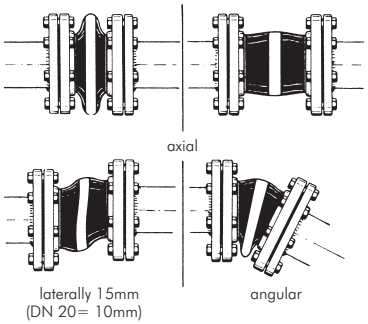
Type	DN	Axial compression	Axial stretching	± angular	PN	L	W	D	Di
KOMFL 20	20	20	10	25°	16 bar	100	16	115	22 ± 2
KOMFL 25	25	20	10	25°	16 bar	100	16	115	22 ± 2
KOMFL 32	32	35	10	25°	16 bar	125	16	140	39 ± 3
KOMFL 40	40	35	10	25°	16 bar	125	16	150	45 ± 3
KOMFL 50	50	35	10	21°	16 bar	125	16	165	56 ± 3
KOMFL 65	65	35	10	17°	16 bar	125	18	185	72 ± 3
KOMFL 80	80	40	10	14°	16 bar	150	20	200	84 ± 3
KOMFL 100	100	40	10	11°	16 bar	150	20	220	109 ± 3
KOMFL 125	125	40	10	9°	16 bar	150	22	250	133 ± 4
KOMFL 150	150	40	10	7°	16 bar	150	22	285	161 ± 4
KOMFL 175	175	40	10	6°	16 bar	150	22	315	185 ± 4
KOMFL 200	200	45	15	8°	10 bar	175	25	340	209 ± 5
KOMFL 250	250	45	15	6°	10 bar	175	25	395	262 ± 5
KOMFL 300	300	45	15	5°	10 bar	200	25	445	312 ± 5

* when installing compensators the instructions contained in the assembly instructions must be observed!

☞ **Order example:** KOMFL 50 **

Standard type

Designation for the options:
Bellows from NBR (oil resistant) . . . . . **-B**
Bellows from butyl (for drinking water) **-LE**



Work gloves
on page 589

Eye protection
from page 591

Cables
can be found on page 643

OKS Cleaner and service products
from page 564

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

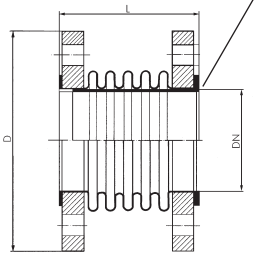
Compensators made of stainless steel — PN 10/16

Version: Axial compensator, bellows with flared tube ends and turnable flanges, bellows one wall
Materials: Bellows: AISI 321, flanges: RSt 37.2 galvanised zinc-plated
Temperature range: Up to max. +550°C (please note the variation in the pressure level)
Connection: EN Flanges PN 16 (DN 200 - DN 250: PN 10)
Suitable: Compensators* take axial movements at the pressure level of PN 10/16. In the pressure level PN 2.5, these take axial and lateral movements (please inquire separately).
☞ **Optional:** Flanges and bellows from AISI 316L **-FES**

Type (INOX)	Number of holes	DN	Movement absorption ±	Pressure level	L	D
KOMFL 15 ES **	4	15	8.5	16 bar	108	95
KOMFL 20 ES **	4	20	8.5	16 bar	108	105
KOMFL 25 ES	4	25	13.0	16 bar	125	115
KOMFL 32 ES	4	32	13.0	16 bar	135	140
KOMFL 40 ES	4	40	15.0	16 bar	135	150
KOMFL 50 ES	4	50	18.0	16 bar	155	165
KOMFL 65 ES	8	65	20.0	16 bar	165	185
KOMFL 80 ES	8	80	23.0	16 bar	175	200
KOMFL 100 ES	8	100	23.0	16 bar	180	220
KOMFL 125 ES	8	125	25.0	16 bar	200	250
KOMFL 150 ES	8	150	25.0	16 bar	230	285
KOMFL 200 ES	8	200	35.0	10 bar	230	340
KOMFL 250 ES	12	250	26.0	10 bar	245	395

* when installing compensators the instructions contained in the assembly instructions must be observed!
** only available with guide tube for constructive reasons

Guide sleeve for DN 15 & DN 20



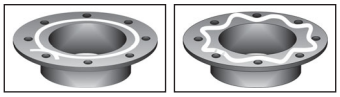
☞ **Order example:** KOMFL 15 ES **
Standard type
Designation for the options:
Flanges and bellows from AISI 316L **-FES**

PTFE flat sealing tapes with adhesives back

Suitable: Self-adhesive, universal, quick and easy to install flat sealing tape made of 100% pure, expanded PTFE. For sealing compensators, machine housings, apparatus flanges, hand- and manholes, as well as flanges with large and complex geometries.
Temperature resistant sealing material: -240°C up to max. +270°C (temporary to +315°C)
Operating pressure: 0 - 40 bar, as well as vacuum (-240°C to max. +150°C, depending on installation condition and application)
Approvals: DVGW (VP403), TÜV, BAM (gaseous oxygen), material and adhesive acc. to FDA 21 CFR 177.1505 and FDA 21 CFR 175.105, fire class V-0 acc. to UL94

Type	Dimension	Amount
DBSK 3-25	3 x 1.5	25 m coil
DBSK 5-25	5 x 2	25 m coil
DBSK 7-25	7 x 2.5	25 m coil
DBSK 10-10	10 x 3	10 m coil

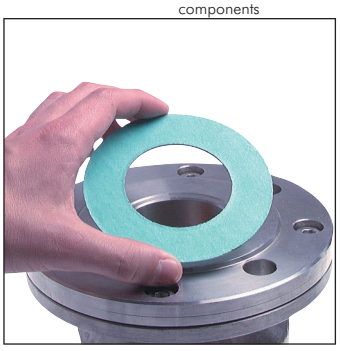
Application examples:



Standard connections | Stress-sensitive components

Flange seals DVGW & BAM tested, TA-Luft certified, KTW recommended

Materials: C 4400, asbestos-free, thickness 2 mm
Temperature range: -100°C up to max. +150°C (for application engin. test up to max. +400°C)
Operating pressure: 40 bar (for application engin. test up to max. 100 bar), pressure stability 25 N/mm²
Operating range*: Oils, refrigerants, hot water, steam, gases, salt solutions, fuels, acids, hydrocarbons and lubricants
☞ **Optional:** Material: Silicone to be used with foodstuffs, thickness of 3 mm, 60° shore (-55°C to max. +200°C at max. 6 bar) **-LE**



Type	Dimensions	DN	PN
FLDR 10	18 x 45 x 2	10	10 - 40
FLDR 15	22 x 50 x 2	15	10 - 40
FLDR 20	28 x 60 x 2	20	10 - 40
FLDR 25	35 x 70 x 2	25	10 - 40
FLDR 32	43 x 82 x 2	32	10 - 40
FLDR 40	49 x 92 x 2	40	10 - 40
FLDR 50	61 x 107 x 2	50	10 - 40
FLDR 65	77 x 127 x 2	65	10 - 40
FLDR 80	90 x 142 x 2	80	10 - 40

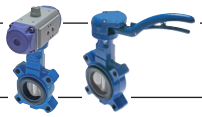
Type	Dimensions	DN	PN
FLDR 100	115 x 162 x 2	100	10 - 16
FLDR 125	141 x 192 x 2	125	10 - 16
FLDR 150	169 x 218 x 2	150	10 - 16
FLDR 200	220 x 273 x 2	200	10 - 16
FLDR 250	274 x 328 x 2	250	10
FLDR 300	325 x 378 x 2	300	10
FLDR 350	368 x 438 x 2	350	10
FLDR 400	420 x 490 x 2	400	10

* we recommend the approval of your application case

HYDAC Pipe clamps from page 244

Cleaning technology on page 582

Flanged ball valves from page 300


Butterfly valves from page 316

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

PVC tubes and PVC adhesives

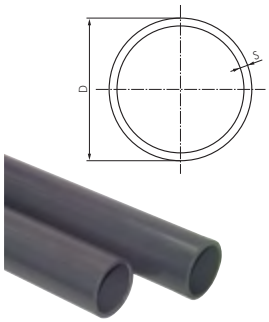
When ordering, please state shipping length!

Packaging service: max. 2 m
Overnight express: max. 3 m
Freight: arbitrary

Tubes PVC-U — EN 1452-2 (DIN 8062) - PN 16

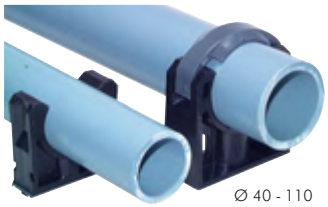
Materials: PVC-U
Colour: RAL 7011 - dark grey
Tube lengths: 5 m (with smooth ends)

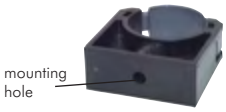
Warning: Not suitable for compressed air or other gases under pressure!



Type	External Ø D	Wall thickness S
PVCHR 16x1.5	16	1.5
PVCHR 20x1.5	20	1.5
PVCHR 25x1.9	25	1.9
PVCHR 32x2.4	32	2.4
PVCHR 40x3.0	40	3.0
PVCHR 50x3.7	50	3.7
PVCHR 63x4.7	63	4.7
PVCHR 75x5.6	75	5.6
PVCHR 90x6.7	90	6.7
PVCHR 110x8.1	110	8.1

up to Ø 160 in PN16 and up to Ø 315 in PN10 upon request





Tube clamps with mounting holes

Materials: Body: PE (black, UV-stabilised) or PP (grey), bar: PVC-U
Temperature range: PE: -20°C to max. +50°C, PP: -10°C to max. +80°C

Type PE (black)	Type PP (grey)	Tube Ø external	Ø Mounting hole	Packing unit
KK 16 PE	KK 16 PP	16	5.0	5
KK 20 PE	KK 20 PP	20	5.0	5
KK 25 PE	KK 25 PP	25	5.5	5
KK 32 PE	KK 32 PP	32	5.5	5
KK 40 PE	KK 40 PP	40	7.0	10
KK 50 PE	KK 50 PP	50	7.0	10
KK 63 PE	KK 63 PP	63	9.0	10
KK 75 PE	KK 75 PP	75	9.0	10
KK 90 PE	KK 90 PP	90	9.0	10
KK 110 PE	KK 110 PP	110	9.0	10

Adhesives and cleaners for PVC fittings

Cleaner: The surfaces to be bonded to each other must be clean and free of grease. If this is not guaranteed, the surface must be cleaned with PVC cleaner.
Adhesive: The adhesive can be used with or without the application of cleaning agents. The surface characteristics determine the quality of the bond.

Adhesives for PVC fittings

✓ Advantages TANGIT EXPRESS: • Ideal for fast repairs
• Quick load-bearing capacity after only 15 minutes (= 1 bar)

Type TANGIT	Type TANGIT EXPRESS	Contents
TANGIT KLEB 25	---	250 g
TANGIT KLEB 50	TANGIT KLEB 50 EXP	500 g
TANGIT KLEB 100	---	1000 g

Cleaners for PVC fittings

Type TANGIT	Contents
TANGIT REINIGER	1 l

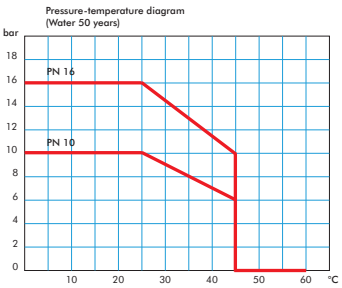
Flat brushes for PVC adhesives

Type	Suitable for tubes Ø	Brush width
PINSEL 10	16 - 32	10 mm
PINSEL 22	40 - 63	22 mm
PINSEL 50	75 - 200	50 mm

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Fittings made of PVC-U — EN 1452-3

Material: PVC-U
Temperature range: 0°C to max. +60°C
Working pressure: Adhesive connections: max. 16 bar, threaded connections: max. 10 bar (with reinforcement ring: max. 16 bar), see pressure-temperature diagram
Properties: Abrasion resistant, non toxic, corrosion free, ideal for above ground and underground installations.
Media: Water, many inorganic chemicals, many acid, alkaline and salt solutions. Nor resistant against aromatic and chlorinated hydrocarbons. Never use for compressed air or other gases under pressure!

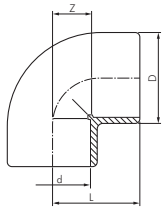


Adhesive sockets 90° angle PVC-U — PN 16

Warning: Not suitable for compressed air or other gases under pressure!

Type	Internal Ø d	External Ø D	Installation length L	Z
PVCW 16	16	23	23	9
PVCW 20	20	27	27	11
PVCW 25	25	33	33	14
PVCW 32	32	41	39	17
PVCW 40	40	50	47	21
PVCW 50	50	61	57	26
PVCW 63	63	76	71	33
PVCW 75	75	90	83	39
PVCW 90	90	108	97	46
PVCW 110	110	131	117	56

up to Ø 160 in PN 16 and up to Ø 250 in PN 10 upon request



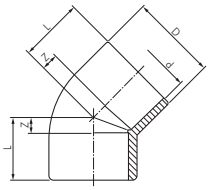
1001

Adhesive sockets 45° angle PVC-U — PN 16

Warning: Not suitable for compressed air or other gases under pressure!

Type	Internal Ø d	External Ø D	Installation length L	Z
PVCW45 16	16	23	20	6
PVCW45 20	20	28	21	5
PVCW45 25	25	35	25	6
PVCW45 32	32	43	30	8
PVCW45 40	40	52	36	10
PVCW45 50	50	61	43	12
PVCW45 63	63	76	52	14
PVCW45 75	75	93	61	17
PVCW45 90	90	109	71	20
PVCW45 110	110	133	85	24

up to Ø 160 in PN 16 and up to Ø 315 in PN 10 upon request



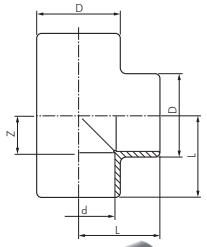
1501

Adhesive sockets T pieces PVC-U — PN 16

Warning: Not suitable for compressed air or other gases under pressure!

Type	Internal Ø d	External Ø D	Installation length L	Z
PVCT 16	16	23	23	9
PVCT 20	20	27	27	11
PVCT 25	25	33	33	14
PVCT 32	32	41	39	17
PVCT 40	40	50	47	21
PVCT 50	50	63	57	26
PVCT 63	63	78	71	33
PVCT 75	75	90	83	39
PVCT 90	90	108	97	46
PVCT 110	110	131	117	56

up to Ø 125 in PN 16 and up to Ø 315 in PN 10 upon request

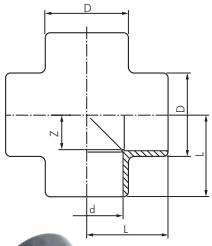


2001

Adhesive sockets cross pieces PVC-U — PN 16

Warning: Not suitable for compressed air or other gases under pressure!

Type	Internal Ø d	External Ø D	Installation length L	Z
PVCK 20	20	27	27	11
PVCK 25	25	33	33	14
PVCK 32	32	41	39	17
PVCK 40	40	50	47	21
PVCK 50	50	63	57	26
PVCK 63	63	78	71	33
PVCK 75	75	90	83	39
PVCK 90	90	108	97	46
PVCK 110	110	131	117	56

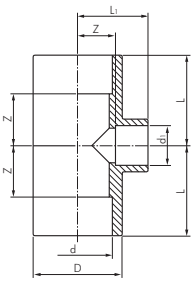


3001

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Adhesive sockets T pieces, reduced PVC-U — PN 16

Warning: Not suitable for compressed air or other gases under pressure!

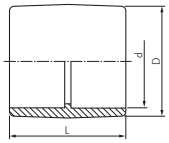


2001

Type	Internal Ø d	Internal Ø d1	External Ø D	Install. length L	Install. length L1	Z
PVCT 201620	20	16	28	27	25.0	11
PVCT 251625	25	16	34	33	28.0	14
PVCT 252025	25	20	33	33	32.5	14
PVCT 322032	32	20	41	39	36.5	17
PVCT 322532	32	25	41	39	39.5	17
PVCT 402040	40	20	50	47	41.0	21
PVCT 402540	40	25	50	47	44.0	21
PVCT 403240	40	32	50	47	47.0	21
PVCT 502550	50	25	61	57	49.5	26
PVCT 503250	50	32	61	57	52.5	26
PVCT 504050	50	40	61	57	56.5	26
PVCT 633263	63	32	76	71	60.0	33
PVCT 634063	63	40	76	71	64.0	33
PVCT 635063	63	50	76	71	69.0	33
PVCT 754075	75	40	90	83	71.0	39
PVCT 755075	75	50	90	83	76.0	39
PVCT 756375	75	63	90	83	83.0	39
PVCT 905090	90	50	108	97	85.0	46
PVCT 906390	90	63	108	97	92.0	46
PVCT 907590	90	75	108	97	98.0	46
PVCT 11050110	110	50	131	117	96.5	56
PVCT 11063110	110	63	131	117	103.5	56
PVCT 11075110	110	75	131	117	109.5	56
PVCT 11090110	110	90	131	117	116.5	56

Adhesive sockets PVC-U — PN 16

Warning: Not suitable for compressed air or other gases under pressure!



9101

Type	Internal Ø d	External Ø D	Installation length L
PVCMU 16	16	23	31
PVCMU 20	20	27	35
PVCMU 25	25	33	41
PVCMU 32	32	41	47
PVCMU 40	40	50	55
PVCMU 50	50	61	65
PVCMU 63	63	75	79
PVCMU 75	75	90	92
PVCMU 90	90	108	107
PVCMU 110	110	129	128

Adhesive reductions, short PVC-U — PN 16

Warning: Not suitable for compressed air or other gases under pressure!

figure A

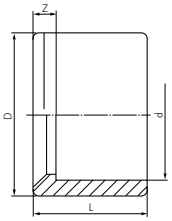
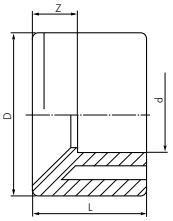


figure B



9003

Type	External Ø D	Internal Ø d	Installation length L	Z	Figure
PVCR 2016	20	16	16	2	A
PVCR 2516	25	16	19	5	B
PVCR 2520	25	20	19	3	A
PVCR 3216	32	16	22	8	B
PVCR 3220	32	20	22	6	A
PVCR 3225	32	25	22	3	A
PVCR 4020	40	20	26	10	B
PVCR 4025	40	25	26	7	A
PVCR 4032	40	32	26	4	A
PVCR 5025	50	25	31	12	B
PVCR 5032	50	32	31	9	B
PVCR 5040	50	40	31	5	A
PVCR 6332	63	32	38	16	B
PVCR 6340	63	40	38	12	B
PVCR 6350	63	50	38	7	A
PVCR 7540	75	40	44	18	B
PVCR 7550	75	50	44	13	B
PVCR 7563	75	63	44	6	A
PVCR 9050	90	50	51	20	B
PVCR 9063	90	63	51	13	B
PVCR 9075	90	75	51	7	A
PVCR 11063	110	63	61	23	B
PVCR 11075	110	75	61	17	B
PVCR 11090	110	90	61	10	A

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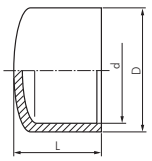
Adhesive sockets end caps, PVC-U — PN 16

Warning: Not suitable for compressed air or other gases under pressure!

Type	Internal Ø d	External Ø D	Installation length L
PVCVK 16	16	23	22
PVCVK 20	20	27	30
PVCVK 25	25	33	31
PVCVK 32	32	41	36
PVCVK 40	40	51	43
PVCVK 50	50	61	49
PVCVK 63	63	75	57
PVCVK 75	75	88	67
PVCVK 90	90	105	81
PVCVK 110	110	128	97



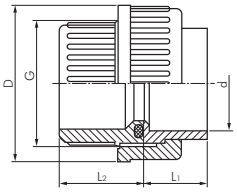
9601

Adhesive sockets screw connections, PVC-U — PN 16

Materials: O-ring: EPDM/FKM

Warning: Not suitable for compressed air or other gases under pressure!

Type EPDM	Type FKM	Internal Ø d	External Ø D	Installation length L1	Installation length L2	Union nut G
PVCGV 16 EPDM	PVCGV 16 FKM	16	34	17	24	Rp 3/4"
PVCGV 20 EPDM	PVCGV 20 FKM	20	42	19	26	Rp 1"
PVCGV 25 EPDM	PVCGV 25 FKM	25	52	22	29	Rp 1 1/4"
PVCGV 32 EPDM	PVCGV 32 FKM	32	59	25	32	Rp 1 1/2"
PVCGV 40 EPDM	PVCGV 40 FKM	40	72	29	38	Rp 2"
PVCGV 50 EPDM	PVCGV 50 FKM	50	79	34	45	Rp 2 1/4"
PVCGV 63 EPDM	PVCGV 63 FKM	63	96	41	56	Rp 2 3/4"
PVCGV 75 EPDM	---	75	119	47	62	Rp 3 1/2"
PVCGV 90 EPDM	---	90	134	56	69	Rp 4"
PVCGV 110 EPDM	---	110	163	66	79	Rp 5"

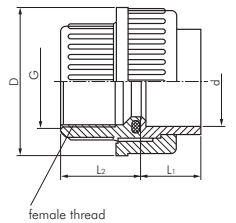


Adhesive sockets threaded connections, female threads PVC-U (only for plastic threads) — PN 16

Materials: O-ring: EPDM/FKM

Warning: Not suitable for compressed air or other gases under pressure!

Type EPDM	Type FKM	Internal Ø d	Thread female G	External Ø D	Installation length L1	Installation length L2
PVCGVIG 1638 EPDM	PVCGVIG 1638 FKM	16	Rp 3/8"	34	17	25
PVCGVIG 2012 EPDM	PVCGVIG 2012 FKM	20	Rp 1/2"	42	19	26
PVCGVIG 2534 EPDM	PVCGVIG 2534 FKM	25	Rp 3/4"	52	22	29
PVCGVIG 3210 EPDM	PVCGVIG 3210 FKM	32	Rp 1"	59	25	32
PVCGVIG 40114 EPDM	PVCGVIG 40114 FKM	40	Rp 1 1/4"	72	29	38
PVCGVIG 50112 EPDM	PVCGVIG 50112 FKM	50	Rp 1 1/2"	79	34	45
PVCGVIG 6320 EPDM	PVCGVIG 6320 FKM	63	Rp 2"	96	41	56
PVCGVIG 75212 EPDM	---	75	Rp 2 1/2"	119	47	62
PVCGVIG 9030 EPDM	---	90	Rp 3"	134	56	69
PVCGVIG 11040 EPDM	---	110	Rp 4"	163	66	79

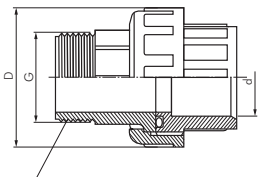


Adhesive sockets threaded connections, male threads PVC-U (only for plastic threads) — PN 16

Materials: O-ring: EPDM/FKM

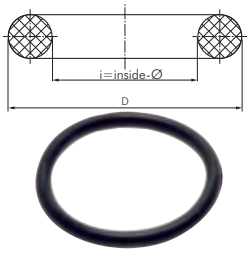
Warning: Not suitable for compressed air or other gases under pressure!

Type EPDM	Type FKM	Internal Ø d	Thread male G	External Ø D	Union nut G1
PVCGVAG 1638 EPDM	PVCGVAG 1638 FKM	16	R 3/8"	36	Rp 3/4"
PVCGVAG 2012 EPDM	PVCGVAG 2012 FKM	20	R 1/2"	41	Rp 1"
PVCGVAG 2534 EPDM	PVCGVAG 2534 FKM	25	R 3/4"	52	Rp 1 1/4"
PVCGVAG 3210 EPDM	PVCGVAG 3210 FKM	32	R 1"	60	Rp 1 1/2"
PVCGVAG 40114 EPDM	PVCGVAG 40114 FKM	40	R 1 1/4"	74	Rp 2"
PVCGVAG 50112 EPDM	PVCGVAG 50112 FKM	50	R 1 1/2"	80	Rp 2 1/4"
PVCGVAG 6320 EPDM	PVCGVAG 6320 FKM	63	R 2"	99	Rp 2 3/4"

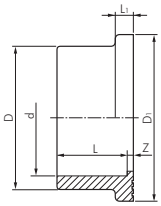


O-rings for screw connections PVC-U — PN 16

Type EPDM	Type FKM	Nominal Ø d	Internal Ø i	External Ø D
PVCOR 16 EPDM	PVCOR 16 FKM	16	15.5	20.7
PVCOR 20 EPDM	PVCOR 20 FKM	20	20.2	27.3
PVCOR 25 EPDM	PVCOR 25 FKM	25	28.2	35.2
PVCOR 32 EPDM	PVCOR 32 FKM	32	32.9	40.0
PVCOR 40 EPDM	PVCOR 40 FKM	40	40.6	51.3
PVCOR 50 EPDM	PVCOR 50 FKM	50	47.0	57.7
PVCOR 63 EPDM	PVCOR 63 FKM	63	59.7	70.4
PVCOR 90 EPDM	---	90	91.4	102.1



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



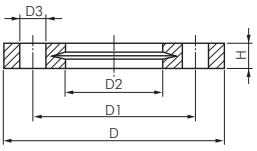
7901

8001

Adhesive flange adaptors for loose flanges PVC-U — PN 16

Warning: Not suitable for compressed air or other gases under pressure!

Type	Internal Ø d	External Ø D	DN	Flange Ø D_1	Install. length L	Flange width L_1	Z
PVCBB 20	20	27	15	34	19	6	3
PVCBB 25	25	33	20	41	22	7	3
PVCBB 32	32	41	25	50	25	7	3
PVCBB 40	40	50	32	61	29	8	3
PVCBB 50	50	61	40	73	34	8	3
PVCBB 63	63	76	50	90	41	9	3
PVCBB 75	75	90	65	106	47	10	3
PVCBB 90	90	108	80	125	56	11	5
PVCBB 110	110	131	100	150	66	12	5

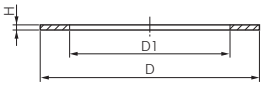


7000

Loose flanges PVC-U — PN 16/10

Warning: Not suitable for compressed air or other gases under pressure!

Type	Nom. Ø d	External Ø D	DN	Hole circle Ø D_1	Internal Ø D_2	Hole Ø D_3	Height H
PVCLF 20	20	95	15	65	28	14	12
PVCLF 25	25	105	20	75	34	14	13
PVCLF 32	32	115	25	85	42	14	15
PVCLF 40	40	140	32	100	51	18	16
PVCLF 50	50	150	40	110	62	18	17
PVCLF 63	63	165	50	125	78	18	18
PVCLF 75	75	185	65	145	92	18	22
PVCLF 90	90	200	80	160	110	18	23
PVCLF 110	110	220	100	180	133	18	24



Flat seals for PVC-U loose flanges

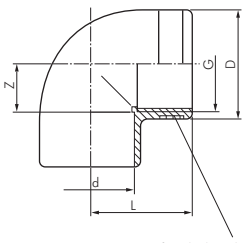
Type EPDM	Type FKM	Nominal Ø d	External Ø D	DN	Internal Ø D_1	Height H
PVCDR 20 EPDM	PVCDR 20 FKM	20	29	15	20	2
PVCDR 25 EPDM	PVCDR 25 FKM	25	35	20	24	2
PVCDR 32 EPDM	PVCDR 32 FKM	32	44	25	29	2
PVCDR 40 EPDM	PVCDR 40 FKM	40	58	32	40	2
PVCDR 50 EPDM	PVCDR 50 FKM	50	70	40	50	2
PVCDR 63 EPDM	PVCDR 63 FKM	63	88	50	63	2
PVCDR 75 EPDM	PVCDR 75 FKM	75	103	65	74	2
PVCDR 90 EPDM	PVCDR 90 FKM	90	123	80	90	2.5*
PVCDR 110 EPDM	PVCDR 110 FKM	110	140	100	110	2.5*

* FKM: 3 mm

Adhesive threaded angles 90° PVC-U — PN 16/10

Note:
- Reinforcement ring rust free (V2A)
- Connection for plastic or metal screw threads
- Do not use PVC-U damaging thread sealing paste!

Warning: Not suitable for compressed air or other gases under pressure!

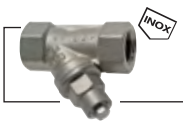


Type	Internal Ø d	Thread female G	External Ø D	Length L	Z
PVCWG 2012	20	Rp 1/2"	28	25	11
PVCWG 2534	25	Rp 3/4"	34	30	14
PVCWG 3210	32	Rp 1"	43	36	17
PVCWG 40114	40	Rp 1 1/4"	54	41	21
PVCWG 50112	50	Rp 1 1/2"	63	46	26
PVCWG 6320	63	Rp 2"	78	57	33
PVCWG 75212*	75	Rp 2 1/2"	89	84	40
PVCWG 9030*	90	Rp 3"	106	99	48
PVCWG 11040*	110	Rp 4"	129	119	58

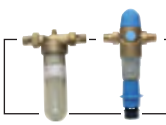
* without external reinforcement, connection only for plastic thread PN 10

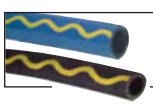
1002

Ball valves
from page 280



Strainers made of stainless steel on page 359


Fine and backwash filter for drinking water on page 361


Industrial hoses from page 213

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

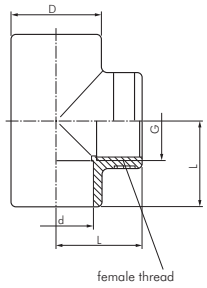
Adhesive threaded T pieces PVC-U — PN 16/10

Note: • Reinforcement ring rust free (V2A)
• Connection for plastic or metal screw threads
• Do not use PVC-U damaging thread sealing paste!

Warning: Not suitable for compressed air or other gases under pressure!

Type	Internal Ø d	Thread female G	External Ø D	Installation length L
PVCTG 2012	20	Rp 1/2"	28	25
PVCTG 2534	25	Rp 3/4"	34	30
PVCTG 3210	32	Rp 1"	43	36
PVCTG 40114	40	Rp 1 1/4"	54	41
PVCTG 50112	50	Rp 1 1/2"	63	46
PVCTG 6320	63	Rp 2"	78	57
PVCTG 75212*	75	Rp 2 1/2"	89	83
PVCTG 9030*	90	Rp 3"	106	98
PVCTG 11040*	110	Rp 4"	129	118

* without external reinforcement, connection only for plastic thread PN 10



2002

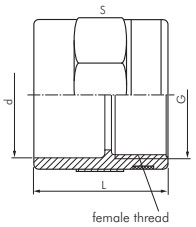
Adhesive threaded sockets PVC-U — PN 16/10

Note: • Reinforcement ring rust free (V2A)
• Connection for plastic or metal screw threads
• Do not use PVC-U damaging thread sealing paste!

Warning: Not suitable for compressed air or other gases under pressure!

Type	Internal Ø d	Thread female G	Hexagon S	Installation length L	PN
PVCMUG 2012	20	Rp 1/2"	27	33	16
PVCMUG 2534	25	Rp 3/4"	33	38	16
PVCMUG 3210	32	Rp 1"	41	44	16
PVCMUG 40114	40	Rp 1 1/4"	50	49	16
PVCMUG 50112	50	Rp 1 1/2"	61	54	16
PVCMUG 6320	63	Rp 2"	75	65	16
PVCMUG 75212*	75	Rp 2 1/2"	90	82	10
PVCMUG 9030*	90	Rp 3"	108	94	10
PVCMUG 11040*	110	Rp 4"	135	110	10

* without external reinforcement, connection only for plastic thread PN 10



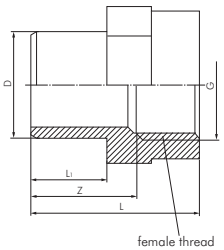
9102

Adhesive transition socket nipples PVC-U — PN 16

Note: • Reinforcement ring rust free (V2A)
• Connection for plastic or metal screw threads
• Do not use PVC-U damaging thread sealing paste!

Warning: Not suitable for compressed air or other gases under pressure!

Type	External Ø D	Thread female G	Socket length L1	Z	Installation length L
PVCMUGN 2012	20	Rp 1/2"	16	24	39.0
PVCMUGN 2034	20	Rp 3/4"	16	24	40.3
PVCMUGN 2512	25	Rp 1/2"	19	27	42.0
PVCMUGN 2534	25	Rp 3/4"	19	27	43.3
PVCMUGN 2510	25	Rp 1"	19	27	46.1
PVCMUGN 3234	32	Rp 3/4"	22	30	46.3
PVCMUGN 3210	32	Rp 1"	22	30	49.1
PVCMUGN 4010	40	Rp 1"	26	36	55.1
PVCMUGN 40114	40	Rp 1 1/4"	26	36	57.4
PVCMUGN 50114	50	Rp 1 1/4"	31	41	62.4
PVCMUGN 50112	50	Rp 1 1/2"	31	41	62.4
PVCMUGN 5020	50	Rp 2"	31	41	66.7
PVCMUGN 6320	63	Rp 2"	38	48	73.7
PVCMUGN 7520	75	Rp 2"	44	53	78.7



9004

Pressure gauge from page 366

Cleaning technology on page 582

Push-in hoses on page 228

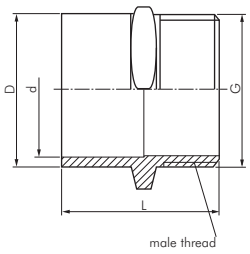
Industrial cleaner and cleaning cloths on page 582

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Sealant for PVC threaded fittings on page 548

Adhesive threaded nipples PVC-U, int. & ext. bonding surfaces (only for plastic threads) PN 10

Warning: Not suitable for compressed air or other gases under pressure!

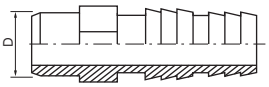


9105

9135

Type	Internal Ø d	External Ø D	Thread male G	Install. length L
PVCGN 121638	12	16	Rp 3/8"	36
PVCGN 162038	16	20	Rp 3/8"	39
PVCGN 162012	16	20	Rp 1/2"	42
PVCGN 202538	20	25	Rp 3/8"	42
PVCGN 202512	20	25	Rp 1/2"	45
PVCGN 202534	20	25	Rp 3/4"	47
PVCGN 253212	25	32	Rp 1/2"	49
PVCGN 253234	25	32	Rp 3/4"	51
PVCGN 253210	25	32	Rp 1"	54
PVCGN 324034	32	40	Rp 3/4"	55
PVCGN 324010	32	40	Rp 1"	58
PVCGN 3240114	32	40	Rp 1 1/4"	60
PVCGN 405010	40	50	Rp 1"	64
PVCGN 4050114	40	50	Rp 1 1/4"	66
PVCGN 4050112	40	50	Rp 1 1/2"	70
PVCGN 5063114	50	63	Rp 1 1/4"	73
PVCGN 5063112	50	63	Rp 1 1/2"	73
PVCGN 506320	50	63	Rp 2"	78
PVCGN 6375112	63	75	Rp 1 1/2"	80
PVCGN 637520	63	75	Rp 2"	84
PVCGN 6375212	63	75	Rp 2 1/2"	89
PVCGN 759020	75	90	Rp 2"	91
PVCGN 7590212	75	90	Rp 2 1/2"	96
PVCGN 759030	75	90	Rp 3"	99
PVCGN 90110212	90	110	Rp 2 1/2"	106
PVCGN 9011030	90	110	Rp 3"	109
PVCGN 9011040	90	110	Rp 4"	116
PVCGN 11012530	110	125	Rp 3"	115
PVCGN 11012540	110	125	Rp 4"	120
PVCGN 11012550	110	125	Rp 5"	120

Adhesive hose nozzles PVC-U PN 16



Warning: Not suitable for compressed air or other gases under pressure!

9604

Type	External Ø D	Hose Ø internal	Installation length
PVCST 16	16	16	66
PVCST 20	20	20	70
PVCST 25	25	25	79
PVCST 32	32	32	83
PVCST 40	40	40	96
PVCST 50	50	50	108
PVCST 63	63	60	130

Threaded nozzles PVC-U (only for plastic threads) PN 10

Warning: Not suitable for compressed air or other gases under pressure!

Type	Thread	Hose Ø internal	Installation length
GT 1412 PVC	Rp 1/4"	12	52
GT 3816 PVC	Rp 3/8"	16	54
GT 1220 PVC	Rp 1/2"	20	60
GT 3425 PVC	Rp 3/4"	25	67
GT 1032 PVC	Rp 1"	32	80
GT 11440 PVC	Rp 1 1/4"	40	84
GT 11240 PVC	Rp 1 1/2"	40	89
GT 11250 PVC	Rp 1 1/2"	50	99
GT 2060 PVC	Rp 2"	60	100

Adhesive bulkhead screw connections (container connectors) PVC-U PN 10

Warning: Not suitable for compressed air or other gases under pressure!

Type	Sleeves internal Ø	Sockets external Ø	Mounting male thread
SV 202534 PVC	20	25	Rp 3/4"
SV 253210 PVC	25	32	Rp 1"
SV 3240114 PVC	32	40	Rp 1 1/4"
SV 4050134 PVC	40	50	Rp 1 3/4"
SV 506320 PVC	50	63	Rp 2"
SV 6375212 PVC	63	75	Rp 2 1/2"
SV 759030 PVC	75	90	Rp 3"

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Double nipples PVC-U (only for plastic threads) PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!

Type	Thread	Thread
DN 3838 PVC	Rp 3/8"	Rp 3/8"
DN 1238 PVC	Rp 1/2"	Rp 3/8"
DN 1212 PVC	Rp 1/2"	Rp 1/2"
DN 3412 PVC	Rp 3/4"	Rp 1/2"
DN 3434 PVC	Rp 3/4"	Rp 3/4"
DN 1034 PVC	Rp 1"	Rp 3/4"
DN 1010 PVC	Rp 1"	Rp 1"
DN 11410 PVC	Rp 1 1/4"	Rp 1"
DN 114114 PVC	Rp 1 1/4"	Rp 1 1/4"
DN 112114 PVC	Rp 1 1/2"	Rp 1 1/4"
DN 112112 PVC	Rp 1 1/2"	Rp 1 1/2"
DN 20112 PVC	Rp 2"	Rp 1 1/2"
DN 2020 PVC	Rp 2"	Rp 2"
DN 21220 PVC	Rp 2 1/2"	Rp 2"
DN 212212 PVC	Rp 2 1/2"	Rp 2 1/2"
DN 30212 PVC	Rp 3"	Rp 2 1/2"
DN 3030 PVC	Rp 3"	Rp 3"
DN 4030 PVC	Rp 4"	Rp 3"
DN 4040 PVC	Rp 4"	Rp 4"

Reducing nipples PVC-U (only for plastic threads) PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!

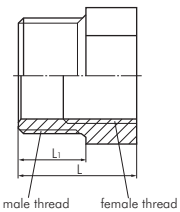
Type	Thread male		Thread female
RN 1238 PVC	Rp 1/2"		Rp 3/8"
RN 1234 PVC	Rp 1/2"	extended	Rp 3/4"
RN 3438 PVC	Rp 3/4"		Rp 3/8"
RN 3412 PVC	Rp 3/4"		Rp 1/2"
RN 3410 PVC	Rp 3/4"	extended	Rp 1"
RN 1038 PVC	Rp 1"		Rp 3/8"
RN 1012 PVC	Rp 1"		Rp 1/2"
RN 1034 PVC	Rp 1"		Rp 3/4"
RN 10114 PVC	Rp 1"	extended	Rp 1 1/4"
RN 11412 PVC	Rp 1 1/4"		Rp 1/2"
RN 114 34 PVC	Rp 1 1/4"		Rp 3/4"
RN 11410 PVC	Rp 1 1/4"		Rp 1"
RN 114112 PVC	Rp 1 1/4"	extended	Rp 1 1/2"
RN 11234 PVC	Rp 1 1/2"		Rp 3/4"
RN 11210 PVC	Rp 1 1/2"		Rp 1"
RN 112114 PVC	Rp 1 1/2"		Rp 1 1/4"
RN 11220 PVC	Rp 1 1/2"	extended	Rp 2"
RN 2010 PVC	Rp 2"		Rp 1"
RN 20114 PVC	Rp 2"		Rp 1 1/4"
RN 20112 PVC	Rp 2"		Rp 1 1/2"
RN 20212 PVC	Rp 2"	extended	Rp 2 1/2"
RN 30112 PVC	Rp 3"		Rp 1 1/2"
RN 3020 PVC	Rp 3"		Rp 2"
RN 30212 PVC	Rp 3"		Rp 2 1/2"
RN 3040 PVC	Rp 3"	extended	Rp 4"
RN 4020 PVC	Rp 4"		Rp 2"
RN 40212 PVC	Rp 4"		Rp 2 1/2"
RN 4030 PVC	Rp 4"		Rp 3"

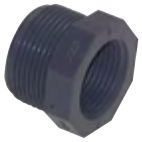
Reducing nipples PVC-U short version (only for plastic threads) PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!

Type	Thread male	Thread female	Install. length L	Install. length L1
RNK 1214 PVC	Rp 1/2"	Rp 1/4"	27	15
RNK 3412 PVC	Rp 3/4"	Rp 1/2"	30	14
RNK 1034 PVC	Rp 1"	Rp 3/4"	34	19
RNK 11410 PVC	Rp 1 1/4"	Rp 1"	36	21
RNK 112114 PVC	Rp 1 1/2"	Rp 1 1/4"	36	21
RNK 20112 PVC	Rp 2"	Rp 1 1/2"	42	26
RNK 21220 PVC	Rp 2 1/2"	Rp 2"	47	30
RNK 30212 PVC	Rp 3"	Rp 2 1/2"	51	33
RNK 4030 PVC	Rp 4"	Rp 3"	64	39



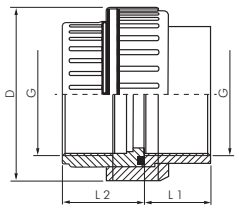


All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Threaded connections, female threads PVC-U (only for plastic threads) PN 16

Materials: O-ring: EPDM/FKM

Warning: Not suitable for compressed air or other gases under pressure!



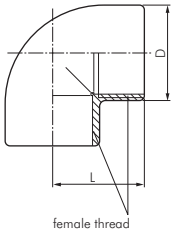
Type EPDM	Type FKM	Thread female G	External Ø D	Install. length L1	Install. length L2
PVCGVIG 38 EPDM	PVCGVIG 38 FKM	Rp 3/8"	34	17	25
PVCGVIG 12 EPDM	PVCGVIG 12 FKM	Rp 1/2"	42	19	26
PVCGVIG 34 EPDM	PVCGVIG 34 FKM	Rp 3/4"	52	22	29
PVCGVIG 10 EPDM	PVCGVIG 10 FKM	Rp 1"	59	25	32
PVCGVIG 114 EPDM	PVCGVIG 114 FKM	Rp 1 1/4"	72	29	38
PVCGVIG 112 EPDM	PVCGVIG 112 FKM	Rp 1 1/2"	79	34	45
PVCGVIG 20 EPDM	PVCGVIG 20 FKM	Rp 2"	96	41	56
PVCGVIG 212 EPDM *	PVCGVIG 212 FKM *	Rp 2 1/2"	119	47	62
PVCGVIG 30 EPDM *	PVCGVIG 30 FKM *	Rp 3"	134	56	69
PVCGVIG 40 EPDM *	PVCGVIG 40 FKM *	Rp 4"	163	66	79

* PN 10

Threaded angles PVC-U (only for plastic threads) PN 10

Note: • Do not use PVC-U damaging thread seals!

Warning: Not suitable for compressed air or other gases under pressure!

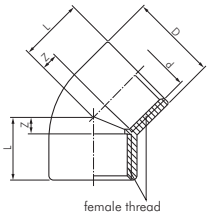


Type	Thread	External Ø D	Installation length L
W 38 PVC	Rp 3/8"	23.5	23
W 12 PVC	Rp 1/2"	28.0	25
W 34 PVC	Rp 3/4"	34.0	30
W 10 PVC	Rp 1"	43.0	36
W 114 PVC	Rp 1 1/4"	54.0	41
W 112 PVC	Rp 1 1/2"	63.0	46
W 20 PVC	Rp 2"	78.0	57
W 212 PVC	Rp 2 1/2"	89.0	84
W 30 PVC	Rp 3"	106.0	99
W 40 PVC	Rp 4"	129.0	119

Threaded angles 45° PVC-U (only for plastic threads) PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!

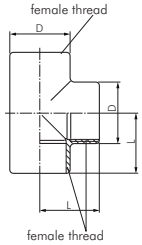


Type	Thread	External Ø D	Installation length L	Z
W 1245 PVC	Rp 1/2"	28	15.0	6.0
W 3445 PVC	Rp 3/4"	34	16.3	8.7
W 1045 PVC	Rp 1"	43	19.1	10.9
W 11445 PVC	Rp 1 1/4"	54	21.4	14.6
W 11245 PVC	Rp 1 1/2"	63	21.4	21.6
W 2045 PVC	Rp 2"	78	25.7	26.3
W 21245 PVC	Rp 2 1/2"	89	30.2	30.8
W 3045 PVC	Rp 3"	106	33.3	37.7

Threaded T pieces PVC-U (only for plastic threads) PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!



Type	Thread	External Ø D	Installation length L
T 38 PVC	Rp 3/8"	23.5	23
T 12 PVC	Rp 1/2"	28.0	25
T 34 PVC	Rp 3/4"	34.0	30
T 10 PVC	Rp 1"	43.0	36
T 114 PVC	Rp 1 1/4"	54.0	41
T 112 PVC	Rp 1 1/2"	63.0	46
T 20 PVC	Rp 2"	78.0	57
T 212 PVC	Rp 2 1/2"	89.0	83
T 30 PVC	Rp 3"	106.0	99
T 40 PVC	Rp 4"	129.0	119

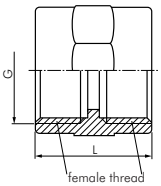
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Threaded sockets PVC-U (only for plastic threads) — PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!

Type	Thread female G	Installation length L
MU 38 PVC	Rp 3/8"	31
MU 12 PVC	Rp 1/2"	31
MU 34 PVC	Rp 3/4"	35
MU 10 PVC	Rp 1"	41
MU 114 PVC	Rp 1 1/4"	43
MU 112 PVC	Rp 1 1/2"	43
MU 20 PVC	Rp 2"	51
MU 212 PVC	Rp 2 1/2"	92
MU 30 PVC	Rp 3"	108
MU 40 PVC	Rp 4"	128

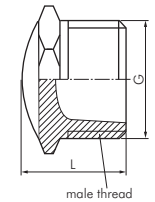


Closing plugs PVC-U (only for plastic threads) — PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!

Type	Thread male G	Installation length L
VS 38 PVC	Rp 3/8"	22
VS 12 PVC	Rp 1/2"	27
VS 34 PVC	Rp 3/4"	30
VS 10 PVC	Rp 1"	34
VS 114 PVC	Rp 1 1/4"	36
VS 112 PVC	Rp 1 1/2"	37
VS 20 PVC	Rp 2"	42
VS 212 PVC	Rp 2 1/2"	50
VS 30 PVC	Rp 3"	59
VS 40 PVC	Rp 4"	68



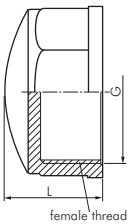
9609

End caps PVC-U (only for plastic threads) — PN 10

Note: • Do not use PVC-U damaging thread sealing agents!

Warning: Not suitable for compressed air or other gases under pressure!

Type	Thread female G	Installation length L
VK 38 PVC	Rp 3/8"	20
VK 12 PVC	Rp 1/2"	23
VK 34 PVC	Rp 3/4"	28
VK 10 PVC	Rp 1"	33
VK 114 PVC	Rp 1 1/4"	36
VK 112 PVC	Rp 1 1/2"	43
VK 20 PVC	Rp 2"	50
VK 212 PVC	Rp 2 1/2"	64
VK 30 PVC	Rp 3"	76
VK 40 PVC	Rp 4"	91



9606

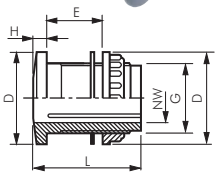
Bulkhead screw connections (no female threads) — PN 10

Materials: Polypropylene, seal: EPDM

Type polypropylene	G (bulkhead thread)	L	NW	H	D	E max.
SV 12 PP	G 1/2"	49	13.0	5	38.0	30.5
SV 34 PP	G 3/4"	52	18.0	5	43.0	33.5
SV 10 PP	G 1"	56	24.0	5	50.0	38.5
SV 114 PP	G 1 1/4"	65	29.5	5	57.5	52.5
SV 112 PP	G 1 1/2"	75	34.5	5	63.5	62.5
SV 20 PP	G 2"	91	45.5	5	73.0	77.5

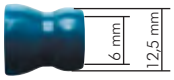
: base material FDA approved

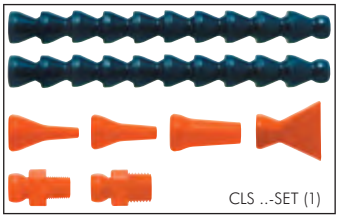
For placing drain cocks in containers, barrels or canisters as bulkhead screw connections



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Coolant hoses

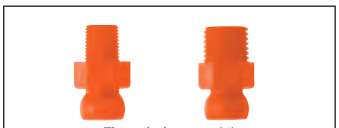



CLS ..-SET (1)

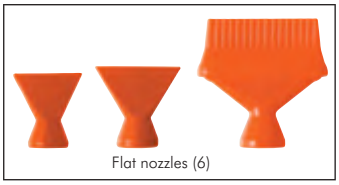
Adjustable coolant hose systems - Cool-Line 1/4" (NW 6) PN 6

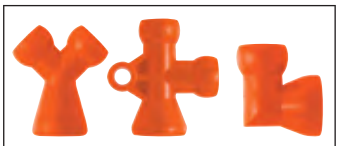
Material: POM
Flow: To 15.4 l/min.
Suitable: This system is suitable for conducting petroleum products, coolants, chemicals and dielectric of EDM machines.
Compatible with the systems: Flexoline, Hydra, Kümli, Loc-Line and Ossmann
Parts compatible with the systems: Snaploc, Lubecool, Vario and Maxiflex

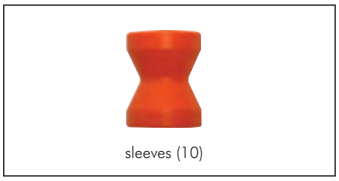
CLS 141-MAG 1 (2)
CLS 141-MAG 2 (3)

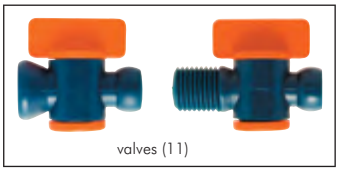

Threaded pieces (4)

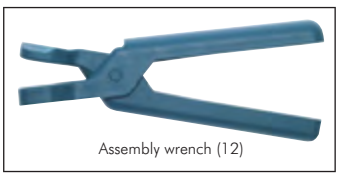
Round nozzels (5)


Flat nozzles (6)

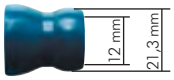

Y-distributors (7) T-distributors (8) Elbow connections (9)


sleeves (10)


valves (11)


Assembly wrench (12)

Type	Description	Figure
CLS 141-SET	Set: 2 adjustable coolant hose pieces: 2 x 140 mm=280 mm (2 x 10 modules) 2 threaded connections (1 x R 1/8", 1 x R 1/4") 3 round nozzles (1.6 mm, 3.2 mm and 6.4 mm) 1 flat nozzle 24 mm wide (inside)	1
CLS 141-MAG 1	Set with magnetic foot: 1 adjustable coolant hose (16 modules) with threaded piece R 1/4" 1 round nozzle (6.4 mm) 1 magnetic foot with ball valve and 13 mm hose connection	2
CLS 141-MAG 2	Set with magnetic foot: 2 adjustable coolant hose pieces (13 modules) 2 Flat nozzles 24 mm wide (inside) 1 Y distributor with threaded piece R 1/4" 1 magnetic foot with ball valve and 13 mm hose connection	3
CLS 141	Adjustable coolant hose piece 140 mm (10 modules)	
CLS 141-GS18	Threaded piece R 1/8"	4
CLS 141-GS14	Threaded piece R 1/4"	4
CLS 141-RD16	Round nozzle with 1.6 mm Ø (inside)	5
CLS 141-RD32	Round nozzle with 3.2 mm Ø (inside)	5
CLS 141-RD64	Round nozzle with 6.4 mm Ø (inside)	5
CLS 141-FD24	Flat nozzle 24 mm wide (inside)	6
CLS 141-FD30	Flat nozzle 30 mm wide (inside)	6
CLS 141-FDL16	Flat nozzle 16-hole	6
CLS 141-Y	Y distributor	7
CLS 141-T	T distributor	8
CLS 141-L	Elbow connection	9
CLS 141-MU	Sleeve	10
CLS 141-KHS	Stop cock with adjustable coolant hose connection on both sides	11
CLS 141-KHG	Stop cock with adjustable coolant hose connection and thread R 1/4"	11
CLS 141-RUCK	Check valve for adjustable coolant hose	
CLS 141-ZANGE	Assembly wrench for adjustable coolant hose 1/4"	12



Adjustable coolant hose systems - Cool-Line 1/2" (NW 12) PN 6

Material: POM
Flow: To 28.8 l/min.
Suitable: This system is suitable for conducting petroleum products, coolants, chemicals and dielectric of EDM machines.
Compatible with the systems: Flexoline, Hydra, Kümli, Loc-Line and Ossmann
Parts compatible with the systems: Snaploc, Lubecool, Vario and Maxiflex

Type	Description	Figure
CLS 121-SET	Set: 2 adjustable coolant hose pieces 2 x 130 mm=260 mm (2 x 5 modules) 2 threaded connections (1 x R 3/8", 1 x R 1/2") 3 round nozzles (6.4 mm, 9.5 mm and 12.7 mm) 1 flat nozzle 32 mm wide (inside)	1
CLS 121	Adjustable coolant hose piece 130 mm (5 modules)	
CLS 121-GS38	Threaded piece R 3/8"	4
CLS 121-GS12	Threaded piece R 1/2"	4
CLS 121-RD64	Round nozzle with 6.4 mm Ø (inside)	5
CLS 121-RD95	Round nozzle with 9.5 mm Ø (inside)	5
CLS 121-RD127	Round nozzle with 12.7 mm Ø (inside)	5
CLS 121-FD32	Flat nozzle 32 mm wide (inside)	6
CLS 121-FD47	Flat nozzle 47 mm wide (inside)	6
CLS 121-FD60	Flat nozzle 60 mm wide (inside)	6
CLS 121-Y	Y distributor	7
CLS 121-T	T distributor	8
CLS 121-L	Elbow connection	9
CLS 121-MU	Sleeve	10
CLS 121-YR	Y reducer (1 x 1/2" --> 2 x 1/4")	7
CLS 121-KHS	Stop cock with adjustable coolant hose connection on both sides	11
CLS 121-KHG	Stop cock with adjustable coolant hose connection and thread R 1/2"	11
CLS 121-ZANGE	Assembly wrench for adjustable coolant hose 1/2"	12

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Coolant hoses made of metal

Materials: Threaded part (DIN 3852-A), hose coil, discharge nozzle: Steel nickel-plated, inside hose: PVC
(for replaceable nozzles: nozzle connection brass nickel-plated with NBR O-ring)

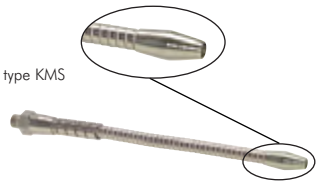
Suitable:
- Coolant and lubricant pipes for cutting machines used for metal processing
- Coolant in spark erosion machines
- Blowing away chippings and metal filings from shapes, work pieces or stamped parts

Distributor bars from page 132

Advantages:
- Completely sealed
- Smooth coolant stream in both directions precisely adjustable, steady
- Small bend radius
- Very rugged and wear resistant
- Resistant against oils, grease and hot chippings etc.

Standard design (MT/nozzle)

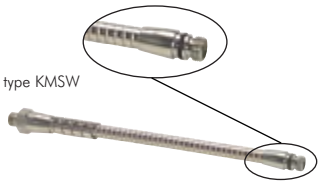
Type	Available lengths 200	250	320	400	500	630	700	800	Bend radius	Thread	DN
KMS 18-**	✓	✓	✓	✓	✓	---	---	---	64	G 1/8"	4
KMS 14-**	✓	✓	✓	✓	✓	✓	✓	✓	72	G 1/4"	6
KMS 38-**	---	✓	✓	✓	✓	✓	✓	✓	88	G 3/8"	8
KMS 12-**	---	---	✓	✓	✓	✓	✓	✓	110	G 1/2"	10
KMS 34-**	---	---	---	---	✓	✓	---	---	110	G 3/4"	16



type KMS

Special type male threads on both sides for replaceable nozzle

Type	Available lengths 200	250	320	400	500	630	Nozzle connection (MT)	Bend radius	Thread	DN
KMSW 18-**	✓	✓	✓	✓	---	---	M 10 x 1	64	G 1/8"	4
KMSW 14-**	✓	✓	✓	✓	✓	---	M 12 x 1	72	G 1/4"	6
KMSW 38-**	---	✓	✓	✓	✓	✓	M 16 x 1	88	G 3/8"	8
KMSW 12-**	---	---	✓	✓	✓	✓	M 18 x 1	110	G 1/2"	10
KMSW 34-**	---	---	---	---	✓	✓	M 26 x 1.5	110	G 3/4"	16



type KMSW

Replaceable nozzles for coolant hose type KMSW

Flat nozzle aluminium	Width x height	Adj. nozzle brass nickel-pl.	Special nozzle for self drilling	External Ø	Connection thread (FT)	DN
KMSW 18-DF	16 x 0.8	KMSW 18-DR	KMSW 18-DS	12.0	M 10 x 1	4
KMSW 14-DF	21 x 1.4	KMSW 14-DR	KMSW 14-DS	15.0	M 12 x 1	6
KMSW 38-DF	26 x 2.0	KMSW 38-DR	KMSW 38-DS	19.0	M 16 x 1	8
KMSW 12-DF	32 x 2.5	KMSW 12-DR	KMSW 12-DS	23.0	M 18 x 1	10
KMSW 34-DF	44 x 3.0	KMSW 34-DR	KMSW 34-DS	31.5	M 26 x 1.5	16

flat nozzle

adjustable nozzle

special nozzle

Magnet holder

KMS 14 MAG	Magnet holder for 1/4" hose with ball valve and 13 mm hose nipple

magnet holder

In your order please enter the required length here!

Order example: KMS 18 - **

Standard type

Order supplement for length:
200 mm . . . . . -200
250 mm . . . . . -250
320 mm . . . . . -320
400 mm . . . . . -400
500 mm . . . . . -500
630 mm . . . . . -630
700 mm . . . . . -700
800 mm . . . . . -800

VORTEX tubes - compressed air operated cold generators

Function: Incoming compressed air is separated into hot air flow and cold air flow by the VORTEX tube. The hot air emerges on one side of the tube, while the cold air is on the other side. The difference in temperatures between the incoming compressed air and the outgoing cold air can be set using the flow control valve. If the outlet temperature goes down, the volume of escaping cold air reduces simultaneously. Temperatures from -40°C on the on the cold air side and up to +110°C on the hot air side are generated. If the air inlet temperature and the pressure remain constant, the outlet temperature can be set with a tolerance of ± 0.6 K.
Materials: Housing: Stainless steel AISI 303, VORTEX generator: Plastic
Temperature range: -20°C to max. +120°C
Operating pressure: 1 - 8 bar, optional: 5 bar (filtered, unoiled compressed air)

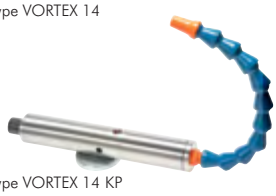
Cooling with compressed air!

type VORTEX 14 B

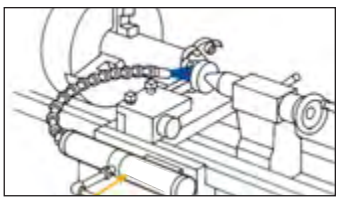
Advantages:
- Low purchase and operating costs
- Maintenance free
- No moving components - no wear
- Only compressed air is required for operation, no electricity
- No residue on the cooled objects from coolant or refrigerant spray

type VORTEX 14

Type	Air inlet	Cold air outlet	Installation length	Tube Ø	Supply volume
VORTEX 14 B	Rp 1/4" FT	G 1/4" MT	210	45	VORTEX tube with red generator
VORTEX 14	Rp 1/4" FT	G 1/2" FT	285	45	VORTEX tube with silencer (for cold air side), 8 pieces. VORTEX generators (yellow, green, red, white, blue, grey, beige), adjustable coolant hose for cold air
VORTEX 14 KP	Rp 1/4" FT	G 1/2" FT	285	45	VORTEX tube with silencer (for cold and hot air side), 4 pieces. VORTEX generators (yellow, red, blue, brown), adjustable coolant hose for cold air, magnetic foot



type VORTEX 14 KP



VORTEX generators

Colour	Yellow	Green	Red***	White	Blue	Grey	Beige	Brown
Temperature*	-31C°	-33C°	-30C°	-34C°	-26C°	-30C°	-24C°	-29C°
Cooling capacity* (kcal/h)	130	130	230	230	380	380	630	630
Air consumption* (l/min)	280	280	420	420	700	700	990	990

* air inlet at 5.5 bar and 20°C, regulating screw 2.5 turns opened (70% of the air jet leaks as cold air)
*** installed as standard in all VORTEX tubes

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Chapter 5 - Ball valves - Shut-off fittings

Ball valves, FT/FT, FT/MT, MT/MT

Sleeve ball valves
brass
FT/FT
Page 280-282

Screw-in ball valves
brass
FT/MT
Page 283

Changeable handles
for standard valves
Page 281

Special ball valves
DVGW, drinking water,
oxygen, brass
Page 281-282

Stainless steel
collar ball valves
Page 284-286

Special ball valves
stainless steel, oxygen,
spring closing
Page 282

Ball valves
with male thread
Page 283

Ball valves with forced exhaust, discharge valves

Mini ball valves
with drainage
Page 287

Brass ball valves
with drainage
Page 287

Stainless steel ball
valves with drainage
Page 287

Manual slide valves
Page 287

Lockable
manual slide valves
safety version
Page 287

3/2-way valves
with push-in fitting
Page 287

Discharge valves
Page 290-291

Mini ball valves & elbow ball valves

Mini ball valves,
compact
Page 288

Mini ball valves,
with toggle grip
Page 288

Mini ball valves, with
screwdriver actuation
Page 288

Mini ball valves,
made of stainless steel
Page 288

Mini ball valves,
with long lever
Page 289

KFE ball valves
and discharge valves
Page 289

Elbow ball valves
Page 286

High pressure ball valves

High pressure ball
valves, steel
Page 292

High pressure ball
valves, stainless steel
Page 292

Block ball valves,
stainless steel
Page 292

High pressure ball
valves with cutting
ring connection
Page 293

Stainless steel high
pressure ball valves
with cutting ring
Page 293

Pneumatic controlled
ball valves
Page 304

High pressure
3-way ball valves
Page 298+315

Shut-off valves, gate valves & needle valves

Needle valves
Page 294

High pressure
needle valves
Page 294

Ball shut-off valves
Page 294

Sleeve shut-off valves
and gate valves
Page 295-296

Swing sleeve
shut-off valves
Page 295-296

Quick shut-off valves
Page 296

Drain and
venting valves
Page 297

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3-way ball valves

3-way T ball valves compact
Page 297

3-way ball valves (L and T hole)
Page 297

Stainless steel 3-way ball valves
Page 297

High pressure 3-way ball valves, steel
Page 298

High pressure 3-way ball valves, stainless steel
Page 298

3-way flange ball valves
Page 299

Stainless steel 3-way flange ball valves
Page 299

Flange ball valves

Compact flange ball valves
Page 300

Stainless steel compact flange ball valves
Page 300

Flange ball valves 1 part
Page 300

Stainless steel flange ball valves
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Compact flange ball valves with pneumatic actuator
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Pneumatically & electrically actuated ball valves and valves

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Ball valves with electr. rotary actuator
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3-way ball valves with electr. rotary actuator
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Strainers
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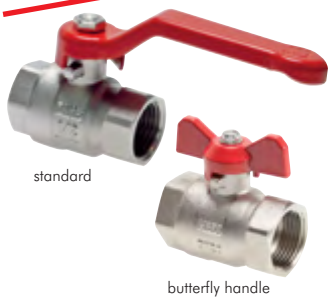
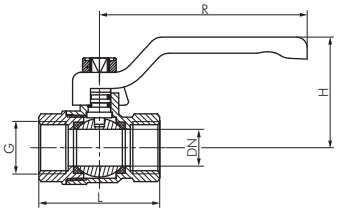
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Especially good value!



standard

butterfly handle



Ball valves, 2-piece, full bore — Eco-Line/PN 25

Materials: Housing: Brass nickel-plated, ball: Brass chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +95°C
Operating range: Compressed air, water, oils
☞ **Optional:** With butterfly handle **-KN** (1/4"-1 1/4")

Type	G	DN	L	H	R	PN
KH 14 B E	Rp 1/4"	9	40.0	38	75	25 bar
KH 38 B E	Rp 3/8"	10	41.0	38	75	25 bar
KH 12 B E	Rp 1/2"	15	48.5	43	85	25 bar
KH 34 B E	Rp 3/4"	19	56.0	46	85	25 bar
KH 10 B E	Rp 1"	24	65.0	54	113	25 bar
KH 114 B E	Rp 1 1/4"	30	76.0	67	142	25 bar
KH 112 B E	Rp 1 1/2"	37	85.0	73	142	25 bar
KH 20 B E*	Rp 2"	47	99.0	83	175	25 bar
KH 212 B E*	Rp 2 1/2"	62	132.0	108	250	25 bar
KH 30 B E*	Rp 3"	74	152.0	117	250	25 bar
KH 40 B E*	Rp 4"	90	178.0	128	250	25 bar

Replacement handles**
G KH 1438 B E
G KH 1438 B E
G KH 1234 B E
G KH 1234 B E
G KH 10 B E
G KH 114112 B E
G KH 114112 B E
G KH 20 B E
G KH 2123040 B E
G KH 2123040 B E
G KH 2123040 B E

* only suitable for water and oils, ** does not fit on ball valves with butterfly handle

☞ **Order example:** KH 14 B E **

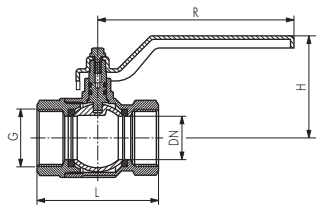
Standard type

Designation for the options:
Butterfly handle . . . . . **-KN**

Value!

standard

butterfly handle



Ball valves, 2-piece, full bore, short design — up to 50 bar

Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +150°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.9 bar)

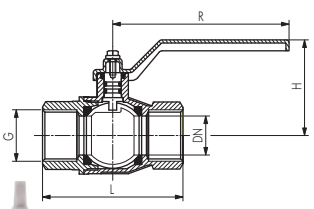
Advantages: • By purchasing the optional combi handles (page 281), you can construct various handle variations:
- Standard handle in red, yellow, blue and black
- Toggle grip in colours red, yellow, blue, black and green
- Flat steel handle in red, yellow and green (optional: lockable)
- Long handle in red

Type standard	H	R	Type butterfly handle	H	R	G	DN	L	PN	Combi handle size*
KH 14 B	37	80	KH 14 B KN	37	24	G 1/4"	10	44.4	50 bar	1
KH 38 B	37	80	KH 38 B KN	37	24	G 3/8"	10	44.4	50 bar	1
KH 12 B	41	80	KH 12 B KN	41	24	G 1/2"	15	50.5	50 bar	1
KH 34 B	55	113	KH 34 B KN	47	31	G 3/4"	20	57.5	40 bar	3
KH 10 B	59	113	KH 10 B KN	51	31	G 1"	25	70.0	40 bar	3
KH 114 B	75	138	KH 114 B KN	64	35	G 1 1/4"	32	80.5	30 bar	4
KH 112 B	81	138	---	---	---	G 1 1/2"	40	94.5	30 bar	4
KH 20 B	96	158	---	---	---	G 2"	50	112.5	25 bar	5
KH 212 B	115	197	---	---	---	G 2 1/2"	65	134.5	18 bar	6
KH 30 B	133	250	---	---	---	G 3"	80	157.0	16 bar	7
KH 40 B	149	250	---	---	---	G 4"	100	190.0	14 bar	7

* combi handles can be found on page 281.

standard

butterfly handle



Ball valves, 2-piece, full bore — up to 50 bar

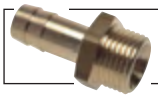
Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +150°C
Length according to DIN 3202-M3
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.9 bar)

Advantages: • By purchasing the optional combi handles (page 281), you can construct various handle variations:
- Standard handle in red, yellow, blue and black
- Toggle grip in colours red, yellow, blue, black and green
- Flat steel handle in red, yellow and green (optional: lockable***)
- Long handle in red

Type standard	H	R	Type butterfly handle	H	R	G	DN	L	PN	Combi handle size**
KH 14	37	80	KH 14 KN	37	24	Rp 1/4"	10	49.5*	50 bar	1
KH 38	37	80	KH 38 KN	37	24	Rp 3/8"	10	52.4*	50 bar	1
KH 12	49	89	KH 12 KN	44	27	Rp 1/2"	15	75.0	50 bar	2
KH 34	58	113	KH 34 KN	50	31	Rp 3/4"	20	80.0	40 bar	3
KH 10	61	113	KH 10 KN	53	31	Rp 1"	25	90.0	40 bar	3
KH 114	75	138	---	---	---	Rp 1 1/4"	32	110.0	30 bar	4
KH 112	91	158	---	---	---	Rp 1 1/2"	40	120.0	30 bar	5
KH 20	98	158	---	---	---	Rp 2"	50	140.0	25 bar	5
KH 212	127	250	---	---	---	G 2 1/2"	65	148.0*	18 bar	7
KH 30	136	250	---	---	---	G 3"	80	168.0*	16 bar	7
KH 40	154	250	---	---	---	G 4"	100	204.0*	14 bar	7

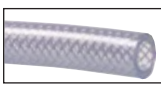
* no DIN length, ** combi handles are found on page 281, *** not for combi handle size 3

LOCTITE Liquid seals, gaskets & tapes from page 549



Threaded nozzles from page 64

Hose clamps from page 234



PVC fabric hoses on page 208

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Ball valves, DVGW tested (PN 5/MOP 5) — up to 50 bar

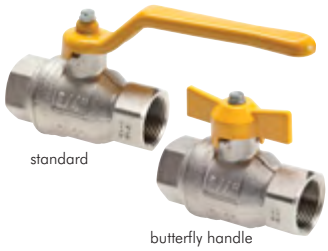
EN 331

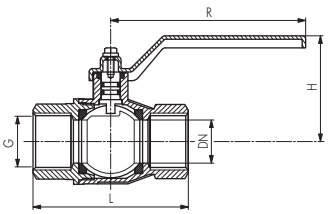
Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +150°C, gas: -20°C to max. +60°C
Length according to DIN 3202-M3
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.9 bar), gases in accordance with DVGW worksheet (e.g. natural gas, city gas, liquid gas up to 5 bar)

Advantages: • By purchasing the optional combi handles (page 281), you can construct various handle variations:
- Standard handle in red, yellow, blue and black
- Toggle grip in colours red, yellow, blue, black and green
- Flat steel handle in red, yellow and green (optional: lockable****)
- Long handle in red

Type standard	H	R	Type butterfly handle	H	R	G	DN	L	PN*	Combi handle size***
KH 14 DVGW	37	80	KH 14 DVGW KN	37	24	Rp 1/4"	10	49.5**	50 bar	1
KH 38 DVGW	37	80	KH 38 DVGW KN	37	24	Rp 3/8"	10	52.4**	50 bar	1
KH 12 DVGW	49	89	KH 12 DVGW KN	44	27	Rp 1/2"	15	75.0	50 bar	2
KH 34 DVGW	58	113	KH 34 DVGW KN	50	31	Rp 3/4"	20	80.0	40 bar	3
KH 10 DVGW	61	113	KH 10 DVGW KN	53	31	Rp 1"	25	90.0	40 bar	3
KH 114 DVGW	75	138	---	---	---	Rp 1 1/4"	32	110.0	30 bar	4
KH 112 DVGW	91	158	---	---	---	Rp 1 1/2"	40	120.0	30 bar	5
KH 20 DVGW	98	158	---	---	---	Rp 2"	50	140.0	25 bar	5

* for gas up to PN 5 bar/MOP 5, ** no DIN length, *** combi handles are found on page 281, **** not for combi handle size 3





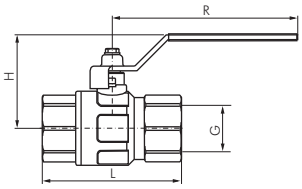
Ball valves for drinking water, DVGW & KTW tested, EN 13828 — up to 50 bar

KTW

Materials: Housing: Brass chrome-plated, lever: Zinc-plated steel, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +150°C
Operating range: Drinking water, water

Type	G	DN	L	H	R	PN	Combi handle size*
KH 14 TW	Rp 1/4"	8	49.5	41.5	85.5	50 bar	1
KH 38 TW	Rp 3/8"	10	52.4	41.5	85.5	50 bar	1
KH 12 TW	Rp 1/2"	15	61.0	49.8	92.5	50 bar	2
KH 34 TW	Rp 3/4"	20	68.0	56.3	113.5	40 bar	3
KH 10 TW	Rp 1"	25	85.0	60.3	113.5	40 bar	3
KH 114 TW	Rp 1 1/4"	32	99.5	76.5	138.0	30 bar	4
KH 112 TW	Rp 1 1/2"	40	109.0	92.0	158.0	30 bar	5
KH 20 TW	Rp 2"	50	130.0	99.0	158.0	25 bar	5

* combi handles can be found on page 281

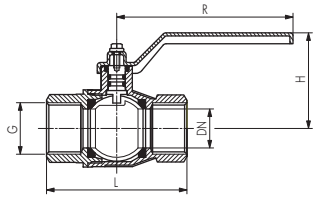


Combi handles for ball valves made of nickel-plated brass

Type red	Type yellow	Type blue	Type black	Type green	Combi size
Standard (steel zinc-plated and painted, size 7: aluminium painted)					
KOMBI 1 S ROT	KOMBI 1 S GELB	KOMBI 1 S BLAU	KOMBI 1 S SCHWARZ	---	1
KOMBI 2 S ROT	KOMBI 2 S GELB	KOMBI 2 S BLAU	KOMBI 2 S SCHWARZ	---	2
KOMBI 3 S ROT	KOMBI 3 S GELB	KOMBI 3 S BLAU	KOMBI 3 S SCHWARZ	---	3
KOMBI 4 S ROT	KOMBI 4 S GELB	KOMBI 4 S BLAU	KOMBI 4 S SCHWARZ	---	4
KOMBI 5 S ROT	KOMBI 5 S GELB	KOMBI 5 S BLAU	KOMBI 5 S SCHWARZ	---	5
KOMBI 6 S ROT	KOMBI 6 S GELB	---	KOMBI 6 S SCHWARZ	---	6
KOMBI 7 S ROT	KOMBI 7 S GELB	---	KOMBI 7 S SCHWARZ	---	7
Butterfly (aluminium painted)					
KOMBI 1 K ROT	KOMBI 1 K GELB	KOMBI 1 K BLAU	KOMBI 1 K SCHWARZ	KOMBI 1 K GRUN	1
KOMBI 2 K ROT	KOMBI 2 K GELB	KOMBI 2 K BLAU	KOMBI 2 K SCHWARZ	KOMBI 2 K GRUN	2
KOMBI 3 K ROT	KOMBI 3 K GELB	KOMBI 3 K BLAU	KOMBI 3 K SCHWARZ	KOMBI 3 K GRUN	3
KOMBI 4 K ROT	---	KOMBI 4 K BLAU	KOMBI 4 K SCHWARZ	---	4
Long (aluminium painted, 60 - 68 - 74 - 78 - 82 - 88 - 120 mm high)					
KOMBI 1 L ROT	---	---	---	---	1
KOMBI 2 L ROT	---	---	---	---	2
KOMBI 3 L ROT	---	---	---	---	3
KOMBI 4 L ROT	---	---	---	---	4
KOMBI 5 L ROT	---	---	---	---	5
KOMBI 6 L ROT	---	---	---	---	6
KOMBI 7 L ROT	---	---	---	---	7
Flat steel (zinc-plated steel with plastic coating)					
KOMBI 1 F ROT	KOMBI 1 F GELB*	---	---	KOMBI 1 F GRUN	1
KOMBI 2 F ROT	KOMBI 2 F GELB*	---	---	KOMBI 2 F GRUN	2
KOMBI 3 F ROT	KOMBI 3 F GELB*	---	---	KOMBI 3 F GRUN	3
KOMBI 4 F ROT	KOMBI 4 F GELB*	---	---	KOMBI 4 F GRUN	4
KOMBI 5 F ROT	KOMBI 5 F GELB*	---	---	KOMBI 5 F GRUN	5
Lock adapter for closing the flat steel handle, 6 mm borehole for VHS 30 H lock					
KOMBI 1 F KEY					1
KOMBI 2 F KEY					2
KOMBI 3 F KEY					3

* with imprint "EN 331"

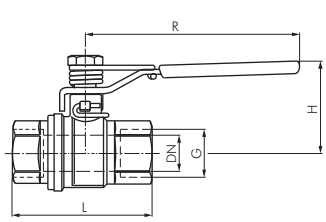
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



Ball valves, 2-piece, full bore, silicone-free production — up to 80 bar

Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE, handle: Aluminium die-casting
Temperature range: -20°C to max. +150°C
Operating range: Compressed air, vacuum (max. -0.9 bar), water, oils, non-corrosive liquids and hydrocarbons

Type	G	DN	L	H	R	PN
KH 14 SF	Rp 1/4"	10	47.5	39.5	80	80 bar
KH 38 SF	Rp 3/8"	10	49.5	39.5	80	80 bar
KH 12 SF	Rp 1/2"	15	65.0	41.5	95	80 bar
KH 34 SF	Rp 3/4"	20	73.5	51.0	115	80 bar
KH 10 SF	Rp 1"	25	86.5	55.0	115	80 bar
KH 114 SF	Rp 1 1/4"	32	101.5	64.5	130	64 bar
KH 112 SF	Rp 1 1/2"	40	111.5	75.5	150	64 bar
KH 20 SF	Rp 2"	50	132.5	87.5	170	64 bar
KH 212 SF	Rp 2 1/2"	65	158.0	108.0	170	40 bar
KH 30 SF	Rp 3"	80	181.5	119.5	235	25 bar
KH 40 SF	Rp 4"	100	219.0	142.0	235	16 bar

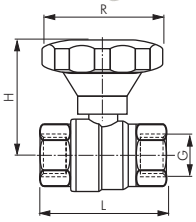


Ball valves with spring return — up to 65 bar

Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/FKM, spring: 1.4310, handle: Zinc-plated steel, manufactured without silicone
Temperature range: -40°C to max. +170°C (dependent on operating pressure), fuels -20°C to max. +60°C
Length according to DIN 3202-M3
Operating range: Water, compressed air, vacuum (max. -0.98 bar), oils, fuels (5 bar max.), heating oil
Function: In the basic setting the ball valve is in the closed position. It is opened against the spring force. When releasing the handle it jumps into the "Close" position. Closing should be supported manually (no quick shut-off valve).

Type	G	DN	L	H	R	PN
KH 14 FS	Rp 1/4"	8	50	40	100	65 bar
KH 38 FS	Rp 3/8"	10	60	40	100	65 bar
KH 12 FS	Rp 1/2"	15	75	43	100	65 bar
KH 34 FS	Rp 3/4"	20	80	51	120	40 bar
KH 10 FS	Rp 1"	25	90	55	120	40 bar
KH 114 FS	Rp 1 1/4"	32	110	75	158	40 bar
KH 112 FS	Rp 1 1/2"	40	120	81	158	40 bar
KH 20 FS	Rp 2"	50	140	88	158	40 bar

EN 331 KTW



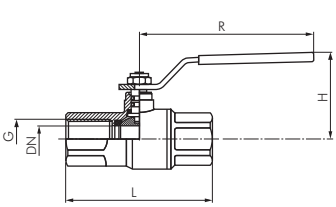
Soft close ball valves, DVGW tested (PN 5/MOP 5) — up to 50 bar

Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE, handle: GFK turning handle (360° rotatable)
Temperature range: -15°C to max. +120°C, gas: -20°C to max. +60°C
Operating range: Drinking water (DVGW certified to PN 10), water, air, neutral gases, oils, solvents, non-aggressive liquids, gases in accordance with DVGW worksheet (e.g. natural gas, city gas, liquid gas up to PN 5)

Advantage: • To open or close the ball valve, it is necessary to turn the handle 360°. Therefore, a very slow opening and closing is possible: Pressure thrusts are avoided. The scale allows a reproducible flow control.

Type	G	DN	L	H	R	PN*
KH 14 SS	Rp 1/4"	10	49	63	83	50 bar
KH 38 SS	Rp 3/8"	10	51	63	83	50 bar
KH 12 SS	Rp 1/2"	15	61	70	83	50 bar
KH 34 SS	Rp 3/4"	20	70	76	83	50 bar
KH 10 SS	Rp 1"	25	84	80	83	40 bar
KH 114 SS	Rp 1 1/4"	32	98	110	130	40 bar
KH 112 SS	Rp 1 1/2"	40	108	116	130	40 bar
KH 20 SS	Rp 2"	50	130	123	130	40 bar

* for gas up to PN 5 bar/MOP 5, for drinking water up to PN 10 bar/MOP 10

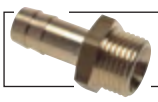


Ball valves, 2-piece, brass, for use in oxygen systems — PN 30

Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR, handle: Zinc-plated steel
Temperature range: -10°C to max. +95°C (dependent on operating pressure)
Using a special type of grease makes it suitable for oxygen, its length conforming to DIN 3202-M3
Operating range: Oxygen (industrial), Argon
Delivery: This ball valve is delivered in a heat-sealed plastic bag.

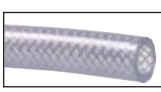
Type	G	DN	L	H	R	PN
KH 14 SAU	Rp 1/4"	8	50	41	70	30 bar
KH 38 SAU	Rp 3/8"	10	60	41	70	30 bar
KH 12 SAU	Rp 1/2"	15	75	43	90	30 bar
KH 34 SAU	Rp 3/4"	20	80	47	90	30 bar
KH 10 SAU	Rp 1"	25	90	72	135	30 bar
KH 114 SAU	Rp 1 1/4"	32	110	75	135	30 bar
KH 112 SAU	Rp 1 1/2"	40	120	82	180	30 bar
KH 20 SAU	Rp 2"	50	140	89	180	30 bar

Lubrication pastes for oxygen applications on page 580



Threaded nozzles from page 64

LOCTITE Liquid seals, gaskets & tapes from page 549



PVC fabric hoses on page 208

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Screw-in ball valves, 2-piece, full bore — Eco-Line/PN 25

Materials: Housing: Brass nickel-plated, ball: Brass chrome-plated, seal: PTFE/NBR
Temperature range: Air: -20°C to max. +95°C
Operating range: Compressed air, water, oils
☞ **Optional:** With butterfly handle **-KN** (1/4"-1 1/4")

Type	G1/G2	DN	L	H	R	PN	Replacement handles**
KH 14 B iA E	R/Rp 1/4"	9	48.5	38	75	25 bar	G KH 1438 B E
KH 38 B iA E	R/Rp 3/8"	10	50.0	38	75	25 bar	G KH 1438 B E
KH 12 B iA E	R/Rp 1/2"	15	57.5	43	85	25 bar	G KH 1234 B E
KH 34 B iA E	R/Rp 3/4"	19	63.8	46	85	25 bar	G KH 1234 B E
KH 10 B iA E	R/Rp 1"	24	74.5	54	113	25 bar	G KH 10 B E
KH 114 B iA E	R/Rp 1 1/4"	30	87.0	67	142	25 bar	G KH 114112 B E
KH 112 B iA E	R/Rp 1 1/2"	37	98.0	73	142	25 bar	G KH 114112 B E
KH 20 B iA E*	R/Rp 2"	47	113.5	83	175	25 bar	G KH 20 B E

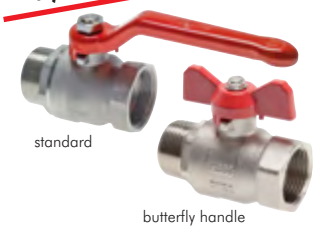
* only suitable for water and oils, ** does not fit on ball valves with butterfly handle

☞ **Order example:** KH 14 B iA E **

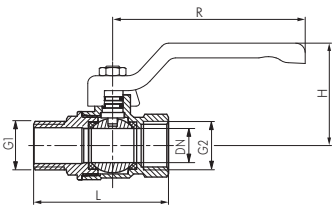
Standard type

Designation for the options:
Butterfly handle . . . . . .-KN

Especially good value!


standard

butterfly handle



Screw-in ball valves, 2-piece, full bore — up to 50 bar

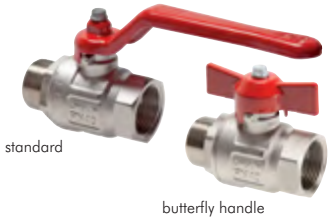
Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +150°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.9 bar)

Advantages: • By purchasing the optional combi handles (page 281), you can construct various handle variations:
- Standard handle in red, yellow, blue and black
- Butterfly handle in colours red, yellow, blue, black and green
- Flat steel handle in red, yellow and green (optional: lockable)
- Long handle in red

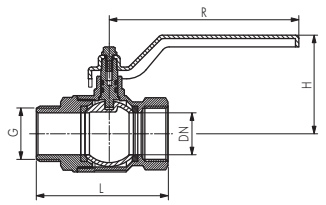
Screw-in ball valves, 2-piece, full bore, short design — up to 50 bar

Type standard	H	R	Type butterfly handle	H	R	G	DN	L	PN	Combi handle size*
KH 14 B iA	37	80	KH 14 B iA KN	37	24	G 1/4"	8	54.0	50 bar	1
KH 38 B iA	37	80	KH 38 B iA KN	37	24	G 3/8"	10	54.0	50 bar	1
KH 12 B iA	41	80	KH 12 B iA KN	41	24	G 1/2"	15	58.5	50 bar	1
KH 34 B iA	55	113	KH 34 B iA KN	47	31	G 3/4"	20	66.5	40 bar	3
KH 10 B iA	59	113	KH 10 B iA KN	51	31	G 1"	25	78.5	40 bar	3
KH 114 B iA	75	138	KH 114 B iA KN	64	35	G 1 1/4"	32	91.5	30 bar	4
KH 112 B iA	81	138	---	---	---	G 1 1/2"	40	105.5	30 bar	4
KH 20 B iA	96	158	---	---	---	G 2"	50	122.0	25 bar	5

* combi handles can be found on page 281.


standard

butterfly handle



Screw-in ball valves, 2-piece, full bore — up to 50 bar

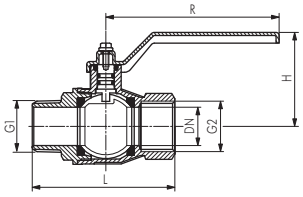
Advantages: • By purchasing the optional combi handles (page 281), you can construct various handle variations:
- Standard handle in red, yellow, blue and black
- Butterfly handle in colours red, yellow, blue, black and green
- Flat steel handle in red, yellow and green (optional: lockable)
- Long handle in red

Type standard	H	R	Type butterfly handle	H	R	G1/G2	DN	L	PN	Combi handle size*
KH 14 iA	37	80	KH 14 iA KN	37	24	R/Rp 1/4"	8	56.9	50 bar	1
KH 38 iA	37	80	KH 38 iA KN	37	24	R/Rp 3/8"	10	58.9	50 bar	1
KH 12 iA	49	89	KH 12 iA KN	44	27	R/Rp 1/2"	15	76.5	50 bar	2
KH 34 iA	58	113	KH 34 iA KN	50	31	R/Rp 3/4"	20	83.5	40 bar	3
KH 10 iA	61	113	KH 10 iA KN	53	31	R/Rp 1"	25	93.0	40 bar	3
KH 114 iA	75	138	---	---	---	R/Rp 1 1/4"	32	110.0	30 bar	4
KH 112 iA	91	158	---	---	---	R/Rp 1 1/2"	40	121.0	30 bar	5
KH 20 iA	98	158	---	---	---	R/Rp 2"	50	140.5	25 bar	5
KH 212 iA	127	250	---	---	---	G 2 1/2"	65	155.5	18 bar	7
KH 30 iA	136	250	---	---	---	G 3"	80	178.0	16 bar	7
KH 40 iA	154	250	---	---	---	G 4"	100	208.0	14 bar	7

* combi handles can be found on page 281, ** not for combi handle size 3

standard

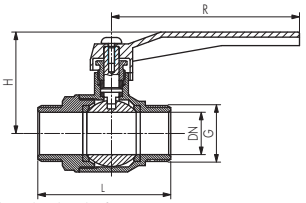
butterfly handle



Ball valves with male threads, 2-piece, full bore — up to 20 bar

Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE
Temperature range: -20°C to max. +110°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, fuel and compressed air, vacuum (max. -0.9 bar)

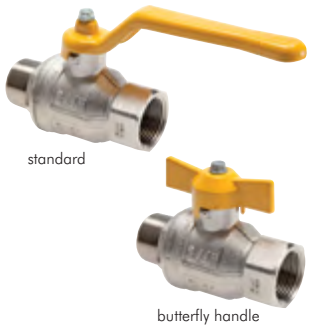
Type	G	DN	L	H	R	PN
KH 38 AA	G 3/8"	10	49	46	92	20 bar
KH 12 AA	G 1/2"	15	59	51	92	20 bar
KH 34 AA	G 3/4"	20	65	54	92	20 bar
KH 10 AA	G 1"	25	77	63	115	20 bar
KH 114 AA	G 1 1/4"	32	87	77	125	16 bar
KH 112 AA	G 1 1/2"	40	103	88	150	16 bar
KH 20 AA	G 2"	50	113	97	150	16 bar



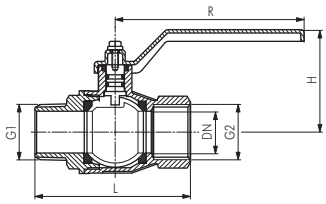
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Screw-in ball valves, DVGW tested (PN 5/MOP 5) — up to 50 bar

EN 331


standard

butterfly handle



Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +150°C, gas: -20°C to max. +60°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.9 bar), gases in accordance with DVGW worksheet (e.g. natural gas, city gas, liquid gas up to 5 bar)

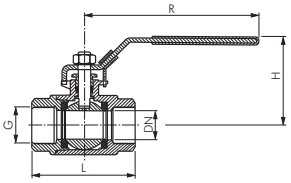
Advantages: • By purchasing the optional combi handles (page 281), you can construct various handle variations:
- Standard handle in red, yellow, blue and black
- Toggle grip in colours red, yellow, blue, black and green
- Flat steel handle in red, yellow and green (optional: lockable***)
- Long handle in red

Type standard	H	R	Type butterfly handle	H	R	G1/G2	DN	L	PN*	Combi handle size**
KH 14 iA DVGW	37	80	KH 14 iA DVGW KN	37	24	R/Rp 1/4"	8	56.9	50 bar	1
KH 38 iA DVGW	37	80	KH 38 iA DVGW KN	37	24	R/Rp 3/8"	10	58.9	50 bar	1
KH 12 iA DVGW	49	89	KH 12 iA DVGW KN	44	27	R/Rp 1/2"	15	76.5	50 bar	2
KH 34 iA DVGW	58	113	KH 34 iA DVGW KN	50	31	R/Rp 3/4"	20	83.5	40 bar	3
KH 10 iA DVGW	61	113	KH 10 iA DVGW KN	53	31	R/Rp 1"	25	93.0	40 bar	3
KH 114 iA DVGW	75	138	---	---	---	R/Rp 1 1/4"	32	110.0	30 bar	4
KH 112 iA DVGW	91	158	---	---	---	R/Rp 1 1/2"	38	121.0	30 bar	5
KH 20 iA DVGW	98	158	---	---	---	R/Rp 2"	49	140.5	25 bar	5

* for gas up to PN 5 bar/MOP 5, ** combi handles are found on page 281, *** not for combi handle size 3

Especially good value!

Stainless steel ball valves, 2-piece, lightweight design, full bore — Eco-Line/PN 63



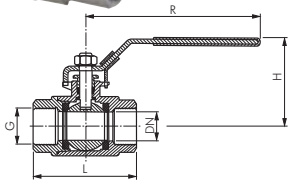
The pressure-temperature diagram is found in the Online Shop

Materials: Housing: AISI 316, ball: AISI 316 seal: PTFE (15% GF), handle: AISI 304
Temperature range: -20°C to max. +200°C
Lockable hand lever, please order the padlocks separately (see page 641).
Operating range: Water, steam, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** Certificate 3.1

Type INOX	G	DN	L	H	R	PN
KH 14 K ES E	G 1/4"	11.5	50.0	54	101	63 bar
KH 38 K ES E	G 3/8"	12.5	50.0	54	101	63 bar
KH 12 K ES E	G 1/2"	15.0	59.0	54	101	63 bar
KH 34 K ES E	G 3/4"	20.0	66.0	63	124	63 bar
KH 10 K ES E	G 1"	25.0	75.5	74	124	63 bar
KH 114 K ES E	G 1 1/4"	32.0	88.7	80	165	63 bar
KH 112 K ES E	G 1 1/2"	38.0	98.5	94	165	63 bar
KH 20 K ES E	G 2"	50.0	120.6	103	183	63 bar
KH 212 K ES E	G 2 1/2"	63.0	146.5	137	248	63 bar
KH 30 K ES E	G 3"	76.0	167.5	148	248	63 bar

Outstanding value!

Stainless steel ball valves, 2-piece, full bore — Eco-Line/PN 63

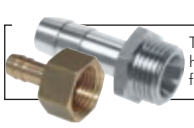


The pressure-temperature diagram is found in the Online Shop

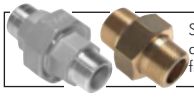
Materials: Housing: AISI 316, ball AISI 316, seal: PTFE (15% GF), handle: AISI 304
Temperature range: -20° to max. + 200°C
Lockable hand lever, please order the padlocks separately (see page 641). Length according to DIN 3202-M3
Operating range: Water, steam, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** Certificate 3.1

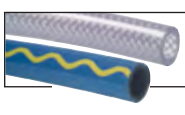
Type INOX	G	DN	L	H	R	PN
KH 14 ES E*	G 1/4"	11.5	55	48	102	63 bar
KH 38 ES E	G 3/8"	12.5	60	48	102	63 bar
KH 12 ES E	G 1/2"	15.0	75	51	102	63 bar
KH 34 ES E	G 3/4"	20.0	80	57	129	63 bar
KH 10 ES E	G 1"	25.0	90	63	129	63 bar
KH 114 ES E	G 1 1/4"	32.0	110	74	153	63 bar
KH 112 ES E	G 1 1/2"	38.0	120	81	153	63 bar
KH 20 ES E	G 2"	50.0	140	94	190	63 bar
KH 212 ES E	G 2 1/2"	63.0	185	130	247	63 bar
KH 30 ES E	G 3"	76.0	205	137	247	63 bar

* length not according to DIN


Threaded nozzles & hose nozzles from page 64

Cutting ring fittings from page 77


Separable double nipple from page 109


Compressed air and water hoses from page 208

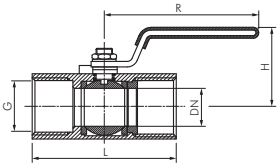
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Stainless steel ball valves, 1-piece, reduced bore — PN 63

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE, handle: AISI 304
Temperature range: -20°C to max. +200°C
Operating range: Water, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** NPT thread **-NPT**, certificate 3.1

Type (INOX)	G	DN	L	H	R	PN
KH 14 B ES	G 1/4"	5.0	39	33	71	63 bar
KH 38 B ES	G 3/8"	7.0	44	35	91	63 bar
KH 12 B ES	G 1/2"	9.2	55	40	95	63 bar
KH 34 B ES	G 3/4"	12.5	59	44	95	63 bar
KH 10 B ES	G 1"	15.0	69	60	113	63 bar
KH 114 B ES	G 1 1/4"	20.0	77	62	113	63 bar
KH 112 B ES	G 1 1/2"	25.0	81	64	141	63 bar
KH 20 B ES	G 2"	32.0	97	68	141	63 bar

☞ **Order example:** KH 14 B ES **
Standard type
Designation for the options:
NPT thread . . . . . **-NPT**



The pressure-temperature diagram is found in the Online Shop

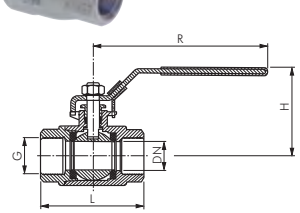
Stainless steel ball valves, 2-piece, lightweight design, full bore — up to 63 bar

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE, handle: AISI 304
Temperature range: -20°C to max. +200°C
Lockable hand lever, please order the padlocks separately (see page 641).
Operating range: Water, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** NPT thread **-NPT**, certificate 3.1

Type (INOX)	G	DN	L	H	R	PN
KH 14 K ES	G 1/4"	11.5	55.3	57	106	63 bar
KH 38 K ES	G 3/8"	12.5	55.3	57	106	63 bar
KH 12 K ES	G 1/2"	15.0	64.7	60	106	63 bar
KH 34 K ES	G 3/4"	20.0	73.4	68	124	63 bar
KH 10 K ES	G 1"	25.0	84.8	77	153	63 bar
KH 114 K ES*	G 1 1/4"	32.0	99.5	82	153	63 bar
KH 112 K ES*	G 1 1/2"	38.0	112.7	98	194	63 bar
KH 20 K ES*	G 2"	50.0	129.0	105	194	40 bar
KH 212 K ES*	G 2 1/2"	65.0	170.0	145	258	40 bar
KH 30 K ES*	G 3"	80.0	192.0	155	258	40 bar

* only for non-hazardous liquids of fluid group II

☞ **Order example:** KH 14 K ES **
Standard type
Designation for the options:
NPT thread . . . . . **-NPT**



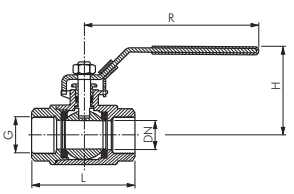
The pressure-temperature diagram is found in the Online Shop

Stainless steel ball valves, 2-piece, full bore — up to 130 bar

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF), handle: AISI 304
Temperature range: -20°C to max. +200°C
Lockable hand lever, please order the padlocks separately (see page 641), length according to DIN 3202-M3
Operating range: Water, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** Certificate 3.1

Type (INOX)	G	DN	L	H	R	PN
KH 14 ES*	G 1/4"	11.5	60	55	105	130 bar
KH 38 ES	G 3/8"	12.5	60	55	105	130 bar
KH 12 ES	G 1/2"	15.0	75	57	105	130 bar
KH 34 ES	G 3/4"	20.0	80	68	123	130 bar
KH 10 ES	G 1"	25.0	90	73	155	130 bar
KH 114 ES	G 1 1/4"	32.0	110	85	155	63 bar
KH 112 ES	G 1 1/2"	38.0	120	97	191	63 bar
KH 20 ES	G 2"	50.0	140	104	191	63 bar
KH 212 ES	G 2 1/2"	65.0	185	145	255	40 bar
KH 30 ES	G 3"	80.0	205	156	255	40 bar

* length not according to DIN



The pressure-temperature diagram is found in the Online Shop

Stainless steel ball valves, 2-piece, DVGW tested (PN 5/MOP 5) — up to 100 bar

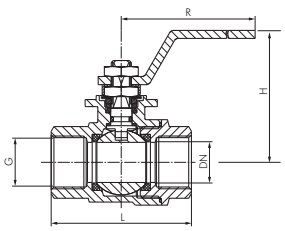
Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE, handle: AISI 304
Temperature range: -20°C to max. +150°C, gas: -20°C to max. +60°C
Assembly flange conforming to ISO 5211
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media, gases according to DVGW worksheet (e.g. natural gas, city gas, liquid gas up to 5 bar)
☞ **Optional:** Pneumatic actuator **-P**, electric actuator** **-E**, certificate 3.1

Type (INOX)	G	DN	L	H	R	PN*	ISO 5211
KH 38 DVGW ES	Rp 3/8"	10	55	52	110	100 bar	F 03
KH 12 DVGW ES	Rp 1/2"	15	65	55	110	100 bar	F 03
KH 34 DVGW ES	Rp 3/4"	20	70	66	140	100 bar	F 03
KH 10 DVGW ES	Rp 1"	25	85	70	140	100 bar	F 03
KH 114 DVGW ES	Rp 1 1/4"	32	95	85	180	64 bar	F 04
KH 112 DVGW ES	Rp 1 1/2"	40	105	91	180	64 bar	F 04
KH 20 DVGW ES	Rp 2"	50	125	105	230	40 bar	F 05

* for gas up to PN 4 bar

☞ **Order example:** KH 12 DVGW ES **
Standard type
Designation for the options:
Pneumatic actuator . . . . . **-P**
Electric actuator** . . . . . **-E**

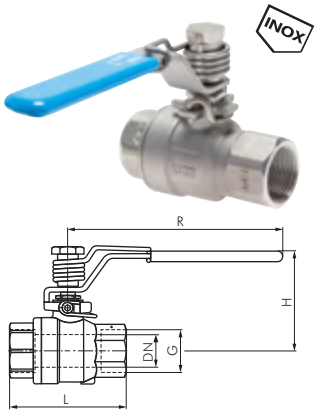
** please specify the exact operating case



The pressure-temperature diagram is found in the Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

5

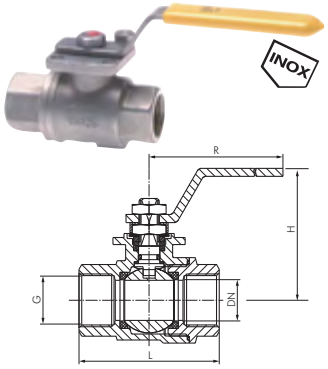


Stainless steel ball valves with spring return — PN 63

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE, handle and spring: AISI 304
Temperature range: -20°C to max. +180°C (dependent on operating pressure)
Length according to DIN 3202-M3
Operating range: Water, steam, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media
Function: In the basic setting the ball valve is in the closed position. It is opened against the spring force. When releasing the handle it jumps into the "Close" position. Closing should be supported manually (no quick shut-off valve).
☞ **Optional:** Certificate 3.1

Type (INOX)	G	DN	L	H	R	PN
KH 14 FS ES*	Rp 1/4"	10	60	51	103	63 bar
KH 38 FS ES	Rp 3/8"	12	60	51	103	63 bar
KH 12 FS ES	Rp 1/2"	15	75	53	103	63 bar
KH 34 FS ES	Rp 3/4"	20	80	60	123	63 bar
KH 10 FS ES	Rp 1"	25	90	73	158	63 bar
KH 114 FS ES	Rp 1 1/4"	32	110	79	158	63 bar
KH 112 FS ES	Rp 1 1/2"	38	120	90	190	63 bar
KH 20 FS ES	Rp 2"	50	140	99	190	63 bar

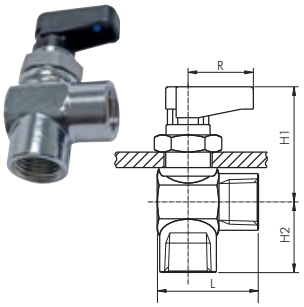
* length not according to DIN



Stainless steel ball valves, 2-piece, for use in oxygen systems — PN 20

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE, handle: AISI 304
Temperature range: -20°C to max. +150°C
Assembly flange conforming to ISO 5211
Operating range: Oxygen (industrial), vacuum (max. -0.9 bar)
☞ **Optional:** Certificate 3.1
Delivery: This ball valve is delivered in a heat-sealed plastic bag.

Type (INOX)	G	DN	L	H	R	PN	ISO 5211
KH 38 SAU ES	Rp 3/8"	10	50	52	110	20 bar	F 03
KH 12 SAU ES	Rp 1/2"	15	60	55	110	20 bar	F 03
KH 34 SAU ES	Rp 3/4"	20	70	66	140	20 bar	F 03
KH 10 SAU ES	Rp 1"	25	85	70	140	20 bar	F 03
KH 114 SAU ES	Rp 1 1/4"	32	95	85	180	20 bar	F 04
KH 112 SAU ES	Rp 1 1/2"	40	105	91	180	20 bar	F 04
KH 20 SAU ES	Rp 2"	50	125	105	230	20 bar	F 05

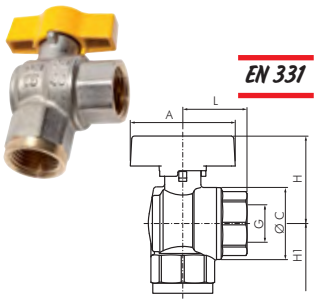


Angle ball valves with one-sided toggle grip, compact — PN 20

Materials: Body: Brass chrome-plated, ball: Brass chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +80°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.99 bar)
Switch panel mounting: Hole diameter: 14.5mm, sheet metal thickness: Max. 4.5mm

Type	G	DN	L	H1	H2	R
KHWC 18	G 1/8"	5	28.5	33.5	15.5	19
KHWC 14	G 1/4"	5	28.5	33.5	17.5	19
KHWC 38	G 3/8"	7	31.0	35.0	19.5	19

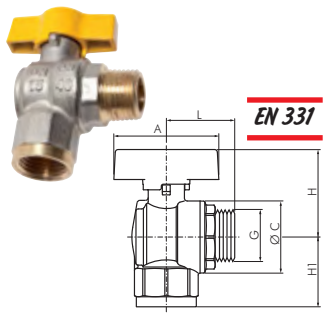
Angle ball valves, DVGW tested (PN 5/MOP 5) — PN 40



Materials: Housing: Brass nickel-plated, ball: Brass chrome-plated, seal: PTFE/NBR, handle: Aluminium
Temperature range: Liquid media -15°C to max. +100°C, gas: -20°C to max. +60°C
Operating range: Liquid and gaseous, neutral media, gases according to DVGW worksheet (e.g. natural gas, city gas, liquid gas up to 5 bar)

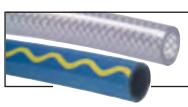
Type	G	DN	A	H	H1	L	ØC
KHW 12 B	Rp 1/2"	15	47	38	33	31	31
KHW 34 B	Rp 3/4"	20	56	46	38	35	39
KHW 10 B	Rp 1"	25	56	50	46	42	48

Screw-in angle ball valves, DVGW tested (PN 5/MOP 5) — PN 40

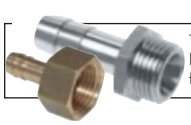


Materials: Housing: Brass nickel-plated, ball: Brass chrome-plated, seal: PTFE/NBR, handle: Aluminium
Temperature range: Liquid media -15°C to max. +100°C, gas: -20°C to max. +60°C
Operating range: Liquid and gaseous, neutral media, gases according to DVGW worksheet (e.g. natural gas, city gas, liquid gas up to 5 bar)

Type	G	DN	A	H	H1	L	ØC
KHW 12 B IA	R/Rp 1/2"	15	47	38	33	37	31
KHW 34 B IA	R/Rp 3/4"	20	56	46	38	43	39
KHW 10 B IA	R/Rp 1"	25	56	50	46	42	48


Compressed air and water hoses from page 208

LOCTITE Liquid seals, gaskets & tapes from page 549

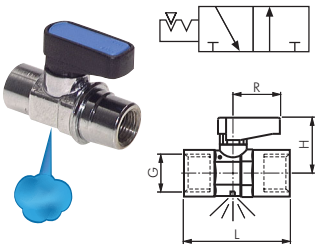

Threaded nozzles & hose nozzles from page 64

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Mini ball valves with forced exhaust — PN 20

Materials: Housing: Brass chrome-plated, ball: Brass chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +80°C
Operating range: For breathing and venting of compressed air systems, pressure gauges, etc. For the medium of air, water, vacuum (max. -0.99 bar)

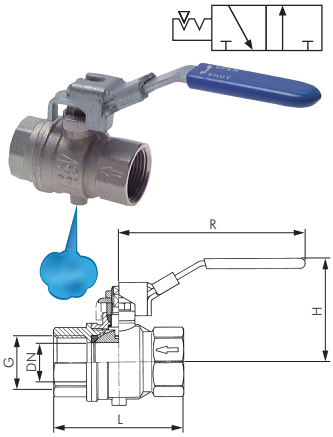
Type	G	DN	L	H	R	Venting borehole
KH 18 MK ENTLEER	G 1/8"	5.5	35	21	19	2.5
KH 14 MK ENTLEER	G 1/4"	5.5	37	21	19	2.5
KH 38 MK ENTLEER	G 3/8"	8.0	42	22	19	3.0



Ball valves, 2-piece, with forced exhaust (captured) — PN 14

Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE, manufactured without silicone
Temperature range: -10°C to max. +100°C (dependent on operating pressure)
Lockable hand lever, please order the padlocks separately (see page 641).
Operating range: For breathing and venting of compressed air systems, pressure gauges, etc. For the medium of air, water, vacuum (max. -0.98 bar)

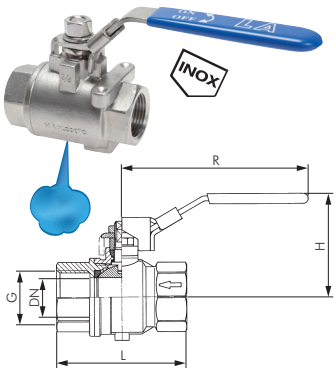
Type	G	Venting thread	DN	L	H	R	Matching silencer
KH 14 ENTLEER	G 1/4"	M 5	8	45	49	96	SD 50
KH 38 ENTLEER	G 3/8"	M 5	10	45	49	96	SD 50
KH 12 ENTLEER	G 1/2"	M 5	15	59	51	96	SD 50
KH 34 ENTLEER	G 3/4"	M 5	20	64	60	117	SD 50
KH 10 ENTLEER	G 1"	M 5	25	81	64	117	SD 50
KH 114 ENTLEER	G 1 1/4"	G 1/4"	32	93	80	157	SD 14
KH 112 ENTLEER	G 1 1/2"	G 1/4"	40	102	86	157	SD 14
KH 20 ENTLEER	G 2"	G 1/4"	50	121	93	157	SD 14



Stainless steel ball valves, 2-piece, with forced exhaust (captured) — PN 16

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF)
Temperature range: -20°C to max. +200°C
Lockable hand lever, please order the padlocks separately (see page 641).
Operating range: For breathing and venting of compressed air systems, pressure gauges, etc. For the medium of air, water, vacuum (max. -0.98 bar)
☞ **Optional:** Certificate 3.1

Type (INOX)	G	Venting thread	DN	L	H	R	Matching silencer
KH 14 ENTLEER ES	G 1/4"	M 5	11	61	54	102	SD 50 ES
KH 38 ENTLEER ES	G 3/8"	M 5	12	61	54	102	SD 50 ES
KH 12 ENTLEER ES	G 1/2"	M 5	15	63	57	102	SD 50 ES
KH 34 ENTLEER ES	G 3/4"	M 5	20	77	62	124	SD 50 ES
KH 10 ENTLEER ES	G 1"	M 5	25	90	80	165	SD 50 ES
KH 114 ENTLEER ES	G 1 1/4"	M 5	32	100	84	165	SD 50 ES
KH 112 ENTLEER ES	G 1 1/2"	M 5	38	118	99	188	SD 50 ES
KH 20 ENTLEER ES	G 2"	M 5	50	138	107	188	SD 50 ES

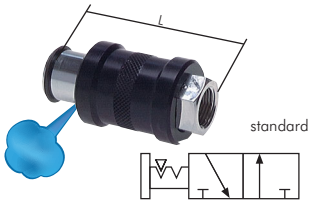


Manual slide valves brass nickel-plated — PN 10

Materials: Body: Brass nickel-plated, sliding sleeve: Aluminium anodised, seal: NBR, manufactured without silicone
Temperature range: -10°C to max. +80°C
Operating range: For breathing and venting of compressed air systems, e.g. in front of an air unit or for the activation of single acting pneumatic cylinders.

Type	G	L	DN	Additional locks
Standard				
HS 50	M 5	31	4	---
HS 18	G 1/8"	48	7	---
HS 14	G 1/4"	58	10	---
HS 38	G 3/8"	70	13	---
HS 12	G 1/2"	75	16	---
HS 34	G 3/4"	83	19	---
Safety design: can be locked open and closed with up to 3 padlocks*				
HS 14 Si	G 1/4"	46	10	VHS 20 H
HS 12 Si	G 1/2"	62	16	VHS 20 H

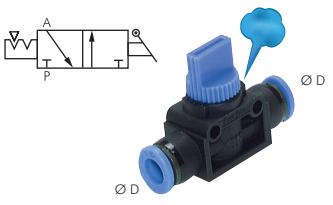
* a padlock is included in the supply volume



3/2-way valves with push-in fittings — Standard

Operating pressure: -0.95 to 10 bar
Temperature range: 0°C to max. +60°C

Type	D
IQSH 360	6
IQSH 380	8
IQSH 3100	10
IQSH 3120	12



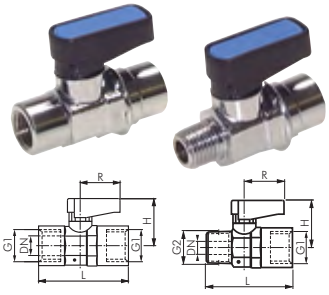
TIP You can find more designs on page 35

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Mini ball valves

EN 331

Especially compact!

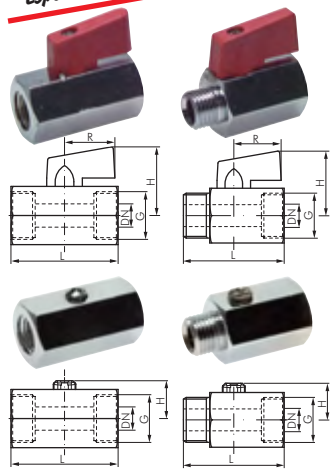


Mini ball valves with toggle handle on one side, compact — PN 20

Materials: Housing: Brass chrome-plated, ball: Brass chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +80°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.99 bar)

Type thread female	L	Type thread female/male	L	G1	G2	DN	H	R
KH 18 MKC	36	KH 18 MKiAC	36	Rp 1/8"	R 1/8"	5.5	21	19
KH 14 MKC	43	KH 14 MKiAC	41	Rp 1/4"	R 1/4"	5.5	21	19
KH 38 MKC	47	KH 38 MKiAC	46	Rp 3/8"	R 3/8"	8.0	22	19
KH 12 MKC	59	KH 12 MKiAC	57	Rp 1/2"	R 1/2"	10.0	31	26

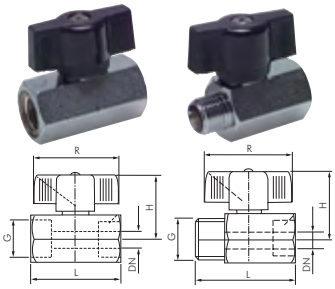
Especially good value!



Mini ball valves with toggle handle on one side/screwdriver actuation — PN 15

Materials: Housing: Brass chrome-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: 0°C to max. +90°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.9 bar)

Type thread female	L	Type thread female/male	L	G	DN	H	R
Toggle grip							
KH 18 MK	40	KH 18 MKiA	39	G 1/8"	6	27.5	22
KH 14 MK	40	KH 14 MKiA	39	G 1/4"	8	27.5	22
KH 38 MK	40	KH 38 MKiA	40	G 3/8"	8	27.5	22
KH 12 MK	46	KH 12 MKiA	45	G 1/2"	10	29.5	22
KH 34 MK	54	KH 34 MKiA	51	G 3/4"	12	32.0	22
Screwdriver actuation							
KH 18 MK-S	40	KH 18 MKiA-S	39	G 1/8"	6	23.0	22
KH 14 MK-S	39	KH 14 MKiA-S	39	G 1/4"	8	23.0	22
KH 38 MK-S	42	KH 38 MKiA-S	40	G 3/8"	8	23.0	22
KH 12 MK-S	47	KH 12 MKiA-S	45	G 1/2"	10	27.5	22



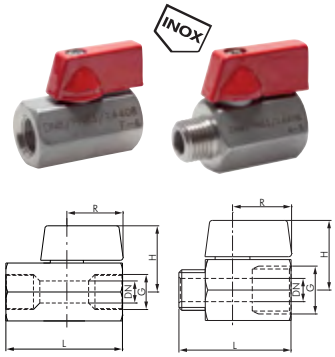
Mini ball valves with butterfly handle — PN 15*

Materials: Housing: Brass chrome-plated, ball: Brass hard chrome-plated, seal: PTFE/FKM, manufactured silicone-free
Temperature range: -20°C to max. +90°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.98 bar)

Type thread female	Type thread female/male	L	G	DN	H	R
KH 18 MKHE	KH 18 MKiAHE	41.5	G 1/8"	6	31.5	39
KH 14 MKHE	KH 14 MKiAHE	41.5	G 1/4"	8	31.5	39
KH 38 MKHE	KH 38 MKiAHE	41.5	G 3/8"	8	31.5	39
KH 12 MKHE	KH 12 MKiAHE	49.0	G 1/2"	10	33.0	39

* max. operating pressure depends on the temperature: up to 30°C = 15 bar, up to 60°C = 11 bar, up to 90°C = 7.5 bar

INOX



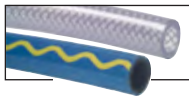
Stainless steel mini ball valves with toggle handle on one side — Eco-Line/PN 63

Materials: Housing: AISI 316, ball: AISI 316, handle screw: AISI 304, seal: PTFE/FKM, handle: Zinc die-casting
Temperature range: -20°C to max. +200°C
Operating range: Water, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** Certificate 3.1

Type thread female (INOX)	Type thread female/male (INOX)	L	G	DN	H	R
KH 18 MK ES E	KH 18 MKiA ES E	39	G 1/8"	5	27	22
KH 14 MK ES E	KH 14 MKiA ES E	39	G 1/4"	7	27	22
KH 38 MK ES E	KH 38 MKiA ES E	39	G 3/8"	7	27	22
KH 12 MK ES E	KH 12 MKiA ES E	50	G 1/2"	9	28	22

LOCTITE Liquid seals, gaskets & tapes from page 549

Distributor bars from page 132

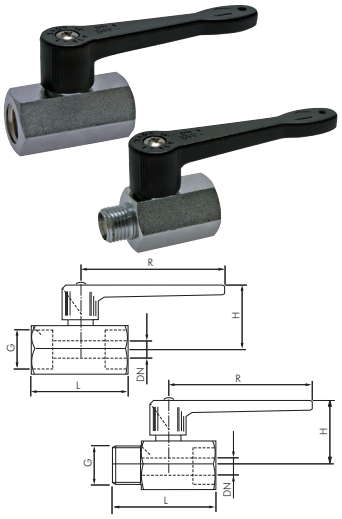


Compressed air and water hoses from page 208

Water pressure reducer from page 358

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Mini ball valves with long handles — PN 15*

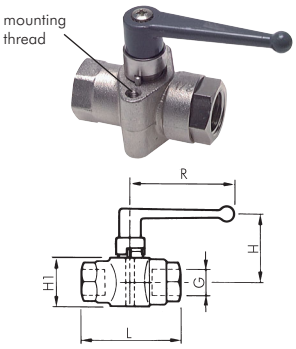


Materials: Housing: Brass chrome-plated, ball: Brass hard chrome-plated, seal: PTFE/FKM, manufactured silicone-free
Temperature range: -20°C to max. +90°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.98 bar)

Type thread female	Type thread female/male	G	DN	L	H	R
KH 18 M	KH 18 MiA	G 1/8"	6	41.5	30.5	72
KH 14 M	KH 14 MiA	G 1/4"	8	41.5	30.5	72
KH 38 M	KH 38 MiA	G 3/8"	8	41.5	30.5	72
KH 12 M	KH 12 MiA	G 1/2"	10	49	32.5	72

* max. operating pressure depends on the temperature: up to 30°C = 15 bar, up to 60°C = 11 bar, up to 90°C = 7.5 bar

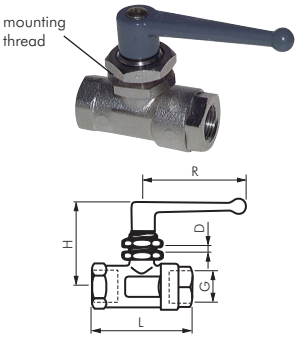
Ball valves with fixing threads — PN 40



Materials: Housing: Brass nickel-plated, ball: Brass polished, seal: PA/NBR
Temperature range: -20°C to max. +80°C

Type	G	DN	L	H	H1	R	Fixing thread
KH 6402 18	G 1/8"	4	44	30	18	48	M 4
KH 6402 14	G 1/4"	7	53	31	24	48	M 5
KH 6402 38	G 3/8"	10	59	45	30	69	M 5
KH 6402 12	G 1/2"	13	67	47	34	69	M 6
KH 6402 34	G 3/4"	20	80	52	44	108	M 8
KH 6402 10	G 1"	23	94	56	53	108	M 8

Ball valves with fixing threads — PN 20



Materials: Housing: Brass nickel-plated, ball: Brass polished, seal: PA/NBR
Temperature range: -20°C to max. +80°C
Switch panel mounting: Hole diameter 20.5 mm (16.5 mm for the 1/8" design)

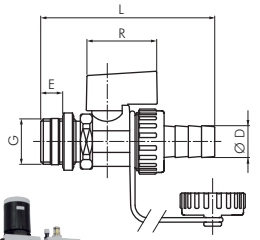
Type	G	DN	L	H	R	D max.
KH 18 S MSV	G 1/8"	4	44	37	48	3
KH 14 S MSV	G 1/4"	7	53	45	48	5
KH 38 S MSV	G 3/8"	10	59	50	69	5
KH 12 S MSV	G 1/2"	13	67	51	69	5

KFE ball valves — PN 10

Description: Boiler filling and draining ball valves for filling heating systems
Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -10°C to max. +90°C
Operating range: Water (no steam), neutral, non-aggressive, non-toxic liquid media

Type	G	D	DN	L	E	R
KH 12 KFE	G 1/2"	14.5*	10	77	13	33

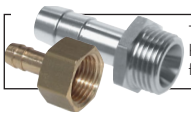
* suitable for 13 mm water hose

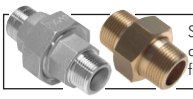


OKS Cleaner and service products from page 564

Cables can be found on page 643

Push-in fittings Ø 3 - 32 mm from page 24


Threaded nozzles & hose nozzles from page 64

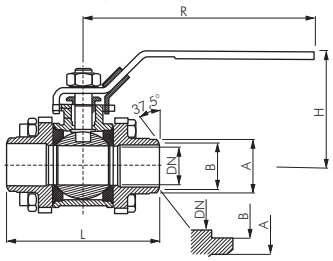

Separable double nipple from page 109

PU, PA, PTFE and PE hoses from page 192

Service units FUTURA series from page 330

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Welding ball valves/discharge valves

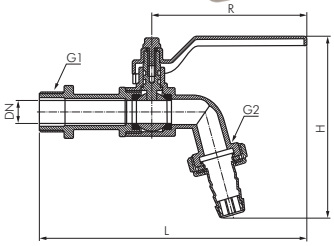


The pressure-temperature diagram is found in our Online Shop.

Stainless steel ball valves, 3-piece, full bore & welding ends — Eco-Line/PN 63

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF), handle: AISI 304
Temperature range: -20°C to max. +200°C
Length according to DIN 3202-S13, assembly flange according to ISO 5211, lockable hand lever, please order padlocks separately (see page 641).
Operating range: Water, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** Certificate 3.1

Type (INOX)	DN	L	A	B	H	R	PN	ISO 5211
KH 143 AS ES E	9.3	70	13.7	10.2	58	104	63 bar	F 03
KH 383 AS ES E	12.5	70	17.2	12.5	58	104	63 bar	F 03
KH 123 AS ES E	15.0	75	21.3	15.7	62	104	63 bar	F 03
KH 343 AS ES E	20.0	90	26.9	21.0	65	121	63 bar	F 03
KH 103 AS ES E	25.0	100	33.7	26.8	80	147	63 bar	F 04
KH 1143 AS ES E	32.0	110	42.4	35.1	85	147	63 bar	F 04
KH 1123 AS ES E	38.0	125	48.3	40.5	104	188	63 bar	F 05
KH 203 AS ES E	50.0	150	60.3	52.3	111	188	63 bar	F 05
KH 2123 AS ES E	63.0	190	76.1	62.5	138	250	63 bar	F 07
KH 303 AS ES E	76.0	220	88.9	77.5	146	250	63 bar	F 07
KH 403 AS ES E	96.0	270	114.3	102.3	190	318	63 bar	F 10



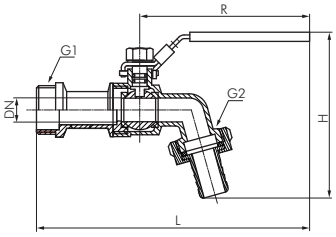
Ball discharge valves — up to 15 bar

Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +80°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.9 bar)

✓ **Advantages:** • By purchasing the optional combi handles (page 281), you can construct various handle variations:
- Standard handle in red, yellow, blue and black
- Toggle grip in colours red, yellow, blue, black and green
- Flat steel handle in red, yellow and green (optional: lockable)
- Long handle in red

Type	G 1	G2	D	DN	L	H	R	PN	Combi handle size*
KHA 38	G 3/8"	G 3/4"	14.5	10	134.0	93	80.0	15 bar	1
KHA 12	G 1/2"	G 3/4"	14.5	12	137.0	93	80.0	15 bar	1
KHA 34	G 3/4"	G 1"	20.0	12	148.5	108	88.5	15 bar	2
KHA 10	G 1"	G 1 1/4"	26.0	15	158.0	126	88.5	12 bar	2

* combi handles can be found on page 281.



Stainless steel ball discharge valves — Eco-Line/PN 16

Materials: Housing: AISI 316, ball: AISI 316, handle: AISI 304, seal: PTFE/NBR
Temperature range: -10°C to max. +150°C
Lockable hand lever, please order the padlocks separately (see page 641).
Operating range: Water, oil, fuels, compressed air, solvents
☞ **Optional:** Certificate 3.1

Type (INOX)	G1	G2	D	DN	L	H	R
KHA 12 ES E	G 1/2"	G 3/4"	13.0	9	145	87	92.0
KHA 34 ES E	G 3/4"	G 3/4"	16.0	13	155	87	92.0
KHA 10 ES E	G 1"	G 1"	27.5	15	185	120	115.0

PVC fabric hoses on page 208

PE canisters + buckets from page 642

Hose clamps from page 234

Barrel taps self-sealing (with spring force) made of brass

Materials: Body: Brass, seal: NBR
Temperature range: 0°C to max. +75°C
Operating ranges: Petrochemical liquids

Type	G	DN	Discharge Ø internal
KHFA 34 MS	G 3/4" (MT)	10	15

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

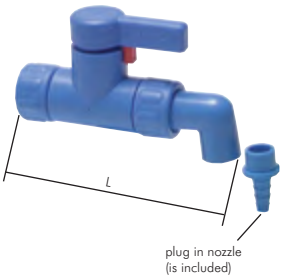
Drain cocks made of plastic — PN 2

Materials: Housing: Polypropylene, seals: PTFE, wetted parts: PP, PE & PTFE
Temperature range: +5°C to max. +40°C
Operating ranges: Beverages, food, water, oil, chemicals*

Advantages: • Absolutely tight seal, the rotatable union nut connection guarantees a perpendicular position of the cock. The rotatable discharge prevents subsequent dripping of medium. The reduction-discharge nozzles enclosed with delivery allows bottles to be filled.

Type	G	DN	L	Discharge
KHAF 34 PP	G 3/4" (FT)	12	120	Ø 6 or Ø 20

* please use our resistance recommendations in our Online Shop.



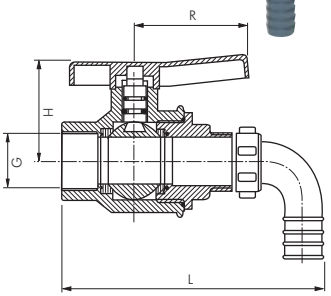
Drain ball valves made of plastic — PN 4

Materials: Housing and ball: Polypropylene, seals: PTFE, wetted parts: PP, PE & PTFE
Temperature range: +5°C to max. +80°C
Pressure range: 4 bar at +20°C
Operating ranges: Food, water, oil, chemicals (also suitable for crystallizing materials)*

Advantages: • The rotatable union nut connection guarantees a vertical position of the valve.

Type	G	DN	L	H	R	Discharge standard	Discharge with nozzle
KHA 34 PP	G 3/4" (FT)	20	155	78	55	3/4" (MT)	Ø 16

* please use our resistance recommendations in our Online Shop.



Barrel adapters for drain cocks

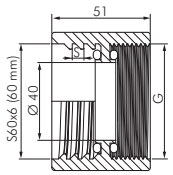
Materials: Polyethylene and polypropylene
Temperature range: 0°C to max. +80°C

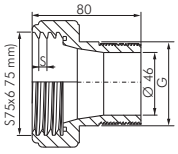
Type	G	For tank connection with	Thread Ø	Thread pitch	Figure
KHFARN 2034	R 3/4" (MT)	Fine thread 2"	59.5	2.1	1
KHFARN 2034 M	R 3/4" (MT)	Coarse thread Mauser® 2"	69.0	5.9	2
KHFARN 2034 T	R 3/4" (MT)	Coarse thread Tri-Sure® 2"	56.3	3.9	3

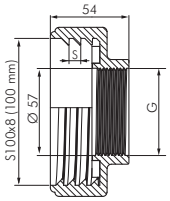
Adapters (industrial quality) for IBC-Container

Materials: Body: Polypropylene, seals: Santoprene (S60 seal: PE elastomer)
Temperature range: -18°C to max. +60°C

Type	G	Container connection	Thread pitch S	Figure	Replace. parts seals
KHFAiBC 2060	G 2" (FT)	S60x6 (FT)	6	1	KHFAiBC 2060 Di
KHFAiBC 2075	G 2" (MT)	S75x6 (FT)	6	2	KHFAiBC 2075 Di
KHFAiBC 20100	G 2" (FT)	S100x8 (FT)	8	3	KHFAiBC 20100 Di







TIP *Provides easy connection options for commercially available shut-off fittings G2"*

Drain cocks for plastic canisters

Materials: Body: PE, lever: PP, seal EPE (PE foam)

Type	Thread female	For canister threads male Ø	Thread pitch
KHA DIN45	DIN 45 (Ø internal: 41.0 mm)	44.6	4
KHA DIN51	DIN 51 (Ø internal: 50.2 mm)	54.8	5
KHA DIN61	DIN 61 (Ø internal: 55.6 mm)	60.5	6

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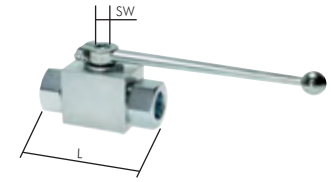
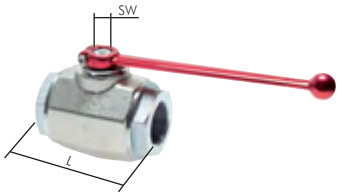
High pressure ball valves

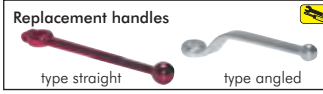


G 1/8" - G 1 1/4"



G 1 1/2" - G 2"

Replacement handles



High pressure ball valves — up to 500 bar

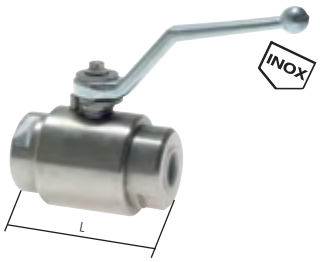
Materials: Housing: Zinc-plated steel, ball: Steel hard chrome-plated, seal: POM/NBR, handle: Zinc die-casting (from DN 20: straight - aluminium, angled - zinc-plated steel)
Temperature range: -10°C to max. +80°C
Operating range: Hydraulic oil, heating oil (water only after release by us)
☞ **Optional:** NPT thread **-NPT**

Type	Thread	DN	L	SW	PN	Replace. handles straight	Replace. handles angled
KH 18 HD	G 1/8"	4	69	9	500 bar	G KH SW 9	G KH SW 9 GK
KH 14 HD	G 1/4"	6	69	9	500 bar	G KH SW 9	G KH SW 9 GK
KH 38 HD	G 3/8"	10	72	9	500 bar	G KH SW 9	G KH SW 9 GK
KH 12 HD	G 1/2"	13	84	9	500 bar	G KH SW 9	G KH SW 9 GK
KH 34 HD	G 3/4"	20	95	14	315 bar	G KH SW 14	G KH SW 14 GK
KH 10 HD	G 1"	25	113	14	315 bar	G KH SW 14	G KH SW 14 GK
KH 114 HD	G 1 1/4"	25	120	14	315 bar	G KH SW 14	G KH SW 14 GK
KH 112 HD	G 1 1/2"	40	130	17	315 bar	G KH SW 17	G KH SW 17 GK
KH 20 HD	G 2"	50	140	17	315 bar	G KH SW 17	G KH SW 17 GK

☞ **Order example:** KH 18 HD **
Standard type
Designation for the options:
NPT thread . . . . . **-NPT**

Great value!

Stainless steel high pressure ball valves — up to 500 bar

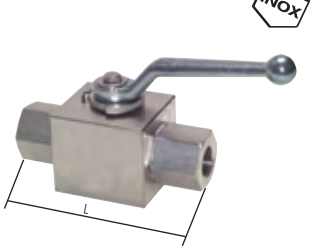


Materials: Housing: AISI 316L, ball: AISI 316L, sealing housing: POM, seals: PTFE/NBR, handle: Zinc-plated steel
Temperature range: -30°C to max. +100°C
Operating range: Hydraulic oil, heating oil (water only after release by us)
☞ **Optional:** NPT thread **-NPT**

Type (INOX)	Thread	DN	L	PN
KH 14 HD B ES	G 1/4"	6	72	500 bar
KH 38 HD B ES	G 3/8"	10	72	500 bar
KH 12 HD B ES	G 1/2"	13	81	500 bar
KH 34 HD B ES	G 3/4"	20	98	400 bar
KH 10 HD B ES	G 1"	25	106	350 bar
KH 114 HD B ES	G 1 1/4"	32	127	350 bar
KH 112 HD B ES	G 1 1/2"	40	135	350 bar
KH 20 HD B ES	G 2"	50	160	350 bar
KH 212 HD B ES	G 2 1/2"	65	174	150 bar
KH 30 HD B ES	G 3"	80	192	100 bar
KH 40 HD B ES	G 4"	100	230	50 bar

☞ **Order example:** KH 14 HD B ES **
Standard type
Designation for the options:
NPT thread . . . . . **-NPT**

Stainless steel high pressure ball valves — up to 500 bar

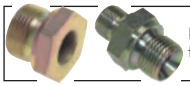


Materials: Housing: AISI 316Ti, ball: AISI 316Ti, sealing housing: POM, seals: PTFE/FKM, handle: AISI 316Ti
Temperature range: -30°C to max. +100°C, (option **-PEE**: -30°C to max. +180°C)
Operating range: Hydraulic oil, heating oil (water only after release by us)
☞ **Optional:** PEEK sealing housing **-PEE**

Type (INOX)	Thread	DN	L	PN
KH 18 HD ES	G 1/8"	5	69	500 bar
KH 14 HD ES	G 1/4"	6	69	500 bar
KH 38 HD ES	G 3/8"	10	72	500 bar
KH 12 HD ES	G 1/2"	13	83	500 bar
KH 34 HD ES	G 3/4"	20	95	315 bar
KH 10 HD ES	G 1"	25	113	315 bar

☞ **Order example:** KH 18 HD ES **
Standard type
Designation for the options:
PEEK sealing housing . . . . . **-PEE**

Cutting ring fittings from page 77


Hydraulic adapter from page 103

JIC, NPT, UNF and metric double nipples from page 104

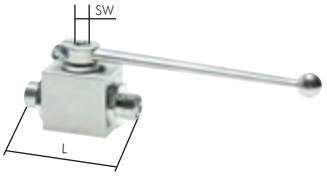
Hydraulic couplings from page 170

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

High pressure ball valves with cutting ring connections ISO 8434-1 up to 500 bar

Materials: Housing: Zinc-plated steel, ball: Steel hard chrome-plated, seal: POM/NBR, handle: Zinc die-casting (from DN 20: straight - aluminium, angled - zinc-plated steel)
Temperature range: -10°C to max. +80°C
Operating range: Hydraulic oil, heating oil (water only after release by us)

Type	Thread male	DN	L	SW	Tube Ø external	PN	Replace. handles straight	Replace. handles angled
Light model series								
KH 6 L HD	M 12 x 1.5	4	67	9	6 L	315 bar	G KH SW 9	G KH SW 9 GK
KH 8 L HD	M 14 x 1.5	6	67	9	8 L	315 bar	G KH SW 9	G KH SW 9 GK
KH 10 L HD	M 16 x 1.5	8	74	9	10 L	315 bar	G KH SW 9	G KH SW 9 GK
KH 12 L HD	M 18 x 1.5	10	74	9	12 L	315 bar	G KH SW 9	G KH SW 9 GK
KH 15 L HD	M 22 x 1.5	13	82	9	15 L	315 bar	G KH SW 9	G KH SW 9 GK
KH 18 L HD	M 26 x 1.5	13	82	9	18 L	315 bar	G KH SW 9	G KH SW 9 GK
KH 22 L HD	M 30 x 2	20	101	14	22 L	160 bar	G KH SW 14	G KH SW 14 GK
KH 28 L HD	M 36 x 2	25	108	14	28 L	160 bar	G KH SW 14	G KH SW 14 GK
KH 35 L HD	M 45 x 2	25	112	14	35 L	160 bar	G KH SW 14	G KH SW 14 GK
KH 42 L HD	M 52 x 2	25	114	14	42 L	160 bar	G KH SW 14	G KH SW 14 GK
Heavy model series								
KH 8 S HD	M 16 x 1.5	4	73	9	8 S	500 bar	G KH SW 9	G KH SW 9 GK
KH 10 S HD	M 18 x 1.5	6	73	9	10 S	500 bar	G KH SW 9	G KH SW 9 GK
KH 12 S HD	M 20 x 1.5	8	76	9	12 S	500 bar	G KH SW 9	G KH SW 9 GK
KH 14 S HD	M 22 x 1.5	10	80	9	14 S	500 bar	G KH SW 9	G KH SW 9 GK
KH 16 S HD	M 24 x 1.5	13	86	9	16 S	500 bar	G KH SW 9	G KH SW 9 GK
KH 20 S HD	M 30 x 2	13	90	9	20 S	500 bar	G KH SW 9	G KH SW 9 GK
KH 25 S HD	M 36 x 2	20	109	14	25 S	315 bar	G KH SW 14	G KH SW 14 GK
KH 30 S HD	M 42 x 2	25	120	14	30 S	315 bar	G KH SW 14	G KH SW 14 GK
KH 38 S HD	M 52 x 2	25	124	14	38 S	315 bar	G KH SW 14	G KH SW 14 GK

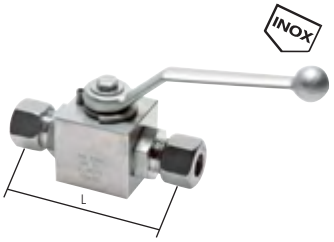


Replacement handles

Stainless steel high press. ball valves, cutting ring connections ISO 8434-1 up to 500 bar

Materials: Housing: AISI 316Ti, ball: AISI 316Ti, sealing housing: POM, seals: PTFE/FKM, handle: AISI 316Ti
Temperature range: -30°C to max. +100°C
Operating range: Hydraulic oil, heating oil (water only after release by us)

Type (INOX)	Thread male	DN	L	Tube Ø external	PN
Light model series					
KH 6 L HD ES	M 12 x 1.5	5	67	6 L	315 bar
KH 8 L HD ES	M 14 x 1.5	6	67	8 L	315 bar
KH 10 L HD ES	M 16 x 1.5	8	74	10 L	315 bar
KH 12 L HD ES	M 18 x 1.5	10	74	12 L	315 bar
KH 15 L HD ES	M 22 x 1.5	13	82	15 L	315 bar
KH 18 L HD ES	M 26 x 1.5	13	82	18 L	315 bar
KH 22 L HD ES	M 30 x 2	20	101	22 L	160 bar
KH 28 L HD ES	M 36 x 2	25	108	28 L	160 bar
Heavy model series					
KH 8 S HD ES	M 16 x 1.5	5	73	8 S	500 bar
KH 10 S HD ES	M 18 x 1.5	6	73	10 S	500 bar
KH 12 S HD ES	M 20 x 1.5	8	76	12 S	500 bar
KH 16 S HD ES	M 24 x 1.5	13	86	16 S	400 bar
KH 20 S HD ES	M 30 x 2	13	90	20 S	400 bar
KH 25 S HD ES	M 36 x 2	20	109	25 S	315 bar
KH 30 S HD ES	M 42 x 2	25	120	30 S	315 bar



Cutting ring fittings from page 77

LOCTITE Liquid seals, gaskets & tapes from page 549

Pressure gauge from page 366

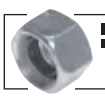
Electronic pressure switches from page 391

Ready-made washing and hydraulic hoses on page 231

Abrasion protection hoses on page 249

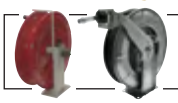
Parker Push-in hoses on page 228

Pressure regulator for high pressures from page 351


Parker Functional nuts on page 99

INOX Pipe clamps from page 242

HYDAC Pipe clamps from page 244


Hose reel up to 400 bar from page 205

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Shut-off valves

Needle shut-off valves with bulkhead threads for panel mounting — PN 18

Materials: Housing: Brass nickel-plated, seal: NBR
Temperature range: -10°C to max. +80°C
Switch panel mounting: For borehole diameter Ø 14.5 mm

Type	Thread	DN	L	H	E_{max}
NADEL 18 MSV	G 1/8"	4	51.6	64	3
NADEL 14 MSV	G 1/4"	4	57.0	64	3
NADEL 38 MSV	G 3/8"	8	63.0	90	10
NADEL 12 MSV	G 1/2"	8	69.0	90	10

Outstanding value!

Stainless steel needle shut-off valves — ★★☆☆☆ Eco-Line PN 300

Materials: Housing AISI 316, handle: AISI 304, seal: PTFE (on the spindle)
Temperature range: -20°C to max. +200°C

Type INOX	Thread	DN	L	H	KV value*
NADEL 18 ES E	G 1/8"	2.5	48	77	8.0 l/min
NADEL 14 ES E	G 1/4"	3.5	56	80	11.5 l/min
NADEL 38 ES E	G 3/8"	3.5	56	80	13.5 l/min
NADEL 12 ES E	G 1/2"	4.8	66	89	18.0 l/min
NADEL 34 ES E	G 3/4"	6.4	66	93	21.0 l/min
NADEL 10 ES E	G 1"	9.5	80	108	24.0 l/min

* water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
air flow [l/min] ≈ 13.4 · Kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

Needle shut-off valves with hand wheels — ★★★★★ up to 400 bar

Materials: Housing: Zinc-pl. steel or stainl. steel AISI 316Ti, seal: Graphite (type AISI 316Ti: PTFE), hand wheel: Pressed plastic
Temperature range: -30°C to max. +350°C (type AISI 316Ti: -30°C to max. +250°C)

Type zinc-plated steel	Type AISI 316Ti INOX	Thread	DN	L	KV value*	PN
NADEL 18 HR	NADEL 18 HR ES	G 1/8"	4	45	4 l/min	400 bar
NADEL 14 HR	NADEL 14 HR ES	G 1/4"	5	55	8 l/min	400 bar
NADEL 38 HR	NADEL 38 HR ES	G 3/8"	6	55	10 l/min	400 bar
NADEL 12 HR	NADEL 12 HR ES	G 1/2"	7	60	12 l/min	400 bar
NADEL 34 HR	NADEL 34 HR ES	G 3/4"	9	75	18 l/min	200 bar
NADEL 10 HR	NADEL 10 HR ES	G 1"	12	100	32 l/min	200 bar
NADEL 114 HR	NADEL 114 HR ES	G 1 1/4"	15	110	60 l/min	160 bar
NADEL 112 HR	NADEL 112 HR ES	G 1 1/2"	22	130	115 l/min	120 bar
NADEL 20 HR	NADEL 20 HR ES	G 2"	22	130	130 l/min	120 bar

* water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
air flow [l/min] ≈ 13.4 · Kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

Needle shut-off valves — up to 100 bar

Materials: Housing: Brass, seal: NBR (3/4"- 2": PTFE)
Temperature range: -30°C to max. +110°C (G 1/8": -10°C to max. +60°C)

Type FT/FT	Type MT/MT	Thread	DN	L	KV value*	PN
NADEL 18	---	G 1/8"	4	36	---	15 bar
NADEL 14	NADEL 14 A	G 1/4"	4	42	---	40 bar
NADEL 38	NADEL 38 A	G 3/8"	7	50	---	40 bar
NADEL 12	---	G 1/2"	11	64	---	40 bar
NADEL 34	---	G 3/4"	9	67	18 l/min	100 bar
NADEL 10	---	G 1"	11	75	28 l/min	100 bar
NADEL 114	---	G 1 1/4"	13	110	42 l/min	100 bar
NADEL 112	---	G 1 1/2"	15	110	60 l/min	100 bar
NADEL 20	---	G 2"	15	110	60 l/min	100 bar

* water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
air flow [l/min] ≈ 13.4 · Kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

Ball shut-off valves — PN 40

Materials: Housing: Hot-pressed brass, handle: Plastic, seal: NBR, valve seat with metal sealing
Temperature range: -30°C to max. +110°C

Type angle	Old order number	Type straight	Thread	DN
ASVW 18	ECK 18	ASVG 18	G 1/8"	4.0
ASVW 14	ECK 14	ASVG 14	G 1/4"	5.5
ASVW 38	ECK 38	ASVG 38	G 3/8"	8.0
---	---	ASVG 12	G 1/2"	11.0

INOX Stainless steel screw connections from page 78

Parker Push-in hoses on page 228

HYDAC Pipe clamps from page 244

Flow indicators and meters from page 395

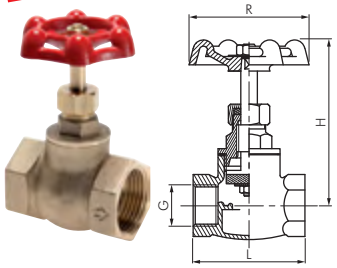
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Sleeve shut-off valves — Eco-Line/PN 10

Materials: Housing and top part: Brass, sealing seat: NBR
Temperature range: 0°C to max. +80°C
Operating range: Water, compressed air

Type	G	DN	L	H	R
MUA 12 E	G 1/2"	16	54.5	78	58
MUA 34 E	G 3/4"	16	54.5	78	58
MUA 10 E	G 1"	16	61.0	82	58
MUA 114 E	G 1 1/4"	32	88.5	126	79
MUA 112 E	G 1 1/2"	38	101.0	128	79
MUA 20 E	G 2"	51	117.0	149	85

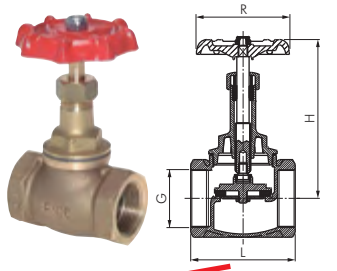
Especially good value!



Sleeve shut-off valves — PN 16

Materials: Housing: Red bronze, top part: Brass, sealing seat: PTFE
Temperature range: Water: 0°C to max. +100°C, saturated steam: 7 bar, to max. +170°C
Operating range: Liquids, air, heating and hydraulic oils, fuels and water

Type	G	DN	L	H	R
MUA 12	G 1/2"	12.5	50	77.5	55
MUA 34	G 3/4"	16.0	60	89.0	60
MUA 10	G 1"	21.5	70	98.5	65
MUA 114	G 1 1/4"	26.5	85	112.7	65
MUA 112	G 1 1/2"	32.0	90	133.0	75
MUA 20	G 2"	41.0	110	141.0	80
MUA 212	G 2 1/2"	58.0	135	208.0	120
MUA 30	G 3"	65.0	148	234.5	120
MUA 40	G 4"	94.5	190	288.0	175

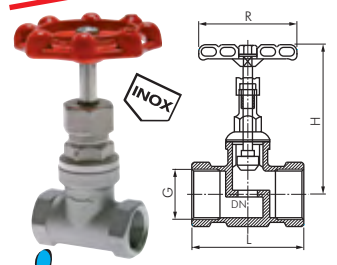


Stainless steel sleeve shut-off valves — Eco-Line/PN 14

Materials: Housing: AISI 316, seal spindle: PTFE, sealing seat: Metallic sealing, hand wheel: Aluminium
Temperature range: -20°C to max. +200°C
Operating range: Liquids, gases, air, heating and hydraulic oils, fuels and water, chemicals
☞ **Optional:** Certificate 3.1

Type (INOX)	G	DN	L	H	R	Repl. handwheel
MUA 38 ES E	G 3/8"	10	52	103	70	MUA 38 ES E RAD
MUA 12 ES E	G 1/2"	14	52	103	70	MUA 12 ES E RAD
MUA 34 ES E	G 3/4"	17	66	111	80	MUA 34 ES E RAD
MUA 10 ES E	G 1"	23	76	121	80	MUA 10 ES E RAD
MUA 114 ES E	G 1 1/4"	30	86	156	90	MUA 114 ES E RAD
MUA 112 ES E	G 1 1/2"	30	94	147	90	MUA 112 ES E RAD
MUA 20 ES E	G 2"	43	118	175	100	MUA 20 ES E RAD
MUA 212 ES E	G 2 1/2"	59	150	200	140	MUA 212 ES E RAD

Especially good value!



TIP *Ideal for water lines, as no pressure thrusts when opening!*

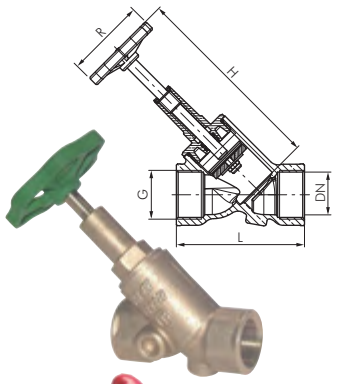
Swing sleeve shut-off valves (free flow valves), DVGW tested — PN 10*

Materials: Housing and top part: Brass, seal, spindle and sealing seat: EPDM, hand wheel: Polyamide glass fibre reinforced
Temperature range: 0°C to max. +90°C
Operating range: Water, drinking water, neutral liquids

✓ **Advantages:** • Up to G 2" design without any dead space

Type	G	DN	L	H	R	Repl. handwheel
MUA 12 SS	Rp 1/2"	15	65	108	50	MUA 12 SS RAD
MUA 34 SS	Rp 3/4"	20	75	128	70	MUA 34 SS RAD
MUA 10 SS	Rp 1"	25	90	151	70	MUA 10 SS RAD
MUA 114 SS	G 1 1/4"	32	110	168	70	MUA 114 SS RAD
MUA 112 SS	G 1 1/2"	40	120	193	80	MUA 112 SS RAD
MUA 20 SS	G 2"	50	150	236	80	MUA 20 SS RAD
MUA 212 SS	G 2 1/2"	65	180	201	100	MUA 212 SS RAD
MUA 30 SS	G 3"	80	210	222	100	MUA 30 SS RAD

* test pressure 16 bar

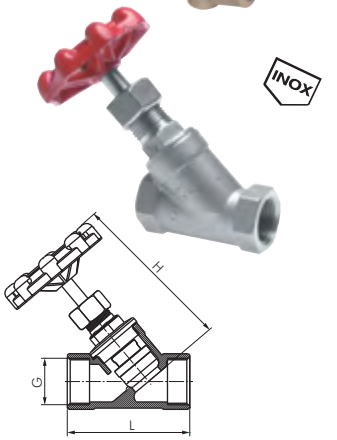


Stainless steel swing sleeve shut-off valves — PN 40

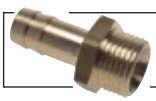
Materials: Housing: AISI 316, seal, spindle and sealing seat: PTFE, hand wheel: carbon steel
Temperature range: -20°C to max. +200°C
Operating range: Water, oil, compressed air
☞ **Optional:** Certificate 3.1

Type (INOX)	G	DN	L	H	Repl. handwheel
MUA 12 SS ES	G 1/2"	15	61	100	MUA 12 SS ES RAD
MUA 34 SS ES	G 3/4"	20	70	125	MUA 34 SS ES RAD
MUA 10 SS ES	G 1"	25	86	130	MUA 10 SS ES RAD
MUA 114 SS ES*	G 1 1/4"	32	100	165	MUA 114 SS ES RAD
MUA 112 SS ES*	G 1 1/2"	38	111	195	MUA 112 SS ES RAD
MUA 20 SS ES*	G 2"	50	138	210	MUA 20 SS ES RAD

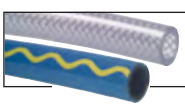
* only for non-hazardous liquids of fluid group II



Liquid seals, gaskets & tapes from page 549



Threaded nozzles from page 64



Compressed air and water hoses from page 208

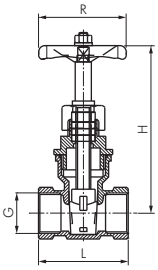
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Gate valves/drain valves

TIP *For use with contaminated media, as they are metallic sealing!*

Sleeve gate valves — up to 20 bar

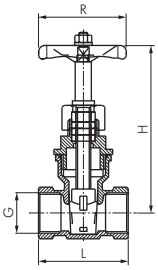
Materials: Housing: Brass, spindle seal: EPDM, slider seal: Metallic, hand wheel: Steel
Temperature range: 1°C to max. +80°C
Operating range: Water, neutral, liquid media, no media containing mineral oils



Type	G	DN	L	H	R	PN
MUAS 38	G 3/8"	13	33	67	45	20 bar
MUAS 12	G 1/2"	15	43	68	45	20 bar
MUAS 34	G 3/4"	19	47	78	45	20 bar
MUAS 10	G 1"	24	51	93	55	20 bar
MUAS 114	G 1 1/4"	32	57	108	60	20 bar
MUAS 112	G 1 1/2"	37	60	125	70	20 bar
MUAS 20	G 2"	48	67	143	80	20 bar
MUAS 212	G 2 1/2"	58	74	175	100	20 bar
MUAS 30	G 3"	72	85	205	100	20 bar
MUAS 40	G 4"	91	98	235	120	20 bar
MUAS 50	G 5"	117	105	300	140	10 bar
MUAS 60	G 6"	143	113	360	170	10 bar

Stainless steel sleeve gate valves — PN 16

Materials: Housing: AISI 316, spindle seal: PTFE, slider seal: Metallic, hand wheel: Aluminium
Temperature range: -20°C to max. +200°C
Operating range: Liquids, gases, air, heating and hydraulic oils, fuels and water, chemicals
☞ **Optional:** Certificate 3.1



Type (INOX)	G	DN	L	H	R	Repl. handwheel
MUAS 12 ES	G 1/2"	15	55	101	70	MUAS 12 ES RAD
MUAS 34 ES	G 3/4"	20	60	108	70	MUAS 34 ES RAD
MUAS 10 ES	G 1"	25	65	118	80	MUAS 10 ES RAD
MUAS 114 ES	G 1 1/4"	32	75	132	80	MUAS 114 ES RAD
MUAS 112 ES	G 1 1/2"	38	85	149	90	MUAS 112 ES RAD
MUAS 20 ES	G 2"	50	95	175	100	MUAS 20 ES RAD
MUAS 212 ES	G 2 1/2"	65	116	213	140	MUAS 212 ES RAD
MUAS 30 ES*	G 3"	80	130	241	140	MUAS 30 ES RAD

* for liquids only

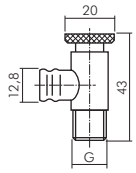
Quick shut-off valves according to DIN 4817-1 — PN 16

Materials: Housing: Brass, handle: Plastic
Temperature range: -25°C to max. +70°C
Operating range: Liquid gases according to DIN 51622 in gaseous or liquid state, mineral oils, compressed air

Type brass	Type brass chrome-plated	DN	Connection
Tube connection with brass cutting ring			
SAR 6	SAR 6 MSV	4	6 L
SAR 8	SAR 8 MSV	6	8 L
SAR 10	SAR 10 MSV	8	10 L
SAR 12	SAR 12 MSV	10	12 L
SAR 15	SAR 15 MSV	12	15 L
Thread female			
SAi 14	SAi 14 MSV	8	Rp 1/4"
SAi 38	SAi 38 MSV	10	Rp 3/8"
SAi 12	SAi 12 MSV	12	Rp 1/2"

Drain valves and venting valves with nozzles — PN 25

Materials: Body: Brass, seal: NBR
Temperature range: 0°C to max. +90°C



Type	G	DN
AB 18	G 1/8"	5
AB 14	G 1/4"	5

Drain valves and venting valves without nozzles — PN 10

Materials: Body: Brass chrome-plated, thread: With PTFE coating, hand wheel: Plastic
Temperature range: 0°C to max. +90°C

G 1/8"

G 1/4"/G 3/8"

Type	Design	G
AB 18 B	With rotatable drainage nozzle	G 1/8"
AB 14 B	With fixed drainage nozzle	G 1/4"
AB 38 B	With fixed drainage nozzle	G 3/8"

Drain valves with rings for compressed air reservoirs on vehicles — PN 20

Materials: Body and valve: Brass, ring: Brass nickel-plated, cone pressure spring: Stainless steel, seal: NBR
Temperature range: -40°C to +80°C

Activation by gently pushing it to the side

Type	Thread	SW
EWV 12 MS	G 1/2"	27
EWV 2215 MS	M 22 x 1.5	27

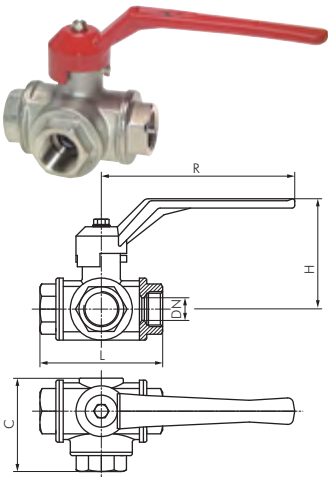
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

3-way ball valves — up to 55 bar

Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -10°C to max. +120°C
Switching position: Can be changed by moving the handle according to the table on page 299. The standard position for T boreholes is position T1.
Properties: Pressure inlet is possible from all the three sides.
Operating range: Water, compressed air, vacuum (max. -0.9 bar), oils, fuels (no diesel), heating oil, solvents, weak acids and alkalis.

Type L borehole	Type T borehole	G	DN	L	H	R	C	PN	Type replace. handles
KH 3/14 L MS	KH 3/14 T MS	G 1/4"	10	77	65	125	60	55 bar	G KH3/14-12
KH 3/38 L MS	KH 3/38 T MS	G 3/8"	12	77	65	125	60	55 bar	G KH3/14-12
KH 3/12 L MS	KH 3/12 T MS	G 1/2"	14	77	65	125	60	50 bar	G KH3/14-12
KH 3/34 L MS	KH 3/34 T MS	G 3/4"	18	92	83	145	71	50 bar	G KH3/34
KH 3/10 L MS	KH 3/10 T MS	G 1"	23	104	96	170	82	45 bar	G KH3/10-112
KH 3/114 L MS	KH 3/114 T MS	G 1 1/4"	29	118	102	170	93	35 bar	G KH3/10-112
KH 3/112 L MS	KH 3/112 T MS	G 1 1/2"	36	138	109	170	109	35 bar	G KH3/10-112
KH 3/20 L MS	KH 3/20 T MS	G 2"	45	162	139	260	129	35 bar	G KH3/20
KH 3/212 L MS*	KH 3/212 T MS*	Rp 2 1/2"	50	194	124	240	158	20 bar	G KH3/212

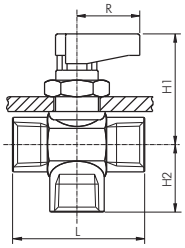
* max. 80°C, no vacuum



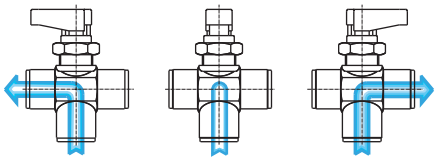
3-way T ball valves with one-sided toggle grip, compact — PN 20

Materials: Housing: Brass chrome-plated, ball: Brass chrome-plated, seal: PTFE/NBR
Temperature range: -20°C to max. +80°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, vacuum (max. -0.99 bar)
Switch panel mounting: Hole diameter: 14.5 mm, sheet metal thickness: Max. 4.5 mm

Type L borehole	Type T borehole	G	DN	L	H1	H2	R
KHTC 3/18 L	KHTC 3/18 T	G 1/8"	5.0	35	33.5	15.5	19
KHTC 3/14 L	KHTC 3/14 T	G 1/4"	5.0	37	33.5	17.5	19
KHTC 3/38 L	KHTC 3/38 T	G 3/8"	7.0	42	35.0	19.5	19



L borehole:

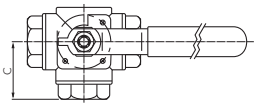


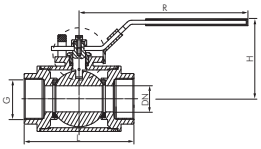
T borehole:

Stainless steel 3-way ball valves — Eco-Line/PN 63

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF), handle: AISI 304
Temperature range: -20°C to max. +200°C
Assembly flange according to ISO 5211, lockable hand lever, please order padlocks separately (see page 640).
Handle can be swivelled by 360°, many possible switching positions.
Switching position: Can be changed by moving the handle according to the table on page 299.
The standard position for T boreholes is T1.
Properties: Pressure inlet is possible from all the three sides.
Operating range: Water, steam, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** Certificate 3.1

Type L borehole (INOX)	Type T borehole (INOX)	G	DN	L	H	R	C	ISO 5211
KH 3/14 L ES E	KH 3/14 T ES E	G 1/4"	11.6	76.0	67	150	37.3	F 04
KH 3/38 L ES E	KH 3/38 T ES E	G 3/8"	12.5	76.0	67	150	37.3	F 04
KH 3/12 L ES E	KH 3/12 T ES E	G 1/2"	12.5	76.0	67	150	37.3	F 04
KH 3/34 L ES E	KH 3/34 T ES E	G 3/4"	16.0	86.0	77	150	44.0	F 04
KH 3/10 L ES E	KH 3/10 T ES E	G 1"	20.0	99.1	83	180	49.0	F 05
KH 3/114 L ES E	KH 3/114 T ES E	G 1 1/4"	25.0	117.4	88	180	57.0	F 05
KH 3/112 L ES E	KH 3/112 T ES E	G 1 1/2"	32.0	123.8	116	243	61.3	F 07
KH 3/20 L ES E	KH 3/20 T ES E	G 2"	38.0	148.0	124	243	74.3	F 07





The pressure-temperature diagram is found in our Online Shop.

5

LOCTITE Liquid seals, gaskets & tapes from page 549

Threaded nozzles & hose nozzles from page 64

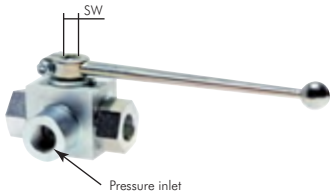
Compressed air and water hoses from page 208

INOX Pressure regulators made of stainless steel and brass from p. 355

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

3-way ball valves

High pressure 3-way ball valves — up to 500 bar



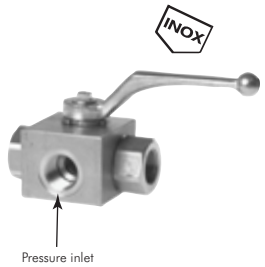
Materials: Housing: Zinc-plated steel, ball: Steel hard chrome-plated, seal: POM/NBR, handle: Zinc die-casting (from DN 20: straight - aluminium, angled - zinc-plated steel)
Temperature range: -10°C to max. +80°C
Operating range: Hydraulic oils, heating oils (water only after release by us). Apply input pressure only on the centre borehole.
Switching position: Can be changed only to position T4 by moving the handle according to the table on page 299. The standard position for T boreholes is position T1.
☞ **Optional:** NPT thread **-NPT**, pressure inlet on all 3 sides (PN 400, ≥ G ½": PN 350), housing burnished **-D3**

Type L borehole	Type T borehole	G	DN	SW	PN	Repl. handles straight	Repl. handles angled
KH 3/18 L HD	KH 3/18 T HD	G 1/8"	4	9	500 bar	G KH SW 9	G KH SW 9 GK
KH 3/14 L HD	KH 3/14 T HD	G 1/4"	6	9	500 bar	G KH SW 9	G KH SW 9 GK
KH 3/38 L HD	KH 3/38 T HD	G 3/8"	10	9	500 bar	G KH SW 9	G KH SW 9 GK
KH 3/12 L HD	KH 3/12 T HD	G 1/2"	13	9	500 bar	G KH SW 9	G KH SW 9 GK
KH 3/34 L HD	KH 3/34 T HD	G 3/4"	20	14	315 bar	G KH SW 14	G KH SW 14 GK
KH 3/10 L HD	KH 3/10 T HD	G 1"	25	14	315 bar	G KH SW 14	G KH SW 14 GK
KH 3/114 L HD	KH 3/114 T HD	G 1 1/4"	25	14	350 bar	G KH SW 14	G KH SW 14 GK
KH 3/112 L HD	KH 3/112 T HD	G 1 1/2"	25	14	350 bar	G KH SW 14	G KH SW 14 GK
KH 3/20 L HD	KH 3/20 T HD	G 2"	50	17	350 bar	G KH SW 17	G KH SW 17 GK

Replacement handles

☞ **Order example:** KH 3/18 L HD **
Standard type
Designation for the options:
NPT thread . . . . . **-NPT**
Pressure inlet on all 3 sides . . . **-D3**

Stainless steel high pressure 3-way ball valves — up to 400 bar

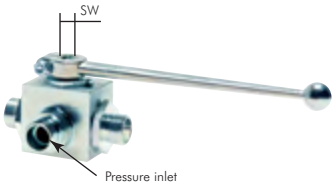


Materials: Housing: AISI 316Ti, ball: AISI 316Ti, seal: POM/NBR, handle: Zinc die-casting
Temperature range: -20°C to max. +100°C
Operating range: Hydraulic oils, heating oil (water only after release by us). Apply input pressure only on the centre borehole.
Switching position: Can be changed to position T4 by moving the handle according to the table on this page. The standard position for T boreholes is position T1.
☞ **Optional:** NPT thread **-NPT**, PTFE/FKM seal **-V**, pressure inlet on all 3 sides (only switching position L, T1 and T4 possible) **-D3**

Type L borehole (INOX)	Type T borehole (INOX)	G	DN	PN
KH 3/18 L HD ES	KH 3/18 T HD ES	G 1/8"	5	400 bar
KH 3/14 L HD ES	KH 3/14 T HD ES	G 1/4"	6	400 bar
KH 3/38 L HD ES	KH 3/38 T HD ES	G 3/8"	7	400 bar
KH 3/12 L HD ES	KH 3/12 T HD ES	G 1/2"	11.5	400 bar
KH 3/34 L HD ES	KH 3/34 T HD ES	G 3/4"	18	320 bar
KH 3/10 L HD ES	KH 3/10 T HD ES	G 1"	22	350 bar
KH 3/114 L HD ES	KH 3/114 T HD ES	G 1 1/4"	22	350 bar
KH 3/112 L HD ES	KH 3/112 T HD ES	G 1 1/2"	22	250 bar
KH 3/20 L HD ES	KH 3/20 T HD ES	G 2"	44	250 bar

☞ **Order example:** KH 3/18 L HD ES **
Standard type
Designation for the options:
NPT thread . . . . . **-NPT**
PTFE/FKM seal . . . . . **-V**
Pressure inlet on all 3 sides . . . **-D3**

High pressure 3-way ball valves, w/ cutting ring connections ISO 8434-1 — up to 500 bar



Materials: Housing: Zinc-plated steel, ball: Steel hard chrome-plated, seal: POM/NBR, handle: Zinc die-casting (from DN 16: straight - aluminium, angled - zinc-plated steel)
Temperature range: -10°C to max. +80°C
Operating range: Hydraulic oils, heating oil (water only after release by us). Apply input pressure only on the centre borehole.
Switching position: Can be changed to position T4 by moving the handle according to the table on this page. The standard position for T boreholes is position T1.

Type L borehole	Type T borehole	Tube Ø ext.	DN	Thread	SW	PN	Repl. handles straight	Replacement handles angled
Light model series								
KH 3/6 L L HD	KH 3/6 L T HD	6 L	4	M 12 x 1.5	9	315 bar	G KH SW 9	G KH SW 9 GK
KH 3/8 L L HD	KH 3/8 L T HD	8 L	6	M 14 x 1.5	9	315 bar	G KH SW 9	G KH SW 9 GK
KH 3/10 L L HD	KH 3/10 L T HD	10 L	8	M 16 x 1.5	9	315 bar	G KH SW 9	G KH SW 9 GK
KH 3/12 L L HD	KH 3/12 L T HD	12 L	10	M 18 x 1.5	9	315 bar	G KH SW 9	G KH SW 9 GK
KH 3/15 L L HD	KH 3/15 L T HD	15 L	12	M 22 x 1.5	9	315 bar	G KH SW 9	G KH SW 9 GK
KH 3/18 L L HD	KH 3/18 L T HD	18 L	16	M 26 x 1.5	12	315 bar	G KH SW 12	G KH SW 12 GK
KH 3/22 L L HD	KH 3/22 L T HD	22 L	20	M 30 x 2	14	160 bar	G KH SW 14	G KH SW 14 GK
KH 3/28 L L HD	KH 3/28 L T HD	28 L	25	M 36 x 2	14	160 bar	G KH SW 14	G KH SW 14 GK
Heavy model series								
KH 3/8 S L HD	KH 3/8 S T HD	8 S	4	M 16 x 1.5	9	500 bar	G KH SW 9	G KH SW 9 GK
KH 3/10 S L HD	KH 3/10 S T HD	10 S	6	M 18 x 1.5	9	500 bar	G KH SW 9	G KH SW 9 GK
KH 3/12 S L HD	KH 3/12 S T HD	12 S	8	M 20 x 1.5	9	400 bar	G KH SW 9	G KH SW 9 GK
KH 3/14 S L HD	KH 3/14 S T HD	14 S	10	M 22 x 1.5	9	400 bar	G KH SW 9	G KH SW 9 GK
KH 3/16 S L HD	KH 3/16 S T HD	16 S	12	M 24 x 1.5	9	315 bar	G KH SW 9	G KH SW 9 GK
KH 3/20 S L HD	KH 3/20 S T HD	20 S	16	M 30 x 2	12	315 bar	G KH SW 12	G KH SW 12 GK
KH 3/25 S L HD	KH 3/25 S T HD	25 S	20	M 36 x 2	14	315 bar	G KH SW 14	G KH SW 14 GK
KH 3/30 S L HD	KH 3/30 S T HD	30 S	25	M 42 x 2	14	315 bar	G KH SW 14	G KH SW 14 GK

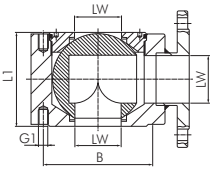
Replacement handles

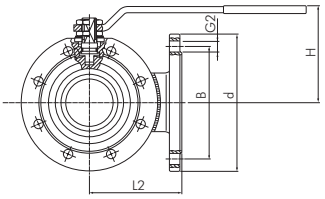
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

3-way flanged ball valves, reduced bore — PN 16

Materials: Housing: Steel, ball: AISI 304, seal: PTFE/FKM
Temperature range: -10°C to max. + 160°C
Pressure range: 0-16 bar, vacuum 99.9 %
Assembly flange according to ISO 5211 (not DN 15 and DN 20)
Properties: Pressure inlet only possible from the front (centre borehole).
Operating range: Water, oil, compressed air, fuel, vacuum
☞ **Optional:** Pneumatic actuator** **-P**

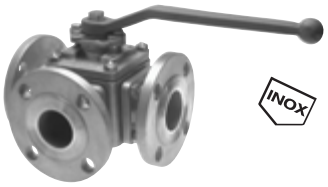
Type ⊾ L borehole	Type ⊥ T borehole	DN	LW	L1	L2	B	d	H	G1	G2	ISO 5211*
KHFL 3/15 L	KHFL 3/15 T	15	10	40	76	65	95	64.5	4 x M12	4 x Ø14	---
KHFL 3/20 L	KHFL 3/20 T	20	15	40	82	75	105	67.0	4 x M12	4 x Ø14	---
KHFL 3/25 L	KHFL 3/25 T	25	20	46	86	85	115	79.0	4 x M12	4 x Ø14	F 04
KHFL 3/32 L	KHFL 3/32 T	32	25	58	105	100	140	84.0	4 x M16	4 x Ø18	F 04
KHFL 3/40 L	KHFL 3/40 T	40	32	71	110	110	150	102.5	4 x M16	4 x Ø18	F 05
KHFL 3/50 L	KHFL 3/50 T	50	40	82	120	125	165	109.0	4 x M16	4 x Ø18	F 05
KHFL 3/65 L	KHFL 3/65 T	65	50	106	125	145	185	128.0	4 x M16	4 x Ø18	F 07
KHFL 3/80 L	KHFL 3/80 T	80	64	122	150	160	200	136.5	8 x M16	8 x Ø18	F 07
KHFL 3/100 L	KHFL 3/100 T	100	76	152	159	180	220	155.5	8 x M16	8 x Ø18	F 10
KHFL 3/125 L	KHFL 3/125 T	125	100	196	190	210	250	178.5	8 x M16	8 x Ø18	F 10
KHFL 3/150 L	KHFL 3/150 T	150	125	242	210	240	285	252.0	8 x M20	8 x Ø22	F 12





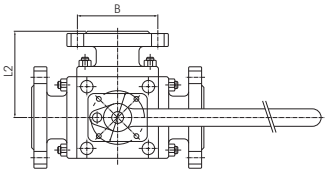
* drive shaft delivered as 2-flat, ** please specify the exact operating case

Stainless steel 3-way flanged ball valves, full bore — PN 16



Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE
Temperature range: -20°C to max. + 200°C
Assembly flange conforming to ISO 5211
Properties: Pressure inlet is possible from all the three sides.
Operating range: Water, oil, compressed air, fuels, solvents, aggressive media, food, beverages
☞ **Optional:** Pneumatic actuator*** **-P**, certificate 3.1

Type ⊾ INOX L borehole	Type ⊥ INOX T borehole	DN	L1	L2	B	d	R	t	ISO 5211
KHFL 3/25 L ES	KHFL 3/25 T* ES	25	225	112.5	85	115	172	18	F 05
KHFL 3/40 L ES	KHFL 3/40 T* ES	40	242	121.0	110	150	258	18	F 05
KHFL 3/50 L ES	KHFL 3/50 T* ES	50	250	125.0	125	165	258	18	F 07
KHFL 3/65 L ES	KHFL 3/65 T* ES	65	285	142.5	145	185	374	18	F 10
KHFL 3/80 L ES**	KHFL 3/80 T* ES**	80	297	148.5	160	200	374	20	F 10
KHFL 3/100 L ES**	KHFL 3/100 T* ES**	100	339	169.5	180	220	374	20	F 10



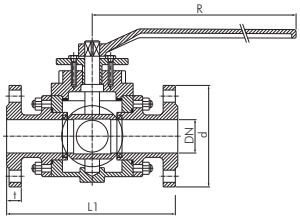
* please indicate the switching position. See table below (standard position T1), ** actuating lever in tube design

☞ **Order example:** KHFL 3/25 L ES **

Standard type

Designation for the options:
Pneumatic actuator*** . . . . . **-P**

*** please specify the exact operating case.

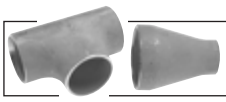


Position	L borehole	T borehole			
90°					
0°					
Switching position	L	T1	T2	T3	T4

For more flange dimensions see page 262. The pressure-temperature diagram is found in the Online Shop.

Flanges and flange seals from page 263

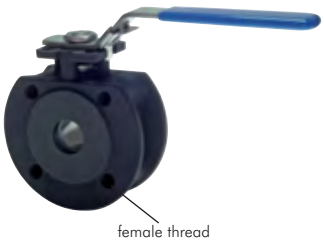
Flanges from page 260

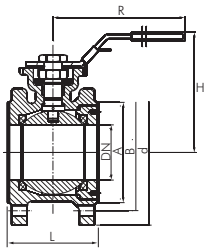

Butt weld fittings from page 254

Compensators from page 264

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Flanged ball valves





Compact flanged ball valves, full bore — PN 16/40

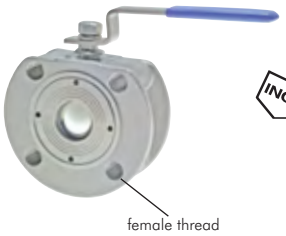
Materials: Housing: Steel, ball: AISI 316, seal: PTFE/FKM,
Temperature range: -20°C to max. +180°C
Direct assembly flange according to ISO 5211; lockable hand lever, please order the padlocks separately (see page 641).
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels
☞ **Optional:** Pneumatic actuator (see page 306), electric actuator* **-EL**

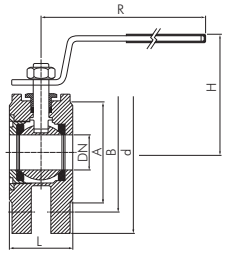
Type	DN	L +2	A	B	d	H	R	FT	PN	ISO 5211
KHFLK 15/40	15	39	45	65	95	98	120	M 12	16/40	F 03/F 04-VK9
KHFLK 20/40	20	44	56	75	105	98	120	M 12	16/40	F 03/F 04-VK9
KHFLK 25/40	25	49	65	85	115	110	140	M 12	16/40	F 04/F 05-VK11
KHFLK 32/40	32	56	75	100	135	120	170	M 16	16/40	F 04/F 05-VK11
KHFLK 40/40	40	65	85	110	145	140	200	M 16	16/40	F 05/F 07-VK14
KHFLK 50/40	50	73	100	125	160	147	240	M 16	16/40	F 05/F 07-VK14
KHFLK 65/16	65	94	120	145	180	172	280	M 16	16	F 07/F 10-VK17
KHFLK 80/16	80	116	135	160	195	188	320	M 16	16	F 07/F 10-VK17
KHFLK 100/16	100	140	155	180	215	202	400	M 16	16	F 10
KHFLK 125/16	125	196	190	210	250	178	381	M 16	16	F 10

☞ **Order example:** KHFLK 15/40 **
Standard type

Designation for the options:
Pneumatic actuator . . . . . **-see page 306**
Electric actuator* . . . . . **-EL**

* please specify the exact operating case.





For more flange dimensions see page 262. The pressure-temperature diagram is found in the Online Shop.

Stainless steel compact flanged ball valves, full bore — PN 16/40

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE, handle: AISI 304
Temperature range: -20°C to max. +200°C
Assembly flange conforming to ISO 5211
Operating range: Water, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** Pneumatic actuator (see page 306), electric actuator* **-EL**, certificate 3.1

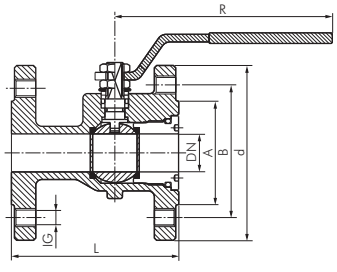
Type PN 16 (INOX)	Type PN 40 (INOX)	DN	L	A	B	d	H	R	FT	ISO 5211
KHFLK 15/16 ES E	KHFLK 15/40 ES E	15	36	45	65	88	68	150	M 12	F 03
KHFLK 20/16 ES E	KHFLK 20/40 ES E	20	38	58	75	98	72	150	M 12	F 03
KHFLK 25/16 ES E	KHFLK 25/40 ES E	25	43	68	85	108	75	150	M 12	F 03
KHFLK 32/16 ES E	KHFLK 32/40 ES E	32	51	78	100	128	89	156	M 16	F 03
KHFLK 40/16 ES E	KHFLK 40/40 ES E	40	63	88	110	150	102	180	M 16	F 05
KHFLK 50/16 ES E	KHFLK 50/40 ES E	50	70	100	125	165	108	180	M 16	F 05
KHFLK 65/16 ES E	---	65	107	125	145	185	143	282	M 16	F 07
---	KHFLK 65/40 ES E	65	104	122	145	185	148	262	M 16	F 07
KHFLK 80/16 ES E	---	80	120	138	160	200	152	290	M 16	F 07
---	KHFLK 80/40 ES E	80	118	138	160	200	150	262	M 16	F 07
KHFLK 100/16 ES E	---	100	152	158	180	220	168	325	M 16	F 10
---	KHFLK 100/40 ES E	100	149	162	190	235	182	500**	M 20	F 07

** tube lever

☞ **Order example:** KHFLK 15/16 ES **
Standard type

Designation for the options:
Pneumatic actuator . . . . . **-see page 306**
Electric actuator* . . . . . **-EL**

* please specify the exact operating case.



For more flange dimensions see page 262.

Flanged ball valves, 1-piece, full bore — PN 16

Materials: Housing: GG25, ball: Stainless steel AISI 304, seal: PTFE/NBR
Temperature range: -10°C to max. +120°C
Length according to DIN 3202-F4 (DIN EN 558-1, row 14) (from DN 200 according to DIN 3202-F5, DIN EN 558-1, row 15), from DN 80: Assembly flange according to ISO 5211
Pressure range: 0-16 bar, vacuum 99.9 %
Operating range: Water, oil, compressed air, fuels, vacuum
☞ **Optional:** Pneumatic actuator (see page 307), electric actuator* **-EL**

Type	DN	L	A	B	d	R	FT	ISO 5211
KHFL 25/16 KES	25	125	68	85	115	174	M 12	---
KHFL 32/16 KES	32	130	78	100	140	174	M 16	---
KHFL 40/16 KES	40	140	88	110	150	250	M 16	---
KHFL 50/16 KES	50	150	102	125	165	250	M 16	---
KHFL 65/16 KES	65	170	122	145	185	321	M 16	---
KHFL 80/16 KES	80	180	138	160	200	321	M 16	F 07
KHFL 100/16 KES	100	190	158	180	220	381	M 16	F 10
KHFL 125/16 KES**	125	200	188	210	250	381	M 16	F 10
KHFL 150/16 KES**	150	210	212	240	285	700	M 20	F 12
KHFL 200/16 KES**	200	400	268	295	340***	700	M 22	F 12

** 2-piece, *** max. outside diameter of the body 400 mm

☞ **Order example:** KHFL 25/16 **
Standard type

Designation for the options:
Pneumatic actuator . . . . . **-see page 307**
Electric actuator* . . . . . **-EL**

* please specify the exact operating case.

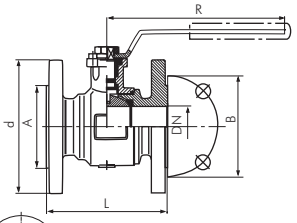
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Flanged ball valves, 2-piece, full bore, DVGW tested* — PN 40

Materials: Housing: Cast steel, ball: Stainless steel AISI 304, seal: PTFE/FKM
Temperature range: -20°C to max. +180°C, gas: -20°C to max. +60°C (dependent on operating pressure)
Length according to DIN 3202-F4 (DIN EN 558-1, row 14), assembly flange conforming to ISO 5211
Operating range: Water, oil, compressed air, fuels, gas
☞ **Optional:** Pneumatic actuator* **-P**, electric actuator* **-EL**

Type	DN	L	A	B	d	R	ISO 5211
KHFL 15/40	15	115	45	65	95	130	F 03
KHFL 20/40	20	120	58	75	105	130	F 03
KHFL 25/40	25	125	68	85	115	170	F 05
KHFL 32/40	32	130	78	100	140	170	F 05
KHFL 40/40	40	140	88	110	150	220	F 05
KHFL 50/40	50	150	102	125	165	220	F 05
KHFL 65/40	65	170	122	145	185	250	F 07
KHFL 80/40	80	180	138	160	200	350	F 10
KHFL 100/40	100	190	162	190	235	350	F 10

* please specify the exact operating case.



For more flange dimensions see page 262.

Stainless steel flanged ball valves, 2-piece, full bore — PN 16

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF)/FKM, handle: AISI 304
Temperature range: -20°C to max. +200°C
Length according to DIN 3202-F4 (DIN EN 558-1, row 14) (from DN 150 according to DIN 3202-F5, DIN EN 558-1, row 15), assembly flange conforming to ISO 5211, lockable hand lever, please order padlocks separately (see page 641).
Operating range: Water, steam, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** Pneumatic actuator (see page 307), electric actuator* **-EL**, certificate 3.1

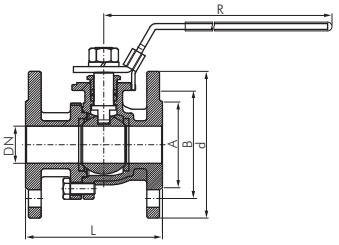
Type (INOX)	DN	L	A	B	d	R	ISO 5211
KHFL 15/16 ES	15	115	45	65	95	169	F 04
KHFL 20/16 ES	20	120	58	75	105	169	F 04
KHFL 25/16 ES	25	125	68	85	115	205	F 05
KHFL 32/16 ES	32	130	78	100	140	205	F 05
KHFL 40/16 ES	40	140	88	110	150	267	F 07
KHFL 50/16 ES	50	150	102	125	165	267	F 07
KHFL 65/16 ES	65	170	122	145	185	298	F 07
KHFL 80/16 ES	80	180	138	160	200	390	F 07
KHFL 100/16 ES	100	190	158	180	220	390	F 07
KHFL 150/16 ES	150	350	212	240	285	743	F 12
KHFL 200/16 ES	200	400	268	295	340	925	F 12

☞ **Order example:** KHFL 15/16 ES **

Standard type

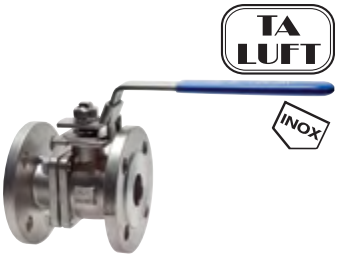
Designation for the options:
Pneumatic actuator . . . . . **-see page 307**
Electric actuator* . . . . . **-EL**

* please specify the exact operating case.



For more flange dimensions see page 262. Refer to the pressure-temperature diagram in our Online Shop.

Stainless steel flanged ball valves, 2-piece, full bore — PN 40



Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF)/FKM, handle: AISI 304
Temperature range: -20°C to max. +200°C
Length according to DIN 3202-F4 (DIN EN 558-1, row 14) (from DN 150 according to DIN 3202-F5, DIN EN 558-1, row 15), assembly flange conforming to ISO 5211, lockable hand lever, please order padlocks separately (see page 641).
Operating range: Water, steam, oil, compressed air, fuels, solvents, aggressive media
☞ **Optional:** Pneumatic actuator (see page 307), electric actuator* **-EL**, certificate 3.1

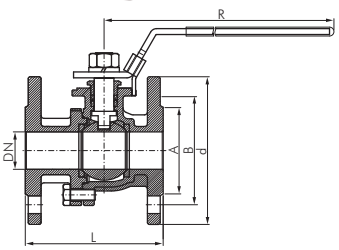
Type (INOX)	DN	L	A	B	d	R	ISO 5211
KHFL 15/40 ES	15	115	45	65	95	169	F 04
KHFL 20/40 ES	20	120	58	75	105	169	F 04
KHFL 25/40 ES	25	125	68	85	115	205	F 05
KHFL 32/40 ES	32	130	78	100	140	205	F 05
KHFL 40/40 ES	40	140	88	110	150	267	F 07
KHFL 50/40 ES	50	150	102	125	165	267	F 07
KHFL 65/40 ES	65	170	122	145	185	298	F 07
KHFL 80/40 ES	80	180	138	160	200	390	F 07
KHFL 100/40 ES	100	190	162	190	235	390	F 07
KHFL 150/40 ES	150	350	218	250	300	743	F 12
KHFL 200/40 ES	200	400	285	320	375	925	F 12

☞ **Order example:** KHFL 25/40 ES **

Standard type

Designation for the options:
Pneumatic actuator . . . . . **-see page 307**
Electric actuator* . . . . . **-EL**

* please specify the exact operating case.



For more flange dimensions see page 262. Refer to the pressure-temperature diagram in our Online Shop.

Flanges and flange seals from page 263
Flanges from page 260
Butt weld fittings from page 254
Compensators from page 264

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pinch valves/shut-off valves

Pinch valves

Field of application: Pneumatic pinch valves are the fitting solution for the shut-off, regulation and dosing of abrasive, corrosive and fibrous products. They are ideally suited for use with these products due to their completely free product flow, whereby a practical blocking and dead space-free fitting results. The pneumatic pinch valves ensure an optimal shut-off, also when used with solids, such as granules, powders, pellets, chipping, sand, cement, gravel, textile fibres, carbon, fine glass fragments and liquids that contain solids.

stainless steel

aluminium

POM

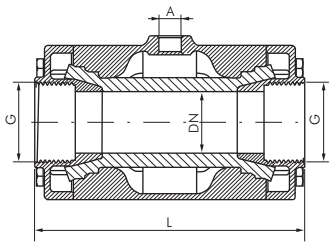
Advantages:
- Completely free flow
- No clogging by media
- Minimum frictional resistance
- Quick opening and closing
- Low energy consumption

Pneumatic pinch valves with female threads - normal open — PN 6

Materials: Housing: Type stainless steel: AISI 316, type aluminium: Aluminium powder coated, type POM: POM, sleeve: AISI 316 (type POM: POM), sleeve: Light natural rubber in food safe quality
Operating pressure: Max. 6 bar
Control pressure: Max. 2 bar higher than the medium's pressure
Temperature range: -10°C to max. +80°C
Optional: Natural rubber sleeve, abrasion resistant (-10°C to max. +80°C) **-AB**, EPDM sleeve (-10°C to max. +120°C) **-EP**

Type stainless steel	Type aluminium	Type POM	G	DN	A	L	Type replacement sleeve
QVMC 38 ES	QVMC 38**	QVMP 38	G 3/8"	10	G 1/8"	80	QVM 38 *** REP
QVMC 12 ES	QVMC 12**	QVMP 12	G 1/2"	15	G 1/8"	95	QVM 12 *** REP
QVMC 34 ES	QVMC 34	QVMP 34	G 3/4"	20	G 1/8"	103	QVM 34 *** REP
QVMC 10 ES	QVMC 10	QVMP 10	G 1"	25	G 1/8"	120	QVM 10 *** REP
QVMC 114 ES	QVMC 114	QVMP 114	G 1 1/4"	32	G 1/4"	140 (135)*	QVM 114 *** REP
QVMC 112 ES	QVMC 112	QVMP 112	G 1 1/2"	40	G 1/4"	160	QVM 112 *** REP
QVMC 20 ES	QVMC 20	QVMP 20	G 2"	50	G 1/4"	185 (170)*	QVM 20 *** REP
QVMC 212 ES	QVMC 212	---	G 2 1/2"	65	G 1/4"	200	QVM 212 *** REP
QVMC 30 ES	QVMC 30	---	G 3"	80	G 1/4"	230	QVM 30 *** REP
QVMC 40 ES	QVMC 40	---	G 4"	100	G 1/4"	280	QVM 40 *** REP

* for type POM, ** POM housing, *** please enter the required material: LE = natural rubber, food quality, AB = natural rubber, abrasion resistant, EP = EPDM

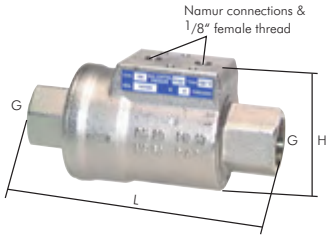


Order example: QVMC 38 ES **
- QVMC 38 ES: Standard type
- **: Designation for the options:
  - Sleeve made of natural rubber (abrasion resistant) . . -AB
  - Sleeve made of EPDM . . . . . -EP

TIP — *Option -AB outstanding value*

Problem solver & cost saver

- Flow like a pneumatically controlled ball valve
- Short switching times
- Compact design
- Installation position as required
- Very economical price



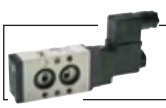
Blocking valves, pneumatically actuated — PN 10

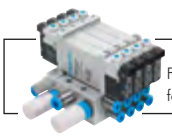
Materials: Housing and piston: Brass nickel-plated, seals: NBR
Temperature range: -20°C to max. +80°C, with FKM seal to max. +150°C
Operating pressure: Max. 10 bar as well as low vacuum
Control pressure: 3 - 8 bar (4.2 - 8 bar for single acting design), connection: Namur & 2x G 1/8" FT
Operating ranges: Water, oil, compressed air
Optional: FKM seals (-20°C to max. +150°C) **-V**, magn. limit switch **-EB**

Type double acting	Type spring closing	Type spring opening	G	L	H	DN	Sealing set
VIP 38 MS	VIP 38 FS MS	VIP 38 FO MS	G 3/8"	98	54	10	VIP 38 REP **
VIP 12 MS	VIP 12 FS MS	VIP 12 FO MS	G 1/2"	112	60	15	VIP 12 REP **
VIP 34 MS	VIP 34 FS MS	VIP 34 FO MS	G 3/4"	135	70	20	VIP 34 REP **
VIP 10 MS	VIP 10 FS MS	VIP 10 FO MS	G 1"	143	76	25	VIP 10 REP **
VIP 114 MS	VIP 114 FS MS	VIP 114 FO MS	G 1 1/4"	165	92	32	VIP 114 REP **
VIP 112 MS	VIP 112 FS MS	VIP 112 FO MS	G 1 1/2"	180	102	40	VIP 112 REP **
VIP 20 MS	VIP 20 FS MS	VIP 20 FO MS	G 2"	207	115	50	VIP 20 REP **

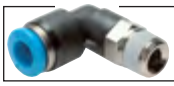
Order example: VIP 38 MS **
- VIP 38 MS: Standard type
- **: Designation for the options:
  - FKM seal (-20°C to max. +150°C) . . . . . -V
  - Magnetic limit switch . . . . . -EB

Order example: VIP 38 REP **
- VIP 38 REP: Standard type
- **: Designation for the options:
  - Seal NBR . . . . . -NBR
  - Seal FKM . . . . . -FKM


NAMUR valves page 416


FESTO Festo valves can be found in our Online Shop

Push-in fittings Ø 3 - 32 mm from page 24


FESTO Festo screwed connections can be found in our Online Shop

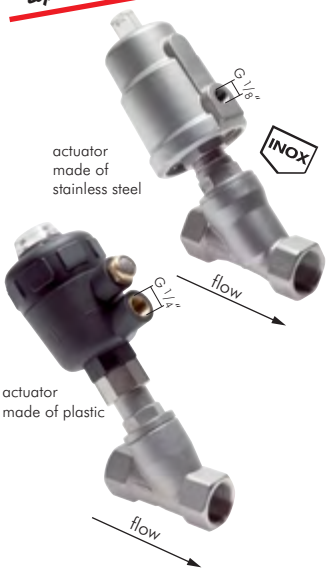
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

2/2-way valves with pneumatic actuation — Eco-Line

Materials: Body: AISI 316, seals: PTFE/FKM
Temperature range: -10°C to max. +60°C
Media: Compressed air, neutral gases, water, oils, weak acids and alkalis
Switching position: Zero position closed (NC)
Flow direction: Closing with media flow (not recommended for liquids with high flow velocity)

Type	Thread	DN	Working pressure	Control pressure	Length	KV value	Type repair sets
Actuator made of stainless steel AISI 316 (INOX)							
U 212 ES2A E	G 1/2"	13	0 - 16 bar	3 - 10 bar	74	78 l/min	U 212 ES2A E REP
U 234 ES2A E	G 3/4"	18	0 - 16 bar	4 - 10 bar	84	158 l/min	U 234 ES2A E REP
U 210 ES2A E	G 1"	24	0 - 16 bar	5.5 - 10 bar	100	301 l/min	U 210 ES2A E REP
U 2114 ES2A E	G 1 1/4"	31	0 - 16 bar	5 - 10 bar	112	385 l/min	U 2114 ES2A E REP
U 2112 ES2A E	G 1 1/2"	35	0 - 16 bar	6 - 10 bar	126	548 l/min	U 2112 ES2A E REP
U 220 ES2A E	G 2"	45	0 - 10 bar	6.5 - 10 bar	146	880 l/min	U 220 ES2A E REP
Actuator made of plastic							
U 212 ESK E	G 1/2"	13	0 - 16 bar	6 - 8 bar	70	78 l/min	U 212 ESK E REP
U 234 ESK E	G 3/4"	18	0 - 16 bar	6 - 8 bar	76	158 l/min	U 234 ESK E REP
U 210 ESK E	G 1"	24	0 - 13 bar	6 - 8 bar	90	301 l/min	U 210 ESK E REP
U 2114 ESK E	G 1 1/4"	30	0 - 16 bar	6 - 8 bar	116	366 l/min	U 2114 ESK E REP
U 2112 ESK E	G 1 1/2"	35	0 - 13 bar	6 - 8 bar	116	548 l/min	U 2112 ESK E REP
U 220 ESK E	G 2"	45	0 - 8 bar	6 - 8 bar	138	880 l/min	U 220 ESK E REP

Especially good value!



2/2-way valves with pneumatic actuation

Materials: Type brass: Valve body: Red bronze (2 1/2" to 3": brass), seat sealing: PTFE, spindle seal: NBR, control cylinder: Brass/aluminium, spindle: Stainless steel, seals: NBR
Type AISI 316: Valve body: AISI 316, valve internal parts: AISI 304, seat and spindle seal: PTFE, control cylinder: Brass nickel-plated/aluminium, spindle: Stainless steel, seals: FKM
Temperature range: -20°C to max. +85°C (type AISI 316: -40°C to max. +200°C)
Control pressure: 4 to 10 bar (6 bar optimal), control connection: G 1/8"
Flow direction: Closing with media flow (not recommended for liquids with high flow velocity).
If necessary, use the **-GS** option to close against the media flow
☞ **Optional:** PTFE spindle seal (up to 200°C) **-PTFE**[2], design closes against the medium stream (for use with liquids), please ask about working pressures **-GS**, control cylinder made of stainless steel AISI 316 with FKM seals **-2A**[3]

Type brass	Operating pressure	Type AISI 316 (INOX)	Operating pressure	Thread	Type repair sets
Zero position closed					
U 212 MS	0 - 16 bar	U 212 ES	0 - 25 bar	G 1/2"	U 212 * REP
U 234 MS	0 - 16 bar	U 234 ES	0 - 20 bar	G 3/4"	U 234 * REP
U 210 MS	0 - 16 bar	U 210 ES	0 - 16 bar	G 1"	U 210 * REP
U 2114 MS[1]	0 - 16 bar	U 2114 ES	0 - 9 bar	G 1 1/4"	U 2114 * REP
U 2114-10 MS REP	0 - 10 bar	---	---	G 1 1/4"	U 2114-10 MS REP
---	---	U 2114-25 ES[1]	0 - 25 bar	G 1 1/4"	U 2114-25 ES REP
U 2112 MS[1]	0 - 16 bar	U 2112 ES	0 - 7 bar	G 1 1/2"	U 2112 * REP
U 2112-8 MS REP	0 - 8 bar	---	---	G 1 1/2"	U 2112-8 MS REP
---	---	U 2112-20 ES[1]	0 - 20 bar	G 1 1/2"	U 2112-20 ES REP
U 220 MS[1]	0 - 16 bar	---	---	G 2"	U 220 MS REP
U 220-4 MS REP	0 - 4 bar	U 220 ES	0 - 4 bar	G 2"	U 220 * REP
---	---	U 220-12 ES[1]	0 - 12 bar	G 2"	U 220-12 ES REP
---	---	U 220-20 ES[1], [3]	0 - 20 bar	G 2"	U 220-20 ES REP
U 2212-6 MS[1]	0 - 6 bar	---	---	G 2 1/2"	U 2212-6 MS REP
U 2212-10 MS[1], [3]	0 - 10 bar	---	---	G 2 1/2"	U 2212-10 MS REP
U 230-4 MS[1]	0 - 4 bar	---	---	G 3"	U 230-4 MS REP
U 230-10 MS[1], [3]	0 - 10 bar	---	---	G 3"	U 230-10 MS REP
Zero position open					
UO 212 MS	0 - 16 bar	UO 212 ES	0 - 25 bar	G 1/2"	UO 212 * REP
UO 234 MS	0 - 16 bar	UO 234 ES	0 - 20 bar	G 3/4"	UO 234 * REP
UO 210 MS	0 - 16 bar	UO 210 ES	0 - 16 bar	G 1"	UO 210 * REP
UO 2114 MS[1]	0 - 16 bar	UO 2114 ES	0 - 9 bar	G 1 1/4"	UO 2114 * REP
---	---	UO 2114-25 ES[1]	0 - 25 bar	G 1 1/4"	UO 2114-25 ES REP
UO 2112 MS[1]	0 - 16 bar	UO 2112 ES	0 - 7 bar	G 1 1/2"	UO 2112 * REP
---	---	UO 2112-20 ES[1]	0 - 20 bar	G 1 1/2"	UO 2112-20 ES REP
UO 220 MS[1]	0 - 11 bar	UO 220 ES	0 - 4 bar	G 2"	UO 220 * REP
---	---	UO 220-12 ES[1]	0 - 12 bar	G 2"	UO 220-12 ES REP
---	---	UO 220-20 ES[1], [3]	0 - 20 bar	G 2"	UO 220-20 ES REP
UO 2212-6 MS[1]	0 - 6 bar	---	---	G 2 1/2"	UO 2212-6 MS REP
UO 2212-10 MS[1], [3]	0 - 10 bar	---	---	G 2 1/2"	UO 2212-10 MS REP
UO 230-4 MS[1]	0 - 4 bar	---	---	G 3"	UO 230-4 MS REP
UO 230-10 MS[1], [3]	0 - 10 bar	---	---	G 3"	UO 230-10 MS REP

1) aluminium actuator, 2) only for valves made of red bronze or brass, 3) control connection: G 1/4"
* please enter the corresponding type of material: MS for brass, ES for stainless steel

☞ **Order example:** U 212 ** — Standard type

Designation for the options:
Spindle seal made of PTFE (up to 200°C) . . . . . **-PTFE**[2]
Design closes against the medium stream (for use with liquids), please ask about working pressures . . . . . **-GS**
Control cylinder made of stainless steel AISI 316 with FKM seals . **-2A**[3]

Dimensions can be found in the item details in our Online Shop

When ordering repair sets please notice the difference between stainless steel and red bronze or brass valves.
The repair sets consists of complete valve disk, spindle, spring and all O-rings, groove rings and seals necessary for the valve.

LOCTITE Liquid seals, gaskets & tapes from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pneumatically actuated ball valves

TIP Connection diagram acc. to NAMUR, with female thread!

EN 331

for Namur connection and female thread

Warning: With high media temperatures the actuator must be protected by a thermal bridge!

Ball valves with pneumatic rotary actuators — up to 40 bar

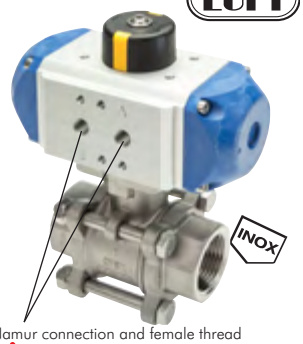
Ball valve
Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/FKM
Length according to DIN 3202-M3 (G ½" - G 2"), DVGW approval for G ½" - G 2" (PN 5/MOP 5)
Temperature range: -20°C to max. +160°C (G 2½" - G 4": max. +120°C), gas: -20°C to max. +60°C
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, heating oil, solvents, weak acids and alkalis, G ½" - G 2": Gases in accordance with DVGW worksheet (such as natural gas, city gas, liquid gas up to 5 bar)
Rotary actuator
Design: ATEX-compliant Ⓔx II 2GD c 85°C (Actuators with size 12 or greater: Ⓔx II 2GD c 110°C)
Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin, seal: NBR
Temperature range: -20°C to max. +80°C
Control pressure: 6 - 10 bar (lower pressures upon request)
☞ **Optional:** FKM seal **-V**

Type double acting	Type spring closing	Type spring opening	Thread ball valve	DN	Install. length ball valve	PN	Actuator size* Double act.	Single act.
KH 14 P	KH 14 P FS	KH 14 P FO	Rp ¼"	10	67	40 bar	1	2-F03
KH 38 P	KH 38 P FS	KH 38 P FO	Rp ⅜"	14	67	40 bar	1	2-F03
KH 12 P	KH 12 P FS	KH 12 P FO	G ½"	15	75	40 bar	1	2-F03
KH 34 P	KH 34 P FS	KH 34 P FO	G ¾"	20	80	40 bar	1	2-F03
KH 10 P	KH 10 P FS	KH 10 P FO	G 1"	25	90	40 bar	1	2-F03
KH 114 P	KH 114 P FS	KH 114 P FO	G 1¼"	32	110	40 bar	6-VK11	6-VK11
KH 112 P	KH 112 P FS	KH 112 P FO	G 1½"	40	120	40 bar	6-VK11	6-VK11
KH 20 P	KH 20 P FS	KH 20 P FO	G 2"	50	140	40 bar	6	6
KH 212 P	KH 212 P FS	KH 212 P FO	G 2½"	65	165	30 bar	6	12-F07-VK14
KH 30 P	KH 30 P FS	KH 30 P FO	G 3"	76	188	25 bar	12-F07-VK14	12-F07-VK14
KH 40 P	KH 40 P FS	KH 40 P FO	Rp 4"	90	200	20 bar	25-F07-VK14	25-F07-VK14

* for dimensions and replacement actuators see page 310

TIP Connection diagram acc. to NAMUR, with female thread!

TA LUFT



for Namur connection and female thread

Warning: With high media temperatures the actuator must be protected by a thermal bridge!

Repair sets & ball valves with assembly flange from page 308.

Stainless steel ball valves, 3-piece, with pneumatic rotary actuators — PN 63

Ball valve
Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF)/FKM
Length according to DIN 3202-M3
Temperature range: -20°C to max. +180°C
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media
☞ **Optional:** Welding ends **-AS**, certificate 3.1
Rotary actuator
Design: ATEX-compliant Ⓔx II 2GD c 85°C (Actuators with size 12 or greater: Ⓔx II 2GD c 110°C)
Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin, seals: NBR
Temperature range: -20°C to max. +80°C
Control pressure: 6 - 10 bar (lower pressures upon request)
☞ **Optional:** FKM seals **-V**

Type double acting	Type spring closing	Type spring opening	Thread ball valve	DN	Install. length ball valve	Actuator size* Double act.	Single act.
KH 14 P ES	KH 14 P FS ES	KH 14 P FO ES	G ¼"	10	60	1	2-F03
KH 38 P ES	KH 38 P FS ES	KH 38 P FO ES	G ⅜"	12	60	1	2-F03
KH 12 P ES	KH 12 P FS ES	KH 12 P FO ES	G ½"	15	75	1	2-F03
KH 34 P ES	KH 34 P FS ES	KH 34 P FO ES	G ¾"	20	80	1	2-F03
KH 10 P ES	KH 10 P FS ES	KH 10 P FO ES	G 1"	25	90	2	6-F04
KH 114 P ES	KH 114 P FS ES	KH 114 P FO ES	G 1¼"	32	110	6-VK11	6-VK11
KH 112 P ES	KH 112 P FS ES	KH 112 P FO ES	G 1½"	40	120	6	12
KH 20 P ES	KH 20 P FS ES	KH 20 P FO ES	G 2"	50	140	12	12
KH 212 P ES	KH 212 P FS ES	KH 212 P FO ES	G 2½"	65	185	12-F07	12-F07
KH 30 P ES	KH 30 P FS ES	KH 30 P FO ES	G 3"	80	205	12-F07	25-F07
KH 40 P ES	KH 40 P FS ES	KH 40 P FO ES	G 4"	100	240	50-F10	50-F10

* for dimensions and replacement actuators see page 310

☞ **Order example:** KH 38 P ES ** **
Standard type
Designation for the actuator options: FKM seal . . . . . **-V**
Designation for the ball valve options: Welding ends . . . . . **-AS**

for Namur connection and female thread

Warning: With high media temperatures the actuator must be protected by a thermal bridge!

NAMUR valves and NAMUR throttles on page 416

High pressure ball valves with pneumatic rotary actuators — up to 500 bar

Ball valve
Materials: Housing: Zinc-plated steel, ball: Steel hard chrome-plated, ball seal: POM, selector shaft seal: NBR
Temperature range: -20°C to max. +100°C (G 1 ¼" - G 2": -10°C to max. +80°C)
Operating range: Hydraulic oil, heating oil (water only after release by us)
☞ **Optional:** Ball valve made of stainless steel AISI 316Ti **-ES**
Rotary actuator: See above

Type double acting	Type spring closing	Type spring opening	G	DN	Install. length ball valve	PN	Actuator size* Double act.	Single act.
KH 14 HD P	KH 14 HD P FS	KH 14 HD P FO	G ¼"	6	69	500 bar	2-F03	2-F03
KH 38 HD P	KH 38 HD P FS	KH 38 HD P FO	G ⅜"	10	72	500 bar	2-F03	2-F03
KH 12 HD P	KH 12 HD P FS	KH 12 HD P FO	G ½"	13	83	500 bar	2-F03	2-F03
KH 34 HD P	KH 34 HD P FS	KH 34 HD P FO	G ¾"	20	95	420 bar	6	6
KH 10 HD P	KH 10 HD P FS	KH 10 HD P FO	G 1"	25	113	315 bar	12	12
KH 114 HD P	KH 114 HD P FS	KH 114 HD P FO	G 1¼"	32	110	420 bar	12	12
KH 112 HD P	KH 112 HD P FS	KH 112 HD P FO	G 1½"	40	130	420 bar	12	25
KH 20 HD P	KH 20 HD P FS	KH 20 HD P FO	G 2"	50	140	420 bar	25	25

* for dimensions and replacement actuators see page 310

☞ **Order example:** KH 14 HD P **
Standard type
Designation for the actuator options: Ball valve made of stainless steel . . . . **-ES**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

3-way ball valves with pneumatic rotary actuators — PN 40

TIP Connection diagram acc. to NAMUR with female thread!

Ball valve
Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -10°C to max. +100°C
Properties: Pressure inlet is possible from all the three sides.
Operating range: Water, oil, compressed air, fuels, heating oil, solvents, weak acids and alkalis
Rotary actuator
Design: ATEX-compliant ⟨Ex⟩ II 2GD c 85°C (Actuators with size 12 or greater: ⟨Ex⟩ II 2GD c 110°C)
Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin, seal: NBR
Temperature range: -20°C to max. +80°C
Control pressure: 6 - 10 bar (lower pressures upon request)
☞ **Optional:** FKM seal **-V**, direction of rotation changed **-FO**

for Namur connection and female thread

Warning: In case of high media temperatures, the actuator must be cooled!

Type double acting	Type single acting	Thread ball valve	DN	Installation length ball valve	Actuator size* Double act.	Single act.
KH 3/14 ** P	KH 3/14 ** PE	G 1/4"	10	76	1	2-F03
KH 3/38 ** P	KH 3/38 ** PE	G 3/8"	10	78	1	2-F03
KH 3/12 ** P	KH 3/12 ** PE	G 1/2"	10	82	1	2-F03
KH 3/34 ** P	KH 3/34 ** PE	G 3/4"	15	90	2-F03	2-F03
KH 3/10 ** P	KH 3/10 ** PE	G 1"	20	106	6-VK11	6-VK11
KH 3/114 ** P	KH 3/114 ** PE	G 1 1/4"	25	120	6-VK11	6-VK11
KH 3/112 ** P	KH 3/112 ** PE	G 1 1/2"	32	142	6	12
KH 3/20 ** P	KH 3/20 ** PE	G 2"	40	165	12	12

* for dimensions and replacement actuators see page 310, ** please indicate switching position. See table below (standard position L or T1)

☞ **Order example:** KH 3/38 ** P **
Standard type
Switching position (see table below)

Designation for the actuator options:
FKM seal . . . . . **-V**
Direction of rotation changed . . . . . **-FO**

Stainless steel 3-way ball valves with pneumatic rotary actuators — PN 63

TIP Connection diagram acc. to NAMUR with female thread!

TA LUFT

Ball valve
Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF)/FKM
Temperature range: -20°C to max. +180°C
Properties: Pressure inlet is possible from all the three sides
Operating ranges: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media
☞ **Optional:** Certificate 3.1
Rotary actuator
Design: ATEX-compliant ⟨Ex⟩ II 2GD c 85°C (Actuators with size 12 or greater: ⟨Ex⟩ II 2GD c 110°C)
Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin, seals: NBR
Temperature range: -20°C to max. +80°C
Control pressure: 6 - 10 bar (lower pressures upon request)
☞ **Optional:** FKM seals **-V**, direction of rotation changed **-FO**

for Namur connection and female thread

Warning: In case of high media temperatures, the actuator must be cooled!

Type double acting	Type single acting	Thread ball valve	DN	Installation length ball valve	Actuator size* Double act.	Single act.
KH 3/14 ** P ES	KH 3/14 ** PE ES	G 1/4"	11	79	2-F03	2-F03
KH 3/38 ** P ES	KH 3/38 ** PE ES	G 3/8"	12	79	2-F03	2-F03
KH 3/12 ** P ES	KH 3/12 ** PE ES	G 1/2"	12	79	2-F03	2-F03
KH 3/34 ** P ES	KH 3/34 ** PE ES	G 3/4"	15	88	2-F03	6-F04-VK9
KH 3/10 ** P ES	KH 3/10 ** PE ES	G 1"	20	108	6-VK11	6-VK11
KH 3/114 ** P ES	KH 3/114 ** PE ES	G 1 1/4"	25	124	6-VK11	6-VK11
KH 3/112 ** P ES	KH 3/112 ** PE ES	G 1 1/2"	32	135	6	12
KH 3/20 ** P ES	KH 3/20 ** PE ES	G 2"	40	164	12	25

* for dimensions and replacement actuators see page 310, ** please indicate switching position. See table below (standard position L or T1)

☞ **Order example:** KH 3/38 ** P ES **
Standard type
Switching position (see table below)

Designation for the actuator options:
FKM seal . . . . . **-V**
Direction of rotation changed . . . . . **-FO**

	Standard	Option -FO	L borehole	T borehole			
Position	activated	non activated					
	non activated	activated					
Switching position			L	T1	T2	T3	T4

Repair sets & ball valves with assembly flange from page 309

NAMUR valves and NAMUR throttles on page 416

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pneumatically actuated ball valves

TIP *Connection diagram acc. to NAMUR, with female thread!*

Compact flanged ball valves with pneumatic rotary actuators — *PN 16/40*

Ball valve
Materials: Housing: Steel, ball: AISI 316, seal: PTFE/FKM
Temperature range: -20°C to max. +180°C
Operating range: Water, oil, compressed air, vacuum (max. - 0.9 bar), fuels, solvents
Rotary actuator
Design: ATEX-compliant Ⓔx II 2GD c 85°C (Actuators with size 12 or greater: Ⓔx II 2GD c 110°C)
Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin, seals: NBR
Control pressure: 6-10 bar (lower pressures upon request)
Temperature range: -20°C to max. +80°C
☞ **Optional:** FKM seals **-V**

for Namur connection and female thread

For more flange dimensions see page 262.

Warning: In case of high media temperatures, the actuator must be cooled!

Type double acting	Type spring closing	Type spring opening	DN	Install. length ball valve ±2	PN	Actuator size* Double act.	Single act.
KHFLK 15/40 P	KHFLK 15/40 P FS	KHFLK 15/40 P FO	15	39	16/40	2-F03	2-F03
KHFLK 20/40 P	KHFLK 20/40 P FS	KHFLK 20/40 P FO	20	44	16/40	2-F03	2-F03
KHFLK 25/40 P	KHFLK 25/40 P FS	KHFLK 25/40 P FO	25	49	16/40	2	6-F04
KHFLK 32/40 P	KHFLK 32/40 P FS	KHFLK 32/40 P FO	32	56	16/40	6-F04	6-F04
KHFLK 40/40 P	KHFLK 40/40 P FS	KHFLK 40/40 P FO	40	65	16/40	6	6
KHFLK 50/40 P	KHFLK 50/40 P FS	KHFLK 50/40 P FO	50	73	16/40	6	12
KHFLK 65/16 P	KHFLK 65/16 P FS	KHFLK 65/16 P FO	65	94	16	12-F07	12-F07
KHFLK 80/16 P	KHFLK 80/16 P FS	KHFLK 80/16 P FO	80	116	16	25-F07	25-F07
KHFLK 100/16 P	KHFLK 100/16 P FS	KHFLK 100/16 P FO	100	140	16	50-F10	50-F10

* for dimensions and replacement actuators see page 310

☞ **Order example:** KHFLK 15/40 P **
Standard type
Designation for the actuator options: FKM seal . . . . . **-V**

TIP *Connection diagram acc. to NAMUR, with female thread!*

Stainless steel compact flanged ball valves with pneumatic rotary actuators — *PN 16/40*

Ball valve
Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE
Temperature range: -20°C to max. +180°C
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media
Rotary actuator
Design: ATEX-compliant Ⓔx II 2GD c 85°C (Actuators with size 12 or greater: Ⓔx II 2GD c 110°C)
Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin, seals: NBR
Control pressure: 6 - 10 bar (lower pressures upon request)
Temperature range: -20°C to max. +80°C
☞ **Optional:** FKM seals **-V**

TA LUFT

for Namur connection and female thread

For more flange dimensions see page 262.

Warning: In case of high media temperatures, the actuator must be cooled!

Type double acting	Type spring closing	Type spring opening	DN	Install. length ball valve	PN	Actuator size* Double act.	Single act.
KHFLK 15/40 P ES	KHFLK 15/40 P FS ES	KHFLK 15/40 P FO ES	15	42	16/40	2-F03	2-F03
KHFLK 20/40 P ES	KHFLK 20/40 P FS ES	KHFLK 20/40 P FO ES	20	44	16/40	2-F03	2-F03
KHFLK 25/40 P ES	KHFLK 25/40 P FS ES	KHFLK 25/40 P FO ES	25	50	16/40	2	6-F04
KHFLK 32/40 P ES	KHFLK 32/40 P FS ES	KHFLK 32/40 P FO ES	32	60	16/40	6-VK11	6-VK11
KHFLK 40/40 P ES	KHFLK 40/40 P FS ES	KHFLK 40/40 P FO ES	40	65	16/40	6	6
KHFLK 50/40 P ES	KHFLK 50/40 P FS ES	KHFLK 50/40 P FO ES	50	80	16/40	12	12
KHFLK 65/16 P ES	KHFLK 65/16 P FS ES	KHFLK 65/16 P FO ES	65	110	16	12-F07	12-F07
KHFLK 80/16 P ES	KHFLK 80/16 P FS ES	KHFLK 80/16 P FO ES	80	120	16	25-F07	25-F07
KHFLK 100/16 P ES	KHFLK 100/16 P FS ES	KHFLK 100/16 P FO ES	100	150	16	50-F10	50-F10

* for dimensions and replacement actuators see page 310

☞ **Order example:** KHFLK 15/40 P ES **
Standard type
Designation for the actuator options: FKM seal . . . . . **-V**

NAMUR valves and NAMUR throttles on page 416

Push-in fittings Ø 3 - 32 mm from page 24

Stainless steel pipe from page 253

PTFE flat sealing tape on page 265

Flanges and flange seals from page 263

Flanges from page 260

Butt weld fittings from page 254

Compensators from page 264

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Flanged ball valves, 2-piece, with pneumatic rotary actuators PN 16/40

TIP Connection diagram acc. to NAMUR with female thread!

Ball valve
Materials: **PN 16:** Housing: GG25, ball: Cast steel chrome-plated, seal: PTFE/NBR
PN 40: Housing: Cast steel, ball: Stainless steel, seal: PTFE/FKM
Length acc. to DIN 3202-F4 (DIN EN 558-1, row 14) (from DN 200 acc. to DIN 3202-F5, DIN EN 558-1, row 15)
Temperature range: -20°C to max. +120°C
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents
Rotary actuator
Design: ATEX-compliant ⟨Ex⟩ II 2GD c 85°C (Actuators with size 12 or greater: ⟨Ex⟩ II 2GD c 110°C)
Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin, seals: NBR
Temperature range: -20°C to max. +80°C
Control pressure: 6 - 10 bar (lower pressures upon request)
☞ **Optional:** FKM seals **-V**

for Namur connection and female thread

Warning: In case of high media temperatures, the actuator must be cooled!

Type double acting	Type spring closing	Type spring opening	DN	Installation length ball valve	Actuator size* Double act.	Single act.
KHFL 25/** P	KHFL 25/** P FS	KHFL 25/** P FO	25	125	6-VK11	6-VK11
KHFL 32/** P	KHFL 32/** P FS	KHFL 32/** P FO	32	130	6-VK11	6-VK11
KHFL 40/** P	KHFL 40/** P FS	KHFL 40/** P FO	40	140	6	6
KHFL 50/** P	KHFL 50/** P FS	KHFL 50/** P FO	50	150	6	12
KHFL 65/** P	KHFL 65/** P FS	KHFL 65/** P FO	65	170	12-F07	12-F07
KHFL 80/** P	KHFL 80/** P FS	KHFL 80/** P FO	80	180	50-VK22	50-VK22
KHFL 100/** P	KHFL 100/** P FS	KHFL 100/** P FO	100	190	50-VK22	50-VK22
KHFL 125/16 P	KHFL 125/16 P FS	KHFL 125/16 P FO	125	200	90	90
KHFL 150/16 P	KHFL 150/16 P FS	KHFL 150/16 P FO	150	210	90	130
KHFL 200/16 P	KHFL 200/16 P FS	KHFL 200/16 P FO	200	400	130-F12	180-F14

For more flange dimensions see page 262.

* for dimensions and replacement actuators see page 310

☞ **Order example:** KHFL 25/** P **

Standard type

Designation for the actuator options:
FKM seal . . . . . **-V**

Nominal pressure
PN 16 . . . . . **-16**
PN 40 . . . . . **-40**

Stainless steel flanged ball valves, 2-piece, with pneumatic rotary actuators PN 16/40

TIP Connection diagram acc. to NAMUR with female thread!

TA LUFT

Ball valve
Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE/FKM
Temperature range: -20°C to max. +180°C
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media
Length according to DIN 3202-F4 (DIN EN 558-1, row 14) (from DN 125 according to DIN 3202-F5, DIN EN 558-1, row 15), Fire Safe Design
☞ **Optional:** Certificate 3.1
Rotary actuator
Design: ATEX-compliant ⟨Ex⟩ II 2GD c 85°C (Actuators with size 12 or greater: ⟨Ex⟩ II 2GD c 110°C)
Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin, seals: NBR
Temperature range: -20°C to max. +80°C
Control pressure: 6 - 10 bar (lower pressures upon request)
☞ **Optional:** FKM seals **-V**

for Namur connection and female thread

Warning: In case of high media temperatures, the actuator must be cooled!

Type double acting	Type spring closing	Type spring opening	DN	Install. length ball valve	Actuator size* Double act.	Single act.
KHFL 15/** P ES	KHFL 15/** P FS ES	KHFL 15/** P FO ES	15	115	2-F03	6-F04-VK9
KHFL 20/** P ES	KHFL 20/** P FS ES	KHFL 20/** P FO ES	20	120	2-F03	6-F04-VK9
KHFL 25/** P ES	KHFL 25/** P FS ES	KHFL 25/** P FO ES	25	125	6-F04	6-F04
KHFL 32/** P ES	KHFL 32/** P FS ES	KHFL 32/** P FO ES	32	130	6-F04	12-VK11
KHFL 40/** P ES	KHFL 40/** P FS ES	KHFL 40/** P FO ES	40	140	12	12
KHFL 50/** P ES	KHFL 50/** P FS ES	KHFL 50/** P FO ES	50	150	12	12
KHFL 65/** P ES	KHFL 65/** P FS ES	KHFL 65/** P FO ES	65	170	12-F07	25-F07
KHFL 80/** P ES	KHFL 80/** P FS ES	KHFL 80/** P FO ES	80	180	25-F07	50
KHFL 100/** P ES	KHFL 100/** P FS ES	KHFL 100/** P FO ES	100	190	50-F10	50-F10
KHFL 125/** P ES	KHFL 125/** P FS ES	KHFL 125/** P FO ES	125	325	90	90
KHFL 150/** P ES	KHFL 150/** P FS ES	KHFL 150/** P FO ES	150	350	90	130
KHFL 200/** P ES	KHFL 200/** P FS ES	KHFL 200/** P FO ES	200	400	180-F14	205-F14
KHFL 250/16 P ES	KHFL 250/16 P FS ES	KHFL 250/16 P FO ES	250	450	205-F14	205-F14
KHFL 300/16 P ES	KHFL 300/16 P FS ES	KHFL 300/16 P FO ES	300	500	380-F16	630-F14

For more flange dimensions see page 262.

* for dimensions and replacement actuators see page 310

☞ **Order example:** KHFL 25/** P ES **

Standard type

Designation for the actuator options:
FKM seal . . . . . **-V**

Nominal pressure
PN 16 . . . . . **-16**
PN 40 (up to DN 200) . . . **-40**

NAMUR valves and NAMUR throttles on page 416

HYDAC Pipe clamps from page 244

Thermometer from p. 396

INOX Pressure regulators made of stainless steel and brass from p. 355

Clamp brackets and steel cable clamps on pages 257-259

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pneumatically actuated ball valves

TIP *Connection diagram acc. to NAMUR with female thread!*

for Namur connection and female thread

For more flange sizes see page 262.

Order example: KHFL 253/** P ES **

Standard type

Nominal pressure
PN 16 . . . . . -16
PN 40 . . . . . -40

Designation for the actuator options:
FKM seal . . . . . -V

Stainless steel flanged ball valves, 3-piece, with pneumatic rotary actuators PN 16/40

Ball valve
Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF)
Length according to DIN 3202-F1
Temperature range: -20°C to max. +180°C
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media
Optional: Certificate 3.1

Rotary actuator
Design: ATEX-compliant Ex II 2GD c 85°C (Actuators with size 12 or greater: Ex II 2GD c 110°C)
Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin, seals: NBR
Temperature range: -20°C to max. +80°C
Control pressure: 6-10 bar (lower pressures upon request)
Optional: FKM seals **-V**

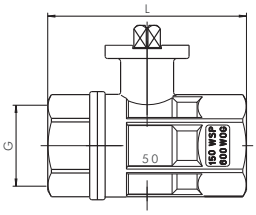
Warning: In case of high media temperatures, the actuator must be cooled!

Type double acting	Type spring closing	Type spring opening	DN	Install. length ball valve	Actuator size* Double act.	Single act.
KHFL 153/** P ES	KHFL 153/** P FS ES	KHFL 153/** P FO ES	15	130	1	2-F03
KHFL 203/** P ES	KHFL 203/** P FS ES	KHFL 203/** P FO ES	20	150	1	2-F03
KHFL 253/** P ES	KHFL 253/** P FS ES	KHFL 253/** P FO ES	25	160	2	6-F04
KHFL 323/** P ES	KHFL 323/** P FS ES	KHFL 323/** P FO ES	32	180	6-VK11	6-VK11
KHFL 403/** P ES	KHFL 403/** P FS ES	KHFL 403/** P FO ES	40	200	6	6
KHFL 503/** P ES	KHFL 503/** P FS ES	KHFL 503/** P FO ES	50	230	12	12
KHFL 653/** P ES	KHFL 653/** P FS ES	KHFL 653/** P FO ES	65	290	12-F07	12-F07
KHFL 803/** P ES	KHFL 803/** P FS ES	KHFL 803/** P FO ES	80	310	12-F07	25-F07
KHFL 1003/** P ES	KHFL 1003/** P FS ES	KHFL 1003/** P FO ES	100	350	50-F10	50-F10

* for dimensions and replacement actuators see page 310

EN 331

Brass ball valves with full throughway and direct assembly flanges up to 40 bar



Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/FKM, manufactured silicone-free (G 1/2" - G 2"), length according to DIN 3202-M3 (G 1/2" - G 2"), DVGW approval for G 1/2" - G 2" (PN 5/MOP 5)
Temperature range: -20°C to max. +160°C (G 2 1/2" - G 4": max. +120°C), gas: -20°C to max. +60°C
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, heating oil, solvents, weak acids and alkalis, G 1/2" - G 2": Gases in accordance with DVGW worksheet (such as natural gas, city gas, liquid gas up to 5 bar)

Advantages: • An actuator can be fitted to the assembly flange to automate the operation of the ball valve.

Warning: Please check which temperatures the actuator you are installing is authorised to work in.

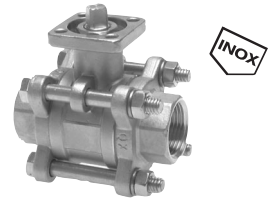
Type	G	DN	L	ISO 5211*	PN
KH 14 F MS	Rp 1/4"	10	67	F 03	40 bar
KH 38 F MS	Rp 3/8"	14	67	F 03	40 bar
KH 12 F MS	G 1/2"	15	75	F 03	40 bar
KH 34 F MS	G 3/4"	20	80	F 03	40 bar
KH 10 F MS	G 1"	25	90	F 03	40 bar
KH 114 F MS	G 1 1/4"	32	110	F 05-VK11	40 bar
KH 112 F MS	G 1 1/2"	40	120	F 05-VK11	40 bar
KH 20 F MS	G 2"	50	140	F 05	40 bar
KH 212 F MS	G 2 1/2"	65	165	F 05 / F 07-VK14	30 bar
KH 30 F MS	G 3"	76	188	F 07-VK14	25 bar
KH 40 F MS	Rp 4"	90	200	F 07-VK14	20 bar

* for assembly flange dimensions see page 309

TA LUFT

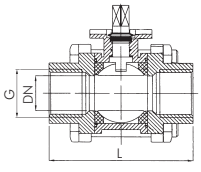
Stainless steel ball valves, 3-piece, full throughway and direct assembly flanges PN 63

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF)/FKM
Length according to DIN 3202-M3, assembly flange according to ISO 5211
Temperature range: -20°C to max. +180°C
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media



Advantages: • An actuator can be fitted to the assembly flange to automate the operation of the ball valve.

Warning: Please check which temperatures the actuator you are installing is authorised to work in.



The pressure-temperature diagram is found in our Online Shop.

Type (INOX)	G	DN	L	ISO 5211*
KH 143 F ES	G 1/4"	10	60	F 03 / F 04-VK9
KH 383 F ES	G 3/8"	12	60	F 03 / F 04-VK9
KH 123 F ES	G 1/2"	15	75	F 03 / F 04-VK9
KH 343 F ES	G 3/4"	20	80	F 03 / F 04-VK9 / F 05-VK9
KH 103 F ES	G 1"	25	90	F 04 / F 05-VK11
KH 1143 F ES	G 1 1/4"	32	110	F 04 / F 05-VK11 / F 07-VK11
KH 1123 F ES	G 1 1/2"	40	120	F 05 / F 07-VK14
KH 203 F ES	G 2"	50	140	F 05 / F 07-VK14
KH 2123 F ES	G 2 1/2"	65	185	F 07 / F 10-VK17
KH 303 F ES	G 3"	80	205	F 07 / F 10-VK17
KH 403 F ES	G 4"	100	240	F 10

* for assembly flange dimensions see page 309

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

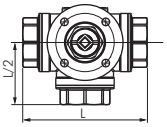
Brass 3-way ball valves with assembly flanges according to ISO 5211 PN 40

Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Assembly flange conforming to ISO 5211
Temperature range: -10°C to max. +100°C
Properties: Pressure inlet is possible from all the three sides
Operating range: Water, oil, compressed air, fuels, heating oil, solvents, weak acids and alkalis

Advantages: • An actuator can be fitted to the assembly flange to automate the operation of the ball valve.

Warning: Please check which temperatures the actuator you are installing is authorised to work in.

Type L borehole	Type T borehole	G	DN	L	ISO 5211*
KH 3/14 LF MS	KH 3/14 TF MS	G 1/4"	10	76	F 03
KH 3/38 LF MS	KH 3/38 TF MS	G 3/8"	10	78	F 03
KH 3/12 LF MS	KH 3/12 TF MS	G 1/2"	10	82	F 03
KH 3/34 LF MS	KH 3/34 TF MS	G 3/4"	15	90	F 03
KH 3/10 LF MS	KH 3/10 TF MS	G 1"	20	106	F 05-VK11
KH 3/114 LF MS	KH 3/114 TF MS	G 1 1/4"	25	120	F 05-VK11
KH 3/112 LF MS	KH 3/112 TF MS	G 1 1/2"	32	142	F 05
KH 3/20 LF MS	KH 3/20 TF MS	G 2"	40	165	F 05



* for assembly flange dimensions see below.

Stainless steel 3-way ball valves with assembly flanges according to ISO 5211 PN 63

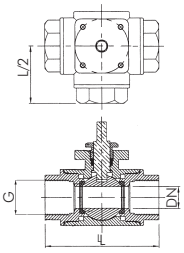
TA LUFT

Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF)/FKM
Assembly flange conforming to ISO 5211
Temperature range: -20°C to max. +180°C
Properties: Pressure inlet is possible from all the three sides
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media
☞ **Optional:** 3.1 b Certificate

Advantages: • An actuator can be fitted to the assembly flange to automate the operation of the ball valve.

Warning: Please check which temperatures the actuator you are installing is authorised to work in.

Type L borehole INOX	Type T borehole INOX	G	DN	L	ISO 5211*
KH 3/14 LF ES	KH 3/14 TF ES	G 1/4"	11	79	F 03 / F 04-VK9
KH 3/38 LF ES	KH 3/38 TF ES	G 3/8"	12	79	F 03 / F 04-VK9
KH 3/12 LF ES	KH 3/12 TF ES	G 1/2"	12	79	F 03 / F 04-VK9
KH 3/34 LF ES	KH 3/34 TF ES	G 3/4"	15	88	F 03 / F 04-VK9 / F 05-VK9
KH 3/10 LF ES	KH 3/10 TF ES	G 1"	20	108	F 04 / F 05-VK11
KH 3/114 LF ES	KH 3/114 TF ES	G 1 1/4"	25	124	F 04 / F 05-VK11 / F 07-VK11
KH 3/112 LF ES	KH 3/112 TF ES	G 1 1/2"	32	135	F 05 / F 07-VK14
KH 3/20 LF ES	KH 3/20 TF ES	G 2"	40	164	F 05 / F 07-VK14



The pressure-temperature diagram is found in our Online Shop.

* for assembly flange dimensions see below.

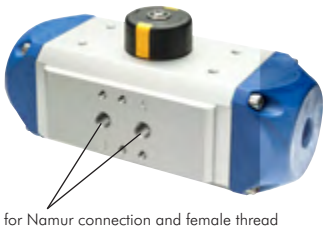
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

TIP *Connection diagram acc. to NAMUR, with female thread!*

Pneumatic rotary actuators

- Mounting flange acc. to ISO 5211
- Actuator connection with polygon acc. to DIN 3337
- Connection for solenoid valve acc. to VDI/VDE 3845 (NAMUR) or via threads
- Connection for position controller or limit switch box acc. to VDI/VDE 3845 (NAMUR)
- Visual display acc. to NAMUR
- Design ATEX-compliant ⟨Ex⟩ II 2GD c 85°C (Actuators with size 12 or greater: ⟨Ex⟩ II 2GD c 110°C)

Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin (from size 12: aluminium), seals: NBR
Temperature range: -20°C to max. +80°C
Control pressure: 6 - 10 bar (lower pressures upon request)
☞ **Optional:** FKM seals (-20°C to max. +120°C, sizes 12 up to 130: to max. +150°C) **-V**



for Namur connection and female thread

Type **wear part set type PDD/PDE**
PD 001 REP
PD 002 REP
PD 006 REP
PD 012 REP
PD 025 REP
PD 050 REP
PD 090 REP
PD 130 REP

Type **repl. spring set for type PDE**
PDE 002 REP FEDER
PDE 006 REP FEDER
PDE 012 REP FEDER
PDE 025 REP FEDER
PDE 050 REP FEDER
PDE 090 REP FEDER
PDE 130 REP FEDER

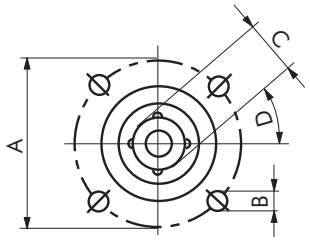
☞ **Order example:** PDD 001 **
Standard type

Designation for the actuator options:
FKM seal . . . . . **-V**

Type **double acting**	Type **spring closing**	Type **spring opening**	Wiring diagram for ball valve (ISO 5211)	Square	Wiring diagram for limit switch or position controller	Air connection (NAMUR)	Size
PDD 001	---	---	F 03	9	50 x 25	G 1/8"	1
PDD 002	PDE 002	PDE 002-FO	F 04	11	50 x 25	G 1/8"	2
PDD 002-F03	PDE 002-F03	PDE 002-FO-F03	F 03	9	50 x 25	G 1/8"	2
PDD 002-F04-VK9	PDE 002-F04-VK9	PDE 002-FO-F04-VK9	F 04	9	50 x 25	G 1/8"	2
PDD 006	PDE 006	PDE 006-FO	F 05	14	80 x 30	G 1/8"	6
PDD 006-F04-VK9	PDE 006-F04-VK9	PDE 006-FO-F04-VK9	F 04	9	80 x 30	G 1/8"	6
PDD 006-F04	PDE 006-F04	PDE 006-FO-F04	F 04	11	80 x 30	G 1/8"	6
PDD 006-VK9	PDE 006-VK9	PDE 006-FO-VK9	F 05	9	80 x 30	G 1/8"	6
PDD 006-VK11	PDE 006-VK11	PDE 006-FO-VK11	F 05	11	80 x 30	G 1/8"	6
PDD 012	PDE 012	PDE 012-FO	F 05	14	80 x 30	G 1/4"	12
PDD 012-VK11	PDE 012-VK11	PDE 012-FO-VK11	F 05	11	80 x 30	G 1/4"	12
PDD 012-F07-VK11	PDE 012-F07-VK11	PDE 012-FO-F07-VK11	F 07	11	80 x 30	G 1/4"	12
PDD 012-F07-VK14	PDE 012-F07-VK14	PDE 012-FO-F07-VK14	F 07	14	80 x 30	G 1/4"	12
PDD 012-F07	PDE 012-F07	PDE 012-FO-F07	F 07	17	80 x 30	G 1/4"	12
PDD 025	PDE 025	PDE 025-FO	F 05	14	80 x 30	G 1/4"	25
PDD 025-VK11	PDE 025-VK11	PDE 025-FO-VK11	F 05	11	80 x 30	G 1/4"	25
PDD 025-F07-VK11	PDE 025-F07-VK11	PDE 025-FO-F07-VK11	F 07	11	80 x 30	G 1/4"	25
PDD 025-F07-VK14	PDE 025-F07-VK14	PDE 025-FO-F07-VK14	F 07	14	80 x 30	G 1/4"	25
PDD 025-F07	PDE 025-F07	PDE 025-FO-F07	F 07	17	80 x 30	G 1/4"	25
PDD 050	PDE 050	PDE 050-FO	F 07	17	80 x 30	G 1/4"	50
PDD 050-VK22	PDE 050-VK22	PDE 050-FO-VK22	F 07	22	80 x 30	G 1/4"	50
PDD 050-F10	PDE 050-F10	PDE 050-FO-F10	F 10	22	80 x 30	G 1/4"	50
PDD 090	PDE 090	PDE 090-FO	F 10	22	80/130 x 30	G 1/4"	90
PDD 090-VK27	PDE 090-VK27	PDE 090-FO-VK27	F 10	27	80/130 x 30	G 1/4"	90
PDD 090-F12-VK22	PDE 090-F12-VK22	PDE 090-FO-F12-VK22	F 12	22	80/130 x 30	G 1/4"	90
PDD 090-F12-VK27	PDE 090-F12-VK27	PDE 090-FO-F12-VK27	F 12	27	80/130 x 30	G 1/4"	90
PDD 130	PDE 130	PDE 130-FO	F 10	22	80/130 x 30	G 1/4"	130
PDD 130-F12-VK22	PDE 130-F12-VK22	PDE 130-FO-F12-VK22	F 12	22	80/130 x 30	G 1/4"	130
PDD 130-F12	PDE 130-F12	PDE 130-FO-F12	F 12	27	80/130 x 30	G 1/4"	130

The connection dimensions given above are suited for most ball valves. However, as there are a large number of variations, please send us the following information and we will indentify the correct valve / spare parts for you:

☞ Ball valve type
☞ Wiring diagram on ball valve (ISO 5211) - dimension A and B
☞ Size of the square - dimension C
☞ Required torque (if known)



Standard measurements ISO 5211

ISO 5211	A	B	C	D
F 03	36	M 5	9	45°
F 04	42	M 5	11	45°
F 05	50	M 6	14	45°
F 07	70	M 8	17	45°
F 10	102	M 10	22	45°
F 12	125	M 12	27	45°

Torques for double acting actuators

	Supply air pressure in bar						
	2	3	4	5	6	7	8
Size	Nm	Nm	Nm	Nm	Nm	Nm	Nm
1	2.48	3.72	4.96	6.2	7.44	8.68	9.92
2	5.4	8.1	10.8	13.5	16.2	18.9	21.6
6	12.4	18.8	24.8	31	37.2	43.4	49.6
12	24.7	37	49.3	61.6	74	86.3	98.6
25	47	71	95	119	143	167	190
50	89	133	177	222	266	310	354

Torques for single acting actuators

	2.5 - 2.9		3.0 - 3.9		4.0 - 4.9		5.0 - 5.9 (Standard)		6.0 - 6.9		7.0 - 7.9	
Size	Nm	No. of springs	Nm	No. of springs	Nm	No. of springs	Nm	No. of springs	Nm	No. of springs	Nm	No. of springs
2	1.8	4	2.7	6	3.6	8	4.5	10	5.4	12	6.3	14
6	4.1	4	6.1	6	8.2	8	10.3	10	12.3	12	14.4	14
12	10	4	12	6	16	8	20	10	24	12	28	14
25	21	4	24	6	31	8	39	10	47	12	55	14
50	37	4	44	6	59	8	74	10	88	12	103	14

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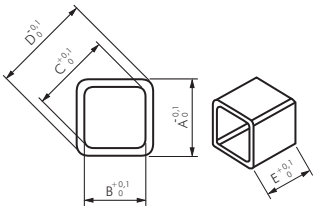
Reducing sleeves for square drives of rotary actuators

Materials: Sintered metal, corrosion protected
Application: To reduce the female square of pneumatic or electric actuators or to enlarge the male square of fittings.
Squares in accordance to ISO 5211 - DIN 3337 - NAMUR with rounded corners and small tolerance range

Type	A	B	C	D	E
PDR 1109	11	9	12.2	14.3	10
PDR 1409	14	9	12.2	18	16
PDR 1410	14	10	13.4	18	16
PDR 1411	14	11	14.3	18	16
PDR 1711	17	11	14.3	22	17
PDR 1714	17	14	18.3	22	17
PDR 2217	22	17	22.5	28	22
PDR 2722	27	22	28.5	36	27
PDR 3627	36	27	36.0	45	36



Universal signal boxes for pneumatic rotary actuators — Compact

drilling pattern
80 x 30
130 x 30

Materials: Housing: PA, cover: Lexan 143 R, selector shaft: POM, seals: NBR, no metal parts
Temperature range: -20°C to max. +70°C
Protection class: IP 67
Connection dimensions: Fits on drilling patterns 80 x 30 and 130 x 30 (not on actuators with size 1 and 2), shaft height setting can be adjusted between 20, 30, 40 and 50 mm

Advantages: • Widely visible position indicator RED/GREEN
• Display on drilling pattern of the ball valve is easily adjustable (T, L)

Type		Switch type	Switching capacity	Switch function
KH P END MC		Micro-switch	4V DC - 250V AC/1mA - 5A	2 toggle switches
KH P END IC		Inductive sensor	10 - 30V/100mA	2 NO contacts (PNP)
KH P END EX	Ex	Namur sensor	8V DC, I <1mA (3mA undampened)	2 NO contacts (Ex II2G Ex ia IIB T6)

Universal signal boxes for pneumatic rotary actuators — Classic

drilling pattern
50 x 25
80 x 30
130 x 30

Materials: Housing: PA6, cover: Polycarbonate, selector shaft: PA6, seals: EPDM and NBR, assembly bridge: PA6, screws: AISI 304
Temperature range: -20°C to max. +80°C, type KH P END P: -10°C to max. +60°C
Protection class: IP 67
Connection dimensions: Fits on drilling patterns 50 x 25, 80 x 30, and 130 x 30, shaft height setting can be adjusted between 20 and 30 mm, fits on all current actuators
Warning: For assembly on actuators of size 1 in connection with Namur valve, it may be necessary to assemble a spacer plate (DR NAMUR DIS 6) between the valve and the actuator.

Type		Switch type	Switching capacity	Switch function
KH P END M		Micro-switch	250V AC/16A	2 toggle switches
KH P END I		Inductive sensor	10-30V DC/0-100mA	2 NO contacts (PNP)
KH P END X*	Ex	Namur sensor	8V DC, I <1mA (3mA undampened)	2 NO contacts (Ex II2G EEx ia IIC T6)
KH P END P		3/2-way pneumatic valve (1 to 8 bar)		2 NC contacts

* Vestamid housing and cover

Universal signal boxes for pneumatic rotary actuators — Heavy Duty

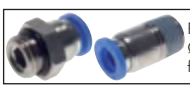
drilling pattern
80 x 30
130 x 30

Materials: Housing: Aluminium die-casting, cover: Polycarbonate, selector shaft: Stainless steel, seals: NBR, assembly bridge: Steel painted, screws: Stainless steel/zinc-plated steel
Temperature range: -25°C to max. +85°C
Protection class: IP 67
Connection dimensions: Fits on drilling patterns 80 x 30 and 130 x 30, shaft height setting can be adjusted between 15 and 25 mm, fits on all current actuators.

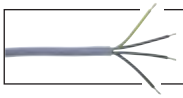
Advantages: • Robust design
• Widely visible position indicator RED/YELLOW

Type	Switch type	Switching capacity	Switch function
KH P END MHD	Micro-switch	8 - 250V AC/DC/0.2 - 5A	2 toggle switches

PU, PA, PTFE and PE hoses from page 192


Push-in fittings Ø 3 - 32 mm from page 24

NAMUR valves and NAMUR throttles on page 416


Flexible control cables on page 641

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Electrically actuated ball valves

Ball valves with electric rotary actuators (sanitary design) — up to 40 bar

Advantages:
- 2 additional limit switches
- Torque cut-off
- Variable voltage (DC or AC)
- Manual emergency operation
- Integrated heating in actuator housing

Ball valve
Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, ball seals: PTFE
Temperature range: -20°C to max. +95°C
Assembly flange conforming to ISO 5211
Operating range: Water, compressed air, vacuum (max. -0.9 bar), oils, fuels, heating oil, solvents, colours, paints, weak acids and alkalis

Rotary actuator
Electric rotary actuator with optical position indicator, manual emergency operation and switch room heating.
Two additional limit switches are installed for further control requirements. An electronic torque limiting unit prevents damage in the event of overload. The manual emergency operation can be done without dismantling the external cladding. Do not use upside down!
Temperature range: -20°C to max. +70°C
Voltage: Type 230: 110 - 240V AC/DC, **type 24:** 24V AC/DC, (actuators can be operated with AC and DC voltage).
Protection class: IP 65
Max. switchable pressure difference: 16 bar
Power-on time: 75%
Regulating time: Type 24: 19 sec., **type 230:** 16 sec.

Type **230** 110-240V AC/DC	Type **24** 24V AC/DC	Thread	DN	Install. length ball valve	PN*	Actuator size**
KH 14 ELS 230	KH 14 ELS 24	G 1/4"	10	65	40 bar	1-F03
KH 38 ELS 230	KH 38 ELS 24	G 3/8"	15	65	40 bar	1-F03
KH 12 ELS 230	KH 12 ELS 24	G 1/2"	15	65	40 bar	1-F03
KH 34 ELS 230	KH 34 ELS 24	G 3/4"	20	75	40 bar	1-F03
KH 10 ELS 230	KH 10 ELS 24	G 1"	25	86	40 bar	1-F05-VK9
KH 114 ELS 230	KH 114 ELS 24	G 1 1/4"	32	95	32 bar	1-F05-VK9
KH 112 ELS 230	KH 112 ELS 24	G 1 1/2"	40	101	30 bar	1-F05-VK11
KH 20 ELS 230	KH 20 ELS 24	G 2"	50	120	30 bar	1-F05-VK11

* max. switchable pressure difference: 16 bar, ** for dimensions and replacement actuators see page 310

Warning: With high media temperatures the actuator must be protected by a thermal bridge or cooled!

Ball valves with electric rotary actuators (industrial design) — up to 40 bar

Advantages:
- 2 additional limit switches
- Torque cut-off
- Variable voltage (DC or AC)
- Manual emergency operation
- Integrated heating in actuator housing

Ball valve
Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE
Length according to DIN 3202-M3 (G 1/2" - G 2"), DVGW approval for G 1/2" - G 2" (PN 5/MOP 5)
Temperature range: -20°C to max. +160°C (G 2 1/2" - G 4": max. +120°C), gas: -20°C to max. +60°C
Operating range: Water, compressed air, vacuum (max. -0.9 bar), oils, fuels, heating oil, solvents, colours, paints, weak acids and alkalis

Rotary actuator
Electric rotary actuator with optical position indicator, manual emergency operation and switch room heating. Two additional limit switches are installed for further control requirements. An electronic torque limiting unit prevents damage in the event of overload. The manual emergency operation can be done without dismantling the external cladding. Do not use upside down!
Materials: Housing: PA 6
Temperature range: -20°C to max. +70°C
Voltage: Type 230: 24 - 240V AC/DC, (actuators can be operated with AC and DC voltage).
Protection class: IP 67
Power-on time: 75%
Regulating time: 10 to 14 sec.
☞ **Optional:** Regulating time 140 sec. (only for actuator size 2) **-140,** "Battery Safety Return" for emergency closing NC (standard configuration) or emergency opening NO (changeover using jumpers) in case of power failure **-BSR**

Type **230** 24-240V AC/DC	Thread	DN	Install. length ball valve	PN	Actuator size*
KH 14 ELi 230	Rp 1/4"	10	67	40 bar	2-F03
KH 38 ELi 230	Rp 3/8"	15	67	40 bar	2-F03
KH 12 ELi 230	G 1/2"	15	75	40 bar	2-F03
KH 34 ELi 230	G 3/4"	20	80	40 bar	2-F03
KH 10 ELi 230	G 1"	25	90	40 bar	2-F03
KH 114 ELi 230	G 1 1/4"	32	110	40 bar	2-F05-VK11
KH 112 ELi 230	G 1 1/2"	38	120	40 bar	2-F05-VK11
KH 20 ELi 230	G 2"	50	140	40 bar	2-F05
KH 212 ELi 230	G 2 1/2"	65	165	30 bar	4-F05
KH 30 ELi 230	G 3"	76	188	25 bar	4-F07-VK14
KH 40 ELi 230	Rp 4"	90	200	20 bar	4-F07-VK14

* for dimensions and replacement actuators see page 315

Warning: With high media temperatures the actuator must be protected by a thermal bridge or cooled!

Compressed air and water hoses from page 208

Threaded nozzles from page 64

☞ **Order example:** KH 14 ELi 230 **

Standard type

Designation for the options:
Regulating time 140 sec. (only for actuator size 2) . . **-140**
Battery Safety Return . . . . . **-BSR**

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Stainless steel ball valves with electric rotary actuators — PN 63

TA LUFT

Advantages:
- 2 additional limit switches
- Torque cut-off
- Variable voltage (DC or AC)
- Manual emergency operation
- Integrated heating in actuator housing

Ball valve
Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF)/FKM, length according to DIN 3202-M3
Temperature range: -20°C to max. +180°C
Operating range: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media
☞ **Optional:** Welding ends **-AS**, certificate 3.1

Rotary actuator
Electric rotary actuator with optical position indicator, manual emergency operation and switch room heating. Two additional limit switches are installed for further control requirements. An electronic torque limiting unit prevents damage in the event of overload. The manual emergency operation can be done without dismantling the external cladding. Do not use upside down!
Materials: Housing: PA 6
Temperature range: -20°C to max. +70°C
Voltage: Type 230: 24 - 240V AC/DC (actuator size 6: 85 - 240V AC/DC), (actuators can be operated with AC and DC voltage).
Protection class: IP 67
Power-on time: 75%
Regulating time: 10 to 14 sec. (actuator size 6: 34 sec.)
☞ **Optional:** Regulating time 140 sec. (only for actuator size 2) **-140,** "Battery Safety Return" for emergency closing NC (standard configuration) or emergency opening NO (changeover using jumpers) in case of power failure **-BSR**

Type **230** 24-240V AC/DC (INOX)	Thread	DN	Install. length ball valve	Actuator size*
KH 14 ELi 230 ES	G 1/4"	10	60	2-F03
KH 38 ELi 230 ES	G 3/8"	12	60	2-F03
KH 12 ELi 230 ES	G 1/2"	15	75	2-F03
KH 34 ELi 230 ES	G 3/4"	20	80	2-F03
KH 10 ELi 230 ES	G 1"	25	90	2-F05-VK11
KH 114 ELi 230 ES	G 1 1/4"	32	110	2-F05-VK11
KH 112 ELi 230 ES	G 1 1/2"	38	120	2-F05
KH 20 ELi 230 ES	G 2"	50	140	3-F05
KH 212 ELi 230 ES	G 2 1/2"	65	185	4-F07
KH 30 ELi 230 ES	G 3"	80	205	4-F07
KH 40 ELi 230 ES	G 4"	100	240	6-F10

* for dimensions and replacement actuators see page 315

Warning: With high media temperatures the actuator must be protected by a thermal bridge or cooled!

☞ **Order example:** KH 10 ELi 230 ES ** **
Standard type
Designation for the actuator options:
Regulating time 140 sec. . . . . **-140**
Battery Safety Return . . . . . **-BSR**
Designation for the ball valve options:
Welding ends . . . . . **-AS**

High pressure ball valves with electric rotary actuators — up to 500 bar

Ball valve
Materials: Housing: Zinc-plated steel, ball: Steel hard chrome-plated, ball seal: POM, selector shaft seal: NBR
Temperature range: -20°C to max. +100°C (G 1 1/4" - G 2": -10°C to max. +80°C)
Operating range: Hydraulic oil, heating oil (water only after release by us)
☞ **Optional:** Ball valve made of stainless steel AISI 316Ti **-ES**

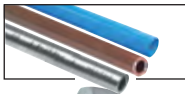
Rotary actuator
Electric rotary actuator with optical position indicator, manual emergency operation and switch room heating. Two additional limit switches are installed for further control requirements. An electronic torque limiting unit prevents damage in the event of overload. The manual emergency operation can be done without dismantling the external cladding. Do not use upside down!
Materials: Housing PA 6
Temperature range: -20°C to max. +70°C
Voltage: Type 230: 24 - 240V AC/DC, (actuators can be operated with AC and DC voltage).
Protection class: IP 67
Power-on time: 75%
Regulating time: 10 to 14 sec.
☞ **Optional:** Regulating time 140 sec. (only for actuator size 2) **-140,** "Battery Safety Return" for emergency closing NC (standard configuration) or emergency opening NO (changeover using jumpers) in case of power failure **-BSR**

Type **230** 24-240V AC/DC	Thread	DN	Install. length ball valve	PN	Actuator size*
KH 14 HD ELi 230	G 1/4"	6	69	500 bar	2-F03
KH 38 HD ELi 230	G 3/8"	10	72	500 bar	2-F03
KH 12 HD ELi 230	G 1/2"	13	83	500 bar	2-F03
KH 34 HD ELi 230	G 3/4"	20	95	420 bar	2-F05
KH 10 HD ELi 230	G 1"	25	113	315 bar	3-F05
KH 114 HD ELi 230	G 1 1/4"	32	110	420 bar	4-F05
KH 112 HD ELi 230	G 1 1/2"	40	130	420 bar	4-F05
KH 20 HD ELi 230	G 2"	50	140	420 bar	4-F05-VK 17

* for dimensions and replacement actuators see page 315

Warning: With high media temperatures the actuator must be protected by a thermal bridge or cooled!

☞ **Order example:** KH 14 HD ELi 230 ** **
Standard type
Designation for the actuator options:
Regulating time 140 sec. . . . . **-140**
Battery Safety Return . . . . . **-BSR**
Designation for the ball valve options:
Ball valve made of stainless steel . . . **-ES**


Aluminium, copper and steel pipes from page 250

Cutting ring fittings from page 77

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Electrically actuated ball valves

3-way ball valves with electric rotary actuators — PN 40

Advantages:
- 2 additional limit switches
- Torque cut-off
- Variable voltage (DC or AC)
- Manual emergency operation
- Integrated heating in actuator housing

Ball valve
Materials: Housing: Brass nickel-plated, ball: Brass hard chrome-plated, seal: PTFE/NBR
Temperature range: -10°C to max. +100°C
Properties: Pressure inlet is possible from all the three sides.
Operating range: Water, oil, compressed air, fuels, heating oil, solvents, colours, paints, weak acids and alkalis

Rotary actuator
Electric rotary actuator with optical position indicator, manual emergency operation and switch room heating. Two additional limit switches are installed for further control requirements. An electronic torque monitoring unit prevents damage in the event of overload. The manual emergency operation can be done without dismantling the external cladding. Do not use upside down!
Materials: Housing: PA 6
Temperature range: -20°C to max. +70°C
Voltage: Type 230: 24 - 240V AC/DC, (actuators can be operated with AC and DC voltage).
Protection class: IP 67, **power-on time:** 75%, **regulating time:** 10 sec.
☞ **Optional:** Regulating time 140 sec. (only for actuator size 2) **-140,** "Battery Safety Return" for emergency closing NC (standard configuration) or emergency opening NO (changeover using jumpers) in case of power failure **-BSR**

Warning: With high media temperatures the actuator must be protected by a thermal bridge or cooled!

Type **230** 24-240V AC/DC	Thread	DN	Install. length ball valve	Actuator size*
KH 3/14 ** ELi 230	G 1/4"	10	76	2-F03
KH 3/38 ** ELi 230	G 3/8"	10	78	2-F03
KH 3/12 ** ELi 230	G 1/2"	10	82	2-F03
KH 3/34 ** ELi 230	G 3/4"	15	90	2-F03
KH 3/10 ** ELi 230	G 1"	20	106	2-F05-VK11
KH 3/114 ** ELi 230	G 1 1/4"	25	120	2-F05-VK11
KH 3/112 ** ELi 230	G 1 1/2"	32	142	2-F05
KH 3/20 ** ELi 230	G 2"	40	165	3-F05

* for dimensions and replace. actuators see p. 315, ** please indicate switching pos. See table on page below. (Standard position T1 or L)

Stainless steel 3-way ball valves with electric rotary actuators — PN 63

TA LUFT

Advantages:
- 2 additional limit switches
- Torque cut-off
- Variable voltage (DC or AC)
- Manual emergency operation
- Integrated heating in actuator housing

Ball valve
Materials: Housing: AISI 316, ball: AISI 316, seal: PTFE (15% GF)/FKM
Temperature range: -20°C to max. +180°C
Properties: Pressure inlet is possible from all the three sides.
Operating ranges: Water, oil, compressed air, vacuum (max. -0.9 bar), fuels, solvents, aggressive media
☞ **Optional:** Certificate 3.1

Rotary actuator
Electric rotary actuator with optical position indicator, manual emergency operation and switch room heating. Two additional limit switches are installed for further control requirements. An electronic torque monitoring unit prevents damage in the event of overload. The manual emergency operation can be done without dismantling the external cladding. Do not use upside down!
Materials: Housing: PA 6
Temperature range: -20°C to max. +70°C
Voltage: Type 230: 24 - 240V AC/DC, (actuators can be operated with AC and DC voltage).
Protection class: IP 67, **power-on time:** 75%, **regulating time:** 10 sec.
☞ **Optional:** Regulating time 140 sec. (only for actuator size 2) **-140,** "Battery Safety Return" for emergency closing NC (standard configuration) or emergency opening NO (changeover using jumpers) in case of power failure **-BSR**

Warning: With high media temperatures the actuator must be protected by a thermal bridge or cooled!

Type **230** INOX 24-240V AC/DC	Thread	DN	Install. length ball valve	Actuator size*
KH 3/14 ** ELi 230 ES	G 1/4"	11	79	2-F03
KH 3/38 ** ELi 230 ES	G 3/8"	11	79	2-F03
KH 3/12 ** ELi 230 ES	G 1/2"	12	79	2-F03
KH 3/34 ** ELi 230 ES	G 3/4"	15	88	2-F03
KH 3/10 ** ELi 230 ES	G 1"	20	108	2-F05-VK11
KH 3/114 ** ELi 230 ES	G 1 1/4"	25	124	2-F05-VK11
KH 3/112 ** ELi 230 ES	G 1 1/2"	32	135	2-F05
KH 3/20 ** ELi 230 ES	G 2"	40	164	3-F05

* for dimensions and replace. actuators see page 315, ** please indicate switching position. See table below. (Standard position T1 or L)

	Standard	Option -FO	L borehole	T borehole			
Position	activated	non activated					
	non activated	activated					
Switching position			L	T1	T2	T3	T4

Flexible control cables on page 641

Compressed air and water hoses from page 208

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Electrically controlled rotary actuators

Advantages: • Mounting flange acc. to ISO 5211, • Manual emergency operation, • 2 additional limit switches
• Torque cut-off, • Variable voltage (DC or AC)
• Integrated heating in actuator housing

Description: Electric rotary actuator with optical position indicator, manual emergency operation and switch room heating. Two additional limit switches are installed for further control requirements. An electronic torque limiting unit prevents damage in the event of overload. The manual emergency operation can be done without dismantling the external cladding. Do not install upside down!
Materials: Housing: PA 6
Temperature range: -20°C to max. +70°C
Voltage: Type 230: 24 - 240V AC/DC (special ind. actuator: 85 - 240V AC/DC,
sanitary actuator: 110 - 240V AC/DC), **Type 24:** 12 - 24V AC/DC (sanitary actuator: 24V AC/DC), (actuators can be powered with AC or DC voltage).
Protection class: IP 67 (sanitary and special industrial actuator: IP 65)
Power-on time: 75%
Installation position: Arbitrary, but not at the top
☞ **Optional (only for industrial actuator):** "Battery Safety Return" for emergency closing NC (standard configuration) or emergency opening NO (changeover using jumpers) in case of power failure **-BSR**

Type 230	Reg. time sec.	Type 24	Reg. time sec.	Wiring diagram for ball valve (ISO5211)	Square	Size	Working torque
Sanitary actuator							
ELS 230-1F03	16	ELS 24-1F03	19	F 03	9	1	10 Nm (12 Nm*)
ELS 230-1F05VK9	16	ELS 24-1F05VK9	19	F 05	9	1	10 Nm (12 Nm*)
ELS 230-1F05VK11	16	ELS 24-1F05VK11	19	F 05	11	1	10 Nm (12 Nm*)
ELS 230-1F05	16	ELS 24-1F05	19	F 05	14	1	10 Nm (12 Nm*)
Universal industrial actuator							
ELU 230-2F03	10	---	---	F 03	9	2	20 Nm (25 Nm*)
ELU 230-2F05VK9	10	---	---	F 05	9	2	20 Nm (25 Nm*)
ELU 230-2F05VK11	10	---	---	F 05	11	2	20 Nm (25 Nm*)
ELU 230-2F05	10	---	---	F 05	14	2	20 Nm (25 Nm*)
ELU 230-3F05VK11	10	---	---	F 05	11	3	35 Nm (38 Nm*)
ELU 230-3F05	10	---	---	F 05	14	3	35 Nm (38 Nm*)
ELU 230-4F05	14	---	---	F 05	14	4	55 Nm (60 Nm*)
ELU 230-4F05VK17	14	---	---	F 05	17	4	55 Nm (60 Nm*)
ELU 230-4F07VK14	14	---	---	F 07	14	4	55 Nm (60 Nm*)
ELU 230-4F07	14	---	---	F 07	17	4	55 Nm (60 Nm*)
ELU 230-5F07	30	---	---	F 07	17	5	85 Nm (90 Nm*)
Special industrial actuator							
ELi 230-2F03-140	140	ELi 24-2F03-140	140	F 03	9	2	20 Nm (25 Nm*)
ELi 230-2F05VK9-140	140	ELi 24-2F05VK9-140	140	F 05	9	2	20 Nm (25 Nm*)
ELi 230-2F05VK11-140	140	ELi 24-2F05VK11-140	140	F 05	11	2	20 Nm (25 Nm*)
ELi 230-2F05-140	140	ELi 24-2F05-140	140	F 05	14	2	20 Nm (25 Nm*)
ELi 230-6F10***	34	ELi 24-6F10***	34	F 10	22	6	140 Nm (170 Nm*)
ELi 230-7F10***	58	ELi 24-7F10***	58	F 10	22	7	300 Nm (350 Nm*)
Retrofit kit "Battery Safety Return" for emg. closing (NC)/emg. opening (NO) if there is a power failure**							
ELi BSR	---	ELi BSR	---	---	---	---	---

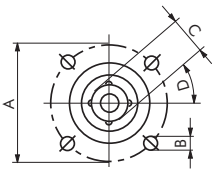
* max. torque (not for continuous operation), ** not for sizes 6 and 7, *** IP 67

☞ **Order example:** ELU 230-2F03 **
Standard type
Designation for the options:
Battery Safety Return . . . . . **-BSR**

sanitary actuator

universal industrial actuator

special industrial actuator



ISO 5211 Dimensions are found on page 310

Ball valves with time function — PN 16

Materials: Ball valve housing: Brass nickel-plated, ball: Stainless steel, ball seals: PTFE, actuator housing: Plastic
Temperature range: Medium: +1°C to max. +100°C, environment: +1°C to max. +50°C
Media: Compressed air and other neutral media
Power supply: 230V AC (clock and program are battery buffered)
Protection class: IP 54
Programming: Accurate to the minute, up to 16 switching cycles per day, each weekday individually programmable
Operation: Using timers (automatic), manual operation (timer switch) or manual operation (e.g. power failure). With ceiling installation, we recommend the use of remote controls.

Advantage: Energy savings by automatically closing the compressed air line after work and automatically opening it before work starts

Warning: In case of high media temperatures, the actuator must be cooled!

Type	Thread	Regulating time	DN	Install. length ball valve
Ball valves with timer				
KH TiME 10	G 1"	30 sec.	25	88
KH TiME 20	G 2"	105 sec.	50	130
Remote control with 5 m cable				
KH TiME REMOTE				

type KH TiME 10

type KH TiME REMOTE

TIP *Save energy with time-controlled automatic power disconnection*

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Butterfly valves

type KLZ
(intermediate flange)

type KLA
(mounted flange)

For more flange dimensions see page 262.

Butterfly valves — PN 10/16

Materials: See ordering example (material codes), hand lever with detend: GGG40 (optional composite material)
Temperature range: See ordering example (material codes - sleeve)
Medium pressure: Max. 16 bar (DN 25: max. 10 bar), please observe the table below
Media: Liquid and gaseous neutral media (depending on the material combination)
Lengths: DIN 3202 T3 K1, ISO 5752-Series 20, NF EN 558-1-Series 20, BS 5155 Table 6 Column 4, API 609 Table 1
☞ **Optional:** Hand wheel gear **-G**, hand lever with detend made of composite material (up to DN 150) **-KU**, pneumatic actuator (see page 317)

Type **intermediate flange**	Type **mounted flange**	DN	Installation length
KLZ 25/10** [9]	---	25	32
KLZ 32/16** [9]	KLA 32/16** [9]	32	32
KLZ 40/16** [9]	KLA 40/16** [9]	40	32
KLZ 50/16**	KLA 50/16**	50	43
KLZ 65/16**	KLA 65/16**	65	46
KLZ 80/16**	KLA 80/16**	80	46
KLZ 100/16**	KLA 100/16**	100	52
KLZ 125/16**	KLA 125/16**	125	56
KLZ 150/16**	KLA 150/16**	150	56
KLZ 200/16**	KLA 200/16** [10]	200	60
KLZ 250/16**	KLA 250/16** [10]	250	68
KLZ 300/16**	KLA 300/16** [10]	300	78

** please enter the required material combination by means of the corresponding material codes
[9] not available in material combination AAA
[10] housing material GG25 is delivered w/ flange connection PN 10

☞ **Order example:** KLZ 32/16 ** ** ** **

Standard type

Material code - housing:
GG25 (standard, compressed air up to 6 bar) . . **A**
GGG40 (higher pressures and temperatures) . . **B**
Stainless steel (aggressive environment) . . . . . **C**

Material code - washer:
GGG40 polyamide coated (standard) . . . . . **A**
Stainless steel (water, abrasive media, food) . . . . . **B**
Aluminium bronze (sea water) . . . . . **C**
GG25 epoxy coated (water) . . . . . **D**
Stainless steel halar coated (chemicals, pharmaceuticals) . . . . . **E**
Stainless steel highly polished (chemicals, pharmaceuticals, food) . . . . . **F**

Designation for the options:
Hand lever with detend made of GGG40 (standard) . **-without additive**
Hand wheel gear . . . . . **-G**
For higher media temperatures: Hand lever with detend made of composite material (instead of GGG40) . . . **-KU**
Pneumatic actuator . . . . . **see page 317**

Material code - sleeve:
EPDM (-10°C to max. +110°C) . . . . . **A**
NBR (+5°C to max. +85°C) . . . . . **B**
FKM (+5°C to max. +180°C) . . . . . **C**
EPDM white (+8°C to max. +80°C) . . . . . **D**
Hypalon (+5°C to max. +90°C) . . . . . **E**
Silicone (-10°C to max. +200°C) . . . . . **F**
NBR containing carboxyl (+5°C to max. +110°C) . . . . . **G**
PTFE/EPDM (+5°C to max. +110°C) . . . . . **H**
PTFE/silicone (-40°C to max. +200°C) . . . . . **I**

Material codes						PN acc. to PED 97/23/CE					
						Group 2 (non-hazardous fluids)			Group 1 (hazardous fluids)		
Housing GG25	Housing GGG40	Housing stainl. st.	Washer material	Sleeve material	Applications	Type **KLZ** Liquid	Gases	Type **KLA** Liquid	Type **KLZ** Liquid	Gases	Type **KLA** Liquid
AAA	**BAA**	**CAA**	GGG40, PA coated	EPDM	General & industrial application (free of mineral oil)	16 bar	10 bar [2]	12 bar [4]	16 bar [3]	---	12 bar [4]
AAB [7]	**BAB**	**CAB**	GGG40, PA coated	NBR	General & industrial application (contains mineral oil), untreated water	16 bar	10 bar [2]	12 bar [6]	16 bar [3]	---	12 bar [4]
AAG	**BAG**	**CAG**	GGG40, PA coated	NBR, contains carboxyl	Abrasive media (in powder form)	10 bar	10 bar [2]	6 bar	10 bar	---	6 bar
ABA*	**BBA***	**CBA**	Stainl. steel	EPDM	Drinking water, gen. & industrial application (free of mineral oil), swimming pool water	16 bar	10 bar [2]	12 bar [4]	16 bar [3]	---	12 bar [4]
ABB	**BBB**	**CBB**	Stainl. steel	NBR	General & industrial application (contains mineral oil), hydrocarbons	16 bar	10 bar [2]	12 bar [6]	16 bar [3]	---	12 bar [4]
ABC [8]	**BBC**	**CBC**	Stainl. steel	FKM	Hot, dry air or gas, special media	10 bar	10 bar [2]	6 bar	10 bar	10 bar [2]	6 bar
ABD	**BBD**	**CBD**	Stainl. steel	EPDM, white	Industrial applications	10 bar	10 bar [2]	6 bar	10 bar	---	6 bar
ABE	**BBE**	**CBE**	Stainl. steel	Hypalon	Low contaminated industrial media	16 bar	10 bar [2]	12 bar [6]	16 bar	10 bar [2]	12 bar [6]
ABF	**BBF**	**CBF**	Stainl. steel	Silicone	Hot, dry air or gas, special media	10 bar [1]	10 bar [1]	6 bar [5]	10 bar [1]	10 bar [1]	6 bar [5]
ABG	**BBG**	**CBG**	Stainl. steel	NBR, contains carboxyl	Abrasive media (in powder form)	10 bar	10 bar [2]	6 bar	10 bar	---	6 bar
---	**BBH**	---	Stainl. steel	PTFE/EPDM	Food, drinks, pharmaceutical and cosmetic media	10 bar [1]	10 bar [1]	6 bar [5]	10 bar [1]	10 bar [1]	6 bar [5]
---	**BBI**	---	Stainl. steel	PTFE/silicon	Chemical liquids, food industry	10 bar	10 bar	6 bar	10 bar	10 bar	6 bar
ACA	**BCA**	**CCA**	Alu bronze	EPDM	General & industrial application (free of mineral oil), swimming pool water	16 bar	10 bar [2]	12 bar [4]	16 bar [3]	---	12 bar [4]
ACB	**BCB**	**CCB**	Alu bronze	NBR	Sea water, shipyards	16 bar	10 bar [2]	12 bar [6]	16 bar [3]	---	12 bar [4]
ADA	**BDA**	**CDA**	GG25, epoxy coated	EPDM	Untreated water	16 bar	10 bar [2]	12 bar [4]	16 bar [3]	---	12 bar [4]
ADB	**BDB**	**CDB**	GG25, epoxy coated	NBR	Untreated water	16 bar	10 bar [2]	12 bar [6]	16 bar [3]	---	12 bar [4]

preferred type, especially quick delivery, [1] DN>150: 6 bar, [2] DN>150: 8 bar, [3] DN>125: 10 bar, [4] DN>125: 6 bar, [5] DN>150: 4 bar, [6] DN>150: 10 bar,
[7] only available from DN 50 up, [8] type KLZ only available from DN65 up, * DVGW drinking water

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Butterfly valves with pneumatic rotary actuators — PN 10/16

TIP Wiring diagram acc. to NAMUR with female thread!

Butterfly valve
Materials: See ordering example (material codes)
Temperature range: See ordering example (material codes - sleeve)
Medium pressure: Max. 16 bar (DN 25: max 10 bar)
Media: Liquid and gaseous neutral media (depending on the material combination)
Lengths: DIN 3202 T3 K1, ISO 5752-Series 20, NF EN 558-1-Series 20, BS 5155 Table 6 Column 4, API 609 Table 1

Rotary actuator
Design: ATEX-compliant ⟨Ex⟩ II 2GD c 85°C (Actuators with size 12 or greater: ⟨Ex⟩ II 2GD c 110°C)
Materials: Housing: Aluminium anodised, gear rack and piston: Aluminium, cover: Acetal resin, seal: NBR
Temperature range: -20°C to max. +80°C
Control pressure: 6 - 10 bar (lower pressures upon request)
☞ **Optional:** Manual emergency operation **-HN**

Warning: In case of high media temperatures, the actuator must be cooled!

Type double acting	Type spring closing	Type spring opening	DN	Install. length	Actuator size* Double act.	Actuator size* Single act.
Intermediate flange						
KLZ 25/10** P [9]	KLZ 25/10** PFS [9]	KLZ 25/10** PFO [9]	25	32	6 (VK11)	6 (VK11)
KLZ 32/16** P [9]	KLZ 32/16** PFS [9]	KLZ 32/16** PFO [9]	32	32	6 (VK11)	6 (VK11)
KLZ 40/16** P [9]	KLZ 40/16** PFS [9]	KLZ 40/16** PFO [9]	40	32	6 (VK11)	6 (VK11)
KLZ 50/16** P	KLZ 50/16** PFS	KLZ 50/16** PFO	50	43	6 (VK11)	12 (VK11)
KLZ 65/16** P	KLZ 65/16** PFS	KLZ 65/16** PFO	65	46	6 (VK11)	12 (VK11)
KLZ 80/16** P	KLZ 80/16** PFS	KLZ 80/16** PFO	80	46	6 (VK11)	12 (VK11)
KLZ 100/16** P	KLZ 100/16** PFS	KLZ 100/16** PFO	100	52	12 (F07VK14)	25 (F07VK14)
KLZ 125/16** P	KLZ 125/16** PFS	KLZ 125/16** PFO	125	56	25 (F07VK14)	50 (VK14)
KLZ 150/16** P	KLZ 150/16** PFS	KLZ 150/16** PFO	150	56	25 (F07VK14)	50 (VK14)
KLZ 200/16** P	KLZ 200/16** PFS	KLZ 200/16** PFO	200	60	50 (VK14)	50 (VK14)
KLZ 250/16** P	KLZ 250/16** PFS	KLZ 250/16** PFO	250	68	90	130
KLZ 300/16** P	KLZ 300/16** PFS	KLZ 300/16** PFO	300	78	90 (F12VK22)	130 (F12VK22)
Mounted flange						
KLA 32/16** P [9]	KLA 32/16** PFS [9]	KLA 32/16** PFO [9]	32	32	6 (VK11)	6 (VK11)
KLA 40/16** P [9]	KLA 40/16** PFS [9]	KLA 40/16** PFO [9]	40	32	6 (VK11)	6 (VK11)
KLA 50/16** P	KLA 50/16** PFS	KLA 50/16** PFO	50	43	6 (VK11)	12 (VK11)
KLA 65/16** P	KLA 65/16** PFS	KLA 65/16** PFO	65	46	6 (VK11)	12 (VK11)
KLA 80/16** P	KLA 80/16** PFS	KLA 80/16** PFO	80	46	6 (VK11)	12 (VK11)
KLA 100/16** P	KLA 100/16** PFS	KLA 100/16** PFO	100	52	12 (F07VK14)	25 (F07VK14)
KLA 125/16** P	KLA 125/16** PFS	KLA 125/16** PFO	125	56	25 (F07VK14)	50 (VK14)
KLA 150/16** P	KLA 150/16** PFS	KLA 150/16** PFO	150	56	25 (F07VK14)	50 (VK14)
KLA 200/16** P [10]	KLA 200/16** PFS [10]	KLA 200/16** PFO [10]	200	60	50 (VK14)	50 (VK14)
KLA 250/16** P [10]	KLA 250/16** PFS [10]	KLA 250/16** PFO [10]	250	68	90	130
KLA 300/16** P [10]	KLA 300/16** PFS [10]	KLA 300/16** PFO [10]	300	78	90 (F12VK22)	130 (F12VK22)

* replacement actuators are found on page 310
** please enter the required material combination by means of the corresponding material codes
[9] not available in material combination AAA
[10] type KLA as of DN 200 with housing material GG 25 with flange connection PN 10

for Namur connection and thread female

type KLZ (intermediate flange)

for Namur connection and thread female

type KLA (mounted flange)

For more flange sizes see page 362.

☞ **Order example:** KLZ 32/16 ** ** ** P **

Standard type

Designation for the options:
Manual emergency operation . .-HN

Material code - housing:
GG25 (standard, compressed air up to 4 bar) . .A
GGG40 (higher pressures and temperatures) . .B
Stainless steel (aggressive environment) C

Material code - sleeve:
EPDM (-10°C to max. +110°C) . . . . . .A
NBR (+5°C to max. +85°C) . . . . . .B
FKM (+5°C to max. +180°C) C
EPDM white (+8°C to max. +80°C) . . . . . .D
Hypalon (+5°C to max. +90°C) . . . . . .E
Silicone (-10°C to max. +200°C) . . . . . .F
NBR containing carboxyl (+5°C to max. +110°C) . . . .G
PTFE/EPDM (+5°C to max. +110°C) . . . . . .H
PTFE/silicone (-40°C to max. +200°C) I

Material code - washer:
GGG40 polyamide coated (standard) . . . . . .A
Stainless steel (water, abrasive media, food) . . . . . .B
Aluminium bronze (sea water) C
GG25 epoxy coated (water) . . . . . .D
Stainless steel halar coated (chemicals, pharmaceuticals) . . . . . .E
Stainless steel highly polished (chemicals, pharmaceuticals, food) . . . . . .F

Technical data of material combinations can be found in the Online Shop

Butterfly valves for pressure levels PN 20/PN 25 can be found in the Online Shop

In our Online Shop you can find the butterfly valves offered here in the optional pressure levels PN 20 to PN 25.

☞ **Order example:** KLZ */20 ** P

Standard type

Designation for the options:
PN 20 . . . . . .-20
PN 25 . . . . . .-25

Many additional products and sizes are available in our **Online Shop!**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Eco-Line air units

Outstanding value!

Pressure regulators
Page 320

Filter & filter regulators
Page 320

Mist lubricators
Page 320

2-piece
service units
Page 321

Replacement parts
Page 321

Replacement bowl
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Mounting bracket
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Futura air units

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Valves, distributors,
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Flow meters
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Replacement parts and
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Air units standard & stainless steel

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2-part and 3-part
service units
Page 343-344

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All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

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All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Air units - Eco-Line

Especially good value!

Pressure regulators — Eco-Line

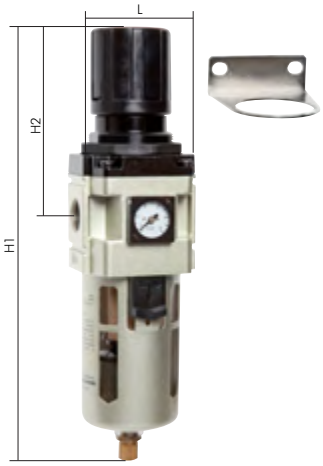
Version: Resettable (with relieving system)
Materials: Body: Aluminium, spring hood: Polyamide, diaphragm and seals: NBR
Temperature range: Up to max. +60°C
Input pressure: 1.5 - 10 bar (regulation range: 0.5 - 8.5 bar), **media:** Compressed air

Advantages:
- Automatic venting in the event of overpressure on the secondary side
- Easy assembly of individual components from a particular model series using coupling kits
- Hand wheel can be locked by pressing down on it
- Mounting brackets included in the scope of delivery
- Space saving compact pressure gauge already assembled

Type	Thread	Flow l/min	L	H1	H2	Panel thread	Model series
EiR 2000-02	G 1/4"	1200	40	93	76	M 33 x 1.5	2
EiR 3000-03	G 3/8"	2200	53	128	93	M 42 x 1.5	3
EiR 4000-04	G 1/2"	5300	70	150	112	M 52 x 1.5	4
EiR 5000-10	G 1"	6600	90	168	120	M 52 x 1.5	5

Especially good value!

Filter regulators — Eco-Line



Version: Resettable pressure regulator (with relieving system) and additional filtering using the centrifugal principle and a sintered filter
Materials: Body: Aluminium, spring hood: Polyamide, diaphragm and seals: NBR, container: Polycarbonate
Temperature range: Up to max. +60°C
Input pressure: 1.5 - 10 bar (regulation range: 0.5 - 8.5 bar), **media:** Compressed air
Pore width in the filter: 5 µm

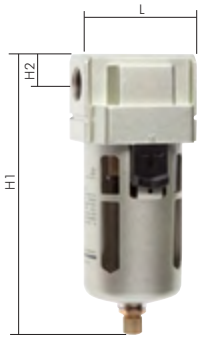
Advantages:
- Automatic venting in the event of overpressure on the secondary side
- Easy assembly of individual components from a particular model series using coupling kits
- Hand wheel can be locked by pressing down on it
- Mounting brackets included in the scope of delivery
- Space saving compact pressure gauge already assembled

Type	Thread	Flow l/min	L	H1	H2	Panel thread	Model series
Manual drainage							
EiW 2000-02*	G 1/4"	1200	40	168	82	M 33 x 1.5	2
Semi-automatic drainage**							
EiW 3000-03	G 3/8"	2200	53	211	93	M 42 x 1.5	3
EiW 4000-04	G 1/2"	5200	70	263	112	M 52 x 1.5	4
EiW 5000-10	G 1"	6400	90	339	120	M 52 x 1.5	5
Automatic drainage with float**							
EiW 2000-02D*	G 1/4"	1200	40	206	82	M 33 x 1.5	2
EiW 3000-03D	G 3/8"	2200	53	225	93	M 42 x 1.5	3
EiW 4000-04D	G 1/2"	5200	70	265	112	M 52 x 1.5	4
EiW 5000-10D	G 1"	6400	90	341	120	M 52 x 1.5	5

* delivered without a protective cage. ** as soon as the input pressure falls below the minimum input pressure, the drain valve opens.

Especially good value!

Filters — Eco-Line



Version: Filtering using the centrifugal principal and sintered filter
Materials: Body: Aluminium, container: Polycarbonate
Temperature range: Up to max. +60°C
Input pressure: 1.5-10 bar, **media:** Compressed air
Pore width in the filter: 5 µm

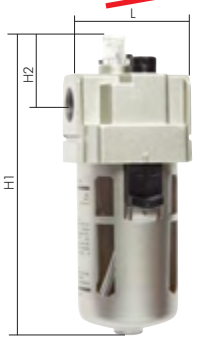
Advantages:
- Easy assembly of individual components from a particular model series using coupling kits

Type	Thread	Flow l/min	L	H1	H2	Model series
Manual drainage						
EiF 2000-02*	G 1/4"	1250	40	95	11	2
Semi-automatic drainage**						
EiF 3000-03	G 3/8"	2200	53	133	14	3
EiF 4000-04	G 1/2"	5400	70	169	18	4
EiF 5000-10	G 1"	8500	90	248	24	5
Automatic drainage with float**						
EiF 2000-02D*	G 1/4"	1250	40	133	11	2
EiF 3000-03D	G 3/8"	2200	53	146	14	3
EiF 4000-04D	G 1/2"	5400	70	172	18	4
EiF 5000-10D	G 1"	8500	90	251	24	5

* delivered without a protective cage. ** as soon as the input pressure falls below the minimum input pressure, the drain valve opens.

Especially good value!

Mist lubricators — Eco-Line



Materials: Body: Aluminium, container: Polycarbonate
Temperature range: Up to max. +60°C
Input pressure: 1.5 - 10 bar, **media:** Compressed air

Advantages:
- Easy assembly of individual components from a particular model series using coupling kits
- Can be filled with oil while under pressure

Type	Thread	Flow l/min	Max. oil volume cm³	L	H1	H2	Model series
EiL 2000-02*	G 1/4"	1350	25	40	115	38	2
EiL 3000-03	G 3/8"	2400	55	53	141	38	3
EiL 4000-04	G 1/2"	5500	135	70	177	41	4
EiL 5000-10	G 1"	8000	135	90	251	46	5

* delivered without a protective cage.

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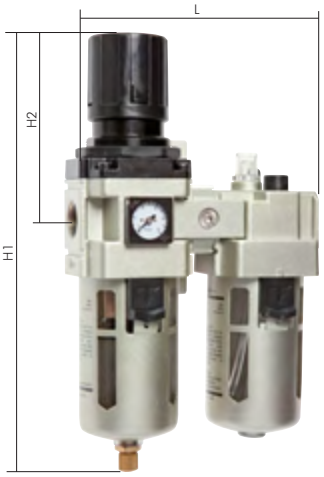
Service units, 2-part — Eco-Line

Especially good value!

Version: Filter regulator, resettable (with relieving system) with attached lubricator
Materials: Body: Aluminium, spring hood: Polyamide, diaphragm and seals: NBR, container: Polycarbonate
Temperature range: Up to max. +60°C
Input pressure: 1.5 - 10 bar (regulation range: 0.5 - 8.5 bar)
Pore width in the filter: 5 µm
Media: Compressed air

Advantages:
- Automatic venting in the event of overpressure on the secondary side
- Hand wheel can be locked by pressing down on it
- Mounting brackets included in the scope of delivery
- Space saving compact pressure gauge already assembled
- Can be filled with oil while under pressure



Type	Thread	Flow l/min	Max. oil volume cm³	L	H1	H2	Model series
Manual drainage							
EiC 2010-02*	G 1/4"	1000	25	90	168	82	2
Semi-automatic drainage**							
EiC 3010-03	G 3/8"	2000	55	118	211	93	3
EiC 4010-04	G 1/2"	5100	135	154	263	112	4
EiC 5010-10	G 1"	6200	135	195	339	120	5
Automatic drainage with float**							
EiC 2010-02D*	G 1/4"	1000	25	90	206	82	2
EiC 3010-03D	G 3/8"	2000	55	118	225	93	3
EiC 4010-04D	G 1/2"	5100	135	154	265	112	4
EiC 5010-10D	G 1"	6200	135	195	341	120	5

* delivered without a protective cage. ** as soon as the input pressure falls below the minimum input pressure, the drain valve opens.

Replacement parts for air units — Eco-Line

Especially good value!

Type	Description	Model series
Replacement filters for filters and filter regulators		
FiLTER Ei2000	5 µm	2
FiLTER Ei2000-25	25 µm	2
FiLTER Ei3000	5 µm	3
FiLTER Ei3000-25	25 µm	3
FiLTER Ei4000	5 µm	4
FiLTER Ei4000-25	25 µm	4
FiLTER Ei5000	5 µm	5
FiLTER Ei5000-25	25 µm	5
Replacement containers for filters and filter regulators, incl. O-ring		
BF Ei2000	Manual drain	2
BF Ei2000D	Automatic drain (float)*	2
BF Ei3000	Semi-automatic drain*	3
BF Ei3000D	Automatic drain (float)*	3
BF Ei4000	Semi-automatic drain*	4 - 5
BF Ei4000D	Automatic drain (float)*	4 - 5
Replacement container for mist lubricator, incl. O-ring		
BOL Ei2000		2
BOL Ei3000		3
BOL Ei4000		4 - 5
Replacement O-rings for sealing the container		
OR Ei2000		2
OR Ei3000		3
OR Ei4000		4 - 5
Inspection glass for mist lubricator, incl. O-ring		
TROPF EiL 2000		2
TROPF EiL 3000		3 - 5
Replacement pressure gauge 0 - 10 bar		
MANO EiR 10		2 - 5

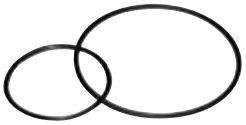
* as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens.

replacement filter

replacement containers for filters and filter regulators

replacement containers for lubricators

inspection glass


replacement O-rings

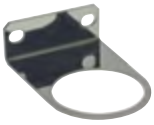
replacement pressure gauge

Mounting brackets/coupling kits — Eco-Line

Especially good value!

Type	Model series
Coupling kits incl. wall bracket	
KP EI2000	2
KP EI3000	3
KP EI4000	4
KP EI5000	5
Mounting brackets for pressure regulators and filter regulators	
MW EI2000	2
MW EI3000	3
MW EI4000	4 - 5
Panel union nut for pressure regulators and filter regulators	
SM EI2000	2
SM EI3000	3
SM EI4000	4 - 5
Mounting brackets for filters and lubricators	
W EI2000	2
W EI3000	3
W EI4000	4
W EI5000	5

coupling kit


for pressure regulators and filter regulators

panel union nut

for filters and lubricators

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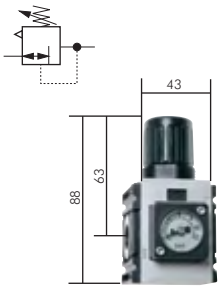
Pressure regulators Futura model series

Version: Resettable (with relieving system)
Materials: Body: Grivory® (PA 66), spring hood: POM, diaphragms and seals: NBR
Temperature range: -10°C to max. +50°C
Input pressure: Max. 16 bar (model series 0: max 12 bar)
Pressure gauge connection: G 1/4"
Media: Oiled and unoiled compressed air, neutral gases

Advantages:
- Automatic venting in the event of overpressure on the secondary side.
- Simple assembly of single components using coupling kits within a model series.
- Hand wheel can be locked by pressing down on it and bolted with a lock - please use VHS 20 (page 641) Model series 0 cannot be locked.

Pressure regulators Futura model series 0 — 1 000 l/min

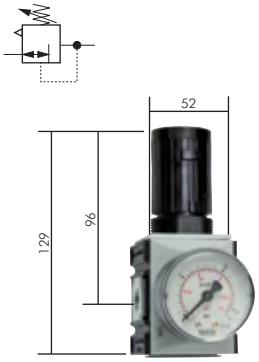


Switch panel thread: M 30 x 1.5
Supply volume: Pressure regulator including pressure gauge
Flow: 1000 l/min, relieving system: 25 l/min

Type with compact pressure gauge**	Type with 40 mm standard press. gauge	Thread	Pressure regulation range	Pressure gauge display	Mounting bracket	Coupling kit
R 014 F*	R 014 FB*	G 1/4"	0.5 - 8 bar	0 - 10 bar	W 0 F	KP 0 F or KPW 0 F
R 014-4 F	R 014-4 FB	G 1/4"	0.2 - 4 bar	0 - 6 bar	W 0 F	KP 0 F or KPW 0 F
R 014-10 F	R 014-10 FB	G 1/4"	0.5 - 10 bar	0 - 16 bar	W 0 F	KP 0 F or KPW 0 F

* standard series, please use preferentially as regulation range can be applied universally, ** installation of a standard pressure gauge only possible with a pressure gauge adapter, display range of the compact pressure gauge: 0 to 12 bar, or 0 to 6 bar

Pressure regulators Futura model series 1 — up to 2500 l/min



Switch panel thread: M 36 x 1.5
Supply volume: Pressure regulator incl. 50 mm pressure gauge
Flow: G 1/4": 2000 l/min, G 3/8": 2500 l/min, relieving system: 70 l/min (precision pressure regulator 120 l/min)
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
Optional: Safety version: With upstream lockable ball valve and filler valve **-Si**

Type standard	Type precis. pressure regulators**	Thread	Pressure regulation range	Pressure gauge display	Mounting bracket	Coupling kit
R 14 F*	RP 14 F*	G 1/4"	0.5 - 8 bar	0 - 10 bar	W 1 F	KP 1 F or KPW 1 F
R 14-1 F	RP 14-1 F	G 1/4"	0.1 - 1 bar	0 - 1.6 bar	W 1 F	KP 1 F or KPW 1 F
R 14-2 F	RP 14-2 F	G 1/4"	0.1 - 2 bar	0 - 2.5 bar	W 1 F	KP 1 F or KPW 1 F
R 14-4 F	RP 14-4 F	G 1/4"	0.2 - 4 bar	0 - 6 bar	W 1 F	KP 1 F or KPW 1 F
R 14-10 F	RP 14-10 F	G 1/4"	0.5 - 10 bar	0 - 16 bar	W 1 F	KP 1 F or KPW 1 F
R 14-16 F	RP 14-16 F	G 1/4"	0.5 - 16 bar	0 - 25 bar	W 1 F	KP 1 F or KPW 1 F
R 38 F*	RP 38 F*	G 3/8"	0.5 - 8 bar	0 - 10 bar	W 1 F	KP 1 F or KPW 1 F
R 38-1 F	RP 38-1 F	G 3/8"	0.1 - 1 bar	0 - 1.6 bar	W 1 F	KP 1 F or KPW 1 F
R 38-2 F	RP 38-2 F	G 3/8"	0.1 - 2 bar	0 - 2.5 bar	W 1 F	KP 1 F or KPW 1 F
R 38-4 F	RP 38-4 F	G 3/8"	0.2 - 4 bar	0 - 6 bar	W 1 F	KP 1 F or KPW 1 F
R 38-10 F	RP 38-10 F	G 3/8"	0.5 - 10 bar	0 - 16 bar	W 1 F	KP 1 F or KPW 1 F
R 38-16 F	RP 38-16 F	G 3/8"	0.5 - 16 bar	0 - 25 bar	W 1 F	KP 1 F or KPW 1 F

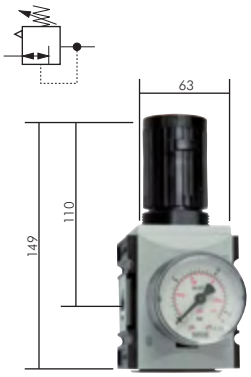
* standard series, please use preferentially as regulation range can be applied universally, ** low own air consumption (2.6 l/min at output pressure of 6 bar) but therefore better hysteresis - almost independent of primary pressure, regulation accuracy: ± 25 mbar

Order example: R 14 F **

Standard type

Designation for the options:
With upstream,
lockable ball valve and filler valve . . . . .**-Si**

Pressure regulators Futura model series 2 — up to 5200 l/min



Switch panel thread: M 42 x 1.5
Supply volume: Pressure regulator incl. 50 mm pressure gauge
Flow: G 3/8": 4500 l/min, G 1/2": 5200 l/min, relieving system: 70 l/min (precision pressure regulator 120 l/min)
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
Optional: Safety version: With upstream lockable ball valve and filler valve **-Si**

Type standard	Type precis. pressure regulators**	Thread	Pressure regulation range	Pressure gauge display	Mounting bracket	Coupling kit
R 382 F*	RP 382 F*	G 3/8"	0.5 - 8 bar	0 - 10 bar	W 2 F	KP 2 F or KPW 2 F
R 382-1 F	RP 382-1 F	G 3/8"	0.1 - 1 bar	0 - 1.6 bar	W 2 F	KP 2 F or KPW 2 F
R 382-2 F	RP 382-2 F	G 3/8"	0.1 - 2 bar	0 - 2.5 bar	W 2 F	KP 2 F or KPW 2 F
R 382-4 F	RP 382-4 F	G 3/8"	0.2 - 4 bar	0 - 6 bar	W 2 F	KP 2 F or KPW 2 F
R 382-10 F	RP 382-10 F	G 3/8"	0.5 - 10 bar	0 - 16 bar	W 2 F	KP 2 F or KPW 2 F
R 382-16 F	RP 382-16 F	G 3/8"	0.5 - 16 bar	0 - 25 bar	W 2 F	KP 2 F or KPW 2 F
R 12 F*	RP 12 F*	G 1/2"	0.5 - 8 bar	0 - 10 bar	W 2 F	KP 2 F or KPW 2 F
R 12-1 F	RP 12-1 F	G 1/2"	0.1 - 1 bar	0 - 1.6 bar	W 2 F	KP 2 F or KPW 2 F
R 12-2 F	RP 12-2 F	G 1/2"	0.1 - 2 bar	0 - 2.5 bar	W 2 F	KP 2 F or KPW 2 F
R 12-4 F	RP 12-4 F	G 1/2"	0.2 - 4 bar	0 - 6 bar	W 2 F	KP 2 F or KPW 2 F
R 12-10 F	RP 12-10 F	G 1/2"	0.5 - 10 bar	0 - 16 bar	W 2 F	KP 2 F or KPW 2 F
R 12-16 F	RP 12-16 F	G 1/2"	0.5 - 16 bar	0 - 25 bar	W 2 F	KP 2 F or KPW 2 F

* standard series, please use preferentially as regulation range can be applied universally, ** low own air consumption (2.6 l/min at output pressure of 6 bar) but therefore better hysteresis - almost independent of primary pressure, regulation accuracy: ± 25 mbar

Order example: R 380 F **

Standard type

Designation for the options:
With upstream,
lockable ball valve and filler valve . . . . .**-Si**

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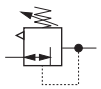
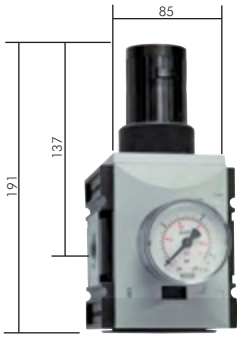
Pressure regulators Futura model series 4 — 14200 l/min



Switch panel thread: M 50 x 1.5
Supply volume: Pressure regulator incl. 50 mm pressure gauge
Flow: 14200 l/min, relieving system: 120 l/min
Own air consumption: Max. 1.5 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Safety version: With upstream lockable ball valve and filler valve **-Si**

Type standard	Thread	Pressure regulation range	Pressure gauge display	Mounting bracket	Coupling kit
R 34 F*	G 3/4"	0.5 - 8 bar	0 - 10 bar	W 4 F	KP 4 F or KPW 4 F
R 34-1 F	G 3/4"	0.1 - 1 bar	0 - 1.6 bar	W 4 F	KP 4 F or KPW 4 F
R 34-2 F	G 3/4"	0.1 - 2 bar	0 - 2.5 bar	W 4 F	KP 4 F or KPW 4 F
R 34-4 F	G 3/4"	0.2 - 4 bar	0 - 6 bar	W 4 F	KP 4 F or KPW 4 F
R 34-10 F	G 3/4"	0.5 - 10 bar	0 - 16 bar	W 4 F	KP 4 F or KPW 4 F
R 34-16 F	G 3/4"	0.5 - 16 bar	0 - 25 bar	W 4 F	KP 4 F or KPW 4 F
R 10 F*	G 1"	0.5 - 8 bar	0 - 10 bar	W 4 F	KP 4 F or KPW 4 F
R 10-1 F	G 1"	0.1 - 1 bar	0 - 1.6 bar	W 4 F	KP 4 F or KPW 4 F
R 10-2 F	G 1"	0.1 - 2 bar	0 - 2.5 bar	W 4 F	KP 4 F or KPW 4 F
R 10-4 F	G 1"	0.2 - 4 bar	0 - 6 bar	W 4 F	KP 4 F or KPW 4 F
R 10-10 F	G 1"	0.5 - 10 bar	0 - 16 bar	W 4 F	KP 4 F or KPW 4 F
R 10-16 F	G 1"	0.5 - 16 bar	0 - 25 bar	W 4 F	KP 4 F or KPW 4 F

* standard series, please use preferentially as the regulation range can be applied universally



☞ **Order example:** R 34 F **
Standard type
Designation for the options:
With upstream,
lockable ball valve and filler valve . . . . .**-Si**

Inline pressure regulators — 700 l/min*

Function: Not resettable, preset diaphragm pressure regulator
Materials: Housing: Zinc die-casting, internal parts: Brass, stainless steel, seals: NBR
Temperature range: 0°C to max. +60°C
Input pressure: Max. 18 bar
Media: Compressed air, nitrogen, neutral gas

✓ **Advantages:** • The pressure which has been set cannot be altered

Type	Thread	Output pressure	Press. tolerance
iLDR 14-1	G 1/4"	1 bar	± 0.3 bar
iLDR 14-2	G 1/4"	2 bar	± 0.3 bar
iLDR 14-3	G 1/4"	3 bar	± 0.3 bar
iLDR 14-4	G 1/4"	4 bar	± 0.4 bar
iLDR 14-5	G 1/4"	5 bar	± 0.5 bar
iLDR 14-6	G 1/4"	6 bar	± 0.6 bar
iLDR 14-7	G 1/4"	7 bar	± 0.7 bar
iLDR 14-8	G 1/4"	8 bar	± 0.8 bar

* at 7 bar input pressure

Warning: When relieving the primary side, the secondary side is not vented! Special pressure regulator for compressed air tools (secondary side venting) can be found on page 540)

Pressure regulators of the model series Multifix can be found in our Online Shop

☞ **Order example:** R 14 ~~F~~
Standard type
Designation for the options
Order pressure regulators of the model series Multifix without "F" -~~F~~ **e. g.: R 14**

Many additional products and sizes are available in our **Online Shop!**

Pressure gauge from page 366

Compressed air reservoir from page 514

2/2, 3/2 directional valves of brass or stainless steel from page 404

Cylinder from page 460

Push-in fittings Ø 3 - 32 mm from page 24

FESTO
Festo screwed connections can be found in our Online Shop

Threaded nozzles & hose nozzles from page 64

PVC fabric hoses on page 208

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Filter regulators - Futura

[1] as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens automatically. The semi-automatic drain valve can be prevented from opening by screwing on the drain plug tightly.

Filter regulators Futura model series

Version: Pressure regulator resettable (with relieving system) with additional filtering using the centrifugal principle and sintered filter
Materials: Body: Grivory® (PA 66), spring hood: POM, diaphragms and seals: NBR, condensate container: Polycarbonate
Temperature range: -10°C to max. +50°C
Input pressure: 1.5 - 16 bar (model series 0: 1.5 - 12 bar)
Condensate draining: Semi-automatic[1]
Pressure gauge connection: G 1/4"
Pore width in the filter: 5 µm
Media: Compressed air, neutral gases

Advantages:
- Automatic venting in the event of overpressure on the secondary side.
- Simple assembly of single components using coupling kits within a model series.
- Hand wheel can be locked by pressing down on it and bolted with a lock - please use VHS 20 (page 641) (model series 0 cannot be locked)

Filter regulators Futura model series 0 — 1 000 l/min

Max. condensate amount: 16 cm³
Switch panel thread: M 30 x 1.5
Supply volume: Filter regulator including pressure gauge
Flow: 1000 l/min, relieving system: 25 l/min
Optional: Version with metal container and without inspection tube **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 12 bar) **-AMNC**

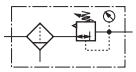
Type with compact pressure gauge***	Type with 40 mm standard press. gauge	Thread	Pressure regulation range	Pressure gauge display	Mounting bracket	Coupling kit
FR 014 F*	FR 014 FB*	G 1/4"	0.5 - 8 bar	0 - 10 bar	W 0 F	KP 0 F or KPW 0 F
FR 014-4 F	FR 014-4 FB	G 1/4"	0.2 - 4 bar	0 - 6 bar	W 0 F	KP 0 F or KPW 0 F
FR 014-10 F	FR 014-10 FB	G 1/4"	0.5 - 10 bar	0 - 16 bar	W 0 F	KP 0 F or KPW 0 F

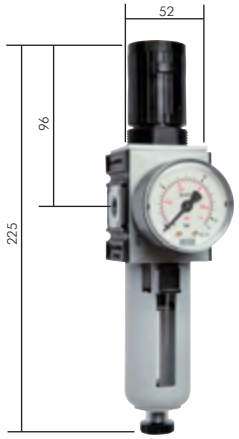
* standard series, please use in preference, as the regulation range is universally applicable, *** installation of a standard pressure gauge only possible with a pressure gauge adapter, display range of the compact pressure gauge: 0 to 12 bar, or 0 to 6 bar

Order example: FR 014 F **

Standard type

Designation for the options:
With metal container, without inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 12 bar) **-AMNC**





Filter regulators Futura model series 1 — up to 2500 l/min

Max. condensate amount: 28 cm³
Switch panel thread: M 36 x 1.5
Supply volume: Pressure regulator including 50 mm pressure gauge
Flow: G 1/4": 2000 l/min, G 3/8": 2500 l/min, relieving system: 70 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
Optional: Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 16 bar) **-AMNC**, safety version: With upstream lockable ball valve and filler valve **-Si**

Type	Thread	Pressure regula. range	Pressure gauge displ.	Mounting bracket	Coupling kit
FR 14 F*	G 1/4"	0.5 - 8 bar	0 - 10 bar	W 1 F	KP 1 F or KPW 1 F
FR 14-1 F	G 1/4"	0.1 - 1 bar	0 - 1.6 bar	W 1 F	KP 1 F or KPW 1 F
FR 14-2 F	G 1/4"	0.1 - 2 bar	0 - 2.5 bar	W 1 F	KP 1 F or KPW 1 F
FR 14-4 F	G 1/4"	0.2 - 4 bar	0 - 6 bar	W 1 F	KP 1 F or KPW 1 F
FR 14-10 F	G 1/4"	0.5 - 10 bar	0 - 16 bar	W 1 F	KP 1 F or KPW 1 F
FR 14-16 F	G 1/4"	0.5 - 16 bar	0 - 25 bar	W 1 F	KP 1 F or KPW 1 F
FR 38 F*	G 3/8"	0.5 - 8 bar	0 - 10 bar	W 1 F	KP 1 F or KPW 1 F
FR 38-1 F	G 3/8"	0.1 - 1 bar	0 - 1.6 bar	W 1 F	KP 1 F or KPW 1 F
FR 38-2 F	G 3/8"	0.1 - 2 bar	0 - 2.5 bar	W 1 F	KP 1 F or KPW 1 F
FR 38-4 F	G 3/8"	0.2 - 4 bar	0 - 6 bar	W 1 F	KP 1 F or KPW 1 F
FR 38-10 F	G 3/8"	0.5 - 10 bar	0 - 16 bar	W 1 F	KP 1 F or KPW 1 F
FR 38-16 F	G 3/8"	0.5 - 16 bar	0 - 25 bar	W 1 F	KP 1 F or KPW 1 F

* standard series, please use preferentially as the regulation range can be applied universally

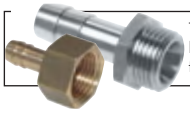
Order example: FR 14 F **

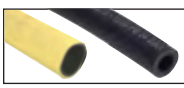
Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 16 bar) . . . . . **-AMNC**
With upstream, lockable ball valve and filler valve . . . . . **-Si**

PU, PA, PTFE and PE hoses from page 192

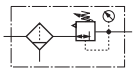
Push-in hoses on page 228


Threaded nozzles & hose nozzles from page 64


Compressed air rubber hoses from page 212

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

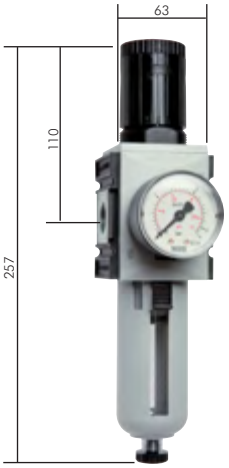
Filter regulators Futura model series 2 — up to 5200 l/min



Max. condensate amount: 49 cm³
Switch panel thread: M 42 x 1.5
Supply volume: Pressure regulator including 50 mm pressure gauge
Flow: G 3/8": 4500 l/min, G 1/2": 5200 l/min, relieving system: 70 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 16 bar) **-AMNC**, safety version: With upstream lockable ball valve and filler valve **-Si**

Type	Thread	Pressure regula. range	Pressure gauge displ.	Mounting bracket	Coupling kit
FR 382 F*	G 3/8"	0.5 - 8 bar	0 - 10 bar	W 2 F	KP 2 F or KPW 2 F
FR 382-1 F	G 3/8"	0.1 - 1 bar	0 - 1.6 bar	W 2 F	KP 2 F or KPW 2 F
FR 382-2 F	G 3/8"	0.1 - 2 bar	0 - 2.5 bar	W 2 F	KP 2 F or KPW 2 F
FR 382-4 F	G 3/8"	0.2 - 4 bar	0 - 6 bar	W 2 F	KP 2 F or KPW 2 F
FR 382-10 F	G 3/8"	0.5 - 10 bar	0 - 16 bar	W 2 F	KP 2 F or KPW 2 F
FR 382-16 F	G 3/8"	0.5 - 16 bar	0 - 25 bar	W 2 F	KP 2 F or KPW 2 F
FR 12 F*	G 1/2"	0.5 - 8 bar	0 - 10 bar	W 2 F	KP 2 F or KPW 2 F
FR 12-1 F	G 1/2"	0.1 - 1 bar	0 - 1.6 bar	W 2 F	KP 2 F or KPW 2 F
FR 12-2 F	G 1/2"	0.1 - 2 bar	0 - 2.5 bar	W 2 F	KP 2 F or KPW 2 F
FR 12-4 F	G 1/2"	0.2 - 4 bar	0 - 6 bar	W 2 F	KP 2 F or KPW 2 F
FR 12-10 F	G 1/2"	0.5 - 10 bar	0 - 16 bar	W 2 F	KP 2 F or KPW 2 F
FR 12-16 F	G 1/2"	0.5 - 16 bar	0 - 25 bar	W 2 F	KP 2 F or KPW 2 F

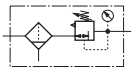
* standard series, please use preferentially as the regulation range can be applied universally



☞ **Order example:** FR 382 F **
Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain,
closed when depressurised (0 to 16 bar) . . . . . **-AMNC**
With upstream, lockable ball valve and filler valve . . . . . **-Si**

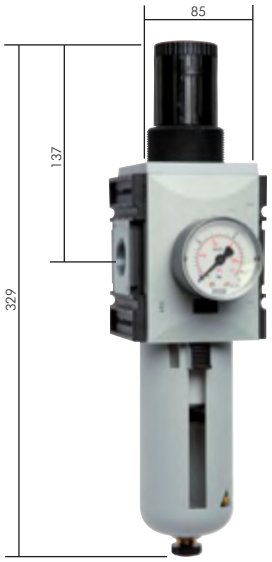
Filter regulators Futura model series 4 — 13000 l/min



Max. condensate amount: 87 cm³
Switch panel thread: M 50 x 1.5
Supply volume: Pressure regulator including 50 mm pressure gauge
Flow: 13000 l/min, relieving system: 120 l/min
Own air consumption: Max. 1.5 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 16 bar) **-AMNC**, safety version: With upstream lockable ball valve and filler valve **-Si**

Type	Thread	Pressure regula. range	Pressure gauge displ.	Mounting bracket	Coupling kit
FR 34 F*	G 3/4"	0.5 - 8 bar	0 - 10 bar	W 4 F	KP 4 F or KPW 4 F
FR 34-1 F	G 3/4"	0.1 - 1 bar	0 - 1.6 bar	W 4 F	KP 4 F or KPW 4 F
FR 34-2 F	G 3/4"	0.1 - 2 bar	0 - 2.5 bar	W 4 F	KP 4 F or KPW 4 F
FR 34-4 F	G 3/4"	0.2 - 4 bar	0 - 6 bar	W 4 F	KP 4 F or KPW 4 F
FR 34-10 F	G 3/4"	0.5 - 10 bar	0 - 16 bar	W 4 F	KP 4 F or KPW 4 F
FR 34-16 F	G 3/4"	0.5 - 16 bar	0 - 25 bar	W 4 F	KP 4 F or KPW 4 F
FR 10 F*	G 1"	0.5 - 8 bar	0 - 10 bar	W 4 F	KP 4 F or KPW 4 F
FR 10-1 F	G 1"	0.1 - 1 bar	0 - 1.6 bar	W 4 F	KP 4 F or KPW 4 F
FR 10-2 F	G 1"	0.1 - 2 bar	0 - 2.5 bar	W 4 F	KP 4 F or KPW 4 F
FR 10-4 F	G 1"	0.2 - 4 bar	0 - 6 bar	W 4 F	KP 4 F or KPW 4 F
FR 10-10 F	G 1"	0.5 - 10 bar	0 - 16 bar	W 4 F	KP 4 F or KPW 4 F
FR 10-16 F	G 1"	0.5 - 16 bar	0 - 25 bar	W 4 F	KP 4 F or KPW 4 F

* standard series, please use preferentially as the regulation range can be applied universally



☞ **Order example:** FR 34 F **
Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain,
closed when depressurised (0 to 16 bar) . . . . . **-AMNC**
With upstream, lockable ball valve and filler valve . . . . . **-Si**

Filter regulators of the model series Multifix can be found in our Online Shop

☞ **Order example:** FR 14 ~~F~~
Standard type

Designation for the options
Order pressure regulators of the model series Multifix without "F" -~~F~~ **e. g.: FR 14**

Many additional products and sizes are available in our **Online Shop!**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

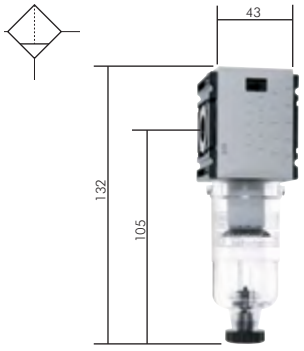
Filters - Futura

[1] as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens automatically. The semi-automatic drain valve can be prevented from opening by screwing on the drain plug tightly.

Filters Futura model series

Version: Filtering using the centrifugal principal and sintered filter
Materials: Body: Grivory® (PA 66), seals: NBR, condensate container: Polycarbonate
Temperature range: -10°C to max. +50°C
Input pressure: 1.5 - 16 bar (model series 0: 1.5 - 12 bar)
Condensate draining: Semi-automatic[1]
Pore width in the filter: 5 µm
Media: Compressed air, neutral gases

Advantages: • Simple assembly of single components using coupling kits within a model series.



Filters Futura model series 0 — 1 000 l/min

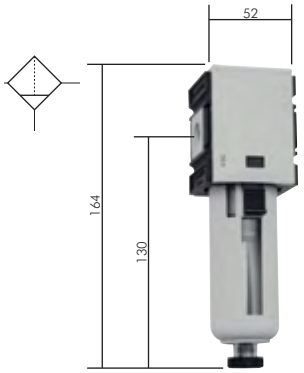
Max. condensate amount: 16 cm³
Optional: Version with metal container and without inspection tube **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 12 bar) **-AMNC**

Type	Thread	Mounting bracket	Coupling kit
F 014 F	G 1/4"	W 0 F	KP 0 F or KPW 0 F

Order example: F 014 F **

Standard type

Designation for the options:
With metal container, without inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 12 bar) . . **-AMNC**



Filters Futura model series 1 — 2 200 l/min

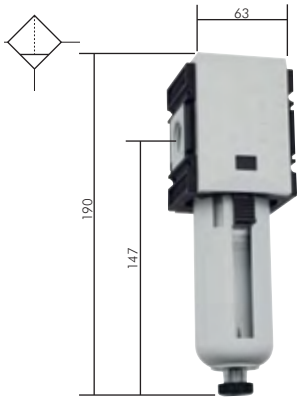
Max. condensate amount: 28 cm³
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
Optional: Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed without pressure (0 - 16 bar) **-AMNC**

Type	Thread	Mounting bracket	Coupling kit
F 14 F	G 1/4"	W 1 F	KP 1 F or KPW 1 F
F 38 F	G 3/8"	W 1 F	KP 1 F or KPW 1 F

Order example: F 14 F **

Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 16 bar) . . **-AMNC**



Filters Futura model series 2 — 3 500 l/min

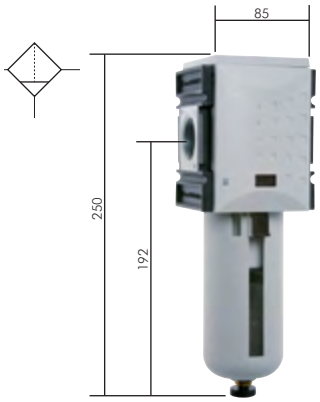
Max. condensate amount: 49 cm³
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
Optional: Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed without pressure (0 - 16 bar) **-AMNC**

Type	Thread	Mounting bracket	Coupling kit
F 382 F	G 3/8"	W 2 F	KP 2 F or KPW 2 F
F 12 F	G 1/2"	W 2 F	KP 2 F or KPW 2 F

Order example: F 382 F **

Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 16 bar) . . **-AMNC**



Filters Futura model series 4 — 8 000 l/min

Max. condensate amount: 87 cm³
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
Optional: Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed without pressure (0 - 16 bar) **-AMNC**

Type	Thread	Mounting bracket	Coupling kit
F 34 F	G 3/4"	W 4 F	KP 4 F or KPW 4 F
F 10 F	G 1"	W 4 F	KP 4 F or KPW 4 F

Order example: F 34 F **

Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 16 bar) . . **-AMNC**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pre-, micro- and activated carbon filters Futura model series

Materials: Body: Grivory® (PA 66), seals: NBR, condensate container: Polycarbonate
Temperature range: -10°C to max. +50°C
Input pressure: 1.5 - 16 bar (model series 0: 1.5 - 12 bar)
Condensate draining: Semi-automatic[1] (activated carbon filter without drainage)
Media: Compressed air, neutral gases
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU (not model series 0 or differential pressure indicator/differential pressure gauge)

[1] as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens automatically. The semi-automatic drain valve can be prevented from opening by screwing on the drain plug tightly.

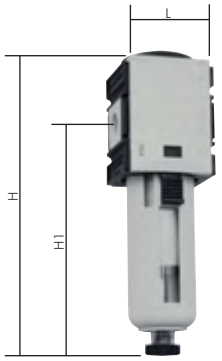
✓ **Advantage:** • Simple assembly of single components using coupling kits within a model series.

Pre-filters Futura model series — up to 1500 l/min*

Application: Pre-filters are used where high requirements are placed for the purity of compressed air. Fine particles (> 0.3 µm), which can pass unhindered through the sintered filters, are separated here. Pre-filters are also installed in order to increase the service life of microfilters.
Dust removal: > 0.3 µm (99.99 %)
☞ **Optional:** Version with metal container and inspection tube (model series 0: without inspection tube) **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 16 bar, model series 0: 0 - 12 bar) **-AMNC**

Type	Container volume	Thread	Optimal flow* (l/min)	H	H1	L	Mount. bracket	Coupling kit	Replace. filter	Replace. filter for opt. -AM/-AMNC
Model series 0										
FV 014 F	12 cm³	G 1/4"	140	132	105	43	W 0 F	KP0F or KPW0F	V 23/35	V 23/35
Model series 1										
FV 14 F	12 cm³	G 1/4"	300	169	130	52	W 1 F	KP1F or KPW1F	V 23/70	V 23/40
FV 38 F	12 cm³	G 3/8"	300	169	130	52	W 1 F	KP1F or KPW1F	V 23/70	V 23/40
Model series 2										
FV 382 F	49 cm³	G 3/8"	500	195	147	63	W 2 F	KP2F or KPW2F	V 28/67	V 28/67
FV 12 F	49 cm³	G 1/2"	500	195	147	63	W 2 F	KP2F or KPW2F	V 28/67	V 28/67
Model series 4										
FV 34 F	87 cm³	G 3/4"	1500	255	192	85	W 4 F	KP4F or KPW4F	V 40/100	V 40/100
FV 10 F	87 cm³	G 1"	1500	255	192	85	W 4 F	KP4F or KPW4F	V 40/100	V 40/100
Accessories										
DDA B	Differential press. indicator 0-0.35 bar									
DDA M	Differential press. gauge 0-0.5 bar									

Outstanding value!



* at 6 bar input pressure and 0.02 bar pressure loss

☞ **Order example:** FV 014 F **

Standard type

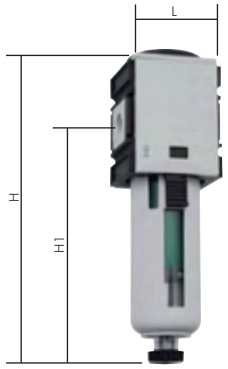
Designation for the options:
W/ metal bowl & inspection tube (mod. series 0, w/o insp. tube) .-M
Automatic drain .-AM
Automatic drain closed when depressurised .-AMNC
(0 - 16 bar, model series 0: 0 - 12 bar)

Microfilters Futura model series — up to 1500 l/min*

Application: Microfilters are used where high requirements are required for the purity of the compressed air requirements. Finest particle (> 0.01 µm) and oil mist is separated here. We recommend the upstream connection of a prefilter to increase the service life.
Dust removal: > 0.01 µm (99,999 %), **residual oil content:** 0.01 mg/m³ (class 1 in accordance with DIN ISO 8573-1)
☞ **Optional:** Version with metal container and inspection tube (model series 0: without inspection tube) **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 16 bar, model series 0: 0 - 12 bar) **-AMNC**

Type	Container volume	Thread	Optimal flow* (l/min)	H	H1	L	Mount-bracket	Coupling kit	Replace. filter	Replace. filter for opt. -AM/-AMNC
Model series 0										
FX 014 F	12 cm³	G 1/4"	190	132	105	43	W 0 F	KP0F or KPW0F	X 23/35	X 23/35
Model series 1										
FX 14 F	12 cm³	G 1/4"	350	169	130	52	W 1 F	KP1F or KPW1F	X 23/70	X 23/40
FX 38 F	12 cm³	G 3/8"	350	169	130	52	W 1 F	KP1F or KPW1F	X 23/70	X 23/40
Model series 2										
FX 382 F	49 cm³	G 3/8"	450	195	147	63	W 2 F	KP2F or KPW2F	X 28/67	X 28/67
FX 12 F	49 cm³	G 1/2"	450	195	147	63	W 2 F	KP2F or KPW2F	X 28/67	X 28/67
Model series 4										
FX 34 F	87 cm³	G 3/4"	1500	255	192	85	W 4 F	KP4F or KPW4F	X 40/100	X 40/100
FX 10 F	87 cm³	G 1"	1500	255	192	85	W 4 F	KP4F or KPW4F	X 40/100	X 40/100
Accessories										
DDA B	Differential press. indicator 0-0.35 bar									
DDA M	Differential press. gauge 0-0.5 bar									

Outstanding value!



* at 6 bar input pressure and 0.1 bar pressure loss

☞ **Order example:** FX 014 F **

Standard type

Designation for the options:
W/ metal bowl & inspection tube (mod. series 0, w/o insp. tube) .-M
Automatic drain .-AM
Automatic drain closed when depressurised .-AMNC
(0 - 16 bar, model series 0: 0 - 12 bar)

Filters of the model series Multifix can be found in our Online Shop

☞ **Order example:** F 14 ~~F~~

Standard type

Designation for the options
Order filters of the model series Multifix without "F" -~~F~~ **e. g.: F 14**

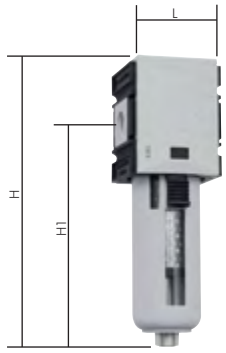
Many additional products and sizes are available in our **Online Shop!**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Filters/lubricators - Futura

Activated carbon filters Futura model series — up to 2500 l/min*

Application: Activated carbon filters are used for odour filtering of compressed air. The activated carbon absorbs the oil vapour molecules contained in the compressed air. An additional filter cloth prevents the activated carbon particles from being pulled by the airflow. We recommend the upstream connection of a prefilter and microfilter to increase the service life.
Residual oil content: 0.005 mg/m³ (class 0 in accordance with DIN ISO 8573-1)
☞ **Optional:** Version with metal container and inspection tube (model series 0 without inspection tube) **-M**



Type	Container volume	Thread	Optimal flow* (l/min)	H	H1	L	Mount. bracket	Coupling kit	Replace. filter
Model series 0									
FA 014 F	12 cm³	G 1/4"	470	125	98	43	W 0 F	KP 0 F or KPW 0 F	A 23/60
Model series 1									
FA 14 F	12 cm³	G 1/4"	470	157	124	52	W 1 F	KP 1 F or KPW 1 F	A 23/70
FA 38 F	12 cm³	G 3/8"	470	157	124	52	W 1 F	KP 1 F or KPW 1 F	A 23/70
Model series 2									
FA 382 F	49 cm³	G 3/8"	1700	183	141	63	W 2 F	KP 2 F or KPW 2 F	A 28/90
FA 12 F	49 cm³	G 1/2"	1700	183	141	63	W 2 F	KP 2 F or KPW 2 F	A 28/90
Model series 4									
FA 34 F	87 cm³	G 3/4"	2500	242	184	85	W 4 F	KP 4 F or KPW 4 F	A 40/123
FA 10 F	87 cm³	G 1"	2500	242	184	85	W 4 F	KP 4 F or KPW 4 F	~~A 40/123~~

* at 6 bar input pressure and 0.2 bar pressure loss

☞ **Order example:** FA 014 F **

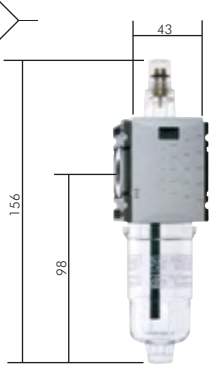
Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
(model series 0 without inspection tube)

Mist lubricators Futura model series

Materials: Body: Grivory® (PA 66), seals: NBR, oil tank: Polycarbonate
Temperature range: -10°C to max. +50°C
Input pressure: 0.5 - 16 bar (model series 0: 0.5 - 12 bar)
Media: Compressed air, neutral gases

✓ **Advantages:**
- Simple assembly of single components using coupling kits within a model series.
- Semi-automatic oil filling by connecting a hose to the bottom on the oil bowl (G 1/8"). When the oil fill button is pressed, oil from the container will be sucked through the tube (not for model series 0).



Lubricators Futura model series 0 — 1400 l/min

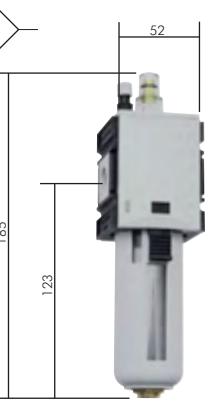
Oil metering at 1000 l/min: Approx. 10 - 20 drops/min
Oil supply: 35 cm³
Reaction limit (at 6 bar): 26 l/min
☞ **Optional:** Version with metal container and without inspection tube **-M**

Type	Thread	Mounting bracket	Coupling kit
OL 014 F	G 1/4"	W 0 F	KP 0 F or KPW 0 F

☞ **Order example:** OL 014 F **

Standard type

Designation for the options:
With metal container (without inspection tube) . . .**-M**



Lubricators Futura model series 1 — 2800 l/min

Oil metering at 1000 l/min: Approx. 1 - 2 drops/min
Oil supply: 40 cm³
Reaction limit (at 6 bar): 90 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Version with metal container and inspection tube **-M**

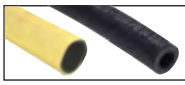
Type	Thread	Mounting bracket	Coupling kit
OL 14 F	G 1/4"	W 1 F	KP 1 F or KPW 1 F
OL 38 F	G 3/8"	W 1 F	KP 1 F or KPW 1 F

☞ **Order example:** OL 14 F **

Standard type

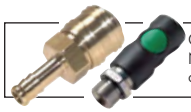
Designation for the options:
With metal container and inspection tube . . . . . **-M**

Compressed air treatment from page 362



Compressed air rubber hoses from page 212

PVC-fabric hoses with coupling & plug on page 208



Coupling sockets NW7 starting on page 150

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Lubricators Futura model series 2 — 8 000 l/min

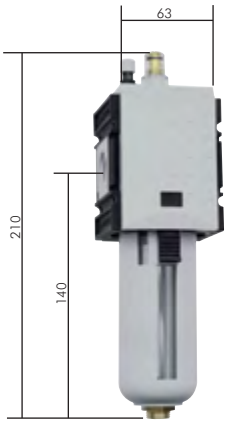
Oil metering at 1000 l/min: Approx. 1 - 2 drops/min
Oil supply: 80 cm³
Reaction limit (at 6 bar): 70 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Version with metal container and inspection tube **-M**

Type	Thread	Mounting bracket	Coupling kit
OL 382 F	G 3/8"	W 2 F	KP 2 F or KPW 2 F
OL 12 F	G 1/2"	W 2 F	KP 2 F or KPW 2 F

☞ **Order example:** OL 12 F **

Standard type

Designation for the options:
With metal container and inspection tube . . .**-M**



Lubricators Futura model series 4 — 16 000 l/min

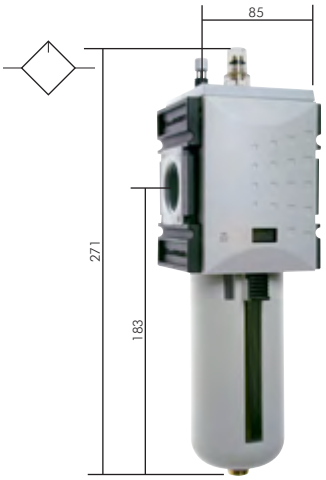
Oil metering at 1000 l/min: Approx. 1 - 2 drops/min
Oil supply: 181 cm³
Reaction limit (at 6 bar): 115 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Version with metal container and inspection tube **-M**

Type	Thread	Mounting bracket	Coupling kit
OL 34 F	G 3/4"	W 4 F	KP 4 F or KPW 4 F
OL 10 F	G 1"	W 4 F	KP 4 F or KPW 4 F

☞ **Order example:** OL 34 F **

Standard type

Designation for the options:
With metal container and inspection tube . . .**-M**



6

Lubricators of the model series Multifix can be found in our Online Shop

☞ **Order example:** OL 14 ~~F~~

Standard type

Designation for the options
Order lubricators of the model series Multifix without "F" -~~F~~ **e. g.: OL 14**

Many additional products and sizes are available in our **Online Shop!**

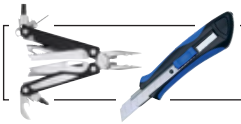
Pneumatic oil on page 574

LOCTITE Liquid seals, gaskets & tapes from page 549

Cleaning technology on page 582

tesa® tesa®-adhesive technology from page 585

Compressed air tools from page 533


Knives on page 595

2/2, 3/2 directional valves of brass or stainless steel from page 404

Ball valves from page 288

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Service units - Futura

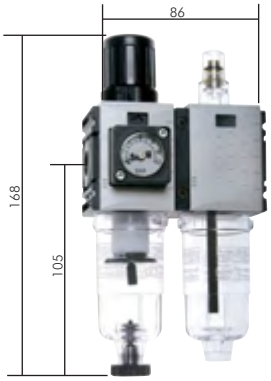
[1] as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens automatically. The semi-automatic drain valve can be prevented from opening by screwing on the drain plug tightly.

Service units, 2-part, Futura model series

Version: Filter regulator resettable, with attached lubricator
Materials: Body: Grivory® (PA 66), spring hood: POM, diaphragms and seals: NBR, container: Polycarbonate
Temperature range: -10°C to max. +50°C
Input pressure: 1.5 - 16 bar (model series 0: 1.5 - 12 bar)
Condensate draining: Semi-automatic[1]
Pressure gauge connection: G 1/4"
Pore width in the filter: 5 µm
Media: Compressed air, neutral gases

Advantages:
- Automatic venting in the event of overpressure on the secondary side.
- Simple assembly of single components using coupling kits within a model series.
- Hand wheel can be locked by pressing down on it and bolted with a lock - please use VHS 20 (page 641).
- Semi-automatic oil filling by connecting a hose to the bottom on the oil bowl (G 1/8"). When the oil fill button is pressed, oil from the container will be sucked through the hose (not model series 0).

Service units, 2-part, Futura model series 0 — 800 l/min



Max. condensate amount: 16 cm³
Switch panel thread: M 30 x 1.5
Supply volume: Air unit, including pressure gauge
Oil metering at 1000 l/min: Approx. 10 - 20 drops/min
Oil supply: 35 cm³
Lubricator reaction limit (at 6 bar): 26 l/min
Optional: Version with metal container and without inspection tube **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 12 bar) **-AMNC**

Type with compact pressure gauge***	Type with 40 mm standard press. gauge	Thread	Pressure regulation range	Pressure gauge display	Mounting bracket	Coupling kit
CL 014 F*	CL 014 FB*	G 1/4"	0.5 - 8 bar	0 - 10 bar	W 0 F	KP 0 F or KPW 0 F
CL 014-4 F	CL 014-4 FB	G 1/4"	0.2 - 4 bar	0 - 6 bar	W 0 F	KP 0 F or KPW 0 F
CL 014-10 F	CL 014-10 FB	G 1/4"	0.5 - 10 bar	0 - 16 bar	W 0 F	KP 0 F or KPW 0 F

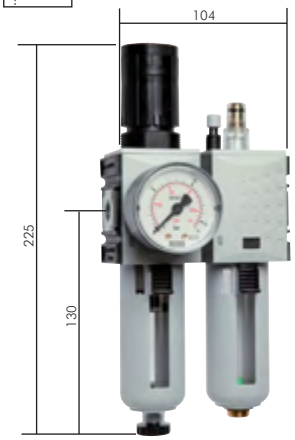
* standard series, please use in preference, as the regulation range is universally applicable, *** installation of a standard pressure gauge only possible with a pressure gauge adapter, display range of the compact pressure gauge: 0 to 12 bar, or 0 to 6 bar

Order example: CL 014 F **

Standard type

Designation for the options:
With metal container, without inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 12 bar) . . **-AMNC**

Service units, 2-part, Futura model series 1 — 1 750 l/min



Max. condensate amount: 28 cm³
Switch panel thread: M 36 x 1.5
Supply volume: Air unit, including 50 mm pressure gauge
Oil metering at 1000 l/min: Approx. 1 - 2 drops/min
Oil supply: 40 cm³
Lubricator reaction limit (at 6 bar): 90 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
Optional: Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 16 bar) **-AMNC**, safety version: With upstream lockable ball valve and filler valve **-Si**

Type	Thread	Pressure regula. range	Pressure gauge display	Mounting bracket	Coupling kit
CL 14 F*	G 1/4"	0.5 - 8 bar	0 - 10 bar	W 1 F	KP 1 F or KPW 1 F
CL 14-1 F	G 1/4"	0.1 - 1 bar	0 - 1.6 bar	W 1 F	KP 1 F or KPW 1 F
CL 14-2 F	G 1/4"	0.1 - 2 bar	0 - 2.5 bar	W 1 F	KP 1 F or KPW 1 F
CL 14-4 F	G 1/4"	0.2 - 4 bar	0 - 6 bar	W 1 F	KP 1 F or KPW 1 F
CL 14-10 F	G 1/4"	0.5 - 10 bar	0 - 16 bar	W 1 F	KP 1 F or KPW 1 F
CL 14-16 F	G 1/4"	0.5 - 16 bar	0 - 25 bar	W 1 F	KP 1 F or KPW 1 F
CL 38 F*	G 3/8"	0.5 - 8 bar	0 - 10 bar	W 1 F	KP 1 F or KPW 1 F
CL 38-1 F	G 3/8"	0.1 - 1 bar	0 - 1.6 bar	W 1 F	KP 1 F or KPW 1 F
CL 38-2 F	G 3/8"	0.1 - 2 bar	0 - 2.5 bar	W 1 F	KP 1 F or KPW 1 F
CL 38-4 F	G 3/8"	0.2 - 4 bar	0 - 6 bar	W 1 F	KP 1 F or KPW 1 F
CL 38-10 F	G 3/8"	0.5 - 10 bar	0 - 16 bar	W 1 F	KP 1 F or KPW 1 F
CL 38-16 F	G 3/8"	0.5 - 16 bar	0 - 25 bar	W 1 F	KP 1 F or KPW 1 F

* standard series, please use preferentially as the regulation range can be applied universally

Order example: CL 14 F **

Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain,
closed when depressurised (0 to 16 bar) . . . . . **-AMNC**
With upstream, lockable ball valve and filler valve . . . . . **-Si**

Pneumatic oil on page 574

Multi-Link distributor systems from page 157

Multiple couplings from page 41

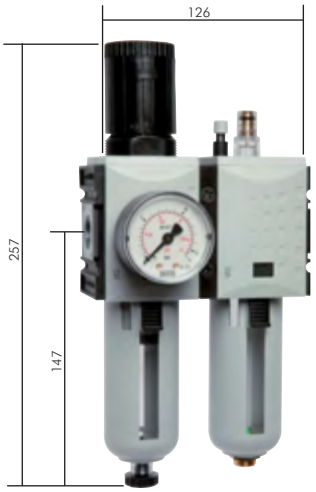
Garden hose couplings from page 178

Stainless steel screw connections from page 78

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Service units, 2-part, Futura model series 2 — 3500 l/min

Max. condensate amount: 49 cm³
Switch panel thread: M 42 x 1.5
Supply volume: Air unit, including 50 mm pressure gauge
Oil metering at 1000 l/min: Approx. 1 - 2 drops/min
Oil supply: 80 cm³
Lubricator reaction limit (at 6 bar): 70 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 16 bar) **-AMNC**, safety version: With upstream lockable ball valve and filler valve **-Si**



Type	Thread	Pressure regula. range	Pressure gauge display	Mounting bracket	Coupling kit
CL 382 F*	G 3/8"	0.5 - 8 bar	0 - 10 bar	W 2 F	KP 2 F or KPW 2 F
CL 382-1 F	G 3/8"	0.1 - 1 bar	0 - 1.6 bar	W 2 F	KP 2 F or KPW 2 F
CL 382-2 F	G 3/8"	0.1 - 2 bar	0 - 2.5 bar	W 2 F	KP 2 F or KPW 2 F
CL 382-4 F	G 3/8"	0.2 - 4 bar	0 - 6 bar	W 2 F	KP 2 F or KPW 2 F
CL 382-10 F	G 3/8"	0.5 - 10 bar	0 - 16 bar	W 2 F	KP 2 F or KPW 2 F
CL 382-16 F	G 3/8"	0.5 - 16 bar	0 - 25 bar	W 2 F	KP 2 F or KPW 2 F
CL 12 F*	G 1/2"	0.5 - 8 bar	0 - 10 bar	W 2 F	KP 2 F or KPW 2 F
CL 12-1 F	G 1/2"	0.1 - 1 bar	0 - 1.6 bar	W 2 F	KP 2 F or KPW 2 F
CL 12-2 F	G 1/2"	0.1 - 2 bar	0 - 2.5 bar	W 2 F	KP 2 F or KPW 2 F
CL 12-4 F	G 1/2"	0.2 - 4 bar	0 - 6 bar	W 2 F	KP 2 F or KPW 2 F
CL 12-10 F	G 1/2"	0.5 - 10 bar	0 - 16 bar	W 2 F	KP 2 F or KPW 2 F
CL 12-16 F	G 1/2"	0.5 - 16 bar	0 - 25 bar	W 2 F	KP 2 F or KPW 2 F

* standard series, please use preferentially as the regulation range can be applied universally

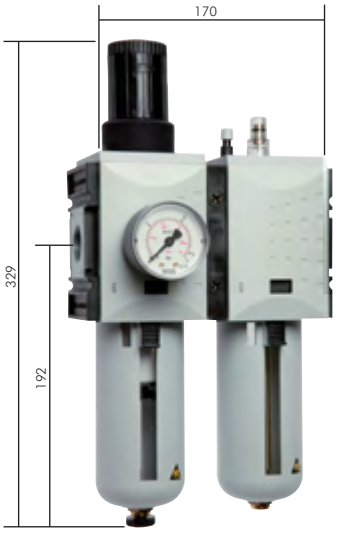
☞ **Order example:** CL 12 F **

Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain,
closed when depressurised (0 to 16 bar) . . . . . **-AMNC**
With upstream, lockable ball valve and filler valve . . . . . **-Si**

Service units, 2-part, Futura model series 4 — 12000 l/min

Max. condensate amount: 87 cm³
Switch panel thread: M 50 x 1.5
Supply volume: Air unit, including 50 mm pressure gauge
Own air consumption: Max. 1.5 l/min
Oil metering at 1000 l/min: Approx. 1 - 2 drops/min
Oil supply: 181 cm³
Lubricator reaction limit (at 6 bar): 115 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 16 bar) **-AMNC**, safety version: With upstream lockable ball valve and filler valve **-Si**



Type	Thread	Pressure regula. range	Pressure gauge display	Mounting bracket	Coupling kit
CL 34 F*	G 3/4"	0.5 - 8 bar	0 - 10 bar	W 4 F	KP 4 F or KPW 4 F
CL 34-1 F	G 3/4"	0.1 - 1 bar	0 - 1.6 bar	W 4 F	KP 4 F or KPW 4 F
CL 34-2 F	G 3/4"	0.1 - 2 bar	0 - 2.5 bar	W 4 F	KP 4 F or KPW 4 F
CL 34-4 F	G 3/4"	0.2 - 4 bar	0 - 6 bar	W 4 F	KP 4 F or KPW 4 F
CL 34-10 F	G 3/4"	0.5 - 10 bar	0 - 16 bar	W 4 F	KP 4 F or KPW 4 F
CL 34-16 F	G 3/4"	0.5 - 16 bar	0 - 25 bar	W 4 F	KP 4 F or KPW 4 F
CL 10 F*	G 1"	0.5 - 8 bar	0 - 10 bar	W 4 F	KP 4 F or KPW 4 F
CL 10-1 F	G 1"	0.1 - 1 bar	0 - 1.6 bar	W 4 F	KP 4 F or KPW 4 F
CL 10-2 F	G 1"	0.1 - 2 bar	0 - 2.5 bar	W 4 F	KP 4 F or KPW 4 F
CL 10-4 F	G 1"	0.2 - 4 bar	0 - 6 bar	W 4 F	KP 4 F or KPW 4 F
CL 10-10 F	G 1"	0.5 - 10 bar	0 - 16 bar	W 4 F	KP 4 F or KPW 4 F
CL 10-16 F	G 1"	0.5 - 16 bar	0 - 25 bar	W 4 F	KP 4 F or KPW 4 F

* standard series, please use preferentially as the regulation range can be applied universally

☞ **Order example:** CL 34 F **

Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain,
closed when depressurised (0 to 16 bar) . . . . . **-AMNC**
With upstream, lockable ball valve and filler valve . . . . . **-Si**

Service units of the model series Multifix can be found in our Online Shop

☞ **Order example:** CL 14 ~~F~~

Standard type

Designation for the options
Order service units of the model series Multifix without "F" **-~~F~~**
e. g.: CL 14

Many additional products and sizes are available in our **Online Shop!**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

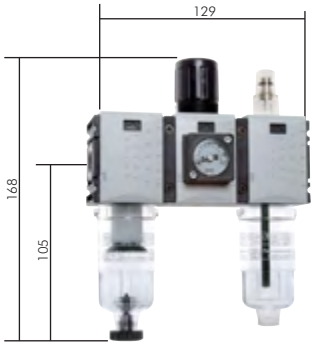
[1] as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens automatically. The semi-automatic drain valve can be prevented from opening by screwing on the drain plug tightly.

Service units, 3-part, Futura model series

Version: Filter, pressure regulator resettable, with attached lubricator
Materials: Body: Grivory®, spring hood: POM, diaphragms and seals: NBR, container: Polycarbonate
Temperature range: -10°C to max. +50°C
Input pressure: 1.5 - 16 bar (model series 0: 1.5 - 12 bar)
Condensate draining: Semi-automatic[1]
Pressure gauge connection: G 1/4"
Pore width in the filter: 5 µm
Media: Compressed air, neutral gases

Advantages:
- Automatic venting in the event of overpressure on the secondary side.
- Simple assembly of single components using coupling kits within a model series.
- Hand wheel can be locked by pressing down on it and bolted with a lock - please use VHS 20 (page 641)
- Semi-automatic oil filling by connecting a hose to the bottom on the oil bowl (G 1/8"). When the oil fill button is pressed, oil from the container will be sucked through the hose (not model series 0)

Service units, 3-part, Futura model series 0 — 800 l/min



Max. condensate amount: 16 cm³
Switch panel thread: M 30 x 1.5
Supply volume: Air unit, including pressure gauge
Oil metering at 1000 l/min: Approx. 10 - 20 drops/min
Oil supply: 35 cm³
Lubricator reaction limit (at 6 bar): 26 l/min
Optional: Version with metal container and without inspection tube **-M**, automatic drain **-AM**, automatic drain closed when not pressurised (0 - 12 bar) **-AMNC**

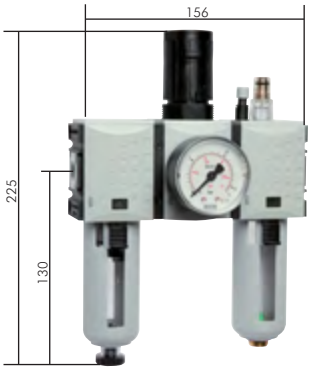
Type with compact pressure gauge***	Type with 40 mm standard press. gauge	Thread	Pressure regulation range	Pressure gauge display	Mounting bracket	Coupling kit
CL 0143 F*	CL 0143 FB*	G 1/4"	0.5 - 8 bar	0 - 10 bar	W 0 F	KP 0 F or KPW 0 F
CL 0143-4 F	CL 0143-4 FB	G 1/4"	0.2 - 4 bar	0 - 6 bar	W 0 F	KP 0 F or KPW 0 F
CL 0143-10 F	CL 0143-10 FB	G 1/4"	0.5 - 10 bar	0 - 16 bar	W 0 F	KP 0 F or KPW 0 F

*standard series, please use in preference, as the regulation range is universally applicable, *** installation of a standard pressure gauge only possible with a pressure gauge adapter, display range of the compact pressure gauge: 0 to 12 bar, or 0 to 6 bar

Order example: CL 0143 F **
Standard type

Designation for the options:
With metal container, without inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 12 bar) . . . . **-AMNC**

Service units, 3-part, Futura model series 1 — 1 750 l/min



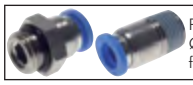
Max. condensate amount: 28 cm³
Switch panel thread: M 36 x 1.5
Supply volume: Air unit, including 50 mm pressure gauge
Oil metering at 1000 l/min: Approx. 1 - 2 drops/min
Oil supply: 40 cm³
Lubricator reaction limit (at 6 bar): 90 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
Optional: Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed without pressure (0 - 16 bar) **-AMNC**

Type	Thread	Pressure regula. range	Pressure gauge display	Mounting bracket	Coupling kit
CL 143 F*	G 1/4"	0.5 - 8 bar	0 - 10 bar	W 1 F	KP 1 F or KPW 1 F
CL 143-1 F	G 1/4"	0.1 - 1 bar	0 - 1.6 bar	W 1 F	KP 1 F or KPW 1 F
CL 143-2 F	G 1/4"	0.1 - 2 bar	0 - 2.5 bar	W 1 F	KP 1 F or KPW 1 F
CL 143-4 F	G 1/4"	0.2 - 4 bar	0 - 6 bar	W 1 F	KP 1 F or KPW 1 F
CL 143-10 F	G 1/4"	0.5 - 10 bar	0 - 16 bar	W 1 F	KP 1 F or KPW 1 F
CL 143-16 F	G 1/4"	0.5 - 16 bar	0 - 25 bar	W 1 F	KP 1 F or KPW 1 F
CL 383 F*	G 3/8"	0.5 - 8 bar	0 - 10 bar	W 1 F	KP 1 F or KPW 1 F
CL 383-1 F	G 3/8"	0.1 - 1 bar	0 - 1.6 bar	W 1 F	KP 1 F or KPW 1 F
CL 383-2 F	G 3/8"	0.1 - 2 bar	0 - 2.5 bar	W 1 F	KP 1 F or KPW 1 F
CL 383-4 F	G 3/8"	0.2 - 4 bar	0 - 6 bar	W 1 F	KP 1 F or KPW 1 F
CL 383-10 F	G 3/8"	0.5 - 10 bar	0 - 16 bar	W 1 F	KP 1 F or KPW 1 F
CL 383-16 F	G 3/8"	0.5 - 16 bar	0 - 25 bar	W 1 F	KP 1 F or KPW 1 F

* standard series, please use preferentially as the regulation range can be applied universally

Order example: CL 143 F **
Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 16 bar) . . . **-AMNC**


Push-in fittings Ø 3 - 32 mm from page 24

FESTO
Festo screwed connections can be found in our Online Shop

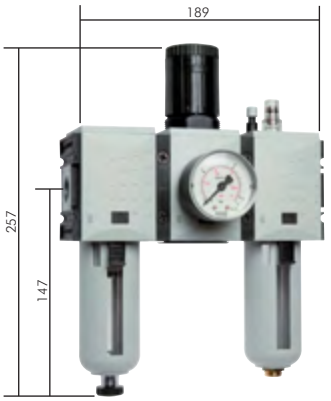
PVC fabric hoses on page 208

LOCTITE
Liquid seals, gaskets & tapes from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Service units, 3-part, Futura model series 2 — 3500 l/min

Max. condensate amount: 49 cm
Switch panel thread: M 42 x 1.5
Supply volume: Air unit, including 50 mm pressure gauge
Oil metering at 1000 l/min: Approx. 1 - 2 drops/min
Oil supply: 80 cm³
Lubricator reaction limit (at 6 bar): 70 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed without pressure (0 - 16 bar) **-AMNC**



Type	Thread	Pressure regula. range	Pressure gauge display	Mounting bracket	Coupling kit
CL 3823 F*	G 3/8"	0.5 - 8 bar	0 - 10 bar	W 2 F	KP 2 F or KPW 2 F
CL 3823-1 F	G 3/8"	0.1 - 1 bar	0 - 1.6 bar	W 2 F	KP 2 F or KPW 2 F
CL 3823-2 F	G 3/8"	0.1 - 2 bar	0 - 2.5 bar	W 2 F	KP 2 F or KPW 2 F
CL 3823-4 F	G 3/8"	0.2 - 4 bar	0 - 6 bar	W 2 F	KP 2 F or KPW 2 F
CL 3823-10 F	G 3/8"	0.5 - 10 bar	0 - 16 bar	W 2 F	KP 2 F or KPW 2 F
CL 3823-16 F	G 3/8"	0.5 - 16 bar	0 - 25 bar	W 2 F	KP 2 F or KPW 2 F
CL 123 F*	G 1/2"	0.5 - 8 bar	0 - 10 bar	W 2 F	KP 2 F or KPW 2 F
CL 123-1 F	G 1/2"	0.1 - 1 bar	0 - 1.6 bar	W 2 F	KP 2 F or KPW 2 F
CL 123-2 F	G 1/2"	0.1 - 2 bar	0 - 2.5 bar	W 2 F	KP 2 F or KPW 2 F
CL 123-4 F	G 1/2"	0.2 - 4 bar	0 - 6 bar	W 2 F	KP 2 F or KPW 2 F
CL 123-10 F	G 1/2"	0.5 - 10 bar	0 - 16 bar	W 2 F	KP 2 F or KPW 2 F
CL 123-16 F	G 1/2"	0.5 - 16 bar	0 - 25 bar	W 2 F	KP 2 F or KPW 2 F

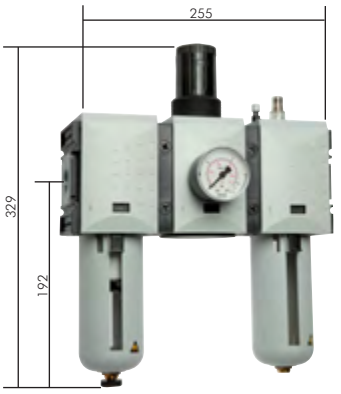
* standard series, please use preferentially as the regulation range can be applied universally

☞ **Order example:** CL 123 F **
Standard type

Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 16 bar) . . . . **-AMNC**

Service units, 3-part, Futura model series 4 — 12000 l/min

Max. condensate amount: 87 cm³
Switch panel thread: M 50 x 1.5
Supply volume: Air unit, including 50 mm pressure gauge
Own air consumption: Max. 1.5 l/min
Oil metering at 1000 l/min: Approx. 1 - 2 drops/min
Oil supply: 181 cm³
Lubricator reaction limit (at 6 bar): 115 l/min
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Version with metal container and inspection tube **-M**, automatic drain **-AM**, automatic drain closed without pressure (0 - 16 bar) **-AMNC**



Type	Thread	Pressure regula. range	Pressure gauge display	Mounting bracket	Coupling kit
CL 343 F*	G 3/4"	0.5 - 8 bar	0 - 10 bar	W 4 F	KP 4 F or KPW 4 F
CL 343-1 F	G 3/4"	0.1 - 1 bar	0 - 1.6 bar	W 4 F	KP 4 F or KPW 4 F
CL 343-2 F	G 3/4"	0.1 - 2 bar	0 - 2.5 bar	W 4 F	KP 4 F or KPW 4 F
CL 343-4 F	G 3/4"	0.2 - 4 bar	0 - 6 bar	W 4 F	KP 4 F or KPW 4 F
CL 343-10 F	G 3/4"	0.5 - 10 bar	0 - 16 bar	W 4 F	KP 4 F or KPW 4 F
CL 343-16 F	G 3/4"	0.5 - 16 bar	0 - 25 bar	W 4 F	KP 4 F or KPW 4 F
CL 103 F*	G 1"	0.5 - 8 bar	0 - 10 bar	W 4 F	KP 4 F or KPW 4 F
CL 103-1 F	G 1"	0.1 - 1 bar	0 - 1.6 bar	W 4 F	KP 4 F or KPW 4 F
CL 103-2 F	G 1"	0.1 - 2 bar	0 - 2.5 bar	W 4 F	KP 4 F or KPW 4 F
CL 103-4 F	G 1"	0.2 - 4 bar	0 - 6 bar	W 4 F	KP 4 F or KPW 4 F
CL 103-10 F	G 1"	0.5 - 10 bar	0 - 16 bar	W 4 F	KP 4 F or KPW 4 F
CL 103-16 F	G 1"	0.5 - 16 bar	0 - 25 bar	W 4 F	KP 4 F or KPW 4 F

* standard series, please use preferentially as the regulation range can be applied universally

☞ **Order example:** CL 343 F **
Standard type

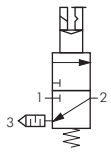
Designation for the options:
With metal container and inspection tube . . . . . **-M**
With automatic drain . . . . . **-AM**
With automatic drain, closed when depressurised (0 to 16 bar) . . **-AMNC**

Service units of other manufacturers can be found in our Online Shop

Simply search using the manufacturer's item numbers.

Many additional products and sizes are available in our **Online Shop!336**

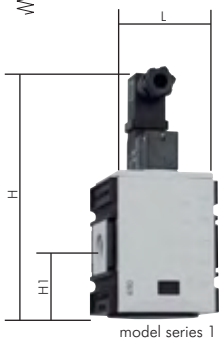
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



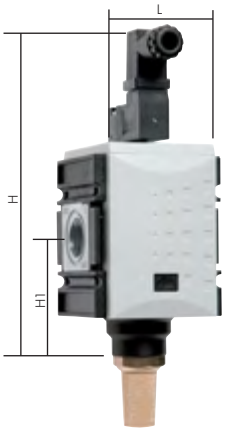
Valves Futura model series

Materials: Body: Grivory® (PA 66), cover: POM, seals: NBR
Temperature range: -10°C to max. +50°C
Media: Oiled and unoiled compressed air, neutral gases

Advantages: • Simple assembly of single components using coupling kits within a model series.
• Delivery includes an exhaust silencer, if necessary



model series 1



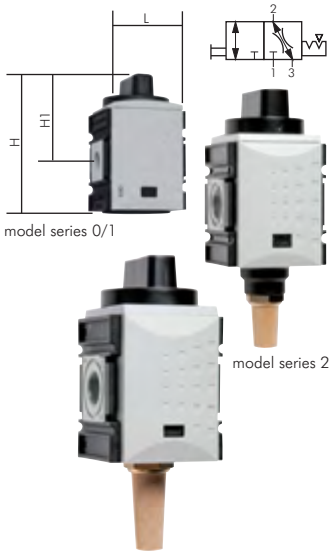
model series 0/2/4

3/2-way valves Futura model w/ manual emergency operation — up to 12500 l/min

Input pressure: 2 - 10 bar, (pneumatically operated: 2 - 16 bar)
Power consumption: 2.5W/3 VA (50Hz), **protection category:** IP 65
Supply volume: Valves incl. silencers

Type 24V DC	Type 230V AC	Type pneu-matic	Thread	Flow l/min	H	H1	L	Mounting bracket	Coupling kit
Model series 0									
M CL 014 F 24V=	M CL 014 F 230V	P CL 014 F	G 1/4"	2000	138*	45	43	W 0 F	KP 0 F or KPW 0 F
Model series 1									
M CL 14 F 24V=	M CL 14 F 230V	P CL 14 F	G 1/4"	2000	118*	33	52	W 1 F	KP 1 F or KPW 1 F
M CL 38 F 24V=	M CL 38 F 230V	P CL 38 F	G 3/8"	2000	118*	33	52	W 1 F	KP 1 F or KPW 1 F
Model series 2									
M CL 382 F 24V=	M CL 382 F 230V	P CL 382 F	G 3/8"	4300	150*	57	63	W 2 F	KP 2 F or KPW 2 F
M CL 12 F 24V=	M CL 12 F 230V	P CL 12 F	G 1/2"	4300	150*	57	63	W 2 F	KP 2 F or KPW 2 F
Model series 4									
M CL 34 F 24V=	M CL 34 F 230V	P CL 34 F	G 3/4"	12500	178*	67	85	W 4 F	KP 4 F or KPW 4 F
M CL 10 F 24V=	M CL 10 F 230V	P CL 10 F	G 1"	12500	178*	67	85	W 4 F	KP 4 F or KPW 4 F

* for pneumatic actuation (G 1/8"): 97 mm (model series 0), 70 mm (model series 1), 118 mm (model series 2), 150 mm (model series 4)



model series 0/1

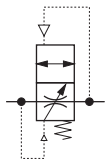
model series 2

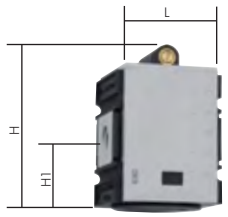
model series 4

Ball valves with venting Futura model series — up to 25000 l/min

Input pressure: 0 - 16 bar (model series 0: 0 - 12 bar)
Function: 3/2 way shut-off valve w/ captured exhaust air. In closed state, can be locked using a padlock VHS 20 (pag. 641).
Supply volume: Ball valve incl. silencer
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU (not model series 0)

Type	Thread	Flow l/min	H	H1	L	Mounting bracket	Coupling kit
Model series 0							
K 014 F	G 1/4"	2300	76	51	43	W 0 F	KP 0 F or KPW 0 F
Model series 1							
K 14 F	G 1/4"	1900	88	55	52	W 1 F	KP 1 F or KPW 1 F
K 38 F	G 3/8"	1900	88	55	52	W 1 F	KP 1 F or KPW 1 F
Model series 2							
K 382 F	G 3/8"	11000	127	57	63	W 2 F	KP 2 F or KPW 2 F
K 12 F	G 1/2"	11000	127	57	63	W 2 F	KP 2 F or KPW 2 F
Model series 4							
K 34 F	G 3/4"	25000	145	51	85	W 4 F	KP 4 F or KPW 4 F
K 10 F	G 1"	25000	145	51	85	W 4 F	KP 4 F or KPW 4 F





Shut-off valves (e.t. ball valves) must be installed before the filler valve!

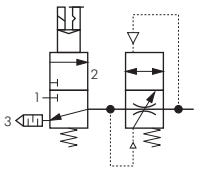
Filler valves (start-up valves) Futura model series — up to 10000 l/min

Input pressure: 2.5 - 16 bar (model series 0: 2.5 - 12 bar)
Function: The machines are allowed to breathe gradually via an orifice. Once the pressure attains a value of approx. 50% of the input pressure and the cylinders have gradually moved into their basic settings, the start-up valve switches over to maximum throughway. The speed of the pressure build-up can be controlled using an adjustment screw.
ATEX: Operating material w/o its own potential source of ignition in acc. to Directive 2014/34/EU (not model series 0)

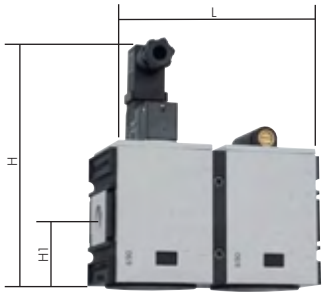
Type	Thread	Flow l/min	H	H1	L	Mounting bracket	Coupling kit
Model series 0							
BEFULL 014 F	G 1/4"	2000	81	28	43	W 0 F	KP 0 F or KPW 0 F
Model series 1							
BEFULL 14 F	G 1/4"	2000	78	33	52	W 1 F	KP 1 F or KPW 1 F
BEFULL 38 F	G 3/8"	2000	78	33	52	W 1 F	KP 1 F or KPW 1 F
Model series 2							
BEFULL 382 F	G 3/8"	4500	112	58	63	W 2 F	KP 2 F or KPW 2 F
BEFULL 12 F	G 1/2"	4500	112	58	63	W 2 F	KP 2 F or KPW 2 F
Model series 4							
BEFULL 34 F	G 3/4"	10000	112	54	85	W 4 F	KP 4 F or KPW 4 F
BEFULL 10 F	G 1"	10000	112	54	85	W 4 F	KP 4 F or KPW 4 F

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Filler units (start-up valves w/ solenoid valves) Futura model series up to 8750 l/min

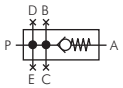


Input pressure: 2.5 - 10 bar
Function: The machines are allowed to breathe gradually via an orifice. Once the pressure attains a value of approx. 50% of the input pressure and the cylinders have gradually moved into their basic settings, the start-up valve switches over to maximum throughway. The speed of the pressure build-up can be controlled using an adjustment screw. It is turned on via a 3/2-way solenoid valve.
Supply volume: Filler unit incl. silencer

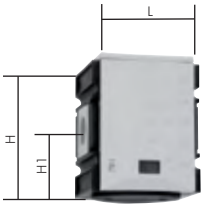


Type 24V DC	Type 230V AC	Thread	Flow l/min	H	H1	L	Mounting bracket	Coupling kit
Model series 0								
BEFULL 014 F 24V=	BEFULL 014 F 230V	G 1/4"	1300	138	45	86	W 0 F	KP 0 F or KPW 0 F
Model series 1								
BEFULL 14 F 24V=	BEFULL 14 F 230V	G 1/4"	1300	118	33	104	W 1 F	KP 1 F or KPW 1 F
BEFULL 38 F 24V=	BEFULL 38 F 230V	G 3/8"	1300	118	33	104	W 1 F	KP 1 F or KPW 1 F
Model series 2								
BEFULL 382 F 24V=	BEFULL 382 F 230V	G 3/8"	3400	150	57	126	W 2 F	KP 2 F or KPW 2 F
BEFULL 12 F 24V=	BEFULL 12 F 230V	G 1/2"	3400	150	57	126	W 2 F	KP 2 F or KPW 2 F
Model series 4								
BEFULL 34 F 24V=	BEFULL 34 F 230V	G 3/4"	8750	178	67	170	W 4 F	KP 4 F or KPW 4 F
BEFULL 10 F 24V=	BEFULL 10 F 230V	G 1"	8750	178	67	170	W 4 F	KP 4 F or KPW 4 F

Check valves Futura model series — up to 4500 l/min



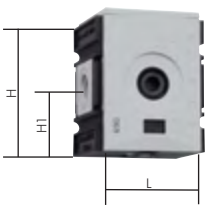
Input pressure: 0 - 16 bar (model series 0: 0 - 12 bar)
Connections: A = Output, B = Top, C = Front, E= Rear **ATEX:** Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU (not model series 0)



Type	Thread steps (G) Thread B	C	D	E	Flow l/min P-A	P-B	P-C	P-D	P-E	Mounting bracket	Coupling kit
Model series 0 (measurementes: H = 66, H1 = 39, L = 43)											
R CL 014 F	G 1/4"	---	1/4"	---	---	750	---	1000	---	---	W 0 F	KP 0 F or KPW 0 F
Model series 1 (measurementes: H = 67, H1 = 33, L = 52)											
R CL 14 F	G 1/4"	---	---	---	1/4"	1250	---	---	---	700	W 1 F	KP 1 F or KPW 1 F
R CL 38 F	G 3/8"	---	---	---	1/4"	1250	---	---	---	700	W 1 F	KP 1 F or KPW 1 F
Model series 2 (measurementes: H = 81, H1 = 38, L = 63)											
R CL 382 F	G 3/8"	1/4"	1/2"	3/8"	3/8"	4500	830	830	1100	830	W 2 F	KP 2 F or KPW 2 F
R CL 12 F	G 1/2"	1/4"	1/2"	3/8"	3/8"	4500	830	830	1100	830	W 2 F	KP 2 F or KPW 2 F

Distributors Futura model series — up to 18000 l/min

Input pressure: 0 - 16 bar (model series 0: 0 - 12 bar)
Connections: A = Output, B = Top, C = Front, E= Rear **ATEX:** Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU (not model series 0)

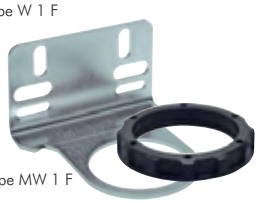


Type	Thread steps (G) Thread B	C	D	E	Flow l/min P-A	P-B	P-C	P-D	P-E	Mounting bracket	Coupling kit
Model series 0 (measurementes: H = 57, H1 = 28, L = 43)											
VB CL 014 F	G 1/4"	1/4"	1/4"	---	---	2700	2000	950	---	---	W 0 F	KP 0 F or KPW 0 F
Model series 1 (measurementes: H = 66, H1 = 33, L = 52)											
VB CL 14 F	G 1/4"	1/4"	1/4"	1/4"	---	2700	2000	2000	900	---	W 1 F	KP 1 F or KPW 1 F
VB CL 38 F	G 3/8"	1/4"	1/4"	1/4"	---	3600	2000	2000	900	---	W 1 F	KP 1 F or KPW 1 F
Model series 2 (measurementes: H = 81, H1 = 38, L = 63)											
VB CL 382 F	G 3/8"	1/4"	1/2"	3/8"	3/8"	7250	2250	5500	2250	2250	W 2 F	KP 2 F or KPW 2 F
VB CL 12 F	G 1/2"	1/4"	1/2"	3/8"	3/8"	7250	2250	5500	2250	2250	W 2 F	KP 2 F or KPW 2 F
Model series 4 (measurementes: H = 110, H1 = 51, L = 85)											
VB CL 34 F	G 3/4"	3/4"	3/4"	---	---	18000	8500	12000	---	---	W 4 F	KP 4 F or KPW 4 F
VB CL 10 F	G 1"	3/4"	3/4"	---	---	18000	8500	12000	---	---	W 4 F	KP 4 F or KPW 4 F

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Accessories - Futura

type W 1 F



type MW 1 F

type SM 1 F

Mounting materials for Futura model series

Type mounting brackets with screws*	Type mounting brackets with ring and panel union nuts	Type panel union nut	For model series
W 0 F	MW 0 F	SM 1	0
W 1 F	MW 1 F	SM 1 F	1
W 2 F	MW 2 F	SM 2 F	2
W 4 F	MW 4 F	SM 2	4

* to install the mounting brackets, the cover must be removed from the device.

type KP 1 F

type KPW 1 F

Coupling kits for Futura model series

Type standard	Type with wall bracket	For model series
KP 0 F	KPW 0 F	0
KP 1 F	KPW 1 F	1
KP 2 F	KPW 2 F	2
KP 4 F	KPW 4 F	4

type FILTER 1

type FH 1

Filter elements for filters and filter regulators Futura model series

Type filters	Type filter holder	Version	For model series
FILTER 1	FH 1	Cellpor filter element (5 µm)	1
FILTER 2 F	FH 2 F	Cellpor filter element (5 µm)	2
FILTER 4 F	FH 4 F	Cellpor filter element (5 µm)	4

type BF 1 F

type BF 1 F AM

type BFM 1 F

type BFM 1 F AM

Replacement containers for filters and filter regulators Futura model series

Type semi-automatic drain*	Type fully automatic drain	Type fully autom. drain (NC)	For model series	D
Polycarbonate container with protective cage				
BDF 00**	BF 1 AM**	BF 1 AMNC**	0	33.5 (thread)
BF 1 F	BF 1 F AM	BF 1 F AMNC	1	37.6
BF 2 F	BF 2 F AM	BF 2 F AMNC	2	43.8
BF 4 F	BF 4 F AM	BF 4 F AMNC	4	60.0
Die-casting zinc containers with inspection tube				
BDF 00 M***	BDF 00 M AM****	BDF 00 M AMNC****	0	33.5 (thread)
BFM 1 F	BFM 1 F AM	BFM 1 F AMNC	1	37.6
BFM 2 F	BFM 2 F AM	BFM 2 F AMNC	2	43.8
BFM 4 F	BFM 4 F AM	BFM 4 F AMNC	4	60.0
Polycarbonate containers for activated carbon filter (without drain)				
BDO 00			0	33.5 (thread)
BFA 1 F			1	37.6
BFA 2 F			2	43.8
BFA 4 F			4	60.0
Die-casting zinc containers for activated carbon filter (without drain)				
BDO 00 M			0	33.5 (thread)
BFMA 1 F			1	37.6
BFMA 2 F			2	43.8
BFMA 4 F			4	60.0

* as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens automatically. By screwing the drain screw tight, you can prevent the semi-automatic drain valve from opening (not for model series Eco), ** without protective cage, a protective cage can be ordered additionally upon request. Protective cages can be found in the "Multifix" in our Online Shop ***without inspection tube **** without inspection tube, not for filters model series 0

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Combi service units

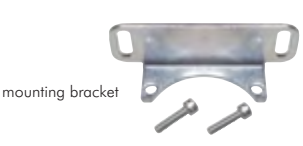
The air units consist of filters, pressure regulators and lubricators, all of which are accommodated in a single device. The oil bowl is integrated into the filter container.
Materials: Housing: Zinc die-casting, seals: NBR, plastic container: Polycarbonate, filter insert: Sintered bronze
Temperature range: 0°C to max. +50°C (metal container: 0°C to max. +90°C)
Input pressure: Max. 16 bar (metal container: max 25 bar)
Usable tank contents: Size 1: Filter 25 cm^3, oiler: 75 cm^3, size 2: Filter 75 cm^3, oiler: 150 cm^3
Pore width in the filter: Standard 40 µm (5 µm on request)
Condensate draining: Manually
Pressure gauge: Ø 50 mm
☞ **Options:** Metal container with visual display **-M***, protective cage **-S**, semi-automatic (0.5 - 16** bar) **-HA**, automatic drainer (1.5 - 12 bar) **-AM**, externally fitted drain valve (4 - 16 bar) **-AMR**, lockable **-K**

combi service unit

Combi service units — up to 3400 l/min

Type	Thread	Pressure regula. range	Pressure gauge display	Mounting bracket
Model series 1 (Flow 1400 l/min)				
CL KOM 14	G 1/4"	0.5 - 10 bar	0 - 16 bar	W KOMBI 1
CL KOM 14-6	G 1/4"	0.5 - 6 bar	0 - 10 bar	W KOMBI 1
CL KOM 14-16	G 1/4"	0.5 - 16 bar	0 - 25 bar	W KOMBI 1
CL KOM 38	G 3/8"	0.5 - 10 bar	0 - 16 bar	W KOMBI 1
CL KOM 38-6	G 3/8"	0.5 - 6 bar	0 - 10 bar	W KOMBI 1
CL KOM 38-16	G 3/8"	0.5 - 16 bar	0 - 25 bar	W KOMBI 1
CL KOM 12	G 1/2"	0.5 - 10 bar	0 - 16 bar	W KOMBI 1
CL KOM 12-6	G 1/2"	0.5 - 6 bar	0 - 10 bar	W KOMBI 1
CL KOM 12-16	G 1/2"	0.5 - 16 bar	0 - 25 bar	W KOMBI 1
Model series 2 (Flow 3400 l/min)				
CL KOM 122	G 1/2"	0.5 - 10 bar	0 - 16 bar	W KOMBI 2
CL KOM 122-6	G 1/2"	0.5 - 6 bar	0 - 10 bar	W KOMBI 2
CL KOM 122-16	G 1/2"	0.5 - 16 bar	0 - 25 bar	W KOMBI 2
CL KOM 34	G 3/4"	0.5 - 10 bar	0 - 16 bar	W KOMBI 2
CL KOM 34-6	G 3/4"	0.5 - 6 bar	0 - 10 bar	W KOMBI 2
CL KOM 34-16	G 3/4"	0.5 - 16 bar	0 - 25 bar	W KOMBI 2
CL KOM 10	G 1"	0.5 - 10 bar	0 - 16 bar	W KOMBI 2
CL KOM 10-6	G 1"	0.5 - 6 bar	0 - 10 bar	W KOMBI 2
CL KOM 10-16	G 1"	0.5 - 16 bar	0 - 25 bar	W KOMBI 2

* drip cap made of metal/glass, ** 0.5 - 25 bar when combined with a metal container



mounting bracket

drip cap plastic

drip cap metal

Replacement parts for combi service units

Type size 1		Type size 2	
Filter elements		**Filter elements**	
FILTER KOM 1-40	Pore width: 40 µm	FILTER KOM 2-40	Pore width: 40 µm
FILTER KOM 1-5	Pore width: 5 µm	FILTER KOM 2-5	Pore width: 5 µm
Drip caps		**Drip caps**	
TROPF KOM	Material: Plastic	TROPF KOM	Material: Plastic
TROPF KOM M	Material: Metal	TROPF KOM M	Material: Metal
Protective cages		**Protective cages**	
SCHUTZKORB KOM 1		SCHUTZKORB KOM 2	
Wear parts		**Wear parts**	
MEMBRANE KOM 1	Diaphragm	MEMBRANE KOM 2	Diaphragm
DK KOM 1	Sealing cone	DK KOM 2	Sealing cone

filter element

protective cage

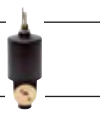
diaphragm

sealing ball

Containers with internal and external bowls for condensate and oil

Type plastic	Type metal	Condensate drain
Size 1		
BF KOM 1	BFM KOM 1	Manual drain
BF KOM 1 AM	---	Internally fitted drain (1 - 12 bar)
BF KOM 1 AMR	BFM KOM 1 AMR	Externally fitted drain (4 - 16 bar)
BF KOM 1 HA	BFM KOM 1 HA	Semi-automatic drain (0.5 - 16 bar)*
Size 2		
BF KOM 2	BFM KOM 2	Manual drain
BF KOM 2 AM	---	Internally fitted drain (1 - 12 bar)
BF KOM 2 AMR	BFM KOM 2 AMR	Externally fitted drain (4 - 16 bar)
BF KOM 2 HA	BFM KOM 2 HA	Semi-automatic drain (0.5 - 16 bar)*

* metal container 0.5 - 25 bar)



Steam traps type AM R can be found in our Online Shop.

type BF KOM ...

type BF KOM ... AM

type BF KOM ... HA

type BFM KOM ...

type BFM KOM ... HA

type BF KOM ... AMR

type BFM KOM ... AMR

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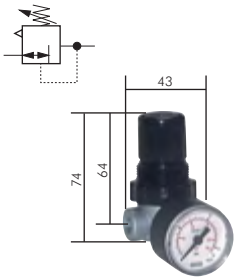
Pressure regulators - standard

Especially good value!

Pressure regulators, pre-pressure dependent - mini — 340 l/min

Version: Pressure regulator resettable (with relieving system)
Materials: Body: Zinc die-casting Z410, spring hood: POM, diaphragm: TPU, seals: NBR
Temperature range: -10°C to max. +60°C
Input pressure: Max. 25 bar
Pressure gauge connection: G 1/8"
Switch panel thread: M 30 x 1.5
Media: Compressed air, non-toxic and non-inflammable gases



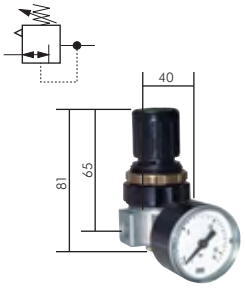
Advantages: • Automatic venting in the event of overpressure on the secondary side.
• Hand wheel can be locked by pressing down on it.

Type	Thread	Pressure regula. range	Pressure gauge display	Press. gauge diameter	Mounting bracket
DR 022-00*	G 1/8"	0.5 - 10 bar	0 - 16 bar	40	WHM 30 and SM 1
DR 022-00-3	G 1/8"	0.1 - 3.5 bar	0 - 6 bar	40	WHM 30 and SM 1
DR 022-00-7	G 1/8"	0.15 - 7 bar	0 - 10 bar	40	WHM 30 and SM 1
DR 022-01*	G 1/4"	0.5 - 10 bar	0 - 16 bar	40	WHM 30 and SM 1
DR 022-01-3	G 1/4"	0.1 - 3.5 bar	0 - 6 bar	40	WHM 30 and SM 1
DR 022-01-7	G 1/4"	0.15 - 7 bar	0 - 10 bar	40	WHM 30 and SM 1

* standard series, please use preferentially as the regulation range can be applied universally.

Pressure regulators - mini — 310 l/min

Version: Pressure regulator resettable (with relieving system)
Materials: Body: Zinc die-casting Z410, spring hood: POM, diaphragms and seals: NBR
Temperature range: -10°C to max. +60°C
Input pressure: Max. 25 bar
Pressure gauge connection: G 1/8"
Switch panel thread: M 30 x 1.5
Media: Compressed air, non-toxic and non-inflammable gases
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU



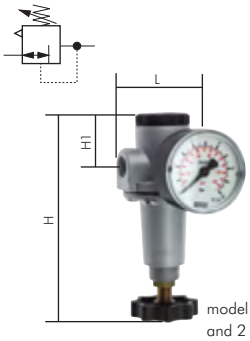
Advantages: • Automatic venting in the event of overpressure on the secondary side.
• Hand wheel can be locked by pressing down on it.

Type	Thread	Pressure regula. range	Pressure gauge display	Press. gauge diameter	Mounting bracket
DR 00*	G 1/8"	0.5 - 10 bar	0 - 16 bar	40	WHM 30
DR 00-3	G 1/8"	0.5 - 3 bar	0 - 6 bar	40	WHM 30
DR 00-6	G 1/8"	0.5 - 6 bar	0 - 10 bar	40	WHM 30
DR 00-16	G 1/8"	0.5 - 16 bar	0 - 25 bar	40	WHM 30
DR 01*	G 1/4"	0.5 - 10 bar	0 - 16 bar	40	WHM 30
DR 01-3	G 1/4"	0.5 - 3 bar	0 - 6 bar	40	WHM 30
DR 01-6	G 1/4"	0.5 - 6 bar	0 - 10 bar	40	WHM 30
DR 01-16	G 1/4"	0.5 - 16 bar	0 - 25 bar	40	WHM 30

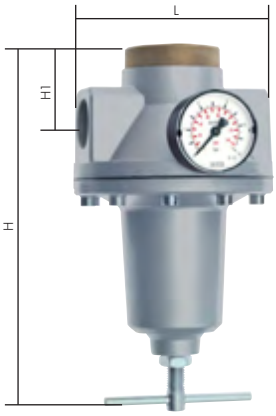
* standard series, please use preferentially as the regulation range can be applied universally.

Pressure regulators - standard — up to 15 100 l/min

Version: Resettable (with relieving system)
Materials: Body: Zinc die-casting Z410 (model series 5 and 7: aluminium), diaphragms and seals: NBR
Temperature range: -10°C to max. +60°C
Pressure gauge connection: G 1/4"
Switch panel thread: Model series 1 to 3: M 20 x 1.5
Media: Oiled and unoiled compressed air, non-toxic and non-flammable gases
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Other regulation ranges: 0.1-3 bar **-3**, 0.2-6 bar **-6**, 0.5-16 bar **-16**



model series 1 and 2



Advantages: • Automatic venting in the event of overpressure on the secondary side

Type	Thread	Pressure regula. range	Pressure gauge display	H	H1	L	Mounting bracket
Model series 1, flow 1000 l/min, input pressure max. 16 bar							
DR 11	G 1/4"	0.5 - 10 bar	0 - 16 bar	132	32	54	BW 10
DR 12	G 3/8"	0.5 - 10 bar	0 - 16 bar	132	32	54	BW 10
Model series 2, flow 2100 l/min, input pressure max. 25 bar							
DR 22	G 3/8"	0.5 - 10 bar	0 - 16 bar	151	33	70	BW 20
DR 23	G 1/2"	0.5 - 10 bar	0 - 16 bar	151	33	70	BW 20
Model series 3, flow 5000 l/min, input pressure max. 25 bar							
DR 33	G 1/2"	0.5 - 10 bar	0 - 16 bar	163	33	82	BW 30
DR 34	G 3/4"	0.5 - 10 bar	0 - 16 bar	163	33	90	BW 30
DR 35	G 1"	0.5 - 10 bar	0 - 16 bar	163	33	90	BW 30
Model series 5, flow 9500 l/min, input pressure max. 25 bar							
DR 54	G 3/4"	0.5 - 10 bar	0 - 16 bar	238	48	117	BW 50
DR 55	G 1"	0.5 - 10 bar	0 - 16 bar	238	48	117	BW 50
Model series 7, flow 15100 l/min, input pressure max. 25 bar							
DR 76	G 1 1/4"	0.5 - 10 bar	0 - 16 bar	258	58	119	BW 50
DR 77	G 1 1/2"	0.5 - 10 bar	0 - 16 bar	258	58	119	BW 50

☞ **Order example:** DR 11 **

Standard type

Regulation range
0.1 - 3 bar (pressure gauge 0 - 6 bar) . . . .**-3**
0.2 - 6 bar (pressure gauge 0 - 10 bar) . . .**-6**
0.5 - 16 bar (pressure gauge 0 - 25 bar) . .**-16**

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Pressure regulators, pilot controlled - standard — up to 50 000 l/min

Application: Pilot controlled pressure regulators are used when high flow rates are needed with a constant pressure.
Version: Resettable (with relieving system)
Materials: Body: Aluminium, spring hood: POM, diaphragms and seals: NBR
Temperature range: -10°C to max. +60°C
Input pressure: Max. 25 bar
Pressure gauge connection: G 1/4" (model series 8: 2 x G 1/4")
Media: Oiled and unoiled compressed air, non-toxic and non-flammable gases
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Other regulation ranges: 0.1-3 bar **-3**, 0.2-6 bar **-6**, 0.5-16 bar **-16**, lockable using a cylinder lock **-K**

✓ **Advantages:**
- Automatic venting in the event of overpressure on the secondary side.
- High flow at constant pressure.
- Hand wheel can be locked by pressing down on it.

Type	Thread	Pressure regula. range	Pressure gauge display	H	H1	L	Mounting bracket
Model series 5, flow 15000 l/min, Inlet pressure max. 40 bar							
DRP 5440	G 3/4"	0,5 - 10 bar	0 - 16 bar	177	129	117	BW 50
DRP 5540	G 1"	0,5 - 10 bar	0 - 16 bar	177	129	117	BW 50
Model series 7, flow 31500 l/min, Inlet pressure max. 40 bar							
DRP 7640	G 1 1/4"	0,5 - 10 bar	0 - 16 bar	190	138	119	BW 50
DRP 7740	G 1 1/2"	0,5 - 10 bar	0 - 16 bar	190	138	119	BW 50
Model series 8, flow 50000 l/min, Inlet pressure max. 25 bar							
DRP 87*	G 1 1/2"	0,5 - 10 bar	0 - 16 bar	262	154	160	Pipe installation
DRP 88*	G 2"	0,5 - 10 bar	0 - 16 bar	262	154	160	Pipe installation

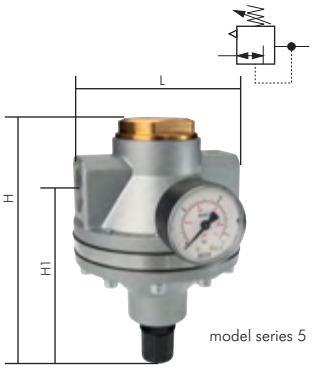
* input pressure gauge 0 - 25 bar

☞ **Order example:** DRP 54 ** *

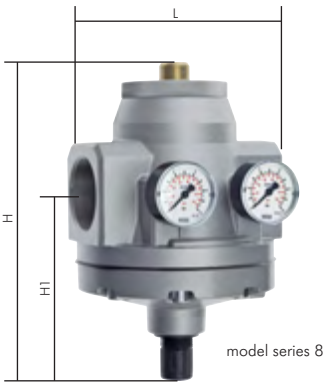
Standard type

Lockable using a cylinder lock . . . . . .**-K**

Regulation range
0.1 - 3 bar (pressure gauge 0 - 6 bar) . . . .**-3**
0.2 - 6 bar (pressure gauge 0 - 10 bar) . . .**-6**
0.5 - 16 bar (pressure gauge 0 - 25 bar) .**-16**



model series 5



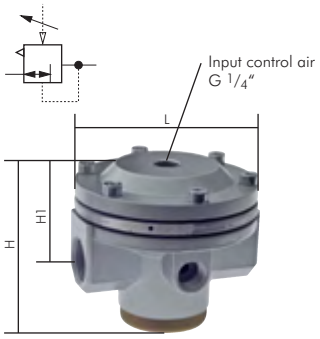
model series 8

Pressure regulators, remote controlled (volume boosters) - standard up to 50 000 l/min

Application: A remote controlled pressure regulator is used, when high flow rates are required with a constant pressure. The pressure regulator can also be used at inaccessible locations (e.g. in hazardous or ceiling areas). The setting is made using a pilot pressure regulator that can be placed anywhere. The regulated pressure corresponds to the pressure of the remote controlled bore.
Version: Resettable (with relieving system)
Materials: Body: Zinc die-casting Z410 (model series 5 to 8: aluminium), diaphragms and seals: NBR
Temperature range: -10°C to max. +80°C
Input pressure: Max. 25 bar
Pressure gauge connection: G 1/4"
Media: Oiled and unoiled compressed air, non-toxic and non-flammable gases
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU

✓ **Advantages:**
- Automatic venting in the event of overpressure on the secondary side.
- High flow at constant pressure.
- Remote-controlled pressure regulation using pilot regulator (when using a precision pressure regulator as a pilot, it is possible to set the pressure very accurately).

Type	Thread	L	H	H1	Pressure regula. range	Mounting bracket
Model series 3, flow 6000 l/min						
DRi 33	G 1/2"	82	75	42	0 - 16 bar	BW 30
Model series 5, flow 12500 l/min						
DRi 5440	G 3/4"	117	109	61	0 - 20 bar	BW 50
DRi 5540	G 1"	117	109	61	0 - 20 bar	BW 50
Model series 7, flow 31500 l/min						
DRi 7640	G 1 1/4"	119	123	71	0 - 20 bar	BW 50
DRi 7740	G 1 1/2"	119	123	71	0 - 20 bar	BW 50
Model series 8, flow 50000 l/min						
DRi 87	G 1 1/2"	160	199	92	0 - 16 bar	---
DRi 88	G 2"	160	199	92	0 - 16 bar	---

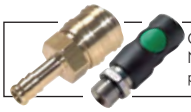


Order accessories at the same time!
Suitable pressure gauges can be found on page 372.

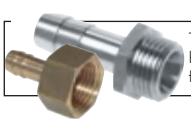
Recommendation: For best regulation results, please use the precision regulator with feedback connection type DRF 31-7 FB (see page 346)

LOCTITE Liquid seals, gaskets & tapes from page 549

OKS Cleaner and service products from page 564


Coupling sockets NW7 starting on page 150

PVC fabric hoses on page 208


Threaded nozzles & hose nozzles from page 64

Cutting ring fittings from page 77

Seamless precision hydraulic pipes from page 252

Ball valves from page 280

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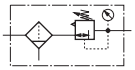
Filter regulators - standard

[1] as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens automatically. The semi-automatic drain valve can be prevented from opening by screwing on the drain plug tightly.

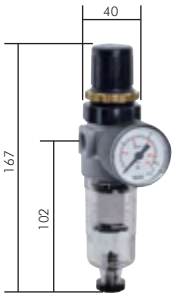
Filter regulators - mini and standard model series — G 1/8" - G 1"

Version: Pressure regulator resettable (with relieving system) with additional filtering using the centrifugal principle and filter
Materials: Body: Zinc die-casting Z410 (model series 5: aluminium), diaphragms and seals: NBR, condensate container: Polycarbonate (model series mini: spring hood: POM)
Temperature range: Up to max. +60°C
Input pressure: 1.5 - 16 bar
Condensate draining: Semi-automatic[1]
Media: Compressed air, non-toxic and non-inflammable gases
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU

Advantages: • Automatic venting in the event of overpressure on the secondary side.
• Hand wheel can be locked by pressing down on it (mini-design).



Filter regulators - mini — 350 l/min



Pressure gauge connection: G 1/8"
Pore width in the filter: 5 µm
Max. condensate amount: 16 cm³
Switch panel thread: M 30 x 1.5
Optional: Version with metal container (1.5 - 25 bar) **-M**, automatic drain** **-AM**

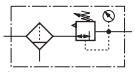
Type	Thread	Pressure regula. range	Pressure gauge display	Pressure gauge diameter	Mounting bracket
FD 00*	G 1/8"	0.5 - 10 bar	0 - 16 bar	40	WHM 30
FD 00-3	G 1/8"	0.5 - 3 bar	0 - 6 bar	40	WHM 30
FD 00-6	G 1/8"	0.5 - 6 bar	0 - 10 bar	40	WHM 30
FD 00-16	G 1/8"	0.5 - 16 bar	0 - 25 bar	40	WHM 30
FD 01*	G 1/4"	0.5 - 10 bar	0 - 16 bar	40	WHM 30
FD 01-3	G 1/4"	0.5 - 3 bar	0 - 6 bar	40	WHM 30
FD 01-6	G 1/4"	0.5 - 6 bar	0 - 10 bar	40	WHM 30
FD 01-16	G 1/4"	0.5 - 16 bar	0 - 25 bar	40	WHM 30

* standard model series, please use preferentially as the regulation range can be applied universally, ** max. 16 bar when combined with a metal container

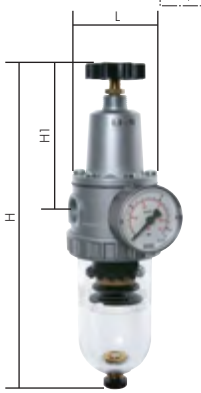
Order example: FD 00 ** **
Standard type

Designation for the options:
With metal container (1.5 - 25 bar) . . . . . **-M**
With automatic drain** (1.5 to 16 bar) . . . **-AM**

Regulation range
0.5 - 3 bar (pressure gauge 0 - 6 bar) . . . **-3**
0.5 - 6 bar (pressure gauge 0 - 10 bar) . . **-6**
0.5 - 16 bar (pressure gauge 0 - 25 bar) . **-16**



Filter regulators - standard — up to 12 000 l/min



model series 1-3

model series 5

Pressure gauge connection: G 1/4"
Switch panel thread: Model series 1 to 3: M 20 x 1,5
Optional: Other control ranges: 0,5 - 3 bar **-3**, 0,5 - 6 bar **-6**, 0,5 - 16 bar **-16**, Version with protective cage **-S**, version with metal container (1,5 - 25 bar) **-M**, automatic drain* **-AM**, automatic drain closed when not pressurised* (0 - 16 bar) **-AMNC**

Type	Thread	Pressure regula. range	Pressure gauge display	H	H1	L	Mounting bracket
Model series 1, flow 900 l/min, condensate amount 35 cm³, pore width in the filter 5 µm							
FD 11	G 1/4"	0.5 - 10 bar	0 - 16 bar	239	100	54	BW 10
FD 12	G 3/8"	0.5 - 10 bar	0 - 16 bar	239	100	54	BW 10
Model series 2, flow 1500 l/min, condensate amount 50 cm³, pore width in the filter 40 µm							
FD 22	G 3/8"	0.5 - 10 bar	0 - 16 bar	270	118	70	BW 20
FD 23	G 1/2"	0.5 - 10 bar	0 - 16 bar	270	118	70	BW 20
Model seriese 3, flow 3000 l/min, condensate amount 65 cm³, pore width in the filter 5 µm							
FD 33	G 1/2"	0.5 - 10 bar	0 - 16 bar	298	130	82	BW 30
Model series 5, flow 12000 l/min, condensate amount 300 cm³, pore width in the filter 40 µm							
FDP 54	G 3/4"	0.5 - 10 bar	0 - 16 bar	392	129	117	BW 50
FDP 55	G 1"	0.5 - 10 bar	0 - 16 bar	392	129	117	BW 50

* not for model series 1, when combined with a metal container max 16 bar

Order example: FD 11 ** **
Standard type

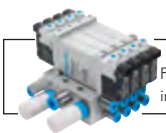
Designation for the options:
With protective cage . . . . . **-S**
With metal container (1.5 - 25 bar) . . . . . **-M**
With automatic drain*(1.5 to 16 bar) . . . . . **-AM**
With automatic drain, closed when depressurised* (0 to 16 bar) . . **-AMNC**

Regulation range
0.5 - 3 bar (pressure gauge 0 - 6 bar) . . . **-3**
0.5 - 6 bar (pressure gauge 0 - 10 bar) . . **-6**
0.5 - 16 bar (pressure gauge 0 - 25 bar) . **-16**

Pressure gauge from page 366

Electronic pressure switches from page 391

Check valves from page 446


FESTO
Festo valves can be found in our Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Filters - mini and standard model series — G 1/8" - G 3"

Version: Filtering using the centrifugal principal and sintered filter
Materials: Body: Zinc die-casting Z410, condensate container: Polycarbonate
Temperature range: 0°C to max. +60°C
Input pressure: 1.5 - 16 bar
Condensate draining: Semi-automatic[1)]
Media: Compressed air, non-toxic and non-inflammable gases
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU (not model series 9)

[1)] as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens automatically. The semi-automatic drain valve can be prevented from opening by screwing on the drain plug tightly.

Filters - mini — 800 l/min

Pore width in the filter: 5 µm
Max. condensate amount: 16 cm³
☞ **Optional:** Version with metal container (1.5 - 25 bar) **-M**, automatic drain* **-AM**

Type	Thread
DF 00	G 1/8"
DF 01	G 1/4"

* not in combination with a metal container

Filters standard model series 1 to 9 (G 1/4" - G 3") — up to 40000 l/min

☞ **Optional:** Version with protective cage **-S**, version with metal container (1.5 - 25 bar) **-M**, automatic drain* **-AM**, automatic drain closed when not pressurised* (0 - 16 bar) **-AMNC**

Type	Thread	L	H	H1	Mounting bracket
Model series 1, flow 800 l/min, condensate amount 35 cm³, pore width in the filter 5 µm					
DF 11	G 1/4"	48 (Ø 57)	149	130	ZW 10
DF 12	G 3/8"	48 (Ø 57)	149	130	ZW 10
Model series 2, flow 3100 l/min, condensate amount 50 cm³, pore width in the filter 40 µm					
DF 22	G 3/8"	70 (Ø 77)	167	145	ZW 30
DF 23	G 1/2"	70 (Ø 77)	167	145	ZW 30
Model series 3, flow 4000 l/min, condensate amount 65 cm³, pore width in the filter 5 µm					
DF 33	G 1/2"	79 (Ø 87)	194	170	ZW 30
DF 34	G 3/4"	90	205	172	ZW 30
DF 35	G 1"	90	205	172	ZW 30
Model series 5, flow 12500 l/min, condensate amount 300 cm³, pore width in the filter 40 µm					
DF 54	G 3/4"	105	270	235	---
DF 55	G 1"	105	270	235	---
DF 56	G 1 1/4"	125	290	245	---
DF 57	G 1 1/2"	125	290	245	---
Model series 8, flow 30000 l/min, condensate amount 300 cm³, pore width in the filter 60 µm					
DF 86	G 1 1/4"	148	447	396	---
DF 87	G 1 1/2"	148	447	396	---
DF 88	G 2"	148	447	396	---
Model series 9, flow 40000 l/min, condensate amount 300 cm³, pore width in the filter 60 µm					
DF 98	G 2 1/2"	160	478	410	---
DF 99	G 3"	160	478	410	---

* max. 16 bar in combination with a metal container

☞ **Order example:** DF 11 ** **

Standard type

Available pore widths
Pore width 8 µm
(only model series 5 to 9) . . **-8**

Designation for the options:
With protective cage . . . . . **-S**
With metal container (1.5 - 25 bar) . . . . . **-M**
With automatic drain* (1.5 to 16 bar) . . . . . **-AM**
With automatic drain, closed when depressurised* (0 to 16 bar) . . **-AMNC**

Compressed air filters for high pressures — up to 40 bar

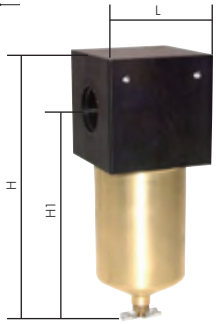
Materials: Housing: Aluminium, container: Brass (DF8740 and F8840: aluminium), filter insert: Sintered bronze
Temperature range: 0°C to max. +90°C
Input pressure: Max. 40 bar
Condensate draining: Manually
Pore width in the filter: 40 µm
Media: Compressed air, non-toxic and non-inflammable gases
☞ **Optional:** 5 µm filter porosity **-5**

Input pressure up to max. 40 bar!

High pressure regulators from page 351

Type	Thread	L	H	H1	Repl. filter 5 µm	Repl. filter 40 µm	Mounting bracket
Flow 2660 l/min*, condensate amount 80 cm³							
DF 2240	G 3/8"	70	200	168	FILTER 2040-5	FILTER 2040	BW 2040
DF 2340	G 1/2"	65	200	168	FILTER 2040-5	FILTER 2040	BW 2040
Flow 6000 l/min*, condensate amount 100 cm³							
DF 3440	G 3/4"	92	210	170	FILTER 3040-5	FILTER 3040	BW 3040 F
DF 3540	G 1"	80	210	170	FILTER 3040-5	FILTER 3040	BW 3040 F
Flow 15830 l/min*, condensate amount 300 cm³							
DF 8740	G 1 1/2"	160	285	243	FILTER 8040-5	FILTER 8040	BW 8040 F
DF 8840	G 2"	140	285	243	FILTER 8040-5	FILTER 8040	BW 8040 F

* measured at P_1 = 6 bar - Δp = 0.2 bar



☞ **Order example:** DF 2240 **

Standard type

Designation for the options:
5 µm filter porosity . . . . . **-5**

Microfilters for high pressures can be found in our **Online Shop.** Search for **DFX.**

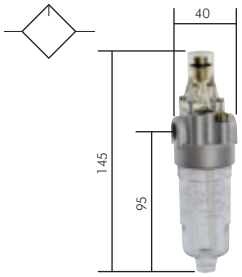
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Lubricators - standard

Mist lubricators mini and standard model series — G 1/8" - G 2"

Materials: Body: Zinc die-casting Z410, oil tank: Polycarbonate
Temperature range: Up to max. +60°C
Input pressure: 0 - 16 bar
Oil metering at 500 l/min: 0.5 - 1 drops/min
Media: Compressed air, non-toxic and non-inflammable gases
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU

Advantages: • Can be filled with oil while under pressure.



Lubricators - mini — 660 l/min

Reaction limit (6 bar): 40 l/min
Oil supply: 17 cm³
Optional: Version with metal container* (0 - 25 bar) **-M**

Type	Thread
DO 00	G 1/8"
DO 01	G 1/4"

* plastic drip cap

Order example: DO 00 **

Standard type

Designation for the options:
With metal container* (0 - 25 bar) . . . . .**-M**

Mist lubricators - standard — up to 25 000 l/min

Optional: Version with protective cage **-S**, version with metal container* (0 bis 25 bar) **-M**

Type	Thread	L	H	H1	Mounting bracket
Model series 1, flow 1250 l/min, reaction limit (6 bar) 50 l/min, oil supply 40 cm³					
DO 11	G 1/4"	50	169	118	ZW 10
DO 12	G 3/8"	50	169	118	ZW 10
Model series 2, flow 2400 l/min, reaction limit (6 bar) 50 l/min, oil supply 110 cm³					
DO 22	G 3/8"	70	183	132	ZW 30
DO 23	G 1/2"	70	183	132	ZW 30
Model series 3, flow 4,000 l/min (DO 34/35 9000 l/min), reaction limit (6 bar) 50 l/min, oil supply 135 cm³					
DO 32	G 3/8"	79	203	148	ZW 30
DO 33	G 1/2"	79	203	148	ZW 30
DO 34	G 3/4"	90	220	161	ZW 30
DO 35	G 1"	90	220	161	ZW 30
Model series 5, flow 9000 l/min, reaction limit (6 bar) 170 l/min, oil supply 550 cm³					
DO 54	G 3/4"	105	283	223	---
DO 55	G 1"	105	283	223	---
DO 56	G 1 1/4"	125	302	232	---
DO 57	G 1 1/2"	125	302	232	---
Model series 8, flow 25,000 l/min (DO 86 11000 l/min), reaction limit (6 bar) 85 l/min, oil supply 1,700 cm³					
DO 86	G 1 1/4"	150	448	372	---
DO 87	G 1 1/2"	150	448	372	---
DO 88	G 2"	150	448	372	---

* metal/glass combination drip cap

Order example: DO 11 **

Standard type

Designation for the options:
With protective cage . . . . . .**-S**
With metal container* (0 - 25 bar) . . . . .**-M**

Inline lubricators for compressed air tools

Pressure range: Max. 6.3 bar
Note: For compressed air equipment with heavy vibrations, we recommend connecting the lubricator to the device with a short piece of hose.

Advantages: • This lubricator is used directly on the compressed air tool. Through the short path from the lubricator to the device, a constant supply of oil is guaranteed. The fill level is always visible.

Type	Input (FT)	Output (MT)	Air permeability	Oil supply
PT 1025	Rp 1/4"	R 1/4"	Approx. 860 l/min	20 ml

Pneumatic oil on page 574

LOCTITE Liquid seals, gaskets & tapes from page 549

Compressed air tools from page 533

Threaded nozzles from page 64

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Service units - mini and standard model series — G 1/8" - G 2"

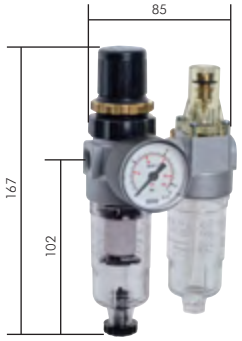
Materials: Body: Zinc die-casting Z410 (model series 5 to 8: aluminium), diaphragms and seals: NBR, container: Polycarbonate
Temperature range: Up to max. +60°C
Input pressure: 1.5 - 16 bar
Condensate draining: Semi-automatic (as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens automatically. By screwing the drain screw tight, you can prevent the semi-automatic drain valve from opening.)
Media: Compressed air, non-toxic and non-inflammable gases
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU

Advantages: • Automatic venting in the event of overpressure on the secondary side.
• Can be filled with oil while under pressure.

Service units, 2-part - mini — 350 l/min

Version: Filter regulator resettable (with relieving system) with attached lubricator
Pressure gauge connection: G 1/8"
Switch panel thread: M 30 x 1.5
Max. condensate amount: 16 cm³
Pore width in the filter: 5 µm
Reaction limit (6 bar): 40 l/min
Oil supply: 17 cm³
Oil metering at 250 l/min: 2 - 5 drops/10 min
Optional: Version with metal container** (1.5 - 25 bar) **-M**, automatic drain*** **-AM**

Type	Thread	Pressure regula. range	Pressure gauge display	Press. gauge diameter	Mounting bracket
FDO 00*	G 1/8"	0.5 - 10 bar	0 - 16 bar	40	WHM 30
FDO 00-3	G 1/8"	0.5 - 3 bar	0 - 6 bar	40	WHM 30
FDO 00-6	G 1/8"	0.5 - 6 bar	0 - 10 bar	40	WHM 30
FDO 00-16	G 1/8"	0.5 - 16 bar	0 - 25 bar	40	WHM 30
FDO 01*	G 1/4"	0.5 - 10 bar	0 - 16 bar	40	WHM 30
FDO 01-3	G 1/4"	0.5 - 3 bar	0 - 6 bar	40	WHM 30
FDO 01-6	G 1/4"	0.5 - 6 bar	0 - 10 bar	40	WHM 30
FDO 01-16	G 1/4"	0.5 - 16 bar	0 - 25 bar	40	WHM 30



* standard model series, please use preferentially as the regulation range can be applied universally, ** drip cap made of plastic, *** max. 16 bar when combined with a metal container

Order example: FDO 00 **
Standard type

Designation for the options:
Version with metal container** (1.5 - 25 bar) . . . **-M**
With automatic drain*** (1.5 to 16 bar) . . . . . **-AM**

Service units, 2-part - standard — up to 4000 l/min

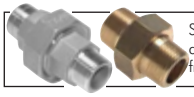
Version: Filter regulator resettable (with relieving system) with attached lubricator
Pressure gauge connection: G 1/4"
Switch panel thread: Model series 1 to 3: M 20 x 1.5
Oil metering at 1000 l/min: 1 - 2 drops/min
Optional: Version with protective cage **-S**, version with metal container* (1.5 - 25 bar) **-M**, automatic drain** **-AM**, automatic drain closed when not pressurised** (0 - 16 bar) **-AMNC**

Type	Thread	Pressure regula. range	Pressure gauge display	L	H	H1	Mounting bracket
Model series 1, flow 600 l/min, cond. amount 35 cm³, oil supply 40 cm³, pore width in the filter 5 µm							
FDO 11	G 1/4"	0.5 - 10 bar	0 - 16 bar	117	236	98	BW 10
FDO 12	G 3/8"	0.5 - 10 bar	0 - 16 bar	117	236	98	BW 10
Model series 2, flow 800 l/min, cond. amount 50 cm³, oil supply 110 cm³, pore width in the filter 40 µm							
FDO 22	G 3/8"	0.5 - 10 bar	0 - 16 bar	150	270	118	BW 20
FDO 23	G 1/2"	0.5 - 10 bar	0 - 16 bar	150	270	118	BW 20
Model series 3, flow 2100 l/min, cond. amount 65 cm³, oil supply 135 cm³, pore width in the filter 5 µm							
FDO 33	G 1/2"	0.5 - 10 bar	0 - 16 bar	175	298	130	BW 30
Model series 5, flow 4000 l/min, cond. amount 300 cm³, oil 550 cm³, pore width in the filter 40 µm							
FDOP 54	G 3/4"	0.5 - 10 bar	0 - 16 bar	230	459	190	BW 50
FDOP 55	G 1"	0.5 - 10 bar	0 - 16 bar	230	459	190	BW 50

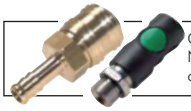
* drip cap made of metal/glass combination, ** not for model series 1, max 16 bar when combined with a metal container

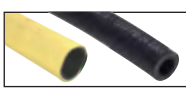
Order example: FDO 11 **
Standard type

Designation for the options:
With protective cage . . . . . **-S**
With metal container* (1.5 - 25 bar) . . . . . **-M**
With automatic drain** (1.5 to 16 bar) . . . . . **-AM**
With automatic drain, closed when depressurised** (0 to 16 bar) . . **-AMNC**


Separable double nipple from page 109

Cutting ring fittings from page 77


Coupling sockets NW7 starting on page 150

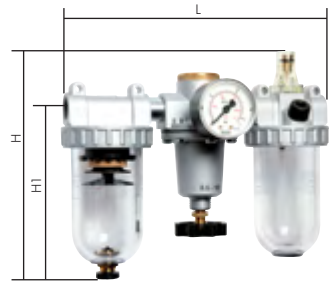

Compressed air rubber hoses from page 212

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Service units & accessories - standard

Service units, 3-part - standard — up to 18 500 l/min

Version: Filter, pressure regulator resettable (with relieving system) and lubricator
Pressure gauge connection: G 1/4"
Switch panel thread: Model series 1 to 3: M 20 x 1.5
Oil metering at 1000 l/min: 1 - 2 drops/min
☞ **Optional:** Version with protective cage **-S**, version with metal container* (1.5 - 25 bar) **-M**, automatic drain** **-AM**, automatic drain closed when not pressurised** (input pressure 0 - 16 bar) **-AMNC**



Type	Thread	Pressure regula. range	Pressure gauge display	L	H	H1	Mounting bracket
Model series 1, flow 600 l/min, cond. amount 35 cm³, oil supply 40 cm³, pore width in the filter 5 µm							
FRO 11	G 1/4"	0.5 - 10 bar	0 - 16 bar	172	189	138	BW 10
FRO 12	G 3/8"	0.5 - 10 bar	0 - 16 bar	172	189	138	BW 10
Model series 2, flow 1400 l/min, cond. amount 50 cm³, oil supply 110 cm³, pore width in the filter 40 µm							
FRO 22	G 3/8"	0.5 - 10 bar	0 - 16 bar	236	201	150	BW 20
FRO 23	G 1/2"	0.5 - 10 bar	0 - 16 bar	236	201	150	BW 20
Model series 3, flow 3200 l/min, cond. amount 65 cm³, oil supply 135 cm³, pore width in the filter 5 µm							
FRO 33	G 1/2"	0.5 - 10 bar	0 - 16 bar	260	229	175	BW 30
FRO 34	G 3/4"	0.5 - 10 bar	0 - 16 bar	302	235	176	BW 30
FRO 35	G 1"	0.5 - 10 bar	0 - 16 bar	302	235	176	BW 30
Model series 5, flow 4900 l/min, cond. amount 300 cm³, oil supply 550 cm³, pore width in the filter 40 µm							
FRO 54	G 3/4"	0.5 - 10 bar	0 - 16 bar	350	300	241	BW 50
FRO 55	G 1"	0.5 - 10 bar	0 - 16 bar	350	300	241	BW 50
FRO 56	G 1 1/4"	0.5 - 10 bar	0 - 16 bar	395	319.5	250	BW 50
FRO 57	G 1 1/2"	0.5 - 10 bar	0 - 16 bar	395	319.5	250	BW 50
Model series 8, flow 18500 l/min, cond. amount 300 cm³, oil supply 1700 cm³, pore width in the filter 60 µm							
FRO 88	G 2"	0.5 - 10 bar	0 - 16 bar	453	477	401	---

* drip cap made of metal/glass combination, ** max 16 bar when combined with a metal container

☞ **Order example:** FRO 11 **
Standard type

Designation for the options:
With protective cage . . . . . **-S**
With metal container* (1.5 - 25 bar) . . . . . **-M**
With automatic drain** (1.5 to 16 bar) . . . . . **-AM**
With automatic drain, closed when depressurised** (0 to 16 bar) . . **-AMNC**

type BDF 33

type BDF 33 M

type BDF 33 AM

type BDF 33 MAM

type SCHUTZKORB DF33

type MU DF 33

Replacement containers for filters and filter regulators - mini/standard

Type **semi-autom. drain**	Type **fully autom. drain**	Type **replacement nut**	For model series	D
Polycarbonate container				
BDF 00	BF 1 AM	---	Mini	33.5 (thread)
BDF 11	BDF 11 AM*	MU DF11	1	44 (flange)
BDF 22	BDF 22 AM	MU DF22	2	65 (flange)
BDF 33	BDF 33 AM	MU DF33	3 to 9	76 (flange)
Metal container without inspection tube				
BDF 00 M	BDF 00 M AM**	---	Mini	33.5 (thread)
BDF 11 M	BDF 11 M AM*	MU DF11	1	44 (flange)
BDF 22 M	BDF 22 M AM	MU DF22	2	65 (flange)
BDF 33 M	BDF 33 M AM	MU DF33	3 to 9	76 (flange)
Protective cage				
SCHUTZKORB 0	SCHUTZKORB 0	---	Mini	33.5 (thread)
SCHUTZKORB DF11	SCHUTZKORB DF11	---	1	44 (flange)
SCHUTZKORB DF22	SCHUTZKORB DF22	---	2	65 (flange)
SCHUTZKORB DF33	SCHUTZKORB DF33	---	3 to 9	76 (flange)

* not for filter regulator model series 1, ** not for filter model series 0

type BDO 33

type BDO 33 M

type SCHUTZKORB DF33

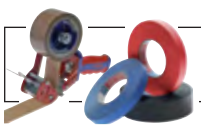
type MU DF 33

Replacement containers for lubricators - mini/standard

Type **polycarbonate container**	Type **metal container w/o inspection tube**	Type **protective cage**	Type **replacement nut**	For model series	D
BDO 00	BDO 00 M	SCHUTZKORB 0	---	Mini	33.5 (thread)
BDO 11	BDO 11 M	SCHUTZKORB DF11	MU DF11	1	44 (flange)
BDO 22	BDO 22 M	SCHUTZKORB DF22	MU DF22	2	65 (flange)
BDO 33	BDO 33 M	SCHUTZKORB DF33	MU DF33	3 to 9	76 (flange)

Pneumatic oil on page 574

Bolts, nuts and washers from page 615


tesa®-adhesive technology from page 585

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Mounting brackets for air units and pressure regulators - mini/standard

Type angle	Type nut	Thread of the nut	Suitable for model series (type)
WHM 20	SM 20	M 20 x 1.5	1 to 3 (DR, FD, FDO and FRO)
WHM 30	SM 1	M 30 x 1.5	Mini (DR, FD and FDO)

type WHM 30 type SM 1 type WHM 20 type SM 20

Mounting brackets for air units and pressure regulators - standard

Type	Suitable for model series (type)
BW 10	1 (DR, FD, FDO and FRO)
BW 20	2 (DR, FD, FDO, FRO and FDR 02)
BW 30	3 (DR, DRF, FD, FDO, FRO, FDR 03 and FDRi 03)
BW 50	5 to 7 (DR, FD, FDO and FRO)

type BW 30 type BW 20

Mounting brackets for lubricators and filters - standard

Type	Suitable for model series (type)
ZW 10	1 (DF, DO)
ZW 30	2 to 3 (DF, DO)

type ZW 30

Mounting brackets for precision pressures and precision filter regulators

Type	Suitable for type
BW 20	FDR 02 - ...
BW 30	FDR 03 - ..., FDRi 03 ...
W LRN	FDR-2, FDR-3, FDR-5, LRN 14 ...

type W LRN

Replacement filter elements for filters and filter regulators - mini/standard

Type standard	Pore width	Type fine	Pore width	Type course	Pore width	For model series
FILTER DF00-5	5 µm	---	---	---	---	Mini and 1
FILTER DF20*	40 µm	---	---	---	---	2
FILTER 2	5 µm	FILTER DF30-8*	8 µm	FILTER DF30*	40 µm	3
FILTER DF50	40 µm	FILTER DF50-8	8 µm	---	---	5
FILTER DF80	60 µm	FILTER DF80-8	8 µm	---	---	8 to 9

* material sintered bronze, otherwise Cellpor

sintered bronze Cellpor

Replacement diaphragms for pressures and filter regulators - mini/standard

Supply volume: Diaphragm with control piston and O-ring

Type	Suitable for type
MEMBRANE FD00	FD 00, FD 01 (mini)
MEMBRANE FD11	FD 11, FD 12
MEMBRANE FD22	FD 22, FD 23
MEMBRANE FD33	FD 32, FD 33
MEMBRANE FD55	FD 54, FD 55
MEMBRANE DR00	DR 00, DR 01 (mini)
MEMBRANE DR11	DR 11, DR 12
MEMBRANE DR22	DR 22, DR 23
MEMBRANE DR33	DR 32, DR 33, DR 34, DR 35

Type	Suitable for type
MEMBRANE DR55	DR 54, DR 55
MEMBRANE DR77	DR 76, DR 77
MEMBRANE DRP55	DRP 54, DRP 55
MEMBRANE DRP77	DRP 76, DRP 77
MEMBRANE DRP88	DRP 87, DRP 88
MEMBRANE DRi33	DRi 33
MEMBRANE DRi55	Dri 54, DRi 55
MEMBRANE DRi77	DRi 76, DRi 77
MEMBRANE DRi88	DRi 87, DRi 88

type MEMBRANE FD11 ... FD55 MEMBRANE DR11 ... DRi 88

type MEMBRANE FD00 DR 00

Steam traps as replacement parts for filters and filter regulators - standard

Application: Can be used as a replacement part for plastic and metal containers from model series 1 - 9
Assembly holes in container: 14 mm

Type	Pressure range
Automatic drain valve (float operated, condensate connection: G 1/8" FT)	
AM 18/10	1.5 - 16 bar
Semi-automatic drain valve (pressure operated)[1]	
HANDABLASS HA	1.5 - 25 bar
Manual drain valve (manually operated)	
HANDABLASS M	0 - 25 bar

[1] as soon as the inlet pressure falls below the minimum input pressure, the drain valve opens automatically. The semi-automatic drain valve can be prevented from opening by screwing on the drain plug tightly.

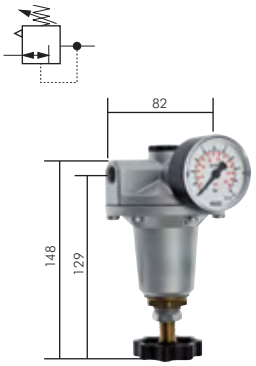
automatic

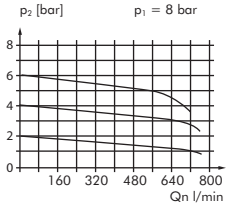
semi-automatic

manual

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Precision pressure regulators





Precision pressure regulators - standard — 550 l/min

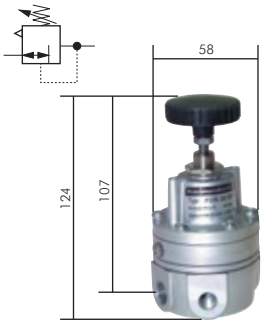
Application: Precision pressure regulators are used when in the case of small flow quantities, a highly constant secondary pressure is required. The very good control and flow characteristics are achieved due to the fact that the diaphragm is very large in proportion to the valve seat surface. The regulator is largely independent of the input pressure oscillations, does not have its own air consumption and can be used with "normal" filtered compressed air.
Version: Resettable (with relieving system)
Materials: Body: Zinc die-casting Z410, diaphragms and seals: FKM
Temperature range: -10°C to max. +60°C
Input pressure: Max. 16 bar
Flow: 550 l/min, relieving system: 100 l/min
Own air consumption: None
Control accuracy: ± 7.5 mbar
Pressure gauge connection: G 1/4"
Media: Oiled and unoiled compressed air, non-toxic and non-flammable gases
Switch panel thread: M 20 x 1.5

application example type DRF 31-7 FB

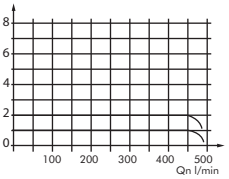
Advantages:
- Automatic venting in the event of overpressure on the secondary side.
- Precise regulation of the pressure regardless of pre-pressure.
- No own air consumption
- Robust design, no microfilter necessary for the compressed air

Type	Thread	Pressure regula. range	Pressure gauge display	Mounting bracket
Standard				
DRF 31-1	G 1/4"	0 - 1 bar	0 - 1,6 bar	BW 30
DRF 31-3	G 1/4"	0,1 - 3 bar	0 - 4 bar	BW 30
DRF 31-6	G 1/4"	0,2 - 6 bar	0 - 10 bar	BW 30
DRF 31-10	G 1/4"	0,5 - 10 bar	0 - 16 bar	BW 30
Special regulator for controlling volume booster (a feedback line from the secondary side of the volume booster is used for regulation). Volume boosters are found on page 339 & 348				
DRF 31-7 FB*	G 1/4"	0.2 - 7 bar	0 - 10 bar	BW 30

* low own air consumption



FDR 02 (0.05 - 2 bar) type model series 1



type model series 2

High performance precision pressure regulators — up to 6500 l/min

Application: High performance precision pressure regulators are used in order to adjust an extremely accurate pressure - regardless of pre-pressure and flow performance. It is used for example for control and regulation units in process engineering, which has the highest pressure stability requirements.
Version: Resettable (with relieving system), (model series 2: through G 3/8" borehole)
Materials: Body: Zinc die-casting Z410, diaphragms and seals: EPDM (model series 2: NBR)
Temperature range: -10°C to max. +60°C (model series 2: -35°C to max. +60°C)
Input pressure: Max. 16 bar
Flow: 900 l/min (model series 2:6500 l/min), with relieving system: 200 l/min (model series 2: 800 l/min)
Own air consumption: 1.7 to 2 l/min. **Control accuracy:** ± 2.5 mbar
Media: Unoiled, finely filtered compressed air (5 µm), non-toxic and non-inflammable gases
Switch panel thread: M 12 x 1 (model series 2: M 20 x 1.5)
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU

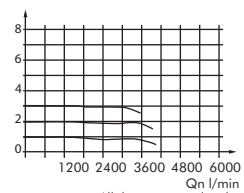
Advantages:
- Automatic venting in the event of overpressure on the secondary side (model series 2: up to 800 l/min)
- High flow at constant pressure
- Most precise pressure regulation regardless of the pre-pressure and flow performance.
- Model series 2: Can be used down to -35°C!
- Captured exhaust for relieving system (model series 2)

Type	Thread	Pressure regula. range	Mounting bracket
Model series 1, pressure gauge connection G 1/8"			
FDR 02-2	G 1/4"	0.05 - 2 bar	BW 20
FDR 02-4	G 1/4"	0.05 - 4 bar	BW 20
FDR 02-7	G 1/4"	0.05 - 7 bar	BW 20
Model series 2, pressure gauge connection G 1/4"			
FDR 03-3-14	G 1/4"	0.05 - 3 bar	BW 30
FDR 03-7-14	G 1/4"	0.05 - 7 bar	BW 30
FDR 03-3-38	G 3/8"	0.05 - 3 bar	BW 30
FDR 03-7-38	G 3/8"	0.05 - 7 bar	BW 30
FDR 03-3	G 1/2"	0.05 - 3 bar	BW 30
FDR 03-5	G 1/2"	0.05 - 5 bar	BW 30
FDR 03-7	G 1/2"	0.05 - 7 bar	BW 30
FDR 03-10	G 1/2"	0.05 - 10 bar	BW 30

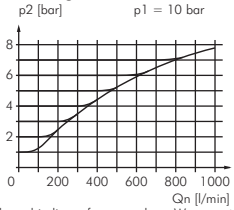
Order accessories at the same time!

Suitable pressure gauges can be found on page 372.

FDR 03 (0.05 - 3 bar) flow



FDR 03 (0.05 - 3 bar) venting



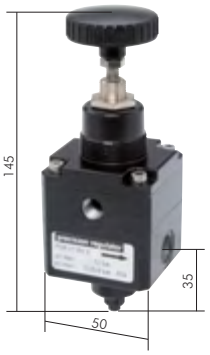
LOCTITE Liquid seals, gaskets & tapes from page 549

PU, PA, PTFE and PE hoses from page 192

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

High performance precision pressure regulators — up to 1 250 l/min

Application: High performance precision pressure regulators are used in order to adjust an extremely accurate pressure - regardless of pre-pressure and flow performance. It is used for example for control and regulation units in process engineering, which has the highest pressure stability requirements. The precision pressure regulator convinces through low own air consumption and large relieving system, both of which can be captured and discharged via a G 1/4" borehole.
Version: Resettable (with relieving system) through G 1/4" borehole
Materials: Body: Aluminium, diaphragms and seals: NBR
Temperature range: Temperature range: -10°C to max. +60°C
Input pressure: Max. 12 bar
Flow: 1250 l/min, relieving system: 500 l/min
Own air consumption: < 0.5 l/min (at 8 bar input pressure)
Control accuracy: ± 2.5 mbar
Pressure gauge connection: G 1/8"
Media: Unoiled, finely filtered compressed air (5 µm), non-toxic and non-inflammable gases
Switch panel thread: M 12 x 1 and M 30 x1.5



Advantages:
- Automatic venting in the event of overpressure on the secondary side up to 500 l/min
- Captured exhaust for relieving system and own air consumption
- High flow at constant pressure
- Most precise pressure regulation regardless of the pre-pressure and flow performance

Type	Thread	Pressure regula. range	Mounting bracket
FDR 07-8	G 1/4"	0.05 - 8 bar	MW 1

Order accessories at the same time!

Suitable pressure gauges can be found on page 372.

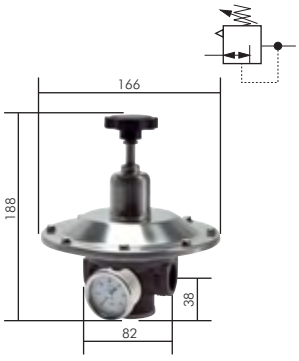
Precision pressure regulators for low pressures — up to 8 000 l/min

Version: Not resettable (without relieving system)
Materials: Body and spring hood: Aluminium painted (type 1/2": stainless steel spring hood), diaphragm: NBR (PTFE coated), internal parts: Brass, seals: NBR
Temperature range: -20°C to max. +60°C
Input pressure: Max. 6 bar (type G1": max 7 bar)
Pressure gauge connection: G 1/4"
Media: Oiled and unoiled compressed air, non-toxic and non-flammable gases (incl. nitrogen)
☞ **Optional:** For CO_2 (EPDM membrane) **-CO**

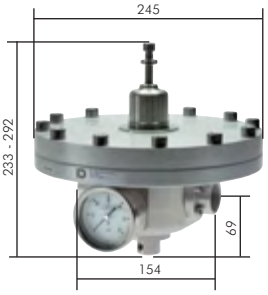
Type	Thread	Pressure regula. range	Pressure gauge display	Mounting bracket
Flow 1000 l/min**				
RPM 12-45	G 1/2"*	5 - 45 mbar	0 - 60 mbar	RPM W
RPM 12-200	G 1/2"*	20 - 200 mbar	0 - 250 mbar	RPM W
RPM 12-700	G 1/2"*	150 - 700 mbar	0 - 1 bar	RPM W
Flow 3,000 l/min**				
RPM 10-45	G 1"	5 - 45 mbar	0 - 60 mbar	---
RPM 10-120	G 1"	10 - 120 mbar	0 - 250 mbar	---
RPM 10-400	G 1"	10 - 400 mbar	0 - 1 bar	---
RPM 10-700	G 1"	15 - 700 mbar	0 - 1 bar	---
RPM 10-1200	G 1"	200 - 1200 mbar	0 - 1.6 bar	---
Flow 8,000 l/min**				
RPM 112-50	G 1 1/2"	20 - 50 mbar	0 - 60 mbar	---
RPM 112-150	G 1 1/2"	50 - 150 mbar	0 - 250 mbar	---
RPM 112-300	G 1 1/2"	150 - 300 mbar	0 - 600 mbar	---
RPM 112-3000	G 1 1/2"	0.3 - 3 bar	0 - 4 bar	---
Flow 8,000 l/min**				
RPM 20-50	G 2"	20 - 50 mbar	0 - 60 mbar	---
RPM 20-150	G 2"	50 - 150 mbar	0 - 250 mbar	---
RPM 20-300	G 2"	150 - 300 mbar	0 - 600 mbar	---
RPM 20-3000	G 2"	0.3 - 3 bar	0 - 4 bar	---

* thread outlet 3/4", ** measured at 6 bar input pressure and max. output pressure

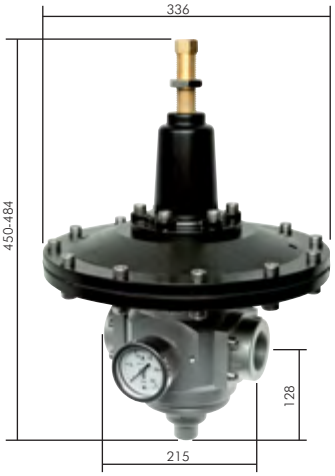
☞ **Order example:** RPM 12-45 **
Standard type
Designation for the options: For CO_2 (EPDM diaphragm) . . . .**-CO**



G 1/2"



G 1"

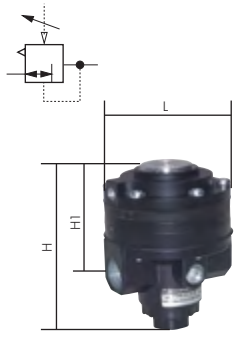


G 1 1/2"- G 2"

Threaded nozzles from page 64
Compressed air rubber hoses from page 212
Ball valves from page 280
Stainless steel screw connections from page 78
Digital and precision pressure gauge from page 381
Electronic pressure switches from page 391

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Precision pressure regulators



type FDRi 03

type FDRi 03-1

Remote controlled precision pressure regulators (volume boosters) 6500 l/min

Application: A remote controlled pressure regulator is used, when high flow rates are required with a constant pressure. The pressure regulator can also be used at inaccessible locations (e.g. in hazardous or ceiling areas). The setting is made using a pilot pressure regulator that can be placed anywhere. The regulated pressure corresponds to the pressure of the remote control bore and is maintained with high precision.
Version: Resettable (with large relieving system 3/8")
Materials: Body: Zinc die-casting Z410, diaphragms and seals: NBR
Temperature range: -35°C to max. +60°C
Input pressure: Max. 16 bar
Flow: 6500 l/min, relieving system: 800 l/min
Own air consumption: 1.7 l/min at 6 bar output pressure
Control accuracy: ± 2.5 mbar
Pressure gauge connection: G 1/4"
Media: Unoiled, finely filtered compressed air (5 µm), non-toxic and non-inflammable gases
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU

Advantages:
- Automatic venting in the event of overpressure on the secondary side through a large venting borehole (G 3/8") with up to 800 l/min
- High flow at constant pressure.
- Remote-controlled pressure regulation using pilot regulator (when using a precision pressure regulator as a pilot, it is possible to set the pressure very accurately).
- Most precise pressure regulation regardless of the pre-pressure and flow performance
- usable to -35°C

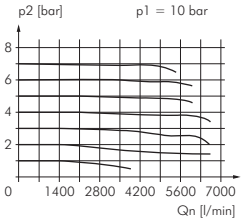
Type	Thread	L	H	H1	Pressure regula. range	Mounting bracket
Standard						
FDRi 03	G 1/2"	82	107	65.5	0.05 - 10 bar	BW 30
Special regulator with an adjustment knob for adjusting the offset up to +1 bar						
FDRi 03-1	G 1/2"	82	142	101	0.05 - 10 bar	BW 30

Recommendation: For best regulation results, please use the precision regulator with feedback connection Type DRF 31-7 FB

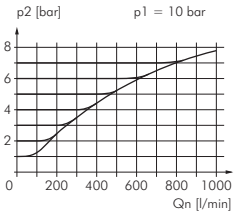
Order accessories at the same time!
Suitable pressure gauges can be found on page 372.

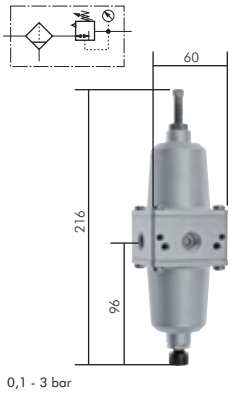
FDRi 03 (0.05 - 10 bar)

flow

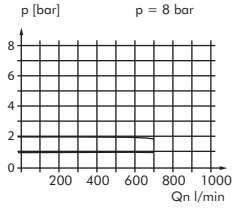


venting





0,1 - 3 bar



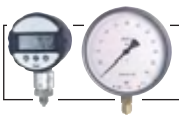
Precision filter regulators 750 l/min

Application: Precision filter regulators are used to achieve an exact pressure - independently of the input pressure and the flow performance. They are used, for example, in control and regulation units in process engineering where a high level of pressure stability is required. The filter regulator can be used with "normal" filtered compressed air.
Version: Resettable (with relieving system)
Materials: Body: Zinc die-casting Z410, diaphragms and seals: NBR (non-ferrous metal free)
Temperature range: -10°C to max. +60°C
Input pressure: Max. 16 bar
Flow: 750 l/min, relieving system: 30 l/min
Own air consumption: 1 l/min
Control accuracy: ± 7.5 mbar
Pressure gauge connection: G 1/4"
Condensate draining: Manual, **pore widths in filter:** 10 µm
Media: Oiled and unoiled compressed air, non-toxic and non-flammable gases

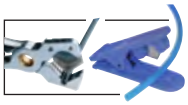
Order accessories at the same time!
Suitable pressure gauges can be found on page 372.

Advantages:
- Automatic venting in the event of overpressure on the secondary side.
- Precise pressure regulation regardless of the pre-pressure and flow performance
- Robust design

Type	Thread	Pressure regula. range	Wear part set	Mount. bracket INOX
LRN 14-2	G 1/4"	0.1 - 2 bar	LRN 14-REP	W LRN
LRN 14-3	G 1/4"	0.1 - 3 bar	LRN 14-REP	W LRN
LRN 14-5	G 1/4"	0.2 - 5 bar	LRN 14-REP	W LRN


Digital and precision pressure gauge from page 381

Electronic pressure switches from page 391


Tube cutters on page 595

2/2, 3/2 directional valves of brass or stainless steel from page 404

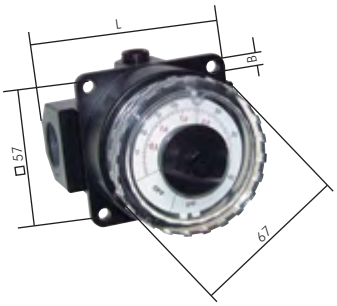
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pressure regulators with integrated pressure gauges — up to 24 000 l/min

Version: Pressure regulator resettable (with relieving system)
Temperature range: 0°C to max. +65°C
Input pressure: Max. 21 bar
Own air consumption: Max. 1.4 l/min
Media: Oiled and unoiled compressed air, non-toxic and non-flammable gases

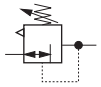
Advantages:
- Pressure setting is made using an easy to turn, large adjustment button.
- The pressure setting can be read from a scale underneath the transparent adjustment button.
- Covers the entire setting range by rotating through 270°.
- Does the function of a 3/2-way shut-off valve, a pressure regulator and the pressure gauge in one device.
- Ideal for panel mounting.

Type	Thread	L	B	Flow	Pressure regula. range
MANO R 14 3	G 1/4"	81	5.5	3000 l/min	0 - 3 bar
MANO R 14 11	G 1/4"	81	5.5	3000 l/min	0 - 11 bar
MANO R 12 3	G 1/2"	81	5.5	5000 l/min	0 - 3 bar
MANO R 12 11	G 1/2"	81	5.5	5000 l/min	0 - 11 bar
MANO R 34 3	G 3/4"	109	5.5	8000 l/min	0 - 3 bar
MANO R 34 11	G 3/4"	109	5.5	8000 l/min	0 - 11 bar
MANO R 10 3	G 1"	109	5.5	9000 l/min	0 - 3 bar
MANO R 10 11	G 1"	109	5.5	9000 l/min	0 - 11 bar
MANO R 20 3	G 2"	135	---	24000 l/min	0 - 3 bar
MANO R 20 11	G 2"	135	---	24000 l/min	0 - 11 bar

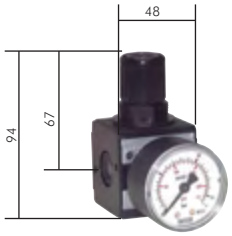


Pressure regulators and precision pressure regulators model series 1 — 2500 l/min[1)]

Input pressure: Max. 16 bar
Switch panel thread: M 30 x 1.5
ATEX: Operating material without its own potential source of ignition in acc. to Directive 2014/34/EU (not E11 closure)
☞ **Optional:** Can be locked using a cylinder lock **-K**, can be locked using a cylinder lock with E 11 closure** **-KE11**, safety version: Can be locked with upstream lockable ball valve and start-up valve **-Si**



Type standard	Type precision pressure regulators***	Thread	Pressure regula. range	Pressure gauge displ.	Press. gauge diameter	Mounting bracket	Coupling kit
R 14*	RP 14*	G 1/4"	0.5 - 10 bar	0 - 16 bar	50	W 1 or MW 1	KP 1
R 14-1	RP 14-1	G 1/4"	0.1 - 1 bar	0 - 1.6 bar	50	W 1 or MW 1	KP 1
R 14-3	RP 14-3	G 1/4"	0.1 - 3 bar	0 - 6 bar	50	W 1 or MW 1	KP 1
R 14-6	RP 14-6	G 1/4"	0.2 - 6 bar	0 - 10 bar	50	W 1 or MW 1	KP 1
R 14-16	RP 14-16	G 1/4"	0.5 - 16 bar	0 - 25 bar	50	W 1 or MW 1	KP 1
R 38*	---	G 3/8"	0.5 - 10 bar	0 - 16 bar	50	W 1 or MW 1	KP 1
R 38-1	---	G 3/8"	0.1 - 1 bar	0 - 1.6 bar	50	W 1 or MW 1	KP 1
R 38-3	---	G 3/8"	0.1 - 3 bar	0 - 6 bar	50	W 1 or MW 1	KP 1
R 38-6	---	G 3/8"	0.2 - 6 bar	0 - 10 bar	50	W 1 or MW 1	KP 1
R 38-16	---	G 3/8"	0.5 - 16 bar	0 - 25 bar	50	W 1 or MW 1	KP 1



* standard model series, please use in preference, as the regulation range is universally applicable, ** Volkswagen-lock (delivered without key)
*** low own air consumption (2.6 l/min at output pressure of 6 bar) but therefore better hysteresis - almost independent of primary pressure, regulation accuracy: ± 25 mbar, [1)] measured at P_1 = 10 bar, P_2 = 6.3 bar and 1 bar pressure drop

☞ **Order example:** R 14 **

Standard type

Designation for the options:
Lockable . . . . . **-K**
Lockable with E 11 closure** . . . . . **-KE11**
Lockable with upstream,
Lockable ball valve and start-up valve . . . . . **-Si**

** Volkswagen-lock (delivered without key)

Service units of other manufacturers can be found in our Online Shop

Simply search using the manufacturer's item numbers.

Many additional products and sizes are available in our **Online Shop!**

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Vacuum regulators

Vacuum regulators with external leakage — 4 - 70 m³/h

Suitable: With a preset vacuum level this valve breathes the atmospheric air and prevents the vacuum level from exceeding beyond the desired vacuum value. It is used to adjust a vacuum system with the same operating vacuum. The setting is done using a fine thread of the valve and the mechanical opening due to the spring load.

Type **brass nickel-plated**	Thread	Pressure regula. range	Suction performance (m³/h)	L	SW
R 18 VU B	G 1/8"	-1 to -0.33 bar	4	45	12
R 12 VU B	G 1/2"	-1 to -0.33 bar	20	57	24
R 34 VU B	G 3/4"	-1 to -0.33 bar	40	60	30
R 10 VU B	G 1"	-1 to -0.33 bar	70	65	35

The vacuum can also be controlled when there is a permanent leakage in the vacuum system. This can be achieved by one of our needle valves (see page 294).

TIP *The ideal vacuum regulator for small volume flows!*

Vacuum regulators - miniature — 22 l/min

Precision vacuum regulators made of plastic, with high pressure stability, small dimensions and light weight.
20 rotations for the regulation range with hysteresis-free setting.
Materials: Polysulphone, polyurethane, NBR, EPDM, acetal, stainless steel
Temperature range: +4°C to max. +66°C
Setting accuracy: 2.5 mbar
Note: For cleaning or sealing, do not use any dissolving medium!

Type	Thread	Suction performance (l/min)	Pressure gauge connection	Pressure regula. range
RP 50 VU	M5	22	---	-0.35 to 0 bar
RP 50 VU H	M5	22	---	-0.85 to 0 bar

Vacuum regulators without external leakage — 6 - 160 m³/h

manual adjustment

Pneumatic adjustment

Suitable: Using these vacuum regulators it is possible to accurately regulate a vacuum without needing external leakage. They are used in vacuum systems where individual consumer units need to be supplied with different levels of vacuum.
Adjustment: The configuration is carried out using a knurled screw or via a pneumatic signal.
Installation position: Arbitrary
Temperature range: -10°C to max. +80°C

Type **manual adjustment**	Type **pneumatic adjustment**	Thread	Suction performance (m³/h)	Pressure gauge connection	Pressure regulation range	Control pressure for pneumatic setting
Standard controller						
R 14 VU	R 14 VU-P	G 1/4"	6	G 1/8"	-1 to -0.2 bar	0 to 3 bar
R 38 VU	R 38 VU-P	G 3/8"	10	G 1/8"	-1 to -0.2 bar	0 to 3 bar
R 12 VU	R 12 VU-P	G 1/2"	20	G 1/4"	-1 to -0.2 bar	0 to 3 bar
R 34 VU	R 34 VU-P	G 3/4"	40	G 1/4"	-1 to -0.2 bar	0 to 3 bar
R 10 VU	R 10 VU-P	G 1"	80	G 1/4"	-1 to -0.2 bar	0 to 3 bar
R 112 VU	R 112 VU-P	G 1 1/2"	160	G 1/4"	-1 to -0.2 bar	0 to 3 bar
Precision regulator						
R 12-2 VU	R 12-2 VU-P	G 1/2"	20	G 1/4"	-1 to -0.02 bar	0 to 7 bar
R 10-2 VU	R 10-2 VU-P	G 1"	80	G 1/4"	-1 to -0.02 bar	0 to 7 bar

Vacuum regulators - precision versions — 4 - 48 m³/h

Suitable: These vacuum regulators can be used for pressure regulation in the vacuum range as well as in the overpressure range. **Materials:** Body: Aluminium die-casting, internal parts: Stainless steel/brass, diaphragms: NBR and Dacron
Temperature range: -40°C to max. +90°C
These vacuum regulators allow controlling the vacuum as a bypass or using shut-off technology.
1. Bypass adjustment*: This adjustment should be used, if an existing vacuum must be reduced by delivering compressed air. Recommended for adjusting large vacuum quantities.
2. Stop adjustment*: The vacuum is pulled and adjusted by the regulator. Once the desired value is reached, the regulator is closed. Recommended to save vacuum energy.

Type	Thread	Suction perform.	Press. gauge connection	Pressure regula. range	Height	Width	Depth	**Mounting bracket**
RP 14 VU	G 1/4"	4 m³/h	G 1/4"	-1 to 0.14 bar	184	76	76	RP 14 VU W
RP 34 VU	G 3/4"	48 m³/h	G 1/4"	-1 to 0.7 bar	238	87	87	---

* please ask for separate operating instructions.

Pressure gauge from page 366

Pressure gauge shut-off valves from page 387

Solenoid valves for vacuum from page 409

Spiral hoses from page 220

Suction cups from page 510

Shock absorber from page 502

Filters from page 509

Ball valves from page 280

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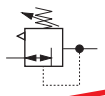
Pressure regulators for high pressures — up to 40 bar



Input pressure up to max. 40 bar!

Version: Resettable (with relieving system)
Materials: Body: Brass (DR 8740 and DR 8840: gravity die-casting aluminium), diaphragms and seals: NBR
Temperature range: -10°C to max. +90°C
Input pressure: Max. 40 bar
Pressure gauge connection: G 1/4"
Switch panel thread: DR 1140 G: M 20 x 1.5, DR 3340 G: M 28 x 1.5
Media: Oiled and unoiled compressed air, non-toxic and non-flammable gases
☞ **Optional:** Other regulation ranges: 0.5 - 3 bar **-3***, 0.5 - 6 bar **-6**, 0.5 - 16 bar **-16**, 0.5 - 25 bar **-25**, lockable (DR 8740 G and DR 8840 G) **-K**

Type	Thread	D	L	H	H1	Pressure regula. range	Pressure gauge display	Mounting bracket	Panel union nut
Flow 430 l/min**									
DR 1140	G 1/4"	36	45	104	23	0.5 - 10 bar	0 - 16 bar	BW 1040	SM 1040
Flow 1,250 l/min**									
DR 3340	G 1/2"	67	72	145	30	0.5 - 10 bar	0 - 16 bar	BW 3040	SM 3040
Flow 7,830 l/min**									
DR 5440	G 3/4"	116	95	216	41	0.5 - 10 bar	0 - 16 bar	BW 5040	---
Flow 7,830 l/min**									
DR 5540	G 1"	116	83	216	41	0.5 - 10 bar	0 - 16 bar	BW 5040	---
Flow 12,160 l/min**									
DR 7640	G 1 1/4"	116	128	240	50	0.5 - 10 bar	0 - 16 bar	BW 5040	---
Flow 12,160 l/min**									
DR 7740	G 1 1/2"	116	114	240	50	0.5 - 10 bar	0 - 16 bar	BW 5040	---
Flow 25,000 l/min**									
DR 8740	G 1 1/2"	130	180	248	78	0.5 - 10 bar	1 x 0 - 16 bar 1 x 0 - 60 bar	BW 8040	--
Flow 25,000 l/min**									
DR 8840	G 2"	130	160	248	78	0.5 - 10 bar	1 x 0 - 16 bar 1 x 0 - 60 bar	BW 8040	---

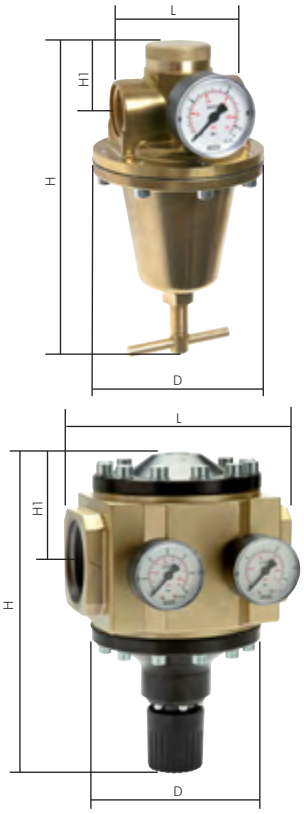
* not available for types DR 8740 G and DR 8840 G, ** measured at P_1 = 8 bar, P_2 = 6 bar, Δp = 1 bar

☞ **Order example:** DR 1140 ** **

Standard type

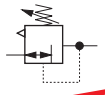
Regulation range
0.5 - 3 bar . . . . . **-3***
0.5 - 6 bar . . . . . **-6**
0.5 - 16 bar . . . . . **-16**
0.5 - 25 bar . . . . . **-25**

Designation for the options:
Lockable (DR 8740 and DR 8840) . . . . . **-K**



type DR 8740 and DR 8840

Pressure regulators for high pressures — up to 60 bar



Input pressure up to max. 60 bar!

Version: Piston type regulator resettable (with relieving system)
Materials: Body: Brass, seals: NBR
Temperature range: -10°C to max. +90°C
Input pressure: Max. 60 bar
Pressure gauge connection: G 1/4"
Switch panel thread: DR 2260: M 28 x 1.5
Media: Oiled and unoiled compressed air, non-toxic and non-flammable gases
☞ **Optional:** Other regulation ranges: 1 - 20 bar **-20**, 2 - 35 bar **-35**, 3 - 50 bar **-50**

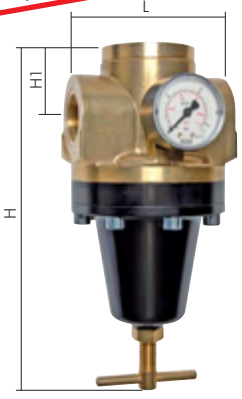
Type	Thread	L	H	H1	Pressure regula. range	Pressure gauge display	Mounting bracket	Panel union nut
Flow 1400 l/min*								
DR 2260	G 3/8"	72	164	31	0.5 - 12 bar	0 - 16 bar	BW 3040	SM 3040
Flow 5000 l/min*								
DR 5560	G 1"	118	257	51	0.5 - 12 bar	0 - 16 bar	BW 5560	---

* measured at P_1 = 20 bar, P_2 = 10 bar, Δp = 4 bar

☞ **Order example:** DR 2260 **

Standard type

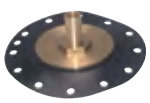
Regulation range
1 - 20 bar . . . . . **-20**
2 - 35 bar . . . . . **-35**
3 - 50 bar . . . . . **-50**



Replacement diaphragms & seals for high pressure regulators - standard-HD

Type **replacement diaphragms**	Type **sealing cone**	Suitable for type
For pressure regulator PN 40		
MEMBRANE DR1140	DK DR1140	DR 1140
MEMBRANE DR3340	DK DR3340	DR 3340
MEMBRANE DR5540	DK DR5540	DR 5440, DR 5540
MEMBRANE DR7740	DK DR7740	DR 7640, DR 7740
MEMBRANE DR8840	DK DR8840	DR 8740, DR 8840
For pressure regulator PN 60		
---	DK DR2260	DR 2260
---	DK DR5560	DR 5560

replacement diaphragms



sealing cone

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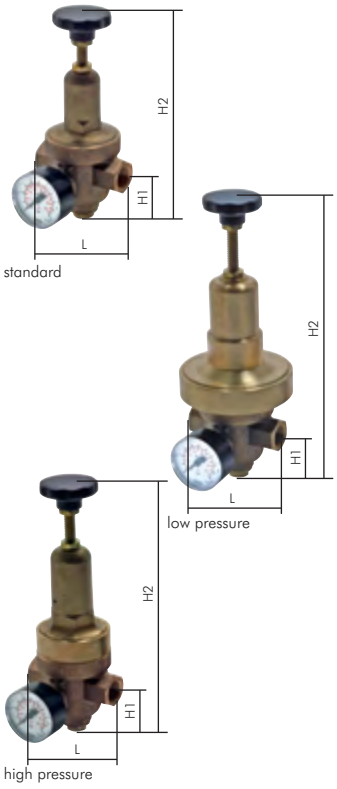
High pressure regulators

Pressure regulators for gases and liquids — up to 40 bar

Version: Diaphragm pressure regulator, not resettable (without relieving system)
Materials: Housing: Red bronze, spring hood: Hot-pressed brass (>G 1“: cast iron), diaphragm and seals: NBR/CR
Temperature range: Max. 75°C
Media: Compressed air, nitrogen, neutral non-inflammable gases, water and neutral, non-bonding liquids, no steam!



Type	Thread	Pressure regula. range	Flow (kv)*	L	H1	H2	Type sealing set
Standard version, input pressure max. 25 bar, max. reduction ratio P_1/P_2 10:1							
DRV 200-14	G 1/4“	1.5 - 8 bar	8.3 l/min	70	48	110	DRV 200-14 REP
DRV 200-38	G 3/8“	1.5 - 8 bar	10 l/min	70	48	110	DRV 200-38 REP
DRV 200-12	G 1/2“	1.5 - 8 bar	20 l/min	85	48	120	DRV 200-12 REP
DRV 200-34	G 3/4“	1.5 - 8 bar	21 l/min	85	48	120	DRV 200-34 REP
DRV 200-10	G 1“	1.5 - 8 bar	26 l/min	95	55	155	DRV 200-10 REP
DRV 200-114	G 1 1/4“	1.5 - 8 bar	70 l/min	104	61	200	DRV 200-114 REP
DRV 200-112	G 1 1/2“	1.5 - 8 bar	75 l/min	108	61	200	DRV 200-112 REP
DRV 200-20	G 2“	1.5 - 8 bar	120 l/min	147	64	260	DRV 200-20 REP
Low pressure version, input pressure max. 25 bar, max. reduction ratio P_1/P_2 20:1							
DRV 250-14	G 1/4“	0.2 - 2 bar	8.3 l/min	70	48	155	DRV 250-14 REP
DRV 250-38	G 3/8“	0.2 - 2 bar	10 l/min	70	48	155	DRV 250-38 REP
DRV 250-12	G 1/2“	0.2 - 2 bar	20 l/min	85	48	220	DRV 250-12 REP
DRV 250-34	G 3/4“	0.2 - 2 bar	21 l/min	85	48	220	DRV 250-34 REP
DRV 250-10	G 1“	0.2 - 2 bar	26 l/min	95	55	250	DRV 250-10 REP
DRV 250-114	G 1 1/4“	0.2 - 2 bar	70 l/min	104	61	300	DRV 250-114 REP
DRV 250-112	G 1 1/2“	0.2 - 2 bar	75 l/min	108	61	300	DRV 250-112 REP
DRV 250-20	G 2“	0.2 - 2 bar	120 l/min	147	64	300	DRV 250-20 REP
High pressure version, input pressure max. 40 bar, max. reduction ratio P_1/P_2 6:1							
DRV 225-14	G 1/4“	1.5 - 20 bar	8.3 l/min	70	48	130	DRV 225-14 REP
DRV 225-38	G 3/8“	1.5 - 20 bar	10 l/min	70	48	130	DRV 225-38 REP
DRV 225-12	G 1/2“	1.5 - 20 bar	20 l/min	85	48	140	DRV 225-12 REP
DRV 225-34	G 3/4“	1.5 - 20 bar	21 l/min	85	48	140	DRV 225-34 REP
DRV 225-10	G 1“	1.5 - 20 bar	26 l/min	95	55	185	DRV 225-10 REP
DRV 225-114	G 1 1/4“	1.5 - 20 bar	70 l/min	104	61	230	DRV 225-114 REP
DRV 225-112	G 1 1/2“	1.5 - 20 bar	75 l/min	108	61	230	DRV 225-112 REP
DRV 225-20	G 2“	1.5 - 20 bar	120 l/min	147	64	295	DRV 225-20 REP

* water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
Flow for air [l/min] ≈ 13.4 · kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

High pressure - pressure reducers for gases — up to 414 bar

Version: Not resettable (without relieving system)
Materials: Housing: Brass or stainless steel, internal parts: Stainless steel, spring hood: Brass nickel-plated or stainless steel, rotary knob: PA, valve seat: PFA, panel union nut: Brass nickel-plated
Temperature range: -25°C to max. +75°C (type 300 bar: -40°C to max. +75°C)
Media: Compressed air, nitrogen, hydrogen, helium, (type 300 bar: additionally CO_2)
Pressure gauge connection: 2 x NPT 1/4“ (offset by 70°)

Type brass	Type AISI 316L (INOX)	Connection	Pressure regula. range	Flow**	Input pressure*	Panel union nut brass nickel-plated
DR 14-1.7 HD	DR 14-1.7 HD ES	NPT 1/4“	0.1 - 1.7 bar	500 l/min	300 bar	SM DR 14 HD
DR 14-3.5 HD	DR 14-3.5 HD ES	NPT 1/4“	0.1 - 3.5 bar	600 l/min	300 bar	SM DR 14 HD
DR 14-7 HD	DR 14-7 HD ES	NPT 1/4“	0.1 - 7 bar	1000 l/min	300 bar	SM DR 14 HD
DR 14-17 HD	DR 14-17 HD ES	NPT 1/4“	0.2 - 17 bar	1400 l/min	300 bar	SM DR 14 HD
DR 14-35 HD	DR 14-35 HD ES	NPT 1/4“	0.3 - 35 bar	1500 l/min	300 bar	SM DR 14 HD
DR 14-104 HD	DR 14-104 HD ES	NPT 1/4“	0.7 - 104 bar	2600 l/min***	414 bar	SM DR 14 HD
DR 14-172 HD	DR 14-172 HD ES	NPT 1/4“	1.0 - 172 bar	2800 l/min***	414 bar	SM DR 14 HD

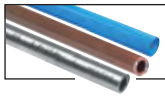
* oxygen max. 200 bar, ** measured at 300 bar input pressure and maximum output pressure, *** measured at 414 bar input pressure and maximum output pressure

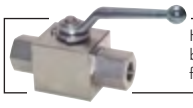
Dimensions can be found in the item details in our Online Shop

Order accessories at the same time!

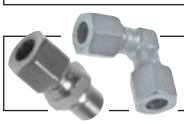
1 piece panel union nuts are found in the adjacent tables

Parker
Push-in hoses on page 228

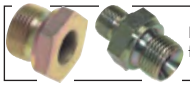

Aluminium, copper and steel pipes on page 250


High pressure ball valves from page 292

LOCTITE
Liquid seals, gaskets & tapes from page 549


Cutting ring fittings from page 77

Distributor bars up to 315 bar on page 133


Hydraulic adapter from page 103

HYDAC
Pipe clamps from page 244

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Bottle pressure reducers — DIN EN ISO 2503 (DIN EN 585)

Version: Bottle pressure reducer in hot-pressed brass design with pressure gauge for bottle content and working pressure. Oxygen pressure reducer is BAM tested.
Supply volume: Pressure reducer inclusive of shut-off valve

Type	To be used with	Flange connection	Pressure regulation range
For non-flammable gases, hose connection G 1/4", nozzle 6 mm, input pressure 200 bar (DIN 477-1)			
DRFDM LUFT 10	Air	G 5/8" (MT)	0 - 10 bar
DRFDM LUFT 20	Air	G 5/8" (MT)	0 - 20 bar
DRFDM SAU 10	Oxygen	G 3/4" (FT)	0 - 10 bar
DRFDM SAU 20	Oxygen	G 3/4" (FT)	0 - 20 bar
DRFDM STICK 10	Nitrogen	W24.3x1/14 (FT)	0 - 10 bar
DRFDM STICK 20	Nitrogen	W24.3x1/14 (FT)	0 - 20 bar
DRFDM STICK 100***	Nitrogen	W24.3x1/14 (FT)	0 - 100 bar
DRFDM ARGON FM	Argon	W21.8x1/14 (FT)	0 - 20 l/min**
DRFDM ARGON	Argon	W21.8x1/14 (FT)	0 - 30 l/min*
DRFDM KOHLENS 10	Carbon dioxide, helium	W21.8x1/14 (FT)	0 - 10 bar
DRFDM KOHLENS 20	Carbon dioxide, helium	W21.8x1/14 (FT)	0 - 20 bar
For flammable gases, hose connection G 3/8" LH, nozzle 9 mm, input pressure 20 bar (DIN 477-1)			
DRFDM ACGAS	Acetylene	Bracket	0 - 1.5 bar
For flammable gases, hose connection G 3/8" LH, nozzle 9 mm, input pressure 200 bar (DIN 477-1)			
DRFDM BRENN 1.5	Hydrogen, methane, natural gas, coal gas (fuel gas)	W21.8x1/14 LH (FT)	0 - 1.5 bar
DRFDM BRENN 10	Hydrogen, methane, natural gas, coal gas (fuel gas)	W21.8x1/14 LH (FT)	0 - 10 bar
For flammable gases, hose connection G 1/4" LH, nozzle 6 mm, input pressure 200 bar (DIN 477-1)			
DRFDM FORM FM	Forming gas	W21.8x1/14 LH (FT)	0 - 30 l/min**
Replacement seals (PTFE) for 200 bar flange connection			
DRFDM DR			
For non-flammable gases, hose connection G 1/4", nozzle 6 mm, input pressure 300 bar (DIN 477-5)			
DRFDMH LUFT 10	Air	W30x2 (FT) (Ø 16.6/19.4)	0 - 10 bar
DRFDMH SAU 10	Oxygen	W30x2 (FT) (Ø 17.3/18.7)	0 - 10 bar
DRFDMH STICK 10	Nitrogen	W30x2 (FT) (Ø 15.9/20.1)	0 - 10 bar
DRFDMH STICK 20	Nitrogen	W30x2 (FT) (Ø 15.9/20.1)	0 - 20 bar
DRFDMH STICK 100***	Nitrogen	W30x2 (FT) (Ø 15.9/20.1)	0 - 100 bar
For flammable gases, hose connection G 3/8" LH, nozzle 9 mm, input pressure 300 bar (DIN 477-5)			
DRFDMH BRENN 1.5	Hydrogen, methane, natural gas, coal gas (fuel gas)	W30x2 LH (FT) (Ø 15.2/20.8)	0 - 1.5 bar
DRFDMH BRENN 10	Hydrogen, methane, natural gas, coal gas (fuel gas)	W30x2 LH (FT) (Ø 15.2/20.8)	0 - 10 bar

with flowmeter

* round instrument, ** flowmeter, *** outlet: threaded end for cutting ring connection 12 L without shut-off valve

6

Pipeline pressure regulators — up to 200 bar

Version: Pipeline pressure regulator, not resettable, adjusted with toggle (type 50 bar with hand wheel)
Materials: Body: Brass, seal: NBR
Temperature range: - 10°C up to +90°C
Media: Compressed air, nitrogen and other neutral gases

Type	Connection	Input pressure	Flow	Pressure regulation range
DRLTG 50	G 1/4" FT	200 bar	2500 l/min	1 - 50 bar
DRLTG 100	G 1/4" FT	200 bar	2700 l/min	1 - 100 bar
DRLTG 150	G 1/4" FT	200 bar	2900 l/min	1 - 150 bar

Flame arrestors for pressure regulators — ISO 5175 (EN 730)

Version: Gas non-return valve with flame arrestor and temperature controlled cut-off valve to secure pressure regulators, distribution lines and single bottles.

Type	To be used with	Operating pressure	Input (FT)	Output (MT)
DRFDM GSV 14	Oxygen	0 - 20 bar	G 1/4"	G 1/4"
DRFDM GSV 38 L	Fuel gas	0 - 5 bar	G 3/8" LH	G 3/8" LH

OKS Cleaner and service products from page 564

Cables can be found on page 643

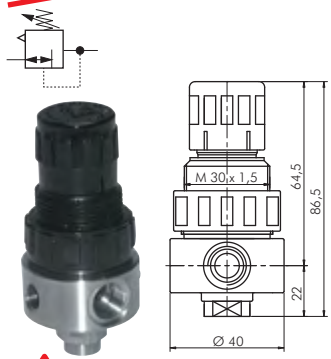
Hose clamps from page 234

Gas hoses from page 216

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pressure regulators made of stainless steel/brass

Especially good value!



Order accessories at the same time!

Suitable pressure gauges can be found on page 372.

Pressure regulators — Kv value 0.2 m³/h, 200 l/min[1)]

Version: Resettable (with relieving system), optionally not resettable
Materials: Body: AISI 316, spring hood: POM, seal: FKM, diaphragms: NBR (PTFE coated)
Temperature range: -20°C to max. +60°C
Input pressure: Max. 20 bar
Media: Oiled and unoiled compressed air, non-toxic gases (with option **-NB**: gases and liquids, demineralised water)
Pressure gauge connection: G 1/8"
Switch panel thread: M 30 x 1.5
☞ **Optional:** Not resettable version for gases and liquids (NBR diaphragm, PTFE coated) **-NB**

Type (INOX)	Thread	Pressure regula. range	Mount. bracket incl. nuts from AISI 316 (INOX)	steel/brass
R 014-1.5 ESB	G 1/4"	0.1 - 1.5 bar	WH 014 ES	WHM30+SM1
R 014-3 ESB	G 1/4"	0.2 - 3 bar	WH 014 ES	WHM30+SM1
R 014-8 ESB	G 1/4"	0.5 - 8 bar	WH 014 ES	WHM30+SM1
R 014-15 ESB	G 1/4"	1 - 15 bar	WH 014 ES	WHM30+SM1

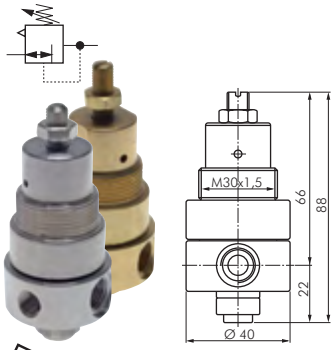
* changing the NBR/PTFE diaphragms between resettable and not resettable is possible.

☞ **Order example:** R 014-1.5 ESB **

Standard type

Designation for the options:
Not resettable version
for gases and liquid . . . . . **-NB**

Completely made of metal!



Order accessories at the same time!

Suitable pressure gauges can be found on page 372.

Pressure regulators — Kv value 0.2 m³/h, 200 l/min[1)]

Version: Resettable (with relieving system), optionally not resettable
Materials: Seal: FKM, diaphragms: NBR (PTFE coated)
Temperature range: -20°C to max. +80°C
Input pressure: Max. 30 bar
Media: Oiled and unoiled compressed air, non-toxic gases (with option **-NB**: gases and liquids, demineralised water with option **-CO**: CO_2 (only for type brass)
Pressure gauge connection: G 1/8"
Switch panel thread: M 30 x 1.5
☞ **Optional:** Not resettable version for gases and liquids (NBR diaphragm, PTFE coated) **-NB,** version for CO_2 (only for type brass) **-CO**

Type AISI 316L (INOX)	Type brass (Outstanding value!)	Thread	Pressure regula. range	Mount. bracket incl. nuts from AISI 316 (INOX)	steel/brass
R 014-1.5 ES	R 014-1.5 MS	G 1/4"	0.1 - 1.5 bar	WH 014 ES	WHM30+SM1
R 014-3 ES	R 014-3 MS	G 1/4"	0.2 - 3 bar	WH 014 ES	WHM30+SM1
R 014-8 ES	R 014-8 MS	G 1/4"	0.5 - 8 bar	WH 014 ES	WHM30+SM1
R 014-15 ES	R 014-15 MS	G 1/4"	1 - 15 bar	WH 014 ES	WHM30+SM1

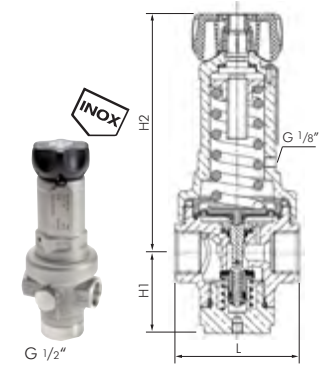
* changing the NBR/PTFE diaphragms between resettable and not resettable is possible.

☞ **Order example:** R 014-1.5 ES **

Standard type

Designation for the options:
Version not resettable
For gases and liquids . . . . . **-NB**
For CO_2 (only type brass) . . . . . **-CO**

[1)] at 8 bar input pressure, 6 bar output pressure and 1 bar pressure drop



Precision pressure regulators — up to Kv value 12.7 (m³/h), up to 15000 l/min.[1)]

Version: Resettable (with relieving system), optionally not resettable
Materials: Seal: FKM/PTFE, diaphragms: FKM, housing: AISI 316, internal parts: AISI 316L, compression spring: AISI 631, hand wheel: PBT
Temperature range: -10°C to max. +120°C
Input pressure: Max. 60 bar
Media: Oiled and unoiled compressed air, non-poisonous/harmless gaseous media (with option **-NB:** gasses and liquids, demineralised water)
Pressure gauge connection: G 1/4"
☞ **Optional:** Not resettable version for gases and liquids **-NB**

Type AISI 316 (INOX)	Thread	Pressure regulation range	Kv value m³/h	Flow l/min[1)]	L	H1	H2	Mount. bracket (INOX)
RP 12-15 ES	G 1/2"	0.5 - 15 bar	1.6	1900	60	40	120	WH RP 12 ES
RP 12-30 ES*	G 1/2"	5 - 30 bar	1.6	1900	60	40	120	WH RP 12 ES
RP 12-50 ES*	G 1/2"	10 - 50 bar	1.6	1900	60	40	120	WH RP 12 ES
RP 34-15 ES	G 3/4"	0.5 - 15 bar	3.4	4000	78	48	180	WH RP 34 ES
RP 34-30 ES*	G 3/4"	5 - 30 bar	3.4	4000	78	48	180	WH RP 34 ES
RP 34-50 ES*	G 3/4"	10 - 50 bar	3.4	4000	78	48	180	WH RP 34 ES
RP 10-15 ES	G 1"	0.5 - 15 bar	5.5	6540	102	61	215	WH RP 10 ES
RP 10-30 ES*	G 1"	5 - 30 bar	5.5	6540	102	61	215	WH RP 10 ES
RP 10-50 ES*	G 1"	10 - 50 bar	5.5	6540	102	61	215	WH RP 10 ES
RP 112-15 ES	G 1 1/2"	0.5 - 15 bar	12.7	15000	136	63	260	WH RP 112 ES
RP 112-30 ES*	G 1 1/2"	5 - 30 bar	12.7	15000	136	63	260	WH RP 112 ES
RP 112-50 ES*	G 1 1/2"	10 - 50 bar	12.7	15000	136	63	260	WH RP 112 ES

[1)] at 7 bar input pressure, 6 bar output pressure and 1 bar pressure drop, * piston type regulator

☞ **Order example:** RP 12-15 ES **

Standard type

Designation for the options:
Not resettable version
For gases and liquids . . . . . **-NB**

Order accessories at the same time!

Suitable pressure gauges can be found on page 372.

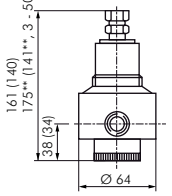
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pressure regulators made of stainless steel/brass

Pressure regulators — Kv value up to 0.5 m³/h, to 500 l/min[1]

Flow: Kv value 0.5 m³/h, 500 l/min[1] (brass: Kv value 0.35 m³/h, 400 l/min[1])
Version: Resettable (with relieving system), optionally not resettable
Materials: Seal: FKM, diaphragms: NBR (PTFE coated), type brass: ABS hand wheel
Temperature range: -20°C to max. +80°C
Media: Oiled and unoiled compressed air, non-toxic gases (with option **-NB**: gases and liquids, demineralised water, with option **-NE**: Aggressive gases (not for piston type regulator), with option **-CO**: CO_2 (only for type brass)
Pressure gauge connection: G 1/4"
Switch panel thread: M 45 x 1.5 (brass: M 35 x 1.5)
☞ **Optional:** Not resettable version for gases and liquids (NBR diaphragm, PTFE coated) **-NB**, not resettable version for aggressive gases (stainless steel diaphragm) **-NE**[5], version for CO_2 (only for type brass) **-CO**, NPT thread **-NPT**

Type AISI 316L (INOX)	Type brass (Outstanding value!)	Thread	Max. input pressure	Pressure regula. range	Mount. bracket (INOX)	Mounting bracket[4]
R 14-1.5 ES	R 14-1.5 MS	G 1/4"	30 bar	0.1 - 1.5 bar	WH 14 ES	WH 14 MS
R 14-3 ES	R 14-3 MS	G 1/4"	30 bar	0.2 - 3 bar	WH 14 ES	WH 14 MS
R 14-8 ES	R 14-8 MS	G 1/4"	30 bar	0.5 - 8 bar	WH 14 ES	WH 14 MS
R 14-15 ES	R 14-15 MS	G 1/4"	50 bar	1 - 15 bar	WH 14 ES	WH 14 MS
R 14-30 ES**	R 14-30 MS**	G 1/4"	50 bar	2 - 30 bar	WH 14 ES	WH 14 MS
R 14-50 ES**	R 14-50 MS**	G 1/4"	50 bar	3 - 50 bar	WH 14 ES	WH 14 MS
R 38-1.5 ES	---	G 3/8"	30 bar	0.1 - 1.5 bar	WH 14 ES	---
R 38-3 ES	---	G 3/8"	30 bar	0.2 - 3 bar	WH 14 ES	---
R 38-8 ES	---	G 3/8"	30 bar	0.5 - 8 bar	WH 14 ES	---
R 38-15 ES	---	G 3/8"	50 bar	1 - 15 bar	WH 14 ES	---
R 38-30 ES**	---	G 3/8"	50 bar	2 - 30 bar	WH 14 ES	---
R 38-50 ES**	---	G 3/8"	50 bar	3 - 50 bar	WH 14 ES	---
Replacement diaphragm (not for piston type regulator)						
MEMB R14ES[3]	MEMB R14MS[3]	Diaphragm made of NBR/PTFE, resettable, for standard regulating option				
MEMB R14ES-NB[3]	MEMB R14MS-NB[3]	Diaphragm made of NBR/PTFE, not resettable, for regulating option **-NB**				
MEMB R14ES-NE	---	Diaphragms made of stainless steel, not resettable, for regulating option **-NE**				



values in brackets apply to type brass

** piston type regulator
[1] at 8 bar input pressure, 6 bar output pressure and 1 bar pressure drop
[3] changing the NBR/PTFE diaphragms between resettable and not resettable is possible.
[4] only for type brass, material of the bracket: stainless steel
[5] only for type AISI 316L

☞ **Order example:** R 14-1.5 ES **
Standard type

Designation for the options:
Version not resettable
- For gases and liquids . . . . . **-NB**
- For aggressive gases (not for piston type regulator) . . . **-NE**[5]

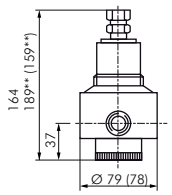
For CO_2 (only type brass) . . . . . **-CO**
NPT thread . . . . . **-NPT**

Order accessories at the same time!
Suitable pressure gauges can be found on page 372.

Pressure regulators — Kv value up to 1.8 m³/h, to 2200 l/min[1]

Flow: Kv value 1.8 m³/h, 2200 l/min[1] (brass: Kv value 1 m³/h, 1500 l/min[1])
Version: Resettable (with relieving system), optionally not resettable
Materials: Seal: FKM, diaphragms: NBR (PTFE coated)
Temperature range: -20°C to max. +80°C
Media: Oiled and unoiled compressed air, non-toxic gases (with option **-NB**: gases and liquids, demineralised water, with option **-NE**: Aggressive gases (not for piston type regulator), with option **-CO**: CO_2 (only for type brass)
Pressure gauge connection: G 1/4"
Switch panel thread: M 50 x 1.5
☞ **Optional:** Not resettable version for gases and liquids (NBR diaphragm, PTFE coated) **-NB**, not resettable version for aggressive gases (stainless steel diaphragm) **-NE*****, version for CO_2 (only for type brass) **-CO**, NPT thread **-NPT**

Type AISI 316L (INOX)	Type brass (Outstanding value!)	Thread	Max. input pressure	Pressure regulation range	Mount. bracket (INOX)
R 12-1.5 ES	R 12-1.5 MS	G 1/2"	30 bar	0.1 - 1.5 bar	WH 12 ES
R 12-3 ES	R 12-3 MS	G 1/2"	30 bar	0.2 - 3 bar	WH 12 ES
R 12-8 ES	R 12-8 MS	G 1/2"	30 bar	0.5 - 8 bar	WH 12 ES
R 12-15 ES	R 12-15 MS	G 1/2"	50 bar	1 - 15 bar	WH 12 ES
R 12-30 ES**	R 12-30 MS**	G 1/2"	50 bar	2 - 30 bar	WH 12 ES
R 12-50 ES**	R 12-50 MS**	G 1/2"	50 bar	3 - 50 bar	WH 12 ES
Replacement diaphragm (not for piston type regulator)					
MEMB R12 ES*	MEMB R12 MS*	Diaphragms made of NBR/PTFE, resettable, for regulator option standard			
MEMB R12ES-NB*	MEMB R12MS-NB*	Diaphragm made of NBR/PTFE, not resettable, for regulating opttion **-NB**			
MEMB R12ES-NE	---	Diaphragms made of stainless steel, not resettable, for regulating option **-NE**			



values in brackets apply to type brass

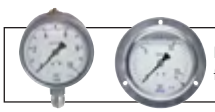
* changing the NBR/PTFE diaphragms between resettable and not resettable is possible.
** piston type regulator
*** only for type AISI 316L
[1] at 8 bar input pressure, 6 bar output pressure and 1 bar pressure drop

☞ **Order example:** R 12-1.5 ES **
Standard type

Designation for the options:
Version not resettable
- For gases and liquids . . . . . **-NB**
- For aggressive gases (not for piston type regulator) . . **-NE*****

For CO_2 (only type brass) . . . . . **-CO**
NPT thread . . . . . **-NPT**

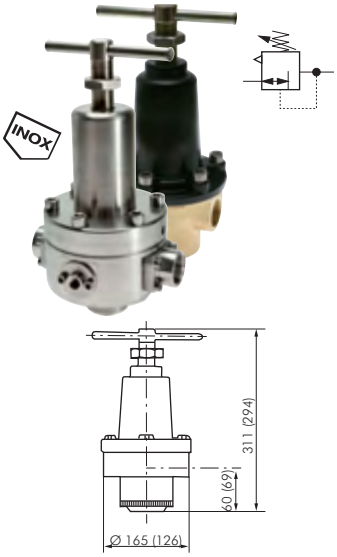
Order accessories at the same time!
Suitable pressure gauges can be found on page 372.



Pressure gauge from page 366

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pressure regulators made of stainless steel/brass



values in brackets apply to type brass

Pressure regulators — Kv value up to 5 m³/h, to 6500 l/min[1)]

Flow: Kv value 5 m³/h, 6500 l/min[1)] (brass: Kv value 4.2 m³/h, 5000 l/min[1)])
Version: Resettable (with relieving system), optionally not resettable
Materials: Seal: FKM, diaphragms: NBR (PTFE coated), type brass: Aluminium spring hood, steel spindle
Temperature range: -20°C to max. +80°C
Media: Oiled and unoiled compressed air, non-toxic gases with option **-NB**: gases and liquids, demineralised water, with option **-NE**: Aggressive gases (not for piston type regulator), with option **-CO**: CO_2 (only for type brass)
Pressure gauge connection: G 1/4"
☞ **Optional:** Not resettable version for gases and liquids (NBR diaphragm, PTFE coated) **-NB**, not resettable version for aggressive gases (stainless steel diaphragm) **-NE*****, version for CO_2 (only for type brass) **-CO**, NPT thread **-NPT**

Type AISI 316L (INOX)	Type brass (Outstanding value!)	Thread	Max. input pressure	Pressure regulation range	Mount. bracket (INOX)
R 10-1.5 ES	R 10-1.5 MS	G 1"	30 bar	0.1 - 1.5 bar	WH 10 ES
R 10-3 ES	R 10-3 MS	G 1"	30 bar	0.2 - 3 bar	WH 10 ES
R 10-8 ES	R 10-8 MS	G 1"	30 bar	0.5 - 8 bar	WH 10 ES
R 10-15 ES	R 10-15 MS	G 1"	50 bar	1 - 15 bar	WH 10 ES
R 10-30 ES**	R 10-30 MS**	G 1"	50 bar	2 - 30 bar	WH 10 ES
R 10-50 ES**	R 10-50 MS**	G 1"	50 bar	3 - 50 bar	WH 10 ES
Replacement diaphragm (not for piston type regulator)					
MEMB R10ES*	MEMB R10MS*	Diaphragm made of NBR/PTFE, resettable, for standard regulating option			
MEMB R10ES-NB*	MEMB R10MS-NB*	Diaphragm made of NBR/PTFE, not resettable, for regulating option **-NB**			
MEMB R10ES-NE	---	Diaphragms made of stainless steel, not resettable, for regulating option **-NE**			

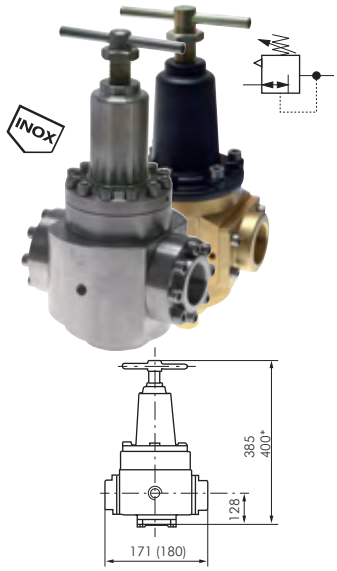
* changing the NBR/PTFE diaphragms between resettable and not resettable is possible. ** piston type regulator, *** only for type AISI 316L

☞ **Order example:** R 10-1.5 ES **
Standard type

Designation for the options:
Version not resettable
- For gases and liquids . . . . . **-NB**
- For aggressive gases (not for piston type regulator) . . **-NE*****

For CO_2 (only type brass) . . . . . **-CO**
NPT thread . . . . . **-NPT**

Order accessories at the same time!
Suitable pressure gauges can be found on page 372.



values in brackets apply to type brass

Pressure regulators — Kv value up to 12.6 m³/h, to 15000 l/min[1)]

Flow: Kv value 12.6 m³/h, 15000 l/min[1)] (brass: Kv value 9.6 m³/h, 13000 l/min[1)])
Version: Resettable (with relieving system), optionally not resettable
Materials: Seal: FKM, type brass: Aluminium spring hood, steel spindle
Temperature range: -20°C to max. +80°C
Media: Oiled and unoiled compressed air, non-toxic gases (with option **-NB**: gases and liquids, demineralised water), with option **-CO**: CO_2 (only for type brass)
Pressure gauge connection: G 1/4"
☞ **Optional:** Not resettable version for gases and liquids **-NB**, version for CO_2 (only for type brass) **-CO**, NPT thread **-NPT**

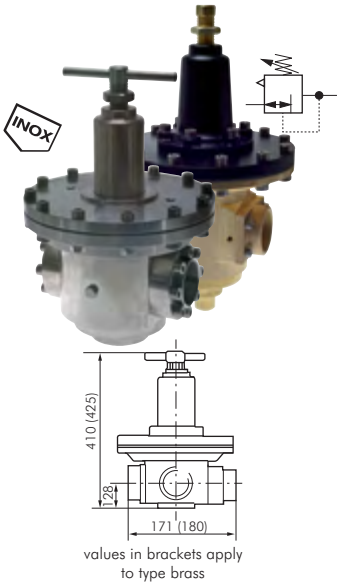
Type AISI 316L (INOX)	Type brass (Outstanding value!)	Thread	Max. input pressure	Pressure regulation range	Mount. bracket (INOX)
R 112-1.5 ES	R 112-1.5 MS	G 1 1/2"	30 bar	0.1 - 1.5 bar	WH 10 ES
R 112-3 ES	R 112-3 MS	G 1 1/2"	30 bar	0.2 - 3 bar	WH 10 ES
R 112-8 ES	R 112-8 MS	G 1 1/2"	30 bar	0.5 - 8 bar	WH 10 ES
R 112-15 ES*	R 112-15 MS	G 1 1/2"	50 bar	1 - 15 bar	WH 10 ES
R 112-30 ES*	R 112-30 MS	G 1 1/2"	50 bar	2 - 30 bar	WH 10 ES
R 112-50 ES*	R 112-50 MS	G 1 1/2"	50 bar	3 - 50 bar	WH 10 ES

*400 mm high

☞ **Order example:** R 112-1.5 ES **
Standard type

Designation for the options:
Not resettable version for
gases and liquids . . . . . **-NB**
For CO_2 (only type brass) . . . . . **-CO**
NPT thread . . . . . **-NPT**

Order accessories at the same time!
Suitable pressure gauges can be found on page 372.



values in brackets apply to type brass

Pressure regulators — Kv value up to 21 m³/h, to 25000 l/min[1)]

Flow: Kv value 21 m³/h, 25000 l/min[1)] (brass: Kv value 13.2 m³/h, 17000 l/min[1)])
Version: Not resettable (without relieving system)
Materials: Seal: FKM, type brass: Aluminium spring hood, steel spindle
Temperature range: -20°C to max. +80°C
Input pressure: Max. 30 bar
Media: Oiled and unoiled compressed air, aggressive and other gases, liquids, demineralised water, with option **-CO**: CO_2 (only for type brass)
Pressure gauge connection: G 1/4"
☞ **Optional:** Version for CO_2 (only for type brass) **-CO**, NPT thread **-NPT**

Type AISI 316L (INOX)	Type brass (Outstanding value!)	Thread	Pressure regulation range
R 20-1.5 ES	R 20-1.5 MS	G 2"	0.1 - 1.5 bar
R 20-6 ES	R 20-6 MS	G 2"	0.5 - 6 bar
R 20-15 ES	R 20-15 MS	G 2"	1.0 - 15 bar

☞ **Order example:** R 20-1.5 ES **
Standard type

Designation for the options:
For CO_2 (only type brass) . . . . . **-CO**
NPT thread . . . . . **-NPT**

Order accessories at the same time!
Suitable pressure gauges can be found on page 372.

[1)] at 8 bar input pressure, 6 bar output pressure and 1 bar pressure drop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Stainless steel filter regulators/filters/lubricators

Filter regulators — up to 6000 l/min[1]

Version: Resettable (with relieving system)
Materials: Seal: FKM, diaphragms: NBR (PTFE coated), filter: AISI 316 (50 µm)
Temperature range: -20°C to max. +80°C
Input pressure: Max. 30 bar
Output pressure: 1.5 to 15 bar adjustable
Media: Oiled and unoiled compressed air, non-toxic gases
Pressure gauge connection: G 1/4"
☞ **Optional:** NPT thread **-NPT**, automatic drain, (internal parts in brass, max. 16 bar) **-AM**, other pressure regulator ranges: 0.1 - 1.5 bar **-1.5**, 0.2 - 3 bar **-3**, 0.5 - 8 bar **-8**

Type AISI 316L (INOX)	Thread	Flow l/min[1]	C	d	H	Panel thread	Mounting bracket (INOX)
FR 14 ES	G 1/4"	1400	125	64	246	M 45 x 1.5	WH 14 ES
FR 38 ES	G 3/8"	1400	125	64	246	M 45 x 1.5	WH 14 ES
FR 12 ES	G 1/2"	3800	135	79	263	M 50 x 1.5	WH 12 ES
FR 10 ES	G 1"	6000	136	137	299	M 45 x 1.5	---

Replacement diaphragm	
MEMB FR14 ES	For use with type FR 14 ES and FR 38 ES
MEMB FR12 ES	For use with type FR 12 ES

[1] at 8 bar input pressure, 6 bar output pressure and 1 bar pressure drop

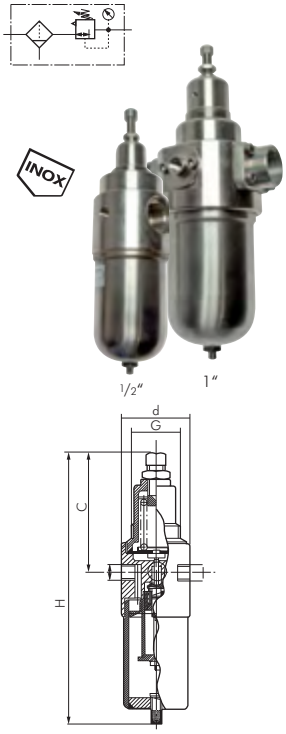
☞ **Order example:** FR 14 ** ES **

Standard type

Pressure regula. range
0.1 - 1.5 bar . . . . . **-1.5**
0.2 - 3 bar . . . . . **-3**
0.5 - 8 bar . . . . . **-8**

Designation for the options:
NPT thread . . . . . **-NPT**
Automatic drain (max. 16 bar) . . . . . **-AM**

Pressure gauge from page 366



Filters — up to 7200 l/min[2]

Materials: Seal: FKM, Filter: AISI 316 (50 µm)
Temperature range: -20°C to max. +80°C
Input pressure: Max. 50 bar
Media: Oiled and unoiled compressed air, non-toxic gases
☞ **Optional:** NPT thread **-NPT**, automatic drain, (internal parts in brass, max. 16 bar) **-AM**

Type AISI 316L (INOX)	Thread	Flow l/min[2]	C	d	H	Mounting bracket (INOX)
F 14 ES	G 1/4"	900	125	64	139	WHF 14 ES
F 38 ES	G 3/8"	1000	125	64	139	WHF 14 ES
F 12 ES	G 1/2"	2500	130	79	150	WHF 12 ES
F 10 ES	G 1"	7200	167	137	194	WHF 10 ES

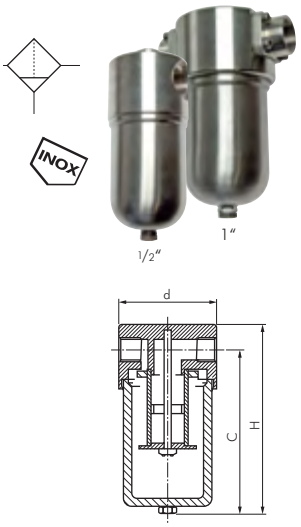
[2] at 7 bar input pressure and 0.33 bar pressure drop

☞ **Order example:** F 14 ES **

Standard type

Designation for the options:
NPT thread . . . . . **-NPT**
Automatic drain (max. 16 bar) . . . . . **-AM**

Stainless steel screw connections from page 78



Lubricators — up to 8200 l/min[2]

Materials: Seal: FKM
Temperature range: -20°C to max. +80°C
Input pressure: Max. 50 bar
Media: Compressed air
☞ **Optional:** NPT thread **-NPT**

Type AISI 316L (INOX)	Thread	Flow l/min[2]	C	d	H
OL 14 ES	G 1/4"	900	44	64	173
OL 38 ES	G 3/8"	1000	44	64	173
OL 12 ES	G 1/2"	2400	45	79	175
OL 10 ES	G 1"	8200	34	137	202

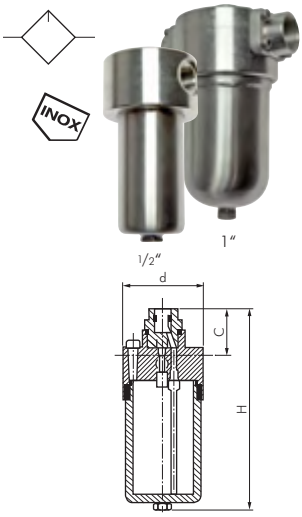
[2] at 7 bar input pressure and 0.33 bar pressure drop

☞ **Order example:** OL 14 ES **

Standard type

Designation for the options:
NPT thread . . . . . **-NPT**

Pneumatic oil on page 574

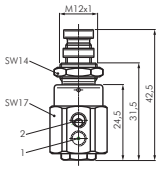


All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Water pressure reducers/water filters

Micro - pressure regulators for air and water — 75 l/min**

Version: Not resettable piston type regulator (without relieving system)
Materials: Body and nut: Brass nickel-plated, seals: NBR, spring: Stainless steel
Temperature range: -20°C to max. +60°C
Pressure gauge connection: None
Switch panel thread: M 12 x 1
Media: Filtered, neutral gases and liquids (100 µm)



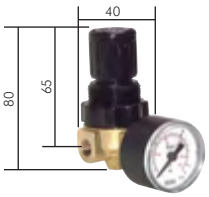
⚠ **Warning: On account of possible condensate formation, do not position above electronic components!**

Type	Thread	Pressure regulation range	Max. input pressure
R M5-NB*	M 5	1 - 8 bar	10 bar
R M5-2-NB	M 5	0.2 - 2 bar	6 bar

* standard series, please use preferentially as the regulation range can be applied universally. ** for water Kvs = 1.55 l/min

Pressure regulators - mini - for air and water — 340 l/min**

Version: Not resettable (without relieving system)
Materials: Body: Brass, spring hood: POM, diaphragms and seals: NBR
Temperature range: Up to max. +50°C
Input pressure: Max. 25 bar
Pressure gauge connection: G 1/8"
Switch panel thread: M 30 x 1.5



Type thread G 1/8"	Type thread G 1/4"	Pressure regulation range	Pressure gauge display	Pressure gauge diameter	Mounting bracket
DR 021-00*	DR 021-01*	0.5 - 10 bar	0 - 16 bar	40	WHM 30 + SM 1
DR 021-00-3	DR 021-01-3	0.1 - 3 bar	0 - 6 bar	40	WHM 30 + SM 1
DR 021-00-6	DR 021-01-6	0.5 - 6 bar	0 - 10 bar	40	WHM 30 + SM 1
DR 021-00-16	DR 021-01-16	0.5 - 16 bar	0 - 25 bar	40	WHM 30 + SM 1

* standard series, please use preferentially as the regulation range can be applied universally. ** for water approx. = 2.5 l/min

Pressure regulators - Multifix - for air and water — 700 l/min**

Version: Not resettable (without relieving system)
Materials: Body: Grivory® (PA 66), spring hood: POM, diaphragms and seals: NBR
Temperature range: Up to max. +50°C
Input pressure: Max. 16 bar
Pressure gauge connection: G 1/8"
Switch panel thread: M 30 x 1.5
☞ **Optional:** Can be locked using a cylinder lock **-K**, can be locked using a cylinder lock with E 11 closure*** **-KE11**

Type	Thread	Pressure regulation range	Pressure gauge display	Pressure gauge diameter	Mounting bracket
R 014 NB*	G 1/4"	0,5 - 10 bar	0 - 16 bar	40	WHM 30 + SM 1
R 014-3 NB	G 1/4"	0,1 - 3 bar	0 - 6 bar	40	WHM 30 + SM 1
R 014-6 NB	G 1/4"	0,2 - 6 bar	0 - 10 bar	40	WHM 30 + SM 1

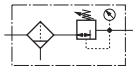
* standard series, please use preferentially as the regulation range can be applied universally. ** for water approx. 2.5 l/min,
*** Volkswagen locking system (delivered without a key).

☞ **Order example:** R 014 G NB **

Standard type

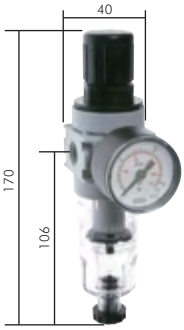
Designation for the options:
Lockable . . . . . **-K**
Lockable with E 11 closure*** . . . . . **-KE11**

*** Volkswagen-lock (delivered without key).



Filter regulators - Multifix - for air and water — 700 l/min**

Version: Not resettable (without relieving system)
Materials: Body: Grivory® (PA 66), spring hood: POM, diaphragms and seals: NBR, container: Polycarbonate
Temperature range: Up to max. +50°C
Input pressure: Max. 16 bar
Pressure gauge connection: G 1/8"
Switch panel thread: M 30 x 1.5
Condensate draining: Manually
Max. condensate amount: 16 cm^3
Pore width in the filter: 5 µm
☞ **Optional:** Can be locked using a cylinder lock **-K**, can be locked using a cylinder lock with E 11 closure*** **-KE11**, version with metal container **-MB**



Type	Thread	Pressure regulation range	Pressure gauge display	Pressure gauge diameter	Mounting bracket
FR 014 NB*	G 1/4"	0,5 - 10 bar	0 - 16 bar	40	WHM 30 + SM 1
FR 014-3 NB	G 1/4"	0,1 - 3 bar	0 - 6 bar	40	WHM 30 + SM 1
FR 014-6 NB	G 1/4"	0,2 - 6 bar	0 - 10 bar	40	WHM 30 + SM 1

* standard series, please use preferentially as the regulation range can be applied universally. ** for water approx. 2.5 l/min,
*** Volkswagen locking system (delivered without a key).

☞ **Order example:** FR 014 G NB **

Standard type

Designation for the options:
Lockable . . . . . **-K**
Lockable with E 11 closure*** . . . . . **-KE11**
With metal container . . . . . **-MB**

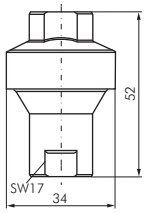
*** Volkswagen-lock (delivered without key).

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Inline pressure regulators non-adjustable for water — 4 l/min

Function: Not resettable, preset pressure regulator
Materials: Housing: Brass nickel-plated, internal parts: Brass and stainless steel, seals: NBR
Temperature range: 0°C to max. +60°C
Input pressure: Max. 10 bar, up to 4 l/min (at 0.8 bar pressure loss)
Media: Water
☞ **Optional:** For use with air: From page 540

✓ **Advantages:** • The pressure which has been set cannot be altered

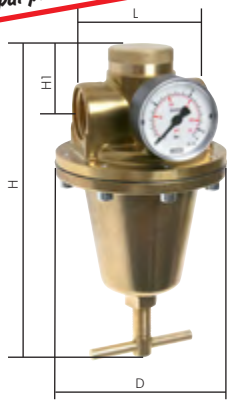


Type	Thread	Output pressure	Press. tolerance
iLDR 14-1 W	G 1/4"	1 bar	± 0.3 bar
iLDR 14-2 W	G 1/4"	2 bar	± 0.3 bar
iLDR 14-3 W	G 1/4"	3 bar	± 0.3 bar
iLDR 14-4 W	G 1/4"	4 bar	± 0.4 bar
iLDR 14-5 W	G 1/4"	5 bar	± 0.5 bar
iLDR 14-6 W	G 1/4"	6 bar	± 0.6 bar
iLDR 14-7 W	G 1/4"	7 bar	± 0.7 bar
iLDR 14-8 W	G 1/4"	8 bar	± 0.8 bar

Water pressure regulators for high pressures — up to 40 bar

Input pressure up to max. 40 bar!

Version: Not resettable (without relieving system)
Materials: Body: Brass, diaphragms and seals: NBR
Temperature range: 0°C to max. +90°C
Input pressure: Max. 40 bar
Pressure gauge connection: G 1/4", **panel thread:** DRW 1140 G: M 20 x 1.5, DRW 3340 G: M 28 x 1.5
Media: Water
☞ **Optional:** Other regulation ranges: 0.5 - 6 bar **-6**, 0.5 - 16 bar **-16**, 0.5 - 25 bar **-25**



Type	Thread	D	L	H	H1	Pressure regula. range	Pressure gauge display	Mounting bracket	Panel union nut
Flow 2.5 l/min*									
DRW 1140	G 1/4"	36	45	104	23	0.5 - 10 bar	0 - 16 bar	BW 1040	SM 1040
Flow 15 l/min*									
DRW 3340	G 1/2"	67	72	145	30	0.5 - 10 bar	0 - 16 bar	BW 3040	SM 3040
Flow 24 l/min*									
DRW 5540	G 1"	116	83	216	41	0.5 - 10 bar	0 - 16 bar	BW 5040	---
Flow 56 l/min*									
DRW 7740	G 1 1/2"	116	114	240	50	0.5 - 10 bar	0 - 16 bar	BW 5040	---

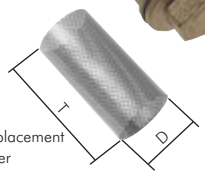
* measured at P_1 = 7 bar, P_2 = 6 bar, Δp = 1 bar

☞ **Order example:** DRW 1140 ** (Standard type)

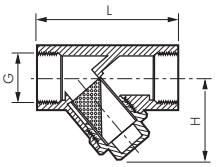
Regulation range
0.5 - 6 bar . . . . . **-6**
0.5 - 16 bar . . . . . **-16**
0.5 - 25 bar . . . . . **-25**

Strainers — up to 20 bar

Materials: Brass, seal: NBR, replacement filter: AISI 304
Mesh size: 0.5 mm (G 2 1/2" - 4": 0.8 mm), **temperature range:** -20°C to max. +110°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air
☞ **Optional:** 0.2 mm mesh size (only type brass) **-F**



replacement filter



Type brass	Type brass nickel-plate	G	L	H	PN	Replace. filter 0.5 mm/0.8 mm	0.2 mm	D	T
SF 14	SF 14 MSV	G 1/4"	55	40	20 bar	SFEI 143812 ES	... -F	18	32.0
SF 38	SF 38 MSV	G 3/8"	55	40	20 bar	SFEI 143812 ES	... -F	18	32.0
SF 12	SF 12 MSV	G 1/2"	58	40	20 bar	SFEI 143812 ES	... -F	18	32.0
SF 34	SF 34 MSV	G 3/4"	70	48	20 bar	SFEI 34 ES	... -F	24	41.0
SF 10	SF 10 MSV	G 1"	87	56	20 bar	SFEI 10 ES	... -F	30	47.0
SF 114	SF 114 MSV	G 1 1/4"	96	64	20 bar	SFEI 114 ES	... -F	36	50.0
SF 112	SF 112 MSV	G 1 1/2"	106	73	20 bar	SFEI 112 ES	... -F	42	57.0
SF 20	SF 20 MSV	G 2"	126	89	20 bar	SFEI 20 ES	... -F	53	70.0
SF 212*	---	G 2 1/2"	150	107	16 bar	SFEI 212 ES*	... -F	63	83.0
SF 30*	---	G 3"	169	120	16 bar	SFEI 30 ES*	---	74	89.5
SF 40*	---	G 4"	219	161	16 bar	SFEI 40 ES*	---	102	129.5

* 0.8 mm mesh size

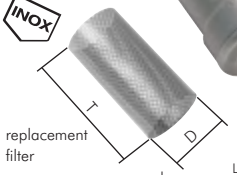
☞ **Order example:** SF 14 ** (Standard type)

Designation for the options:
0.2 mm mesh size . . . . . **-F**

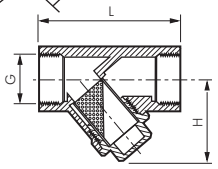
Stainless steel strainers — Eco-Line/PN 40

Especially good value!

Materials: AISI 316, screen: AISI 316
Mesh size: 1.0 mm, **temperature range:** -20°C to max. +200°C
☞ **Optional:** 0.6 mm mesh size **-F**, certificate 3.1



replacement filter



Type	G	L	H	Replace. filter 1.0 mm	0.6 mm	D	T
SF 14 ES E	G 1/4"	65	46.5	SFEH 143812 ES	... -F	19	28
SF 38 ES E	G 3/8"	65	46.5	SFEH 143812 ES	... -F	19	28
SF 12 ES E	G 1/2"	65	46.5	SFEH 143812 ES	... -F	19	28
SF 34 ES E	G 3/4"	80	54.0	SFEH 34 ES	... -F	24	39
SF 10 ES E	G 1"	90	67.0	SFEH 10 ES	... -F	32	48
SF 114 ES E	G 1 1/4"	105	74.0	SFEH 114 ES	... -F	36	53
SF 112 ES E	G 1 1/2"	120	81.5	SFEH 112 ES	... -F	44	63
SF 20 ES E	G 2"	140	95.0	SFEH 20 ES	... -F	54	75
SF 212 ES E	G 2 1/2"	180	121.0	SFEH 212 ES	... -F	70	99
SF 30 ES E	G 3"	200	138.0	SFEH 30 ES	... -F	85	107

☞ **Order example:** SF 14 ES E ** (Standard type)

Designation for the options:
0.6 mm mesh size . . . . . **-F**

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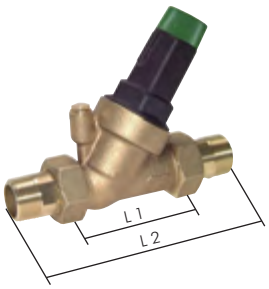
Water pressure reducers/water filters

Especially good value!

Pressure reducers for drinking and industrial water — PN 16



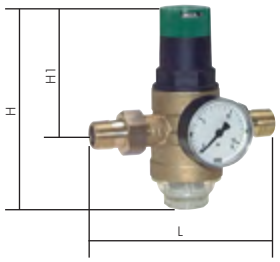
Version: Pressure reducer, independent of build-up pressure, with fitted strainer (DVGW component tested) for use in domestic water systems and in the industry. Adjustment scale for the setpoint pressure is integrated in the handle.
Materials: Body: Brass, spring hood: Plastic with adjustment scale for setpoint pressure**
Temperature range: Up to max. +30°C
Input pressure: Max. 16 bar
Media: Drinking and industrial water as well as chemical-free water for the most diverse industrial applications (no circulation water)

Type	Thread	DN	L 1	L 2	Max. flow*	Pressure regula. range
DRW 12 B	R 1/2"	15	90	156	33 l/min	1.5 - 6 bar
DRW 34 B	R 3/4"	20	90	158	56 l/min	1.5 - 6 bar
DRW 10 B	R 1"	25	100	183	88 l/min	1.5 - 6 bar
DRW 114 B	R 1 1/4"	32	130	227	143 l/min	1.5 - 6 bar
DRW 112 B	R 1 1/2"	40	130	270	226 l/min	1.5 - 6 bar
DRW 20 B	R 2"	50	125	259	256 l/min	1.5 - 6 bar

* at V = 3 m/sec, ** 2"-Regulator is supplied with pressure gauge, the adjustment scale is therefore no longer required.

Honeywell

Filter pressure reducers for drinking water and nitrogen (KU sieve bowls) — PN 16



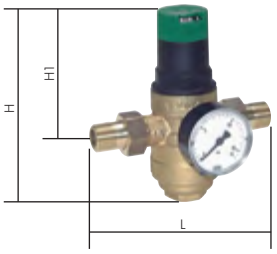
Version: Pressure reducer with fitted strainer (DVGW component tested) for use in domestic water systems and in the industry. Adjustment scale integrated in the handle.
Materials: Body: Brass, diaphragms and seal: NBR, filter insert AISI 304, sieve bowl: Clear plastic
Temperature range: Up to max. +40°C
Input pressure: Max. 16 bar
Media: Drinking water, compressed air and nitrogen

Type	Thread	L	H	H1	Max. flow*	Pressure regula. range
DRW 12	R 1/2"	140	147	89	40 l/min	1.5 - 6 bar
DRW 34	R 3/4"	160	147	89	52 l/min	1.5 - 6 bar
DRW 10	R 1"	180	175	111	97 l/min	1.5 - 6 bar
DRW 114	R 1 1/4"	200	175	111	99 l/min	1.5 - 6 bar
DRW 112	R 1 1/2"	225	299	173	210 l/min	1.5 - 6 bar
DRW 20	R 2"	255	299	173	200 l/min	1.5 - 6 bar

* applies to water, Δp = 1 bar

Honeywell

Filter pressure reducers for drinking water and nitrogen (brass sieve bowls) — PN 25



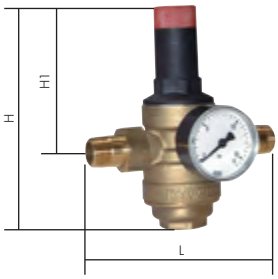
Version: Pressure reducer with fitted strainer (DVGW component tested) for use in domestic water systems and in the industry. Adjustment scale integrated in the handle.
Materials: Body: Brass, diaphragms and seal: NBR, filter insert AISI 304, sieve bowl: Brass
Temperature range: Up to max. +70°C
Input pressure: Max. 25 bar
Media: Drinking water, compressed air and nitrogen

Type	Thread	L	H	H1	Max. flow*	Pressure regula. range
DRWH 12	R 1/2"	140	147	89	40 l/min	1.5 - 6 bar
DRWH 34	R 3/4"	160	152	89	52 l/min	1.5 - 6 bar
DRWH 10	R 1"	180	175	111	97 l/min	1.5 - 6 bar
DRWH 114	R 1 1/4"	200	229	111	99 l/min	1.5 - 6 bar
DRWH 112	R 1 1/2"	225	299	173	210 l/min	1.5 - 6 bar
DRWH 20	R 2"	255	299	173	200 l/min	1.5 - 6 bar

* applies to water, Δp = 1 bar

Honeywell

Filter pressure reducers for drinking water and nitrogen (brass sieve bowls) — PN 25



Version: Pressure reducer with fitted strainer (KTW recommended) for use in domestic water systems and in the industry.
Materials: Body: Brass, diaphragms and seal: NBR, filter insert AISI 304, sieve bowl: Brass
Temperature range: Up to max. 70°C
Input pressure: Max. 25 bar
Media: Drinking water, compressed air and nitrogen

Type	Thread	L	H	H1	Max. flow*	Pressure regula. range
DRWH 12-12	R 1/2"	140	152	96	40 l/min	1.5 - 12 bar
DRWH 34-12	R 3/4"	160	152	96	52 l/min	1.5 - 12 bar
DRWH 10-12	R 1"	180	217	140	97 l/min	1.5 - 12 bar
DRWH 114-12	R 1 1/4"	200	217	140	99 l/min	1.5 - 12 bar
DRWH 112-12	R 1 1/2"	225	285	172	210 l/min	1.5 - 12 bar
DRWH 20-12	R 2"	225	285	172	200 l/min	1.5 - 12 bar

* applies to water, Δp = 1 bar

sieve bowl transp.

sieve bowl brass

replacement filter

valve replacement kit

double ring spanner

Replacement parts for filter pressure reducers for drinking water

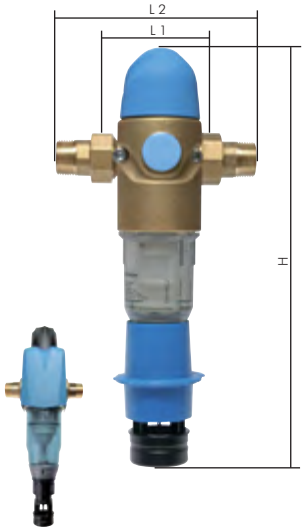
Sieve bowl brass	Sieve bowl transparent	Replace. filter AISI 304 (INOX)	Valve replacement kit	Double ring spanner*	Thread sieve bowl
For threads R 1/2" & R 3/4"					
SM 06 T 1/2	SK 06 T 1/2	ES 06 F 1/2 A	D 06 FA 1/2	ZR 06 K	TR 45 x 2
For threads R 1" (to 1991) & R 1 1/4" (to 1996)					
SM 06 T 1A	SK 06 T 1A	ES 06 F 1A	D 06 FA 1A	ZR 06 K	TR 65 x 2
For threads R 1" & R 1 1/4"					
SM 06 T 1B	SK 06 T1B	ES 06 F 1B	D 06 FA 1B	ZR 06 K	TR 55 x 2
For threads R 1 1/2" & R 2"					
SM 06 T 11/2	SK 06 T 11/2	ES 06 F 11/2 A	D 06 FA 11/2	ZR 06 K	TR 75 x 2

* for loosening of sieve bowl and spring hood

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Backwash filters for drinking and industrial water — PN 16

Version: Backwash filter (DVGW component tested) for filtering drinking and industrial use water, as well as chemical free coolant water in flow cooling systems (not water circuits). Protects the tubes and the connected system pieces from functional failures and corrosion damage from foreign particles contained in the water like rust particles, chippings, sand, hemp etc. The filter element is cleaned by manual backwashing (washing out the dirt particles) at regular intervals. The dirt that is rinsed out and the rinsing water can be drained over a hose or HT tube.
Materials: Body: Brass, sieve bowl: Clear special plastic
Temperature range: +5°C to max. +40°C (medium +5°C to max. +30°C)
Input pressure: 2 to 16 bar
Pore width in the filter: 90 µm
Rinse water connection: Hose nozzle 13 mm or HT tube Ø 50 mm
Media: Drinking and industrial water as well as chemical-free water for the most diverse industrial applications (no circulation water)

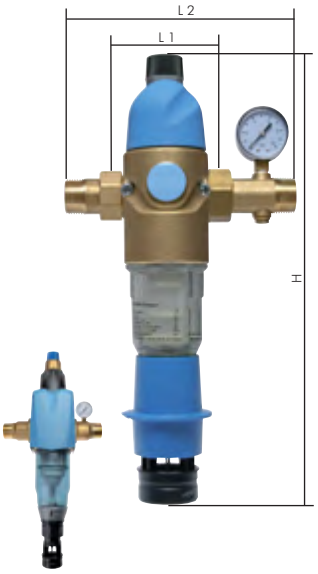


Type	Thread	DN	L 1	L 2	H	Max. flow*
FWR 34 F	R 3/4"	20	100	184	353	50 l/min
FWR 10 F	R 1"	25	100	184	353	58 l/min
FWR 114 F	R 1 1/4"	32	100	184	353	66 l/min
FWR 112	R 1 1/2"	40	125	240	500	150 l/min
FWR 20	R 2"	50	125	260	500	183 l/min
Replacement parts						
FWR EF 34114 F	Filter inserts for size 3/4" to 1 1/4"					
FWR EF 11220	Filter inserts for size 1 1/2" and 2"					
FWR EG 34114 F	Replacement filter cup for size 3/4" to 1 1/4"					
FWR EG 11220	Replacement filter cup for size 1 1/2" and 2"					

* at Δp = 0.2 bar

Backwash filters with pressure reducers for drinking and industrial water — PN 16

Version: Combination unit for pressure regulation and filtration (DVGW component tested) of drinking water and water for industrial use, as well as chemical free cooling water for flow cooling (not water circuit). Protects the tubes and the connected system pieces from functional failures and corrosion damage from foreign particles contained in the water like rust particles, chippings, sand, hemp etc. The filter element is cleaned by manual backwashing (washing out the dirt particles) at regular intervals. The dirt that is rinsed out and the rinsing water can be drained over a hose or HT tube.
Materials: Body: Brass, sieve bowl: Clear special plastic, spring hood: Plastic with adjustment scale for setpoint pressure
Temperature range: +5°C to max. +40°C (medium +5°C to max. +30°C)
Input pressure: 2 to 16 bar
Pore width in the filter: 90 µm
Rinse water connection: Hose nozzle 13 mm or HT tube Ø 50 mm
Media: Drinking and industrial water as well as chemical-free water for the most diverse industrial applications (no circulation water)



Type	Thread	DN	L 1	L 2	H	Max. flow*	Pressure regulation range
FRWR 34 F	R 3/4"	20	100	213	393	50 l/min	2 - 6 bar
FRWR 10 F	R 1"	25	100	213	393	58 l/min	2 - 6 bar
FRWR 114 F	R 1 1/4"	32	100	213	393	66 l/min	2 - 6 bar
FRWR 112	R 1 1/2"	40	125	240	500	150 l/min	2 - 6 bar
FRWR 20	R 2"	50	125	260	500	183 l/min	2 - 6 bar
Replacement parts							
FWR EF 34114 F	Filter inserts for size 3/4" to 1 1/4"						
FWR EF 11220	Filter inserts for size 1 1/2" and 2"						
FWR EG 34114 F	Replacement filter cup for size 3/4" to 1 1/4"						
FWR EG 11220	Replacement filter cup for size 1 1/2" and 2"						

* at Δp = 0.2 bar

Microfilters for drinking and industrial water — PN 16

Version: Microfilter (DVGW component tested) for filtering drinking and industrial use water, as well as chemical free coolant water in flow cooling systems (not water circuits). Protects the tubes and the connected system parts from functional failures and corrosion damage from foreign particles contained in the water like rust particles, chippings, sand, hemp etc.
Materials: Body: Brass, sieve bowl: Clear special plastic
Temperature range: Up to max. +40°C (medium max. +30°C)
Input pressure: Max. 16 bar
Pore width in the filter: 90 µm
Media: Drinking and industrial water as well as chemical-free water for the most diverse industrial applications (no circulation water)

Type	Thread	DN	L 1	L 2	H	Max. flow*
FW 34	R 3/4"	20	120	206	300	66 l/min
FW 10	R 1"	25	120	206	300	91 l/min
FW 114	R 1 1/4"	32	120	220	300	100 l/min
FW 112	R 1 1/2"	40	140	254	290	150 l/min
FW 20	R 2"	50	140	274	290	200 l/min
Replacement parts						
FW EF 34114	Filter inserts for size 3/4" to 1 1/4"					
FW EF 11220	Filter inserts for size 1 1/2" to 2"					
FW EG 34114	Replacement filter cup for size 3/4" to 1 1/4"					
FW EG 11220	Replacement filter cup for size 1 1/2" to 2"					

* at Δp = 0.2 bar

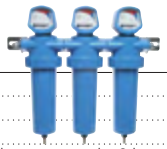
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

application example: 2 housings

Coupling kits for block assemblies of 2 or 3 housings

Supply volume: 2 pc tie rod set including necessary seals

Type for 2 housings	Type for 3 housings	Wall bracket basic package
WH 2-2	WH 2-3	WH 2
WH 12-2	WH 12-3	WH 12
WH 48-2	WH 48-3	WH 48
WH 144-2	WH 144-3	WH 144



application example: 3 housings

Warning: Please order wall bracket base package separately!

Cyclone separators

Cyclone separators are installed in order to separate water drops and solid impurities from the compressed air. The purely mechanical mode of operation, the technical flow circulation with optimally designed housing and a powerful steam trap ensure for a long service life and that operation takes place without any problems.
Materials: Housing: Aluminium with blue polyester resin coating
Temperature range: Max. +120°C, option **- SUPER**: Max. +65°C
Input pressure: 1 - 16 bar
Condensate drain: G 1/2" (FT), push-in fitting for hose Ø 8 outer
Supply volume: Housing with twist cap and clock controlled steam trap (230V AC)
☞ **Optional:** Version with automatic level controlled steam traps **-SUPER**

Type	Connection	Max. flow*	Wall bracket
Thread female			
AG-Z 0125	G 1/2"	125 m³/h	WH 2
AG-Z 0225	G 3/4"	225 m³/h	WH 12
AG-Z 0375	G 1"	375 m³/h	WH 12
AG-Z 0550	G 1 1/4"	550 m³/h	WH 12
AG-Z 0750	G 1 1/2"	750 m³/h	WH 48
AG-Z 1000	G 2"	1000 m³/h	WH 48
AG-Z 1650	G 2 1/2"	1650 m³/h	WH 144
AG-Z 2250	G 3"	2250 m³/h	WH 144

* for +20°C and 7 bar overpressure, for other pressures refer to conversion table on page 363

☞ **Order example:** AG-Z 0125 **

Standard type

Designation for the options:
With electronic steam traps . . . . . **-SUPER**

Order accessories at the same time!

Coupling kits found above

Pre-filters - PE — 25 µm

Field of application: For the removal of solid contaminants (Dust), dirt-oil-water aerosols up to less than 25 µm from compressed air and gaseous media. The pre-filter, for example, also filters abrasive, graphite, cement and cretaceous dust, etc. This pre-filter increases the service life of upstream MF or SMF filters.
Applications: Pre-filters are used for regulating instrument air and control air in the chemical, petrochemical and pharmaceutical industries and also in plastic, food, beverage and process industries as well as in general mechanical engineering. They are installed to increase the service life of MF and SMF filters.
Materials: Housing: Aluminium with blue polyester resin coating, filter medium: Pure, highly molecular polyethylene with aluminium end caps, O-rings: NBR (free of releasing agent and silicone)
Temperature range: Max. +60°C
Input pressure: 1 - 16 bar
Pore width in the filter: 25 µm
Condensate drain: Hose nozzle for internal hose Ø 8 (steam trap is mounted in a condensate borehole G 1/2")
Supply volume: Filter housing, filter element, differential pressure gauge and automatic steam trap

replacement element

complete filter

steam trap

Type complete filter	Connection	Max. flow*	Replace. elements	Wall bracket
PE 0002	G 1/4" (FT)	40 m³/h	PE 02/05	WH 2
PE 0004	G 3/8" (FT)	60 m³/h	PE 03/05	WH 2
PE 0006	G 3/8" (FT)	90 m³/h	PE 03/10	WH 2
PE 0009	G 1/2" (FT)	120 m³/h	PE 04/10	WH 2
PE 0012	G 1/2" (FT)	180 m³/h	PE 04/20	WH 12
PE 0018	G 3/4" (FT)	270 m³/h	PE 05/20	WH 12
PE 0027	G 1" (FT)	360 m³/h	PE 05/25	WH 12
PE 0036	G 1 1/4" (FT)	480 m³/h	PE 07/25	WH 12
PE 0048	G 1 1/2" (FT)	720 m³/h	PE 07/30	WH 48
PE 0072	G 2" (FT)	1080 m³/h	PE 10/30	WH 48
PE 0108	G 2" (FT)	1440 m³/h	PE 15/30	WH 48
PE 0144	G 2 1/2" (FT)	1920 m³/h	PE 20/30	WH 144
PE 0192	G 3" (FT)	2880 m³/h	PE 30/30	WH 144
PE 0288	G 3" (FT)	4320 m³/h	PE 30/50	---
Replacement part: steam trap standard, with float, 8 mm hose nozzle				
KAU 12	G 1/2" (MT)	Used type PE/MF/SMF 0002 - 0108		
UFM 12	G 1/2" (MT)	Used type PE/MF/SMF 0144 - 0288		

* for +20°C and 7 bar overpressure, for other pressures refer to conversion table on page 363

Order accessories at the same time!

Coupling kits found above

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Microfilters/Sub-microfilters

Field of application: These filters are used to separate the finest oil and water aerosols and hard contaminants having particle sizes up to 0.05 µm (MF), 0.01 µm (SMF) µm. Multi-layer 3 dimensional fibre fleece with nano fibre technology.
Applications: These deep-bed filters are used in instrumental air and control air in the chemical, petrochemical and pharmaceutical industries and also in plastic, food, beverage and process industries including general mechanical engineering, painting companies and air conditioning. We recommend the upstream connection of a prefilter to increase the service life.
Materials: Housing: Aluminium with blue polyester resin coating, filter medium: Free of binding agents borosilicate glass with aluminium end caps, O-rings: NBR (silicone and free of releasing agent), support casing: Stainless steel
Temperature range: Max. +80°C
Input pressure: 1 - 16 bar
Condensate drain: Hose nozzle for internal hose Ø 8 (steam trap is mounted in a condensate borehole G 1/2")
Supply volume: Filter housing, filter element, differential pressure gauge and automatic steam trap

Microfilters - MF — 0.03 mg/m³

Residual oil content (with inlet concentration of 3 mg/m³): = 0.03 mg/m³
Separation efficiency (relating to particle 0.01 µm): 99.99998%

Type complete filter	Connection	Max. flow*	Replace. elements	Wall bracket
MF 0002	G 1/4" (FT)	40 m³/h	MF 02/05	WH 2
MF 0004	G 3/8" (FT)	60 m³/h	MF 03/05	WH 2
MF 0006	G 3/8" (FT)	90 m³/h	MF 03/10	WH 2
MF 0009	G 1/2" (FT)	120 m³/h	MF 04/10	WH 2
MF 0012	G 1/2" (FT)	180 m³/h	MF 04/20	WH 12
MF 0018	G 3/4" (FT)	270 m³/h	MF 05/20	WH 12
MF 0027	G 1" (FT)	360 m³/h	MF 05/25	WH 12
MF 0036	G 1 1/4" (FT)	480 m³/h	MF 07/25	WH 12
MF 0048	G 1 1/2" (FT)	720 m³/h	MF 07/30	WH 48
MF 0072	G 2" (FT)	1080 m³/h	MF 10/30	WH 48
MF 0108	G 2" (FT)	1440 m³/h	MF 15/30	WH 48
MF 0144	G 2 1/2" (FT)	1920 m³/h	MF 20/30	WH 144
MF 0192	G 3" (FT)	2880 m³/h	MF 30/30	WH 144
MF 0288	G 3" (FT)	4320 m³/h	MF 30/50	---
Replacement part: steam trap standard, with float, 8 mm hose nozzle				
KAU 12	G 1/2" (MT)	Used type PE/MF/SMF 0002 - 0108		
UFM 12	G 1/2" (MT)	Used type PE/MF/SMF 0144 - 0288		

* for +20°C and 7 bar overpressure, for other pressures refer to conversion table below

Order accessories at the same time!
Couple kits found at the top of page 362

Sub-microfilters - SMF — < 0.01 mg/m³

Residual oil content (with inlet concentration of 3 mg/m³): < 0.01 mg/m³
Separation efficiency (relating to particle 0.01 µm): 99.99999 %

Type complete filter	Connection	Max. flow*	Replace. elements	Wall bracket
SMF 0002	G 1/4" (FT)	40 m³/h	SMF 02/05	WH 2
SMF 0004	G 3/8" (FT)	60 m³/h	SMF 03/05	WH 2
SMF 0006	G 3/8" (FT)	90 m³/h	SMF 03/10	WH 2
SMF 0009	G 1/2" (FT)	120 m³/h	SMF 04/10	WH 2
SMF 0012	G 1/2" (FT)	180 m³/h	SMF 04/20	WH 12
SMF 0018	G 3/4" (FT)	270 m³/h	SMF 05/20	WH 12
SMF 0027	G 1" (FT)	360 m³/h	SMF 05/25	WH 12
SMF 0036	G 1 1/4" (FT)	480 m³/h	SMF 07/25	WH 12
SMF 0048	G 1 1/2" (FT)	720 m³/h	SMF 07/30	WH 48
SMF 0072	G 2" (FT)	1080 m³/h	SMF 10/30	WH 48
SMF 0108	G 2" (FT)	1440 m³/h	SMF 15/30	WH 48
SMF 0144	G 2 1/2" (FT)	1920 m³/h	SMF 20/30	WH 144
SMF 0192	G 3" (FT)	2880 m³/h	SMF 30/30	WH 144
SMF 0288	G 3" (FT)	4320 m³/h	SMF 30/50	---
Replacement part: steam trap standard, with float, 8 mm hose nozzle				
KAU 12	G 1/2" (MT)	Used type PE/MF/SMF 0002 - 0108		
UFM 12	G 1/2" (MT)	Used type PE/MF/SMF 0144 - 0288		

* for +20°C and 7 bar overpressure, for other pressures refer to conversion table below

Order accessories at the same time!
Couple kits found at the top of page 362

Conversion tables for flow volumes

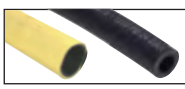
Operating pressure bar	1	2	3	4	5	6	7*	8	9	10	11	12	13	14	15	16
Conversion factor	0.25	0.36	0.5	0.6	0.75	0.9	1*	1.1	1.2	1.4	1.5	1.6	1.75	1.9	2	2.1

* standard

Compressed air reservoir from page 514

Pressure gauge from page 366

2/2, 3/2 directional valves of brass or stainless steel from page 404


Compressed air rubber hoses from page 212

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

complete filter

replacement element

Order accessories at the same time!

Couple kits found at the top of page 362

Activated carbon filters - AK — technically oil-free air

Field of application: This filter removes all gaseous hydrocarbons, oil vapours or odour substances. The 2-step adsorption effect has a large adsorption surface resulting in a longer service life and high economic efficiency in usage. The stainless steel support cladding and filter material hold the activated carbon firmly in its seat and ensure that there is no activated carbon particle present in the filtrate.

Important: To increase the service life of the filter, an SMF filter should be installed upstream.

Applications: Activated carbon filters are applied to instrument and control air in the chemical, petro-chemical and pharmaceutical industry, as well as in the food, beverage and process industries, as well as in bottling plants, for packaging machines and generating breathing air and pre-filtration of sterile filters. We recommend the upstream connection of a prefilter and microfilter to increase the service life.

Materials: Housing: Aluminium with blue polyester resin coating, filter medium: Fine milled activated carbon, embedded in microfiber fleece free of binding agents, O-rings: NBR (silicone and free of releasing agent), support casing: Stainless steel

Temperature range: +10°C to +40°C max. (temporary +60°C max.). **Input pressure:** 1 - 16 bar

Residual oil content: (with inlet concentration of 0.1 mg/m³ - SMF pre-filter installed): < 0.003 mg/m³

Supply volume: Filter housing, filter element

Type	Connection	Max. flow*	Replace. elements	Wall bracket
AK 0002	G 1/4" (FT)	40 m³/h	AK 02/05	WH 2
AK 0004	G 3/8" (FT)	60 m³/h	AK 03/05	WH 2
AK 0006	G 3/8" (FT)	90 m³/h	AK 03/10	WH 2
AK 0009	G 1/2" (FT)	120 m³/h	AK 04/10	WH 2
AK 0012	G 1/2" (FT)	180 m³/h	AK 04/20	WH 12
AK 0018	G 3/4" (FT)	270 m³/h	AK 05/20	WH 12
AK 0027	G 1" (FT)	360 m³/h	AK 05/25	WH 12
AK 0036	G 1 1/4" (FT)	480 m³/h	AK 07/25	WH 12
AK 0048	G 1 1/2" (FT)	720 m³/h	AK 07/30	WH 48
AK 0072	G 2" (FT)	1080 m³/h	AK 10/30	WH 48
AK 0108	G 2" (FT)	1440 m³/h	AK 15/30	WH 48
AK 0144	G 2 1/2" (FT)	1920 m³/h	AK 20/30	WH 144
AK 0192	G 3" (FT)	2880 m³/h	AK 30/30	WH 144
AK 0288	G 3" (FT)	4320 m³/h	AK 30/50	---

* for +20°C and 7 bar overpressure, for other pressures refer to conversion table on page 363

Exhaust silencers with microfilters — technically oil-free exhaust

No oil in the exhaust air technically oil-free

Noise reducing: Up to 69 dB (A)

Temperature range: -20°C to max. +100°C

Operating pressure: Max. 6 bar

Type	Ø D	H	Thread	Flow	Replacement elements
SDF 12	90	181	G 1/2"	75 m³/h	SDFE 12/34
SDF 34	90	181	G 3/4"	100 m³/h	SDFE 12/34
SDF 10	110	254	G 1"	175 m³/h	SDFE 10

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Electronic, level controlled steam traps — PN 16

type UAD 04

Advantages:
- No compressed air loss while draining
- Very large condensate outlet, as a result resistant to accumulation of dirt in the condensate
- Fewer wear parts (controlled by pistons)
- Horizontal or vertical condensate inlet
- Error messages can be retrieved via a potential-free contact (5-24 V DC, max. 200 mA)

Temperature range: +1°C to max. +65°C
Pressure range: 1 - 16 bar
Power supply: 230V AC
Protection class: IP 54

Type	Max. separation capacity [l/h]	Max. compressor supply amount* [m³/min]	Max. dryer performance [m³/min]	Condensate inlet (FT)	Depth	Width	Height
UAD 04	12	7.4	14.9	1 x G 1/2"	133	76	147
UAD 05	15	9.3	18.6	2 x G 1/2"	120	82	125
UAD 15	40	23.5	47.0	2 x G 1/2"	120	82	125
UAD 30	90	48.5	97.0	2 x G 1/2"	120	82	135
UAD 60	150	89.3	178.0	2 x G 1/2"	120	82	150

* based on compressed air 6 bar absolute and +20°C

type UAD 05 - UAD 60

Electronic, level controlled steam traps — PN 16

type BEKOMAT 31 U

Advantages:
- No compressed air loss while draining
- Very large condensate outlet, as a result resistant to accumulation of dirt in the condensate
- Error messages can be retrieved via a potential-free contact (5V DC - 230V AC, 10-1000 mA)
- THE standard for condensate technique

Temperature range: +1°C to max. +60°C (for lower temperatures, a heating is available upon request)
Power supply: 230V AC (type BEKOMAT 31 U and BEKOMAT 32 U: 95-240V AC/100-125V DC), other voltages on request, see ordering example
Protection class: IP 65 (type BEKOMAT 31 U and BEKOMAT 32 U: IP 67)
Pressure range: 0.8 to 16 bar
☞ **Optional:** For oil-free condensate use **-CO**

Type	Condensate type	Max. compressor supply amount* [m³/min]	Max. dryer perfor-mance [m³/min]	Condensate inlet (FT)	Depth	Width	Height ***
BEKOMAT 31 U**	Oil/oil free	2.5	5	G 1/2"	164	65	118 (86)
BEKOMAT 32 U	Oil/oil free	5.0	10	G 1/2"	179	74	127 (86)
BEKOMAT 12	Contains oil	6.5	13	G 1/2"	158	65	141 (62)
BEKOMAT 13	Contains oil	30.0	60	2 x G 1/2"	212	93	162 (21)
BEKOMAT 14	Contains oil	130.0	260	3 x G 3/4"	252	120	180 (21)
BEKOMAT 16	Oil/oil free	1,400.0	2,800	G1", 2xG3/4", G1/2"	280	260	280 (49)

* based on 1 bar reduction and 20°C, ** delivered without dry contact, *** height of the lowest lateral inlet in brackets

Wear part set
BEKOMAT 31 U VERSCH
BEKOMAT 32 U VERSCH
BEKOMAT 12 VERSCH
BEKOMAT 13 VERSCH
BEKOMAT 14 VERSCH
BEKOMAT 16 VERSCH

☞ **Order example:** BEKOMAT 12 **

Standard type

Designation for the options:
Power supply 24V DC . . . . . **-24V=**
For oil-free condensate . . . . . **-CO**

PE canisters + buckets from page 642

TIP *Electronic level controlled steam traps save compressed air, however clock-controlled are more economical to purchase!*

Clock controlled steam traps — PN 16

Materials: Valve: Brass, seals: FKM, pulse generator: Plastic
Temperature range: Environment: +2°C to max. +50°C, medium: Max. +50°C
Power supply: 230V AC
Protection class: IP 65
Pressure range: 0 - 16 bar
Function: Solenoid valve with large opening and pre-programmed timer. The opening time can be continuously adjusted between 0.5 and 10 seconds, the cycle can also be continuously adjusted between every 30 seconds to 45 minutes.

Type	DN	Thread	Length*	Width	Height**
KONDENS 14	4.0	G 1/4"	40	88	95
KONDENS 12	4.0	G 1/2"	46	88	95

* from thread connector to thread connector, ** middle thread connector - top level timer

Pulse generators for steam traps and other solenoid valves

Application: Pulse generators can be assembled easily between valve plugs according to DIN 43650 A/EN 175301-803 A (plug size 3) and the solenoid. A longer fastening screw and seal is enclosed with the pulse generator.
The standard timer permits infinite adjustment of the valve actuation between 0.5 and 10 seconds and a cycle time of between 0.5 and 45 minutes.
The electronic timer allows for the following programmable functions: ON/OFF cycle (when there is power, valve actuation for a time of 1 second to 10 minutes, with a cycle time of 1 second to 100 hours), OFF/ON cycle (same as ON/OFF cycle, when there is power, the valve only is actuated after the cycle time has elapsed), single ON (when there is power, the valve is actuated once for a time of 1 second to 10 minutes).

Type	Description	Electrical connection:
KONDENS TIME	Standard timer	24 - 240V AC/DC, max. 1A
KONDENS TIME EL	Electronic timer	110 - 240V AC/DC, max. 2A

standard

electronic

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pressure gauges - vertical

Standard	Housing	Connection
	Plastic	Brass

Optional	Housing	Connection
	Steel	Brass

TIP *Tips for selection of the right pressure gauge are found on page 380*

☞ **Order example:** MS -140 **

Standard type

Designation for the options:
Housing made of steel sheet,
Class 1.6 . . . . . **-ST**

Pressure gauges vertical Ø 40 mm, Ø 50 mm, Ø 63 mm — Class 2.5

Materials: Housing: Plastic black, measuring system and indicator: Brass, window: Plastic transparent
Connection thread: G 1/4"** (Ø 40: G 1/8")
Class: 2.5, **temperature range:** Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI, **protection class:** IP 42
☞ **Optional:** Housing made of steel sheet, class 1.6 **-ST**

Type Ø 40 / G 1/8"	Type Ø 40 / G 1/4"**	Type Ø 50 / G 1/4"**	Type Ø 63 / G 1/4"**	Scale graduation		Display range
---	---	---	MS -120063 MB	50	for vacuum	-1200/0 mbar
MS -140	---	MS -150	MS -163	0.05	for vacuum	-1/0 bar
---	---	---	MS -10663	0.05	for vacuum	-1/+0.6 bar
---	---	---	MS -11,563	0.1	for vacuum	-1/+1.5 bar
---	---	---	MS -1363	0.2	for vacuum	-1/+3 bar
---	---	---	MS -1563	0.2	for vacuum	-1/+5 bar
---	---	---	MS -1963	0.5	for vacuum	-1/+9 bar
---	---	---	MS -11563	0.5	for vacuum	-1/+15 bar
---	---	---	MS 0663	0.02		0/0.6 bar
---	---	MS 150	MS 163	0.05		0/1 bar
MS 1,640	---	MS 1,650	MS 1,663	0.05		0/1.6 bar
MS 2,540	---	MS 2,550	MS 2,563	0.1		0/2.5 bar
MS 440	---	MS 450	MS 463	0.2		0/4 bar
MS 640	MS 644*	MS 650	MS 663	0.2		0/6 bar
MS 1040	MS 1044*	MS 1050	MS 1063	0.5		0/10 bar
MS 1640	MS 1644*	MS 1650	MS 1663	0.5		0/16 bar
MS 2540	---	MS 2550	MS 2563	1		0/25 bar
MS 4040	---	MS 4050	MS 4063	2		0/40 bar
---	---	MS 6050	MS 6063	2		0/60 bar
---	---	MS 10050	MS 10063	5		0/100 bar
---	---	MS 16050	MS 16063	5		0/160 bar
---	---	---	MS 25063	10		0/250 bar
---	---	---	MS 31563	10		0/315 bar
---	---	---	MS 40063	20		0/400 bar

* division only in bar, ** with centring pin for profiled seal

Ø 80 Ø 100	Housing	Connection
	Plastic	Brass

Ø 160	Housing	Connection
	Steel	Brass

Pressure gauges vertical Ø 80 mm, Ø 100 mm, Ø 160 mm — Class 2.5/1.6

Materials: Housing: Plastic black, measuring system and indicator: Cu-alloy, window: Plastic clear, (Ø 160: housing: steel black, measuring system and indicator: Cu-alloy, window: instrument plate glass)
Connection thread: G 1/2"**, **class:** 2.5, (Ø 160: 1.6)
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C, **protection class:** IP 42

Type Ø 80	Type Ø 100	Type Ø 160	Scale graduation		Display range
---	MS -1200100 MB	MS -1200160 MB	20	for vacuum	-1200/0 mbar
MS -180	MS -1100	MS -1160	0.02	for vacuum	-1/0 bar
---	MS -106100	---	0.05	for vacuum	-1/+0.6 bar
MS -11,580	MS -11,5100	MS -11,5160	0.05	for vacuum	-1/+1.5 bar
MS -1380	MS -13100	MS -13160	0.1	for vacuum	-1/+3 bar
MS -1580	MS -15100	MS -15160	0.1	for vacuum	-1/+5 bar
MS -1980	MS -19100	MS -19160	0.2	for vacuum	-1/+9 bar
MS -11580	MS -115100	MS -115160	0.5	for vacuum	-1/+15 bar
MS 0680*	MS 06100*	MS 06160*	0.01		0/0.6 bar
MS 180*	MS 1100*	MS 1160*	0.02		0/1 bar
MS 1,680*	MS 1,6100*	MS 1,6160*	0.05		0/1.6 bar
MS 2,580*	MS 2,5100*	MS 2,5160*	0.05		0/2.5 bar
MS 480*	MS 4100*	MS 4160*	0.1		0/4 bar
MS 680*	MS 6100*	MS 6160*	0.1		0/6 bar
MS 1080*	MS 10100*	MS 10160*	0.2		0/10 bar
MS 1680*	MS 16100*	MS 16160*	0.5		0/16 bar
MS 2580*	MS 25100*	MS 25160*	0.5		0/25 bar
MS 4080*	MS 40100*	MS 40160*	1		0/40 bar
MS 6080*	MS 60100*	---	1		0/60 bar
---	MS 100100	---	2		0/100 bar
---	MS 160100	---	5		0/160 bar
---	MS 250100	---	5		0/250 bar
---	MS 400100	---	10		0/400 bar

* comes with a red marking indicator, ** with centring pin for profiled seal

Housing	Connection
Steel	Brass

oil and grease free

Welding technology pressure gauges Ø 63 mm — Class 2.5

Materials: Housing: Steel brass coloured with pressure relief opening in the back wall, measuring system and indicator: Cu-alloy, window: Polycarbonate
Connection thread: G 1/4"*
Class: 2.5, **temperature range:** Environment: -20°C to max. +60°C, **protection class:** IP 42

Type oil and oil-free **for oxygen**	Type **for acetylene**	Type **neutral**	Type **argon/CO_2**	Scale graduation	Display range
---	MS 2,563 ACGAS	---	---	0.1	0/2.5 bar
MS 1663 SAU	---	---	---	0.5	0/16 bar
MS 4063 SAU	MS 4063 ACGAS	---	---	2	0/40 bar
MS 31563 SAU	---	MS 31563-200	---	10	0/315 bar
MS 40063 SAU	---	MS 40063-300	---	20	0/400 bar
---	---	---	MS 30L63 AR	---	0-30 l/min (Ar) 0-28 l/min (CO_2)

* with centring pin for profiled seal

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pressure gauges vertical Ø 100 mm stainless steel/brass, robust — Class 1.0

Housing: INOX | Connection: Brass

Materials: Housing: AISI 304, measuring system: Cu-alloy (AISI 316L for pressures ≥ 100 bar), connection: Brass, window: Instrument plate glass
Connection thread: G 1/2"*
Class: 1.0
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +80°C
Protection class: IP 54
☞ **Optional:** With resettable drag indicator **-SZ**

Type	Scale graduation		Display range
MS -1100 CR	0.02	for vacuum	-1/0 bar
MS -106100 CR	0.05	for vacuum	-1/+0.6 bar
MS -11,5100 CR	0.05	for vacuum	-1/+1.5 bar
MS -13100 CR	0.1	for vacuum	-1/+3 bar
MS -15100 CR	0.1	for vacuum	-1/+5 bar
MS -19100 CR	0.2	for vacuum	-1/+9 bar
MS -115100 CR	0.5	for vacuum	-1/+15 bar
MS 06100 CR	0.01		0/0.6 bar
MS 1100 CR	0.02		0/1 bar
MS 1,6100 CR	0.05		0/1.6 bar
MS 2,5100 CR	0.05		0/2.5 bar
MS 4100 CR	0.1		0/4 bar

Type	Scale graduation	Display range
MS 6100 CR	0.1	0/6 bar
MS 10100 CR	0.2	0/10 bar
MS 16100 CR	0.5	0/16 bar
MS 25100 CR	0.5	0/25 bar
MS 40100 CR	1	0/40 bar
MS 60100 CR	1	0/60 bar
MS 100100 CR	2	0/100 bar
MS 160100 CR	5	0/160 bar
MS 250100 CR	5	0/250 bar
MS 400100 CR	10	0/400 bar
MS 600100 CR	10	0/600 bar
MS 1000100 CR	20	0/1000 bar

* with centring pin for profiled seal

☞ **Order example:** MS -1100 CR **

Standard type

Designation for the options:
With resettable drag indicator . . . . .**-SZ**

Option: Drag indicator

Pressure gauges vertical Ø 160 mm stainless steel/brass, robust — Class 1.0

Housing: INOX | Connection: Brass

Materials: Housing: AISI 304, measuring system: Cu-alloy (AISI 316L for pressures ≥ 100 bar), connection: Brass, window: Instrument plate glass
Connection thread: G 1/2"*
Class: 1.0
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +80°C
Protection class: IP 54

Type	Scale graduation		Display range
MS -1160 CR	0.02	for vacuum	-1/0 bar
MS -11,5160 CR	0.05	for vacuum	-1/+1.5 bar
MS -13160 CR	0.1	for vacuum	-1/+3 bar
MS -15160 CR	0.1	for vacuum	-1/+5 bar
MS -19160 CR	0.2	for vacuum	-1/+9 bar
MS -115160 CR	0.5	for vacuum	-1/+15 bar
MS 06160 CR	0.01		0/0.6 bar
MS 1160 CR	0.02		0/1 bar
MS 1,6160 CR	0.05		0/1.6 bar
MS 2,5160 CR	0.05		0/2.5 bar
MS 4160 CR	0.1		0/4 bar
MS 6160 CR	0.1		0/6 bar

Type	Scale graduation	Display range
MS 10160 CR	0.2	0/10 bar
MS 16160 CR	0.5	0/16 bar
MS 25160 CR	0.5	0/25 bar
MS 40160 CR	1	0/40 bar
MS 60160 CR	1	0/60 bar
MS 100160 CR	2	0/100 bar
MS 160160 CR	5	0/160 bar
MS 250160 CR	5	0/250 bar
MS 400160 CR	10	0/400 bar
MS 600160 CR	10	0/600 bar
MS 1000160 CR	20	0/1000 bar
MS 1600160 CR	50	0/1600 bar

* with centring pin for profiled seal

Pressure gauges w/ vertical capsule element, up to 10x overload capacity, robust mbar

Housing: INOX | Connection: Brass

Suitable: Pressure gauges for pressure measurement in the mbar range
Materials: Housing: AISI 304, measuring system and indicator: Cu-alloy, window: Instrument plate glass
Connection thread: G 1/2"*** (Ø 63: G 1/4"***)
Class: 1.6
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +80°C
Zero point correction: Front side
Protection class: IP 54

Type Ø 63 / G 1/4"***	Scale grad.	Type Ø 100 / G 1/2"***	Scale grad.	Type Ø 160 / G 1/2"***	Scale grad.		Display range
MS -60063 MB5CR*	20	MS -600100 MB5CR*	10	MS -600160 MB5CR*	10	vacuum	-600/0 mbar
MS -40063 MB5CR*	20	MS -400100 MB5CR*	10	MS -400160 MB5CR*	10	vacuum	-400/0 mbar
MS -25063 MB5CR*	10	MS -250100 MB5CR*	5	MS -250160 MB5CR*	5	vacuum	-250/0 mbar
MS -16063 MB10CR	5	MS -160100 MB10CR	5	MS -160160 MB10CR	5	vacuum	-160/0 mbar
MS -10063 MB10CR	5	MS -100100 MB10CR	2	MS -100160 MB10CR	2	vacuum	-100/0 mbar
MS -6063 MB10CR	2	MS -60100 MB10CR	1	MS -60160 MB10CR	1	vacuum	-60/0 mbar
MS -4063 MB10CR	2	MS -40100 MB10CR	1	MS -40160 MB10CR	1	vacuum	-40/0 mbar
MS -2563 MB10CR	1	MS -25100 MB10CR	0.5	MS -25160 MB10CR	0.5	vacuum	-25/0 mbar
MS -251563 MB10CR	2	MS -2515100 MB10CR	1	MS -2515160 MB10CR	1	vacuum	-25/+15 mbar
MS -402063 MB10CR	2	MS -4020100 MB10CR	1	MS -4020160 MB10CR	1	vacuum	-40/+20 mbar
---		MS 10100 MBCR**	0.2	---			0/10 mbar
MS 2563 MB10 CR	1	MS 25100 MB10CR	0.5	MS 25160 MB10CR	0.5		0/25 mbar
MS 4063 MB10CR	2	MS 40100 MB10CR	1	MS 40160 MB10CR	1		0/40 mbar
MS 6063 MB10CR	2	MS 60100 MB10CR	1	MS 60160 MB10CR	1		0/60 mbar
MS 10063 MB10CR	5	MS 100100 MB10CR	2	MS 100160 MB10CR	2		0/100 mbar
MS 16063 MB10CR	5	MS 160100 MB10CR	5	MS 160160 MB10CR	5		0/160 mbar
MS 25063 MB5CR*	10	MS 250100 MB5CR*	5	MS 250160 MB5CR*	5		0/250 mbar
MS 40063 MB5CR*	20	MS 400100 MB5CR*	10	MS 400160 MB5CR*	10		0/400 mbar
MS 60063 MB5CR*	20	MS 600100 MB5CR*	10	MS 600160 MB5CR*	10		0/600 mbar

* 5-fold overpressure safe, ** not overpressure safe, *** with centring pin for profiled seal

Information on overpressure safety is found in our Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pressure gauges - vertical

Housing	Connection
INOX	INOX

Pressure gauges vertical Ø 40 mm, Ø 50 mm stainless steel — Class 2.5

Materials: Housing: AISI 304, measuring system and connection: AISI 316Ti, window: Polycarbonate
Connection thread: G 1/8" or G 1/4"*
Class: 2.5
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +100°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 54

Type INOX Ø 40 / G 1/8"	Type INOX Ø 40 / G 1/4"*	Type INOX Ø 50 / G 1/4"*	Scale graduation		Display range
MS -140 ES	MS -144 ES	MS -150 ES	0.05	for vacuum	-1/0 bar
MS 140 ES	MS 144 ES	MS 150 ES	0.05		0/1 bar
MS 1,640 ES	MS 1,644 ES	MS 1,650 ES	0.05		0/1.6 bar
MS 2,540 ES	MS 2,544 ES	MS 2,550 ES	0.1		0/2.5 bar
MS 440 ES	MS 444 ES	MS 450 ES	0.2		0/4 bar
MS 640 ES	MS 644 ES	MS 650 ES	0.2		0/6 bar
MS 1040 ES	MS 1044 ES	MS 1050 ES	0.5		0/10 bar
MS 1640 ES	MS 1644 ES	MS 1650 ES	0.5		0/16 bar
MS 2540 ES	MS 2544 ES	MS 2550 ES	1.0		0/25 bar
MS 4040 ES	MS 4044 ES	MS 4050 ES	2.0		0/40 bar
MS 6040 ES	MS 6044 ES	MS 6050 ES	2.0		0/60 bar
MS 10040 ES	MS 10044 ES	MS 10050 ES	5.0		0/100 bar

* with centring pin for profiled seal

TIP Tips for selection of the right pressure gauge are found on page 380

Housing	Connection	Window
INOX	INOX	S

Pressure gauges vertical Ø 63 mm, Chemical Version — Class 1.6

Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/4"*
Class: 1.6
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +200°C
Protection class: IP 65

Type INOX	Scale graduation		Display range
MS -163 ES	0.05	for vacuum	-1/0 bar
MS -1563 ES	0.2	for vacuum	-1/5 bar
MS 1,663 ES	0.05		0/1.6 bar
MS 2,563 ES	0.1		0/2.5 bar
MS 463 ES	0.2		0/4 bar
MS 663 ES	0.2		0/6 bar
MS 1063 ES	0.5		0/10 bar

Type INOX	Scale graduation	Display range
MS 1663 ES	0.5	0/16 bar
MS 2563 ES	1	0/25 bar
MS 4063 ES	2	0/40 bar
MS 6063 ES	2	0/60 bar
MS 10063 ES	5	0/100 bar
MS 25063 ES	10	0/250 bar
MS 40063 ES	20	0/400 bar

* with centring pin for profiled seal

Housing	Connection	Window
INOX	INOX	S

Safety pressure gauges vertical Ø 63 mm — Class 1.6

Suitable: Pressure gauge for extra safety in line with S 3 EN 837-1 (DIN 16006) with blow-out back and unbreakable baffle wall
Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/4"*
Class: 1.6
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +200°C
Protection class: IP 65

Type INOX	Scale graduation		Display range
MSS -163 ES	0.05	for vacuum	-1/0 bar
MSS 163 ES	0.05		0/1 bar
MSS 1,663 ES	0.05		0/1.6 bar
MSS 2,563 ES	0.1		0/2.5 bar
MSS 463 ES	0.2		0/4 bar
MSS 663 ES	0.2		0/6 bar
MSS 1063 ES	0.5		0/10 bar
MSS 1663 ES	0.5		0/16 bar

Type INOX	Scale graduation	Display range
MSS 2563 ES	1	0/25 bar
MSS 4063 ES	2	0/40 bar
MSS 6063 ES	2	0/60 bar
MSS 10063 ES	5	0/100 bar
MSS 16063 ES	5	0/160 bar
MSS 25063 ES	10	0/250 bar
MSS 40063 ES	20	0/400 bar
MSS 60063 ES	20	0/600 bar

* with centring pin for profiled seal

Housing	Connection	Window
INOX	INOX	S

Pressure gauges vertical Ø 100 mm, Chemical Version — Class 1.0

Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/2"*
Class: 1.0
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +200°C
Protection class: IP 65
☞ **Optional:** Connection 1/2" NPT thread **-NPT**

☞ **Order example:** MS - 1100 ES **

Standard type

Designation for the options:
NPT thread . . . . . **-NPT**

Type INOX	Scale graduation		Display range
MS -1100 ES	0.02	for vacuum	-1/0 bar
MS -106100 ES	0.05	for vacuum	-1/+0.6 bar
MS -11,5100 ES	0.05	for vacuum	-1/+1.5 bar
MS -13100 ES	0.1	for vacuum	-1/+3 bar
MS -15100 ES	0.1	for vacuum	-1/+5 bar
MS -19100 ES	0.2	for vacuum	-1/+9 bar
MS -115100 ES	0.5	for vacuum	-1/+15 bar
MS 06100 ES	0.01		0/0.6 bar
MS 1100 ES	0.02		0/1 bar
MS 1,6100 ES	0.05		0/1.6 bar
MS 2,5100 ES	0.05		0/2.5 bar
MS 4100 ES	0.1		0/4 bar

Type INOX	Scale graduation	Display range
MS 6100 ES	0.1	0/6 bar
MS 10100 ES	0.2	0/10 bar
MS 16100 ES	0.5	0/16 bar
MS 25100 ES	0.5	0/25 bar
MS 40100 ES	1	0/40 bar
MS 60100 ES	1	0/60 bar
MS 100100 ES	2	0/100 bar
MS 160100 ES	5	0/160 bar
MS 250100 ES	5	0/250 bar
MS 400100 ES	10	0/400 bar
MS 600100 ES	10	0/600 bar
MS 1000100 ES	20	0/1000 bar

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Safety pressure gauges vertical Ø 100 mm — Class 1.0

Housing	Connection	Window
INOX	INOX	S

Suitable: Pressure gauge for extra safety in line with S 3 EN 837-1 (DIN 16006) with blow-out back and unbreakable baffle wall
Materials: Housing: AISI 304, measuring system and connection: AISI 316L window: Laminated safety glass
Connection thread: G 1/2"*
Class: 1.0
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +200°C
Protection class: IP 65

Type (INOX)	Scale graduation		Display range
MSS -1100 ES	0.02	for vacuum	-1/0 bar
MSS -106100 ES	0.05	for vacuum	-1/+0.6 bar
MSS -11,5100 ES	0.05	for vacuum	-1/+1.5 bar
MSS -13100 ES	0.1	for vacuum	-1/+3 bar
MSS -15100 ES	0.1	for vacuum	-1/+5 bar
MSS -19100 ES	0.2	for vacuum	-1/+9 bar
MSS -115100 ES	0.5	for vacuum	-1/+15 bar
MSS 06100 ES	0.01		0/0.6 bar
MSS 1100 ES	0.02		0/1 bar
MSS 1,6100 ES	0.05		0/1.6 bar
MSS 2,5100 ES	0.05		0/2.5 bar
MSS 4100 ES	0.1		0/4 bar

Type (INOX)	Scale graduation	Display range
MSS 6100 ES	0.1	0/6 bar
MSS 10100 ES	0.2	0/10 bar
MSS 16100 ES	0.5	0/16 bar
MSS 25100 ES	0.5	0/25 bar
MSS 40100 ES	1	0/40 bar
MSS 60100 ES	1	0/60 bar
MSS 100100 ES	2	0/100 bar
MSS 160100 ES	5	0/160 bar
MSS 250100 ES	5	0/250 bar
MSS 400100 ES	10	0/400 bar
MSS 600100 ES	10	0/600 bar

* with centring pin for profiled seal

Pressure gauges vertical Ø 160 mm, Chemical Version — Class 1.0

Housing	Connection	Window
INOX	INOX	S

Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/2"*
Class: 1.0
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +200°C
Protection class: IP 65

Type (INOX)	Scale graduation		Display range
MS -1160 ES	0.02	for vacuum	-1/0 bar
MS -106160 ES	0.05	for vacuum	-1/+0.6 bar
MS -11,5160 ES	0.05	for vacuum	-1/+1.5 bar
MS -13160 ES	0.1	for vacuum	-1/+3 bar
MS -15160 ES	0.1	for vacuum	-1/+5 bar
MS -19160 ES	0.2	for vacuum	-1/+9 bar
MS -115160 ES	0.5	for vacuum	-1/+15 bar
MS 06160 ES	0.01		0/0.6 bar
MS 1160 ES	0.02		0/1 bar
MS 1,6160 ES	0.05		0/1.6 bar
MS 2,5160 ES	0.05		0/2.5 bar
MS 4160 ES	0.1		0/4 bar

Type (INOX)	Scale graduation	Display range
MS 6160 ES	0.1	0/6 bar
MS 10160 ES	0.2	0/10 bar
MS 16160 ES	0.5	0/16 bar
MS 25160 ES	0.5	0/25 bar
MS 40160 ES	1	0/40 bar
MS 60160 ES	1	0/60 bar
MS 100160 ES	2	0/100 bar
MS 160160 ES	5	0/160 bar
MS 250160 ES	5	0/250 bar
MS 400160 ES	10	0/400 bar
MS 600160 ES	10	0/600 bar
MS 1000160 ES	20	0/1000 bar

* with centring pin for profiled seal

Safety pressure gauges vertical Ø 160 mm — Class 1.0

Housing	Connection	Window
INOX	INOX	S

Suitable: Pressure gauge for extra safety in line with S 3 EN 837-1 (DIN 16006) with blow-out back and unbreakable baffle wall
Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/2"*
Class: 1.0
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +200°C
Protection class: IP 65

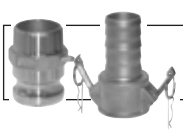
Type (INOX)	Scale graduation	Display range
MSS 1160 ES	0.02	0/1 bar
MSS 1,6160 ES	0.05	0/1.6 bar
MSS 2,5160 ES	0.05	0/2.5 bar
MSS 4160 ES	0.1	0/4 bar
MSS 6160 ES	0.1	0/6 bar
MSS 10160 ES	0.2	0/10 bar

Type (INOX)	Scale graduation	Display range
MSS 16160 ES	0.5	0/16 bar
MSS 25160 ES	0.5	0/25 bar
MSS 40160 ES	1	0/40 bar
MSS 60160 ES	1	0/60 bar
MSS 100160 ES	2	0/100 bar
MSS 160160 ES	5	0/160 bar

* with centring pin for profiled seal

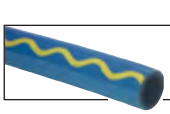
6

Stainless steel screw connections from page 78



Kamlock couplings from page 186

Butt weld fittings from page 254



Industrial hoses from page 213

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Glycerine pressure gauges - vertical

Housing	Connection
Plastic	Brass

Glycerine pressure gauges vertical Ø 63 mm — Class 2.5

Materials: Housing: Plastic, measuring system: Cu-alloy, connection: Brass, window: Polycarbonate
Connection thread: G 1/4"*
Class: 2.5
Temperature range: Environment: 0°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 65

Type	Scale graduation		Display range
MS -163 GLY	0.05	for vacuum	-1/0 bar
MS -10663 GLY	0.05	for vacuum	-1/0.6 bar
MS -11,563 GLY	0.1	for vacuum	-1/1.5 bar
MS -1363 GLY	0.2	for vacuum	-1/3 bar
MS -1563 GLY	0.2	for vacuum	-1/5 bar
MS -1963 GLY	0.5	for vacuum	-1/9 bar
MS -11563 GLY	0.5	for vacuum	-1/15 bar
MS 0663 GLY	0.02		0/0.6 bar
MS 163 GLY	0.05		0/1 bar
MS 1,663 GLY	0.05		0/1.6 bar
MS 2,563 GLY	0.1		0/2.5 bar

Type	Scale graduation	Display range
MS 463 GLY	0.2	0/4 bar
MS 663 GLY	0.2	0/6 bar
MS 1063 GLY	0.5	0/10 bar
MS 1663 GLY	0.5	0/16 bar
MS 2563 GLY	1	0/25 bar
MS 4063 GLY	2	0/40 bar
MS 6063 GLY	2	0/60 bar
MS 10063 GLY	5	0/100 bar
MS 16063 GLY	5	0/160 bar
MS 25063 GLY	10	0/250 bar
MS 40063 GLY	20	0/400 bar

* with centring pin for profiled seal

Housing	Connection
INOX	Brass

Glycerine pressure gauges vertical Ø 63 mm stainless steel/brass — Eco-Line

Materials: Housing: AISI 304, measuring system: Cu-alloy, connection: Brass, window: Polycarbonate
Connection thread: G 1/4"*
Class: 1.6
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 65

Especially good value!

Type	Scale graduation		Display range
MS -163 GLY CRE	0.05	for vacuum	-1/0 bar
MS -10663 GLY CRE	0.05	for vacuum	-1/0.6 bar
MS -11,563 GLY CRE	0.1	for vacuum	-1/+1.5 bar
MS -1363 GLY CRE	0.2	for vacuum	-1/+3 bar
MS -1563 GLY CRE	0.2	for vacuum	-1/+5 bar
MS -1963 GLY CRE	0.5	for vacuum	-1/+9 bar
MS -11563 GLY CRE	0.5	for vacuum	-1/+15 bar
MS 0663 GLY CRE	0.02		0/0.6 bar
MS 163 GLY CRE	0.05		0/1 bar
MS 1,663 GLY CRE	0.05		0/1.6 bar
MS 2,563 GLY CRE	0.1		0/2.5 bar
MS 463 GLY CRE	0.2		0/4 bar

Type	Scale graduation	Display range
MS 663 GLY CRE	0.2	0/6 bar
MS 1063 GLY CRE	0.5	0/10 bar
MS 1663 GLY CRE	0.5	0/16 bar
MS 2563 GLY CRE	1	0/25 bar
MS 4063 GLY CRE	2	0/40 bar
MS 6063 GLY CRE	2	0/60 bar
MS 10063 GLY CRE	5	0/100 bar
MS 16063 GLY CRE	5	0/160 bar
MS 25063 GLY CRE	10	0/250 bar
MS 40063 GLY CRE	20	0/400 bar
MS 60063 GLY CRE	20	0/600 bar
MS 100063 GLY CRE	50	0/1000 bar

* with centring pin for profiled seal

Housing	Connection
INOX	Brass

Glycerine pressure gauges vertical Ø 63 mm stainless steel/brass — Class 1.6

Materials: Housing: AISI 304, measuring system: Cu-alloy, (pressures > 400 bar: AISI 316L), connection: Brass, window: Polycarbonate
Connection thread: G 1/4"*
Class: 1.6
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 65

Type	Scale graduation		Display range
MS -163 GLY CR	0.05	for vacuum	-1/0 bar
MS -10663 GLY CR	0.05	for vacuum	-1/0.6 bar
MS -11,563 GLY CR	0.1	for vacuum	-1/+1.5 bar
MS -1363 GLY CR	0.2	for vacuum	-1/+3 bar
MS -1563 GLY CR	0.2	for vacuum	-1/+5 bar
MS -1963 GLY CR	0.5	for vacuum	-1/+9 bar
MS -11563 GLY CR	0.5	for vacuum	-1/+15 bar
MS 0663 GLY CR	0.02		0/0.6 bar
MS 163 GLY CR	0.05		0/1 bar
MS 1,663 GLY CR	0.05		0/1.6 bar
MS 2,563 GLY CR	0.1		0/2.5 bar
MS 463 GLY CR	0.2		0/4 bar
MS 663 GLY CR	0.2		0/6 bar

Type	Scale graduation	Display range
MS 1063 GLY CR	0.5	0/10 bar
MS 1663 GLY CR	0.5	0/16 bar
MS 2563 GLY CR	1	0/25 bar
MS 4063 GLY CR	2	0/40 bar
MS 6063 GLY CR	2	0/60 bar
MS 10063 GLY CR	5	0/100 bar
MS 16063 GLY CR	5	0/160 bar
MS 25063 GLY CR	10	0/250 bar
MS 31563 GLY CR	20	0/315 bar
MS 40063 GLY CR	20	0/400 bar
MS 60063 GLY CR	20	0/600 bar
MS 100063 GLY CR	50	0/1000 bar

* with centring pin for profiled seal

TIP Tips for selection of the right pressure gauge are found on page 380

Pressure gauge accessories from page 386

Hydraulic valves from page 452

Cutting ring fittings from page 77

HYDAC Pipe clamps from page 244

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Glycerine pressure gauges vertical Ø 63 mm, Chemical Version — Class 1.6

Housing	Connection	Window
INOX	INOX	S

Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/4"*
Class: 1.6
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +100°C
Protection class: IP 65

Type (INOX)	Scale graduation		Display range
MS -163 GLY ES	0.05	for vacuum	-1/0 bar
MS -10663 GLY ES	0.05	for vacuum	-1/0.6 bar
MS -11,563 GLY ES	0.1	for vacuum	-1/1.5 bar
MS -1363 GLY ES	0.2	for vacuum	-1/3 bar
MS -1563 GLY ES	0.2	for vacuum	-1/5 bar
MS -1963 GLY ES	0.5	for vacuum	-1/9 bar
MS -11563 GLY ES	0.5	for vacuum	-1/15 bar
MS 163 GLY ES	0.05		0/1 bar
MS 1,663 GLY ES	0.05		0/1.6 bar
MS 2,563 GLY ES	0.1		0/2.5 bar
MS 463 GLY ES	0.2		0/4 bar
MS 663 GLY ES	0.2		0/6 bar

Type (INOX)	Scale graduation	Display range
MS 1063 GLY ES	0.5	0/10 bar
MS 1663 GLY ES	0.5	0/16 bar
MS 2563 GLY ES	1	0/25 bar
MS 4063 GLY ES	2	0/40 bar
MS 6063 GLY ES	2	0/60 bar
MS 10063 GLY ES	5	0/100 bar
MS 16063 GLY ES	5	0/160 bar
MS 25063 GLY ES	10	0/250 bar
MS 40063 GLY ES	20	0/400 bar
MS 60063 GLY ES	20	0/600 bar
MS 100063 GLY ES	50	0/1000 bar

* with centring pin for profiled seal

Glycerine pressure gauges vertical Ø 100 mm, Chemical Version — Class 1.0

Housing	Connection	Window
INOX	INOX	S

Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/2"*
Class: 1.0
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +100°C
Protection class: IP 65
☞ **Optional:** Connection 1/2" NPT thread **-NPT**

Type (INOX)	Scale graduation		Display range
MS -1100 GLY ES	0.02	for vacuum	-1/0 bar
MS -106100 GLY ES	0.05	for vacuum	-1/0.6 bar
MS -11,5100 GLY ES	0.05	for vacuum	-1/+1.5 bar
MS -13100 GLY ES	0.1	for vacuum	-1/+3 bar
MS -15100 GLY ES	0.1	for vacuum	-1/+5 bar
MS -19100 GLY ES	0.2	for vacuum	-1/+9 bar
MS -115100 GLY ES	0.5	for vacuum	-1/+15 bar
MS 06100 GLY ES	0.01		0/0.6 bar
MS 1100 GLY ES	0.02		0/1 bar
MS 1,6100 GLY ES	0.05		0/1.6 bar
MS 2,5100 GLY ES	0.05		0/2.5 bar
MS 4100 GLY ES	0.1		0/4 bar

Type (INOX)	Scale graduation	Display range
MS 6100 GLY ES	0.1	0/6 bar
MS 10100 GLY ES	0.2	0/10 bar
MS 16100 GLY ES	0.5	0/16 bar
MS 25100 GLY ES	0.5	0/25 bar
MS 40100 GLY ES	1	0/40 bar
MS 60100 GLY ES	1	0/60 bar
MS 100100 GLY ES	2	0/100 bar
MS 160100 GLY ES	5	0/160 bar
MS 250100 GLY ES	5	0/250 bar
MS 400100 GLY ES	10	0/400 bar
MS 600100 GLY ES	10	0/600 bar
MS 1000100 GLY ES	20	0/1000 bar

* with centring pin for profiled seal

☞ **Order example:** MS -1100 GLY ES **
Standard type
Designation for the options: NPT thread . . . . . **-NPT**

Glycerine pressure gauges vertical Ø 160 mm, Chemical Version — Class 1.0

Housing	Connection	Window
INOX	INOX	S

Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/2"*
Class: 1.0
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +100°C
Protection class: IP 65

Type (INOX)	Scale graduation		Display range
MS -1160 GLY ES	0.02	for vacuum	-1/0 bar
MS -106160 GLY ES	0.05	for vacuum	-1/+0.6 bar
MS -11,5160 GLY ES	0.05	for vacuum	-1/+1.5 bar
MS -13160 GLY ES	0.1	for vacuum	-1/+3 bar
MS -15160 GLY ES	0.1	for vacuum	-1/+5 bar
MS -19160 GLY ES	0.2	for vacuum	-1/+9 bar
MS -115160 GLY ES	0.5	for vacuum	-1/+15 bar
MS 06160 GLY ES	0.01		0/0.6 bar
MS 1160 GLY ES	0.02		0/1 bar
MS 1,6160 GLY ES	0.05		0/1.6 bar
MS 2,5160 GLY ES	0.05		0/2.5 bar
MS 4160 GLY ES	0.1		0/4 bar

Type (INOX)	Scale graduation	Display range
MS 6160 GLY ES	0.1	0/6 bar
MS 10160 GLY ES	0.2	0/10 bar
MS 16160 GLY ES	0.5	0/16 bar
MS 25160 GLY ES	0.5	0/25 bar
MS 40160 GLY ES	1	0/40 bar
MS 60160 GLY ES	1	0/60 bar
MS 100160 GLY ES	2	0/100 bar
MS 160160 GLY ES	5	0/160 bar
MS 250160 GLY ES	5	0/250 bar
MS 400160 GLY ES	10	0/400 bar
MS 600160 GLY ES	10	0/600 bar
MS 1000160 GLY ES	20	0/1000 bar

* with centring pin for profiled seal

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pressure gauges - horizontal

	Housing	Connection
Standard	Plastic	Brass
Optional	Steel	Brass

Pressure gauges horizontal Ø 40 mm, Ø 50 mm, Ø 63 mm — Class 2.5

Materials: Housing: Plastic black, connection and indicator: Brass, window: Plastic transparent
Connection thread: G 1/4"** (Ø 40: G 1/8"), back mounted, centred
Class: 2.5
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 42
☞ **Optional:** Housing made of steel sheet, class 1.6 **-ST**

Standard threads

Type Ø 40 / G 1/8"	Type Ø 50 / G 1/4"**	Type Ø 63 / G 1/4"**	Scale graduation		Display range
MW -140	MW -150	MW -163	0.05	for vacuum	-1/0 bar
---	---	MW -11,563	0.1	for vacuum	-1/+1.5 bar
---	---	MW -1363	0.2	for vacuum	-1/+3 bar
---	---	MW -1963	0.5	for vacuum	-1/+9 bar
---	MW 0650	MW 0663	0.02		0/0.6 bar
MW 140	MW 150	MW 163	0.05		0/1 bar
MW 1,640	MW 1,650	MW 1,663	0.05		0/1.6 bar
MW 2,540	MW 2,550	MW 2,563	0.1		0/2.5 bar
MW 440	MW 450	MW 463	0.2		0/4 bar
MW 640	MW 650	MW 663	0.2		0/6 bar
MW 1040	MW 1050	MW 1063	0.5		0/10 bar
MW 1640	MW 1650	MW 1663	0.5		0/16 bar
MW 2540	MW 2550	MW 2563	1		0/25 bar
MW 4040	MW 4050	MW 4063	2		0/40 bar
---	MW 6050	MW 6063	2		0/60 bar
---	MW 10050	MW 10063	5		0/100 bar
---	---	MW 16063	5		0/160 bar
---	---	MW 25063	10		0/250bar
---	---	MW 31563*	10		0/315 bar
---	---	MW 40063	30		0/400 bar

Special threads

Type Ø 40 / G 1/4"**	Type Ø 50 / G 1/8"	Scale graduation	Display range
MW 1,644*	MW 1,658	0.05	0/1.6 bar
MW 2,544*	MW 2,558	0.1	0/2.5 bar
MW 444*	MW 458	0.2	0/4 bar
MW 644*	MW 658	0.2	0/6 bar
MW 1044*	MW 1058	0.5	0/10 bar
MW 1644*	MW 1658	0.5	0/16 bar

* scale only in bar, ** with centring pin for profiled seal

☞ **Order example:** MW -140 **
Standard type

Designation for the options:
Housing made of steel sheet, Class 1.6 . . . . . **-ST**

	Housing	Connection
Ø 80	Plastic	Brass
Ø 100	Steel	Brass

Pressure gauges horizontal Ø 80 mm, Ø 100 mm — Class 2.5

Materials: Housing: Plastic black, measuring system and indicator: Cu-alloy, window: Plastic clear, (Ø 100: housing: steel black, measuring system and indicator: Cu-alloy, window: plastic clear)
Connection thread: G 1/4"**, back mounted, centred
Class: 2.5
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Version: With red marking indicator
Protection class: IP 42

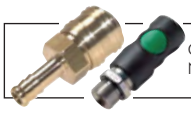
Type Ø 80	Type Ø 100	Scale graduation		Display range
MW -180*	MW -1100*	0.02	for vacuum	-1/0 bar
MW 180	MW 1100	0.02		0/1 bar
MW 1,680	MW 1,6100	0.05		0/1.6 bar
MW 2,580	MW 2,5100	0.05		0/2.5 bar
MW 480	MW 4100	0.1		0/4 bar
MW 680	MW 6100	0.1		0/6 bar
MW 1080	MW 10100	0.2		0/10 bar
MW 1680	MW 16100	0.5		0/16 bar
MW 2580	MW 25100	0.5		0/25 bar
MW 4080	MW 40100	1		0/40 bar

* comes without a red marking indicator, ** with centring pin for profiled seal

TIP *Tips for selection of the right pressure gauge are found on page 380*

Push-in fittings Ø 4 - 32 mm from page 24

Parker
Push-in hoses on page 228


Coupling sockets NW7 from page 150

HYDAC
Pipe clamps from page 244

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pressure gauges horizontal Ø 100 mm stainless steel/brass, robust — Class 1.0

Housing: INOX | Connection: Brass

Materials: Housing: AISI 304, measuring system: Cu-alloy (AISI 316L for pressures ≥ 100 bar), connection: Brass, window: Instrument plate glass
Connection thread: G 1/2"*, back mounted, off-centre
Class: 1.0
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +80°C
Protection class: IP 54

Type	Scale graduation		Display range
MW -1100 CR	0.02	for vacuum	-1/0 bar
MW 1100 CR	0.02		0/1 bar
MW 1,6100 CR	0.05		0/1.6 bar
MW 2,5100 CR	0.05		0/2.5 bar
MW 4100 CR	0.1		0/4 bar
MW 6100 CR	0.1		0/6 bar
MW 10100 CR	0.2		0/10 bar
MW 16100 CR	0.5		0/16 bar

Type	Scale graduation	Display range
MW 25100 CR	0.5	0/25 bar
MW 40100 CR	1	0/40 bar
MW 60100 CR	1	0/60 bar
MW 100100 CR	2	0/100 bar
MW 160100 CR	5	0/160 bar
MW 250100 CR	5	0/250 bar
MW 400100 CR	10	0/400 bar
MW 600100 CR	10	0/600 bar

* with centring pin for profiled seal

Pressure gauges horizontal Ø 160 mm stainless steel/brass, robust — Class 1.0

Housing: INOX | Connection: Brass

Materials: Housing: AISI 304, measuring system: Cu-alloy, connection: Brass, window: Instrument plate glass
Connection thread: G 1/2"*, back mounted, off-centre
Class: 1.0
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +80°C
Protection class: IP 54

Type	Scale graduation	Display range
MW 10160 CR	0.2	0/10 bar
MW 16160 CR	0.5	0/16 bar
MW 25160 CR	0.5	0/25 bar

* with centring pin for profiled seal

Pressure gauges w/ horizontal capsule element, up to 10-fold overload capacity mbar

Housing: INOX | Connection: Brass

Suitable: Pressure gauges for pressure measurement in the mbar range
Materials: Housing: AISI 304, measuring system and indicator: Cu-alloy, window: Instrument plate glass
Connection thread: G 1/2"** (Ø 63: G 1/4"**), back mounted, centred
Class: 1.6
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +80°C
Zero point correction: Front side
Protection class: IP 54

Type Ø 63 / G 1/4"**	Scale grad.	Type Ø 100 / G 1/2"**	Scale grad.	Type Ø 160 / G 1/2"**	Scale grad.		Display range
MW -60063 MB5CR*	20	MW -600100 MB5CR*	10	MW -600160 MB5CR*	10	vacuum	-600/0 mbar
MW -40063 MB5CR*	20	MW -400100 MB5CR*	10	MW -400160 MB5CR*	10	vacuum	-400/0 mbar
MW -25063 MB5CR*	10	MW -250100 MB5CR*	5	MW -250160 MB5CR*	5	vacuum	-250/0 mbar
MW -16063 MB10CR	5	MW -160100 MB10CR	5	MW -160160 MB10CR	5	vacuum	-160/0 mbar
MW -10063 MB10CR	5	MW -100100 MB10CR	2	MW -100160 MB10CR	2	vacuum	-100/0 mbar
MW -6063 MB10CR	2	MW -60100 MB10CR	1	MW -60160 MB10CR	1	vacuum	-60/0 mbar
MW -4063 MB10CR	2	MW -40100 MB10CR	1	MW -40160 MB10CR	1	vacuum	-40/0 mbar
MW -2563 MB10CR	1	MW -25100 MB10CR	0.5	MW -25160 MB10CR	0.5	vacuum	-25/0 mbar
MW 2563 MB10CR	1	MW 25100 MB10CR	0.5	MW 25160 MB10CR	0.5		0/25 mbar
MW 4063 MB10CR	2	MW 40100 MB10CR	1	MW 40160 MB10CR	1		0/40 mbar
MW 6063 MB10CR	2	MW 60100 MB10CR	1	MW 60160 MB10CR	1		0/60 mbar
MW 10063 MB10CR	5	MW 100100 MB10CR	2	MW 100160 MB10 CR	2		0/100 mbar
MW 16063 MB10CR	5	MW 160100 MB10CR	5	MW 160160 MB10CR	5		0/160 mbar
MW 25063 MB5CR*	10	MW 250100 MB5CR*	5	MW 250160 MB5CR*	5		0/250 mbar
MW 40063 MB5CR*	20	MW 400100 MB5CR*	10	MW 400160 MB5CR*	10		0/400 mbar
MW 60063 MB5CR*	20	MW 600100 MB5CR*	10	MW 600160 MB5CR*	10		0/600 mbar

* 5-fold overpressure safe, ** with centring pin for profiled seal

Information on overpressure safety is found in our Online Shop

Pressure gauge
Other manufacturers can be found in our Online Shop. Simply look for the original item number!

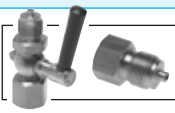
Ready-made washing and hydraulic hoses on page 231

Screw connections with union nuts from page 53

Manual slide valves with venting from page 287

Parker
Push-in hoses on page 228

Ball valves from page 280



Pressure gauge accessories from page 386

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Pressure gauges - horizontal

Housing	Connection
INOX	INOX

Pressure gauges horizontal Ø 40 mm, Ø 50 mm stainless steel — Class 2.5

Materials: Housing: AISI 304, measuring system and connection: AISI 316Ti, window: Polycarbonate
Connection thread: G 1/8" or G 1/4"*, back mounted, centred
Class: 2.5
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +100°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 54

Type Ø 40 / G 1/8" INOX	Type Ø 40 / G 1/4"* INOX	Type Ø 50 / G 1/4"* INOX	Scale graduation		Display range
MW -140 ES	MW -144 ES	MW -150 ES	0.05	for vacuum	-1/0 bar
MW 140 ES	MW 144 ES	MW 150 ES	0.05		0/1 bar
MW 1,640 ES	MW 1,644 ES	MW 1,650 ES	0.05		0/1.6 bar
MW 2,540 ES	MW 2,544 ES	MW 2,550 ES	0.1		0/2.5 bar
MW 440 ES	MW 444 ES	MW 450 ES	0.2		0/4 bar
MW 640 ES	MW 644 ES	MW 650 ES	0.2		0/6 bar
MW 1040 ES	MW 1044 ES	MW 1050 ES	0.5		0/10 bar
MW 1640 ES	MW 1644 ES	MW 1650 ES	0.5		0/16 bar
MW 2540 ES	MW 2544 ES	MW 2550 ES	1.0		0/25 bar
MW 4040 ES	MW 4044 ES	MW 4050 ES	2.0		0/40 bar
MW 6040 ES	MW 6044 ES	MW 6050 ES	2.0		0/60 bar
MW 10040 ES	MW 10044 ES	MW 10050 ES	5.0		0/100 bar

* with centring pin for profiled seal

Housing	Connection	Window
INOX	INOX	S

Pressure gauges horizontal Ø 63 mm, Ø 100 mm, Chemical Version — Class 1.6/1.0

Materials: Housing: AISI 304, measuring system and connection: AISI 316Ti (Ø 100: AISI 316L), window: Laminated safety glass
Connection thread: G 1/4"*, back mounted, centred, (Ø 100: G 1/2"*, back mounted, off-centre)
Class: 1.6, (Ø 100: 1.0)
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +200°C
Protection class: IP 65

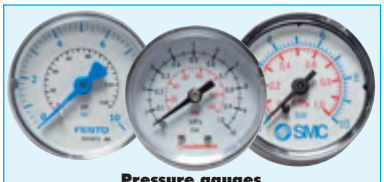
Type Ø 63 / G 1/4"* INOX	Scale grad.	Type Ø 100 / G 1/2"* INOX	Scale grad.		Display range
MW -163 ES	0.05	---	---	for vacuum	-1/0 bar
MW -11,563 ES	0.1	---	---	for vacuum	-1/+1.5 bar
MW 163 ES	0.05	---	---		0/1 bar
MW 1,663 ES	0.05	---	---		0/1.6 bar
MW 2,563 ES	0.1	MW 2,5100 ES	0.05		0/2.5 bar
MW 463 ES	0.2	MW 4100 ES	0.1		0/4 bar
MW 663 ES	0.2	MW 6100 ES	0.1		0/6 bar
MW 1063 ES	0.5	MW 10100 ES	0.2		0/10 bar
MW 1663 ES	0.5	MW 16100 ES	0.5		0/16 bar
MW 2563 ES	1	MW 25100 ES	0.5		0/25 bar
MW 4063 ES	2	MW 40100 ES	1		0/40 bar
---	---	MW 60100 ES	1		0/60 bar
MW 10063 ES	5	---	---		0/100 bar
MW 25063 ES	10	---	---		0/250 bar

* with centring pin for profiled seal

Pressure gauges for pipe installations

Type 0 - 10 bar	Type 0 - 16 bar	D
IQSMANO 410	IQSMANO 416	4
IQSMANO 610	IQSMANO 616	6
IQSMANO 810	IQSMANO 816	8

TIP *Tips for selection of the right pressure gauge are found on page 380*



Pressure gauges
of other manufacturers can be found in our Online Shop. Simply look for the original item number!

Cylinders
of other manufacturers can be found in our Online Shop. Simply look for the original item number!

Valves
of other manufacturers can be found in our Online Shop. Simply look for the original item number!

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Tyre inflator pressure gauges/pressure indicators

Pressure gauges impact protected for hand tyre inflators Ø 63 mm, Ø 80 mm

Suitable: For uncalibrated and calibrated professional hand tyre inflator.
Materials: Housing: Steel black, measuring system and indicator: Cu-alloy, set up impact protected

Advantages: • Impact protected and overpressure safe.
• Buffered against exterior damage with protruding rubber protection.

Type	Connection	Ø safety cap (approx.)	Class	Scale graduation	Display range
Pressure gauge Ø 63					
HRF MANO	G 1/4"	85	2.5	0.1	0/10 bar
HRFS MANO*	R 1/4"	---	2.5	0.1	0/12 bar
Pressure gauge Ø 80					
HRFG MANO	Socket Ø 15.9	100	1.0	0.1	0/12 bar
HRFG MANO 25	Socket Ø 15.9	100	1.0	0.2	0/25 bar
HRFGS MANO*	R 1/4"	---	2.5	0.1	0/12 bar

* material: plastic black

type HRF MANO

type HRFS MANO

type HRFG MANO

connection detail sockets Ø 15.9

Hand tyre inflator and accessories from page 533

type HRFGS MANO

Pressure indicators with male threads

Materials: Body: Brass nickel-plated, pin: Acetal resin, seals: NBR
Media: Oiled and unoiled compressed air as well as gases
Pressure range: 2 - 12 bar
Temperature range: -15°C to max. +70°C

Type **brass nikkel-plated**	Connection	Colour under pressure (2 - 12 bar)
Si 18 MSV	Male thread R 1/8"	● Red

depressurised

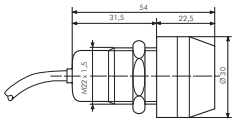
under pressure

Especially good value!

Pressure indicators with bulkhead threads

Materials: Body: Acetal resin, seals: NBR
Media: Oiled and unoiled compressed air as well as gases
Pressure range: 2 - 8 bar
Temperature range: -5°C to max. +50°C

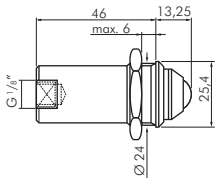
Type **plastic**	Connection	Colour under pressure (2 - 8 bar)
Si 4 ROT	For push-in hose with Ø 4 mm ext.	● Red
Si 4 GRUN	For push-in hose with Ø 4 mm ext.	● Green
Si 4 BLAU	For push-in hose with Ø 4 mm ext.	● Blue
Si 4 GELB	For push-in hose with Ø 4 mm ext.	● Yellow

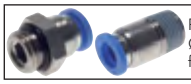


Pressure indicators made of stainless steel

Materials: Body: AISI 316, seals: NBR, inspection glass: Polyacrylic
Media: Oiled and unoiled compressed air and gases, liquids, oils and water (50 µm)
Pressure range: 1 - 10 bar
Temperature range: +2°C to max. +65°C

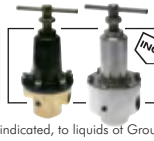
Type **AISI 316** INOX	Connection	Colour depressurised (0 - 1 bar)	Colour under pressure (1 - 10 bar)
Si 18 RG ES	G 1/8"	● Red	● Green




Push-in fittings Ø 3 - 32 mm from page 24

Screw connections with union nuts from page 53

PU, PA, PTFE and PE hoses from page 192


Pressure regulators of stainless steel and brass from page 355

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Glycerine pressure gauges - horizontal

Housing	Connection
Plastic	Brass

Glycerine pressure gauges horizontal Ø 63 mm — Class 2.5

Materials: Housing: Plastic black, measuring system, connection and indicator: Brass, Window: Plastic transparent
Connection thread: G 1/4"*, back mounted, centred
Class: 2.5
Temperature range: Environment: 0°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 65

Type	Scale graduation		Display range
MW -163 GLY	0.05	for vacuum	-1/0 bar
MW -10663 GLY	0.05	for vacuum	-1/+0.6 bar
MW -11,563 GLY	0.1	for vacuum	-1/+1.5 bar
MW -1363 GLY	0.2	for vacuum	-1/+3 bar
MW -1563 GLY	0.2	for vacuum	-1/+5 bar
MW -1963 GLY	0.5	for vacuum	-1/+9 bar
MW -11563 GLY	0.5	for vacuum	-1/+15 bar
MW 163 GLY	0.05		0/1 bar
MW 1,663 GLY	0.05		0/1.6 bar
MW 2,563 GLY	0.1		0/2.5 bar
MW 463 GLY	0.2		0/4 bar

Type	Scale graduation	Display range
MW 663 GLY	0.2	0/6 bar
MW 1063 GLY	0.5	0/10 bar
MW 1663 GLY	0.5	0/16 bar
MW 2563 GLY	1	0/25 bar
MW 4063 GLY	2	0/40 bar
MW 6063 GLY	2	0/60 bar
MW 10063 GLY	5	0/100 bar
MW 16063 GLY	5	0/160 bar
MW 25063 GLY	10	0/250 bar
MW 40063 GLY	20	0/400 bar

with centring pin for profiled seal

Housing	Connection
INOX	Brass

Glycerine pressure gauges horizontal Ø 63 mm stainless steel/brass — Eco-Line

Materials: Housing: AISI 304, measuring system: Cu-alloy, connection: Brass, window: Polycarbonate
Connection thread: G 1/4"*, back mounted, centred
Class: 1.6
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 65

Especially good value!

Type	Scale graduation		Display range
MW -163 GLY CRE	0.05	for vacuum	-1/0 bar
MW -10,663 GLY CRE	0.05	for vacuum	-1/0.6 bar
MW -11,563 GLY CRE	0.1	for vacuum	-1/+1.5 bar
MW -1363 GLY CRE	0.2	for vacuum	-1/+3 bar
MW -1563 GLY CRE	0.2	for vacuum	-1/+5 bar
MW -1963 GLY CRE	0.5	for vacuum	-1/+9 bar
MW -11563 GLY CRE	0.5	for vacuum	-1/+15 bar
MW 0663 GLY CRE	0.02		0/0.6 bar
MW 163 GLY CRE	0.05		0/1 bar
MW 1,663 GLY CRE	0.05		0/1.6 bar
MW 2,563 GLY CRE	0.1		0/2.5 bar
MW 463 GLY CRE	0.2		0/4 bar

Type	Scale graduation	Display range
MW 663 GLY CRE	0.2	0/6 bar
MW 1063 GLY CRE	0.5	0/10 bar
MW 1663 GLY CRE	0.5	0/16 bar
MW 2563 GLY CRE	1	0/25 bar
MW 4063 GLY CRE	2	0/40 bar
MW 6063 GLY CRE	2	0/60 bar
MW 10063 GLY CRE	5	0/100 bar
MW 16063 GLY CRE	5	0/160 bar
MW 25063 GLY CRE	10	0/250 bar
MW 40063 GLY CRE	20	0/400 bar
MW 60063 GLY CRE	20	0/600 bar
MW 100063 GLY CRE	50	0/1000 bar

* with centring pin for profiled seal

Housing	Connection
INOX	Brass

Glycerine pressure gauges horizontal Ø 63 mm stainless steel/brass — Class 1.6

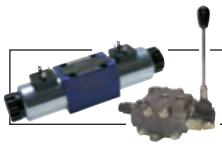
Materials: Housing: AISI 304, measuring system: Cu-alloy, connection: Brass, window: Polycarbonate
Connection thread: G 1/4"*, back mounted, centred
Class: 1.6
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 65

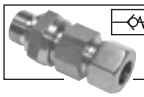
Type	Scale graduation		Display range
MW -163 GLY CR	0.05	for vacuum	-1/0 bar
MW -10,663 GLY CR	0.05	for vacuum	-1/0.6 bar
MW -11,563 GLY CR	0.1	for vacuum	-1/+1.5 bar
MW -1363 GLY CR	0.2	for vacuum	-1/+3 bar
MW -1563 GLY CR	0.2	for vacuum	-1/+5 bar
MW -1963 GLY CR	0.5	for vacuum	-1/+9 bar
MW -11563 GLY CR	0.5	for vacuum	-1/+15 bar
MW 0663 GLY CR	0.02		0/0.6 bar
MW 163 GLY CR	0.05		0/1 bar
MW 1,663 GLY CR	0.05		0/1.6 bar
MW 2,563 GLY CR	0.1		0/2.5 bar
MW 463 GLY CR	0.2		0/4 bar

Type	Scale graduation	Display range
MW 663 GLY CR	0.2	0/6 bar
MW 1063 GLY CR	0.5	0/10 bar
MW 1663 GLY CR	0.5	0/16 bar
MW 2563 GLY CR	1	0/25 bar
MW 4063 GLY CR	2	0/40 bar
MW 6063 GLY CR	2	0/60 bar
MW 10063 GLY CR	5	0/100 bar
MW 16063 GLY CR	5	0/160 bar
MW 25063 GLY CR	10	0/250 bar
MW 40063 GLY CR	20	0/400 bar
MW 60063 GLY CR	20	0/600 bar
MW 100063 GLY CR	50	0/1000 bar

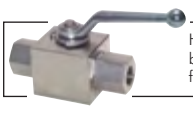
* with centring pin for profiled seal

TIP Tips for selection of the right pressure gauge are found on page 380


Hydraulic valves from page 452


HP check valves of various shapes from page 450

Pressure regulators for high pressures from page 351


High pressure ball valves from page 292

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Glycerine pressure gauges horizontal Ø 100 mm stainless steel/brass — Eco-Line

Housing	Connection
INOX	Brass

Materials: Housing: AISI 304, measuring system: Cu-alloy, connection: Brass, window: Instrument plate glass
Connection thread: G 1/2"*, back mounted, off-centre
Class: 1.0
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Protection class: IP 65

Especially good value!

Type	Scale graduation		Display range
MW -1100 GLY CRE	0.02	for vacuum	-1/0 bar
MW -106100 GLY CRE	0.05	for vacuum	-1/+0.6 bar
MW -11,5100 GLY CRE	0.05	for vacuum	-1/+1.5 bar
MW -13100 GLY CRE	0.1	for vacuum	-1/+3 bar
MW -15100 GLY CRE	0.1	for vacuum	-1/+5 bar
MW -19100 GLY CRE	0.2	for vacuum	-1/+9 bar
MW -115100 GLY CRE	0.5	for vacuum	-1/+15 bar
MW 06100 GLY CRE	0.01		0/0.6 bar
MW 1100 GLY CRE	0.02		0/1 bar
MW 1,6100 GLY CRE	0.05		0/1.6 bar
MW 2,5100 GLY CRE	0.05		0/2.5 bar
MW 4100 GLY CRE	0.1		0/4 bar

Type	Scale graduation	Display range
MW 6100 GLY CRE	0.1	0/6 bar
MW 10100 GLY CRE	0.2	0/10 bar
MW 16100 GLY CRE	0.5	0/16 bar
MW 25100 GLY CRE	0.5	0/25 bar
MW 40100 GLY CRE	1	0/40 bar
MW 60100 GLY CRE	1	0/60 bar
MW 100100 GLY CRE	2	0/100 bar
MW 160100 GLY CRE	5	0/160 bar
MW 250100 GLY CRE	5	0/250 bar
MW 400100 GLY CRE	10	0/400 bar
MW 600100 GLY CRE	10	0/600 bar
MW 1000100 GLY CRE	20	0/1000 bar

* with centring pin for profiled seal

Glycerine pressure gauges horizontal Ø 100 mm stainless steel/brass — Class 1.0

Housing	Connection
INOX	Brass

Materials: Housing: AISI 304, measuring system: Cu-alloy (AISI 316L for pressures ≥ 100 bar), connection: Brass, window: Polycarbonate
Connection thread: G 1/2"*, back mounted, off-centre
Class: 1.0
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Protection class: IP 65

Type	Scale graduation		Display range
MW -1100 GLY CR	0.02	for vacuum	-1/0 bar
MW -106100 GLY CR	0.05	for vacuum	-1/+0.6 bar
MW -11,5100 GLY CR	0.05	for vacuum	-1/+1.5 bar
MW -13100 GLY CR	0.1	for vacuum	-1/+3 bar
MW -15100 GLY CR	0.1	for vacuum	-1/+5 bar
MW -19100 GLY CR	0.2	for vacuum	-1/+9 bar
MW -115100 GLY CR	0.5	for vacuum	-1/+15 bar
MW 06100 GLY CR	0.01		0/0.6 bar
MW 1100 GLY CR	0.02		0/1 bar
MW 1,6100 GLY CR	0.05		0/1.6 bar
MW 2,5100 GLY CR	0.05		0/2.5 bar
MW 4100 GLY CR	0.1		0/4 bar

Type	Scale graduation	Display range
MW 6100 GLY CR	0.1	0/6 bar
MW 10100 GLY CR	0.2	0/10 bar
MW 16100 GLY CR	0.5	0/16 bar
MW 25100 GLY CR	0.5	0/25 bar
MW 40100 GLY CR	1	0/40 bar
MW 60100 GLY CR	1	0/60 bar
MW 100100 GLY CR	2	0/100 bar
MW 160100 GLY CR	5	0/160 bar
MW 250100 GLY CR	5	0/250 bar
MW 400100 GLY CR	10	0/400 bar
MW 600100 GLY CR	10	0/600 bar
MW 1000100 GLY CR	20	0/1000 bar

* with centring pin for profiled seal

Glycerine pressure gauges horizontal Ø 63 mm, Chemical Version — Class 1.6

Housing	Connection	Window
INOX	INOX	S

Materials: Housing: AISI 304, measuring system and connection: AISI 316Ti, window: Laminated safety glass
Connection thread: G 1/4"*, back mounted, centred
Class: 1.6
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +100°C
Protection class: IP 65

INOX Type	Scale graduation		Display range
MW -163 GLY ES	0.05	for vacuum	-1/0 bar
MW 2,563 GLY ES	0.1		0/2.5 bar
MW 463 GLY ES	0.2		0/4 bar
MW 663 GLY ES	0.2		0/6 bar
MW 1063 GLY ES	0.5		0/10 bar

INOX Type	Scale graduation	Display range
MW 1663 GLY ES	0.5	0/16 bar
MW 2563 GLY ES	1	0/25 bar
MW 4063 GLY ES	2	0/40 bar
MW 10063 GLY ES	5	0/100 bar
MW 25063 GLY ES	10	0/250 bar

* with centring pin for profiled seal

Glycerine pressure gauges horizontal Ø 100 mm, Chemical Version — Class 1.0

Housing	Connection	Window
INOX	INOX	S

Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/2"*, back mounted, off-centre
Class: 1.0
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +100°C
Protection class: IP 65

INOX Type	Scale graduation		Display range
MW -1100 GLY ES	0.02	for vacuum	-1/0 bar
MW 2,5100 GLY ES	0.05		0/2.5 bar
MW 6100 GLY ES	0.1		0/6 bar
MW 10100 GLY ES	0.2		0/10 bar
MW 16100 GLY ES	0.5		0/16 bar
MW 250100 GLY ES	5		0/250 bar

* with centring pin for profiled seal

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Built-in pressure gauges

Housing	Connection
Steel	Brass

Built-in pressure gauges with large front rings for panel mounting — Class 2.5

Materials: Housing: Steel black, front ring: Steel chrome-plated, measuring system and indicator: Cu-alloy, window: Plastic, transparent
Connection thread: G 1/4"* (Ø 40: G 1/8"), back mounted, centred
Class: 2.5
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 42

Type Ø 40 / G 1/8"	Type Ø 50 / G 1/4"*	Type Ø 63 / G 1/4"*	Scale graduation		Display range
MSE -140 CR	MSE -150 CR	MSE -163 CR	0.05	for vacuum	-1/0 bar
---	---	MSE 0663 CR	0.02		0/0.6 bar
MSE 140 CR	MSE 150 CR	MSE 163 CR	0.05		0/1 bar
MSE 1,640 CR	MSE 1,650 CR	MSE 1,663 CR	0.05		0/1.6 bar
MSE 2,540 CR	MSE 2,550 CR	MSE 2,563 CR	0.1		0/2.5 bar
MSE 440 CR	MSE 450 CR	MSE 463 CR	0.2		0/4 bar
MSE 640 CR	MSE 650 CR	MSE 663 CR	0.2		0/6 bar
MSE 1040 CR	MSE 1050 CR	MSE 1063 CR	0.5		0/10 bar
MSE 1640 CR	MSE 1650 CR	MSE 1663 CR	0.5		0/16 bar
MSE 2540 CR	MSE 2550 CR	MSE 2563 CR	1		0/25 bar
MSE 4040 CR	MSE 4050 CR	MSE 4063 CR	2		0/40 bar
---	MSE 6050 CR	MSE 6063 CR	2		0/60 bar
---	MSE 10050 CR	MSE 10063 CR	5		0/100 bar
---	---	MSE 16063 CR	5		0/160 bar
---	---	MSE 25063 CR	10		0/250 bar
---	---	MSE 31563 CR	10		0/315 bar
---	---	MSE 40063 CR	20		0/400 bar

* with centring pin for profiled seal

Housing	Connection
INOX	Brass

Glycerine built-in pressure gauges with large front rings for panel mounting — Eco-Line

Materials: Housing: AISI 304, front ring: AISI 304, measuring system and indicator: Cu-alloy, window: Polycarbonate (Ø 100: instrument plate glass)
Connection thread: G 1/4"* back mounted, centred (Ø 100: G 1/2"* back mounted, off-centre)
Class: 1.6 (Ø 100: 1.0)
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI (Ø 100: display in bar)
Protection class: IP 65

Especially good value!

Type Ø 63 / G 1/4"*	Scale grad.	Type Ø 100 / G 1/2"*	Scale grad.		Display range
MSE -163 GLY CRE	0.05	MSE -1100 GLY CRE	0.02	for vacuum	-1/0 bar
MSE -10663 GLY CRE	0.05	MSE -106100 GLY CRE	0.05	for vacuum	-1/0.6 bar
MSE -11,563 GLY CRE	0.1	MSE -11,5100 GLY CRE	0.05	for vacuum	-1/1.5 bar
MSE -1363 GLY CRE	0.2	MSE -13100 GLY CRE	0.1	for vacuum	-1/3 bar
MSE -1563 GLY CRE	0.2	MSE -15100 GLY CRE	0.1	for vacuum	-1/5 bar
MSE -1963 GLY CRE	0.5	MSE -19100 GLY CRE	0.2	for vacuum	-1/9 bar
MSE -11563 GLY CRE	0.5	MSE -115100 GLY CRE	0.5	for vacuum	-1/15 bar
MSE 0663 GLY CRE	0.02	MSE 06100 GLY CRE	0.01		0/0.6 bar
MSE 163 GLY CRE	0.05	MSE 1100 GLY CRE	0.02		0/1 bar
MSE 1,663 GLY CRE	0.05	MSE 1,6100 GLY CRE	0.05		0/1.6 bar
MSE 2,563 GLY CRE	0.1	MSE 2,5100 GLY CRE	0.05		0/2.5 bar
MSE 463 GLY CRE	0.2	MSE 4100 GLY CRE	0.1		0/4 bar
MSE 663 GLY CRE	0.2	MSE 6100 GLY CRE	0.1		0/6 bar
MSE 1063 GLY CRE	0.5	MSE 10100 GLY CRE	0.2		0/10 bar
MSE 1663 GLY CRE	0.5	MSE 16100 GLY CRE	0.5		0/16 bar
MSE 2563 GLY CRE	1	MSE 25100 GLY CRE	0.5		0/25 bar
MSE 4063 GLY CRE	2	MSE 40100 GLY CRE	1		0/40 bar
MSE 6063 GLY CRE	2	MSE 60100 GLY CRE	1		0/60 bar
MSE 10063 GLY CRE	5	MSE 100100 GLY CRE	2		0/100 bar
MSE 16063 GLY CRE	5	MSE 160100 GLY CRE	5		0/160 bar
MSE 25063 GLY CRE	10	MSE 250100 GLY CRE	5		0/250 bar
MSE 40063 GLY CRE	20	MSE 400100 GLY CRE	10		0/400 bar
MSE 60063 GLY CRE	20	MSE 600100 GLY CRE	10		0/600 bar
MSE 100063 GLY CRE	50	MSE 1000100 GLY CRE	20		0/1000 bar

* with centring pin for profiled seal

Push-in fittings Ø 4 - 32 mm from page 24

Cutting ring fittings from page 77

Multiple couplings from page 41

Distinctive couplings from page 162

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Glycerine built-in pressure gauges with large front rings for panel mounting — Class 1.6/1.0

Housing	Connection
INOX	Brass

Materials: Housing: AISI 304, front ring: AISI 304, measuring system: Cu-alloy (Ø 63 pressures > 400 bar: AISI 316L, Ø 100 pressures ≥ 100 bar: AISI 316L), indicator: Cu-alloy, window: Polycarbonate
Connection thread: G 1/4"* back mounted, centred (Ø 100: G 1/2"* back mounted, off-centre)
Class: 1.6 (Ø 100: 1.0)
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI (Ø 100: display in bar)
Protection class: IP 65

Type **Ø 63 / G 1/4"***	Scale grad.	Type **Ø 100 / G 1/2"***	Scale grad.		Display range
MSE -163 GLY CR	0.05	MSE -1100 GLY CR	0.02	for vacuum	-1/0 bar
MSE -10663 GLY CR	0.05	MSE -106100 GLY CR	0.05	for vacuum	-1/0.6 bar
MSE -11,563 GLY CR	0.1	MSE -11,5100 GLY CR	0.05	for vacuum	-1/1.5 bar
MSE -1363 GLY CR	0.2	MSE -13100 GLY CR	0.1	for vacuum	-1/3 bar
MSE -1563 GLY CR	0.2	MSE -15100 GLY CR	0.1	for vacuum	-1/5 bar
MSE -1963 GLY CR	0.5	MSE -19100 GLY CR	0.2	for vacuum	-1/9 bar
MSE -11563 GLY CR	0.5	MSE -115100 GLY CR	0.5	for vacuum	-1/15 bar
MSE 0663 GLY CR	0.02	MSE 06100 GLY CR	0.01		0/0.6 bar
MSE 163 GLY CR	0.05	MSE 1100 GLY CR	0.02		0/1 bar
MSE 1,663 GLY CR	0.05	MSE 1,6100 GLY CR	0.05		0/1.6 bar
MSE 2,563 GLY CR	0.1	MSE 2,5100 GLY CR	0.05		0/2.5 bar
MSE 463 GLY CR	0.2	MSE 4100 GLY CR	0.1		0/4 bar
MSE 663 GLY CR	0.2	MSE 6100 GLY CR	0.1		0/6 bar
MSE 1063 GLY CR	0.5	MSE 10100 GLY CR	0.2		0/10 bar
MSE 1663 GLY CR	0.5	MSE 16100 GLY CR	0.5		0/16 bar
MSE 2563 GLY CR	1	MSE 25100 GLY CR	0.5		0/25 bar
MSE 4063 GLY CR	2	MSE 40100 GLY CR	1		0/40 bar
MSE 6063 GLY CR	2	MSE 60100 GLY CR	1		0/60 bar
MSE 10063 GLY CR	5	MSE 100100 GLY CR	2		0/100 bar
MSE 16063 GLY CR	5	MSE 160100 GLY CR	5		0/160 bar
MSE 25063 GLY CR	10	MSE 250100 GLY CR	5		0/250 bar
MSE 40063 GLY CR	20	MSE 400100 GLY CR	10		0/400 bar
MSE 60063 GLY CR	20	MSE 600100 GLY CR	10		0/600 bar
MSE 100063 GLY CR	50	MSE 1000100 GLY CR	20		0/1000 bar

* with centring pin for profiled seal

Ø 63

Ø 100

Precision pressure gauges horizontal Ø 160 mm stainless steel/brass — Class 0.6

Housing	Connection
INOX	Brass

Materials: Housing and front ring: AISI 304, measuring system: Cu-alloy (pressures ≥ 100 bar: AISI 316L), connection: Brass, window: Instrument plate glass
Connection thread: G 1/2"*, back mounted, off-centre
Class: 0.6
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +80°C
Protection class: IP 54

Type	Scale graduation	Display range
MWF 1,6160	0.01	0/1.6 bar
MWF 2,5160	0.02	0/2.5 bar
MWF 6160	0.05	0/6 bar
MWF 10160	0.05	0/10 bar
MWF 16160	0.1	0/16 bar
MWF 25160	0.2	0/25 bar

Type	Scale graduation	Display range
MWF 40160	0.2	0/40 bar
MWF 60160	0.5	0/60 bar
MWF 100160	0.5	0/100 bar
MWF 160160	1	0/160 bar
MWF 250160	2	0/250 bar
MWF 400160	2	0/400 bar

* with centring pin for profiled seal

6

Pressure gauges
of other manufacturers can be found in our Online Shop. Simply look for the original item number!

Hoses
from page 192

Aluminium, copper and steel pipes
on page 250

Ball valves
from page 280

FESTO
You will find grippers in our Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Built-in pressure gauges

Housing	Connection
Steel	Brass

Built-in pressure gauges with triangle front rings — Class 2.5

Materials: Housing: Steel black, front ring: Steel chrome-plated, measuring system and indicator: Cu-alloy (pressures ≥ 100 bar: AISI 316L), window: Plastic transparent, mounting bracket: Zinc-plated steel, back mounted
Connection thread: G 1/4"* (Ø 40: G 1/8"), back mounted, centred (Ø 100: G 1/2"*, back mounted, off-centre)
Class: 2.5 (Ø 100: 1.0)
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C (Ø 100: max. +80°C)
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 42

Type Ø 40 / G 1/8"	Scale grad.	Type Ø 50 / G 1/4"*	Scale grad.	Type Ø 63 / G 1/4"*	Scale grad.	Type Ø 100 / G 1/2"*	Scale grad.	Display range
MFRE -140	0.05	MFRE -150	0.05	MFRE -163	0.05	MFRE -1100	0.02 for vacuum	-1/0 bar
---	---	---	---	MFRE 0663	0.02	---	---	0/0.6 bar
MFRE 140	0.05	MFRE 150	0.05	MFRE 163	0.05	MFRE 1100	0.02	0/1 bar
MFRE 1,640	0.05	MFRE 1,650	0.05	MFRE 1,663	0.05	MFRE 1,6100	0.05	0/1.6 bar
MFRE 2,540	0.1	MFRE 2,550	0.1	MFRE 2,563	0.1	MFRE 2,5100	0.05	0/2.5 bar
MFRE 440	0.2	MFRE 450	0.2	MFRE 463	0.2	MFRE 4100	0.1	0/4 bar
MFRE 640	0.2	MFRE 650	0.2	MFRE 663	0.2	MFRE 6100	0.1	0/6 bar
MFRE 1040	0.5	MFRE 1050	0.5	MFRE 1063	0.5	MFRE 10100	0.2	0/10 bar
MFRE 1640	0.5	MFRE 1650	0.5	MFRE 1663	0.5	MFRE 16100	0.5	0/16 bar
MFRE 2540	1	MFRE 2550	1	MFRE 2563	1	MFRE 25100	0.5	0/25 bar
MFRE 4040	2	MFRE 4050	2	MFRE 4063	2	MFRE 40100	1	0/40 bar
---	---	MFRE 6050	2	MFRE 6063	2	MFRE 60100	1	0/60 bar
---	---	MFRE 10050	5	MFRE 10063	5	MFRE 100100	2	0/100 bar
---	---	---	---	MFRE 16063	5	MFRE 160100	5	0/160 bar
---	---	---	---	MFRE 25063	10	MFRE 250100	5	0/250 bar
---	---	---	---	MFRE 31563	10	---	---	0/315 bar
---	---	---	---	MFRE 40063	20	---	---	0/400 bar

* with centring pin for profiled seal

Housing	Connection
INOX	Brass

Glycerine built-in pressure gauges Ø 63 mm stainless steel/brass — Eco-Line

Materials: Housing: AISI 304, measuring system: Cu-alloy, connection: Brass, window: Polycarbonate, mounting bracket: Zinc-plated steel
Connection thread: G 1/4"*, back mounted, centred
Class: 1.6
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 65

Especially good value!

Type	Scale graduation	Display range
MFRE -163 GLY CRE	0.05 for vacuum	-1/0 bar
MFRE -10663 GLY CRE	0.05 for vacuum	-1/+0.6 bar
MFRE -11,563 GLY CRE	0.1 for vacuum	-1/+1.5 bar
MFRE -1363 GLY CRE	0.2 for vacuum	-1/+3 bar
MFRE -1563 GLY CRE	0.2 for vacuum	-1/+5 bar
MFRE -1963 GLY CRE	0.5 for vacuum	-1/+9 bar
MFRE -11563 GLY CRE	0.5 for vacuum	-1/+15 bar
MFRE 0663 GLY CRE	0.02	0/0.6 bar
MFRE 163 GLY CRE	0.05	0/1 bar
MFRE 1,663 GLY CRE	0.05	0/1.6 bar
MFRE 2,563 GLY CRE	0.1	0/2.5 bar
MFRE 463 GLY CRE	0.2	0/4 bar

Type	Scale graduation	Display range
MFRE 663 GLY CRE	0.2	0/6 bar
MFRE 1063 GLY CRE	0.5	0/10 bar
MFRE 1663 GLY CRE	0.5	0/16 bar
MFRE 2563 GLY CRE	1	0/25 bar
MFRE 4063 GLY CRE	2	0/40 bar
MFRE 6063 GLY CRE	2	0/60 bar
MFRE 10063 GLY CRE	5	0/100 bar
MFRE 16063 GLY CRE	5	0/160 bar
MFRE 25063 GLY CRE	10	0/250 bar
MFRE 40063 GLY CRE	20	0/400 bar
MFRE 60063 GLY CRE	20	0/600 bar
MFRE 100063 GLY CRE	50	0/1000 bar

* with centring pin for profiled seal

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Glycerine built-in pressure gauges Ø 63 mm, Ø 100 mm stainless steel/brass — Class 1.6/1.0

Housing	Connection
INOX	Brass

Materials: Housing: AISI 304, measuring system: Cu-alloy, (pressures > 400 bar: AISI 316L, Ø 100: Pressures ≥ 100 bar: AISI 316L), connection: Brass, window: Polycarbonate, mounting bracket: Zinc-plated steel, back mounted
Connection thread: G 1/4"*, back mounted, centred, (Ø 100: G 1/2"*, back mounted, off-centre)
Class: 1.6 (Ø 100: 1.0)
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +60°C
Dial: 1. scale outside (black), display in bar, 2. scale inside (red), display in PSI
Protection class: IP 65
☞ **Optional:** Connection NPT thread **-NPT**

Type Ø 63 / G 1/4"*	Scale grad.	Type Ø 100 / 1/2"*	Scale grad.		Display range
MFRE -163 GLY CR	0.05	MFRE -1100 GLY CR	0.05	for vacuum	-1/0 bar
MFRE -10663 GLY CR	0.05	MFRE -106100 GLY CR	0.05	for vacuum	-1/+0.6 bar
MFRE -11,563 GLY CR	0.1	MFRE -11,5100 GLY CR	0.05	for vacuum	-1/+1.5 bar
MFRE -1363 GLY CR	0.2	MFRE -13100 GLY CR	0.1	for vacuum	-1/+3 bar
MFRE -1563 GLY CR	0.2	MFRE -15100 GLY CR	0.1	for vacuum	-1/+5 bar
MFRE -1963 GLY CR	0.5	MFRE -19100 GLY CR	0.5	for vacuum	-1/+9 bar
MFRE -11563 GLY CR	0.5	MFRE -115100 GLY CR	0.5	for vacuum	-1/+15 bar
MFRE 0663 GLY CR	0.02	MFRE 06100 GLY CR	0.01		0/0.6 bar
MFRE 163 GLY CR	0.05	MFRE 1100 GLY CR	0.05		0/1 bar
MFRE 1,663 GLY CR	0.05	MFRE 1,6100 GLY CR	0.05		0/1.6 bar
MFRE 2,563 GLY CR	0.1	MFRE 2,5100 GLY CR	0.05		0/2.5 bar
MFRE 463 GLY CR	0.2	MFRE 4100 GLY CR	0.1		0/4 bar
MFRE 663 GLY CR	0.2	MFRE 6100 GLY CR	0.1		0/6 bar
MFRE 1063 GLY CR	0.5	MFRE 10100 GLY CR	0.5		0/10 bar
MFRE 1663 GLY CR	0.5	MFRE 16100 GLY CR	0.5		0/16 bar
MFRE 2563 GLY CR	1	MFRE 25100 GLY CR	0.5		0/25 bar
MFRE 4063 GLY CR	2	MFRE 40100 GLY CR	1		0/40 bar
MFRE 6063 GLY CR	2	MFRE 60100 GLY CR	1		0/60 bar
MFRE 10063 GLY CR	5	MFRE 100100 GLY CR	5		0/100 bar
MFRE 16063 GLY CR	5	MFRE 160100 GLY CR	5		0/160 bar
MFRE 25063 GLY CR	10	MFRE 250100 GLY CR	5		0/250 bar
MFRE 40063 GLY CR	20	MFRE 400100 GLY CR	10		0/400 bar
MFRE 60063 GLY CR	20	MFRE 600100 GLY CR	10		0/600 bar
MFRE 100063 GLY CR	50	MFRE 1000100 GLY CR	50		0/1000 bar

* with centring pin for profiled seal

☞ **Order example:** MFRE - 163 GLY CR **

Standard type

Designation for the options:
NPT thread . . . . . **-NPT**

Digital pressure gauges with battery — Class 0.5

TIP *High overpressure safety with accuracy class 0.5!*

Suitable: In all areas where a high measuring accuracy together with high overpressure safety and robust design is required. For example, for the calibration of pressure gauges** (when using the hand pump HP 40).
Material: Housing: Plastic, connection: AISI 316Ti, seal: NBR (≥ 1000 bar: AISI 316Ti), sensor: Ceramic (≥ 1000 bar: AISI 316Ti)
Connection thread: G 1/4"*** (≥ 1000 bar: G 1/2"***)
Temperature range: Environment: 0°C to max. +60°C, medium: -30°C to max. +85°C
Permissible overpressure: Up to 40 bar: 3 x, up to 160 bar: 2 x, from 250 bar: 1.5 x full scale value*
Class: 0.5
Conversion rate: 5 meas./sec.
Automatic shut-off time: 8 min.
Auxiliary energy: 9V block battery, service life: 5.000 h (9V battery 600 mA) or 10.000 h (9V Lithium battery 1200 mA)
Protection class: IP 65
Display: 4 digit LCD display, character height 12.7 mm
☞ **Optional:** Continuous operation **-D**, different shut-off times **-4**, **-16**, **-32**, **-64**, continuous operation with external 24V DC supply (M 12 plug, 4-wire) **-D24**, continuous operation with external 24V DC supply and control output (30V AC/DC, max. 2 A, M 12 plug, 5-wire, see in our Online Shop) **-D24S**

180° left/right pivotable

TIP *With peak value memory!*

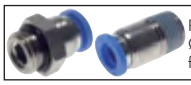
Type (INOX)		Display range	Type (INOX)		Display range
DMGB -1 ES	for vacuum	-1/0 bar	DMGB 60 ES		0/60 bar
DMGB 1 ES		0/1 bar	DMGB 100 ES		0/100 bar
DMGB 2.5 ES		0/2.5 bar	DMGB 160 ES		0/160 bar
DMGB 4 ES		0/4 bar	DMGB 250 ES		0/250 bar
DMGB 6 ES		0/6 bar	DMGB 400 ES		0/400 bar
DMGB 10 ES		0/10 bar	DMGB 600 ES		0/600 bar
DMGB 16 ES		0/16 bar	DMGB 1000 ES		0/1000 bar
DMGB 25 ES		0/25 bar	DMGB 1600 ES		0/1600 bar
DMGB 40 ES		0/40 bar	DMGB 2000 ES		0/2000 bar

* 600 bar: 1.3-fold overpressure safe, ** 5-point test certificate or DKD certificate on request, *** with centring pin for profiled seal

☞ **Order example:** DMGB 1 ES - **

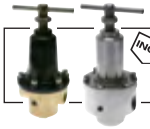
Standard type

Designation for the options:
Continuous operation . . . . . **-D**
Shut-off time 4 min. . . . . **-4**
Shut-off time 16 min. . . . . **-16**
Shut-off time 32 min. . . . . **-32**
Shut-off time 64 min. . . . . **-64**
External 24V DC supply . . . . . **-D24**
External 24V DC supply and control output . . . . . **-D24S**


Push-in fittings Ø 3 - 32 mm from page 24

Screw connections with union nuts from page 53

PU, PA, PTFE and PE hoses from page 192


Pressure regulators of stainless steel and brass from page 355

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Precision pressure gauges

Housing	Connection
INOX	Brass

Precision pressure gauges vertical Ø 160 mm stainless steel/brass — Class 0.6

Materials: Housing: AISI 304, measuring system: Cu-alloy (AISI 316Ti for pressures ≥ 100 bar), connection: Brass, window: Instrument plate glass
Connection thread: G 1/2"*
Class: 0.6
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +80°C
Protection class: IP 54

Type	Scale graduation		Display range
MSF -1200160 MB	10	for vacuum	-1200/0 mbar
MSF -1160	0.005	for vacuum	-1/0 bar
MSF -106160	0.01	for vacuum	-1/+0.6 bar
MSF -11.5160	0.02	for vacuum	-1/+1.5 bar
MSF -13160	0.02	for vacuum	-1/+3 bar
MSF -15160	0.05	for vacuum	-1/+5 bar
MSF -19160	0.05	for vacuum	-1/+9 bar
MSF -115160	0.1	for vacuum	-1/+15 bar
MSF 06160	0.005		0/0.6 bar
MSF 1160	0.005		0/1 bar
MSF 1,6160	0.01		0/1.6 bar
MSF 2,5160	0.02		0/2.5 bar
MSF 4160	0.02		0/4 bar

Type	Scale graduation	Display range
MSF 6160	0.05	0/6 bar
MSF 10160	0.05	0/10 bar
MSF 16160	0.1	0/16 bar
MSF 25160	0.2	0/25 bar
MSF 40160	0.2	0/40 bar
MSF 60160	0.5	0/60 bar
MSF 100160	0.5	0/100 bar
MSF 160160	1	0/160 bar
MSF 250160	2	0/250 bar
MSF 400160	2	0/400 bar
MSF 600160	5	0/600 bar
MSF 1000160	5	0/1000 bar
MSF 1600160	10	0/1600 bar

* with centring pin for profiled seal

Housing	Connection	Window
INOX	INOX	S

Precision safety pressure gauges vertical Ø 160 mm — Class 0.6

Suitable: Pressure gauge for extra safety in line with S 3 EN 837-1 (DIN 16006) with blow-out back and unbreakable baffle wall
Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/2"*
Class: 0.6
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +200°C
Protection class: IP 54

Type (INOX)	Scale graduation		Display range
MSSF -15160 ES	0.05	for vacuum	-1/+5 bar
MSSF -19160 ES	0.05	for vacuum	-1/+9 bar
MSSF -115160 ES	0.1	for vacuum	-1/+15 bar
MSSF 06160 ES	0.005		0/0.6 bar
MSSF 1160 ES	0.005		0/1 bar
MSSF 1,6160 ES	0.01		0/1.6 bar
MSSF 2,5160 ES	0.02		0/2.5 bar
MSSF 4160 ES	0.02		0/4 bar
MSSF 6160 ES	0.05		0/6 bar
MSSF 10160 ES	0.05		0/10 bar

Type (INOX)	Scale graduation	Display range
MSSF 16160 ES	0.1	0/16 bar
MSSF 25160 ES	0.2	0/25 bar
MSSF 40160 ES	0.2	0/40 bar
MSSF 60160 ES	0.5	0/60 bar
MSSF 100160 ES	0.5	0/100 bar
MSSF 160160 ES	1	0/160 bar
MSSF 250160 ES	2	0/250 bar
MSSF 400160 ES	2	0/400 bar
MSSF 600160 ES	5	0/600 bar

* with centring pin for profiled seal

Housing	Connection
INOX	Brass

Precision pressure gauges horizontal Ø 160 mm stainless steel/brass — Class 0.6

Materials: Housing and front ring: AISI 304, measuring system: Cu-alloy (pressures ≥ 100 bar: AISI 316L), connection: Brass, window: Instrument plate glass
Connection thread: G 1/2"*, back mounted, off-centre
Class: 0.6
Temperature range: Environment: -40°C to max. +60°C, measured material: Max. +80°C
Protection class: IP 54

Type	Scale graduation	Display range
MWF 1,6160	0.01	0/1.6 bar
MWF 2,5160	0.02	0/2.5 bar
MWF 6160	0.05	0/6 bar
MWF 10160	0.05	0/10 bar
MWF 16160	0.1	0/16 bar
MWF 25160	0.2	0/25 bar

Type	Scale graduation	Display range
MWF 40160	0.2	0/40 bar
MWF 60160	0.5	0/60 bar
MWF 100160	0.5	0/100 bar
MWF 160160	1	0/160 bar
MWF 250160	2	0/250 bar
MWF 400160	2	0/400 bar

* with centring pin for profiled seal

Screw connections with union nuts from page 53

Pressure regulator valves with push-in fittings from page 34

3/2 directional valves with push-in fittings from page 35

Precision pressure regulator from page 346

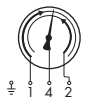
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Contact pressure gauges vertical Ø 100/160 mm stainless steel/brass — Class 1.0

Housing	Connection
INOX	Brass

Pressure gauge with two switch contacts (magnetic quick contacts), 1 NC contact, 1 NO contact
Materials: Housing: AISI 304, measuring system and indicator: Cu-alloy (AISI 316L for pressures ≥ 100 bar), window: Polycarbonate
Connection thread: G 1/2"**

Dual contact: 1. Contact opens when exceeding the setpoint
2. Contact closes when exceeding the setpoint (clockwise)



No. 21 (standard)

Class: 1.0
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +80°C
Protection class: IP 54
The switch function 21 is the one most commonly used. Should this not be as per your requirements, we request you to enquire with us. Further functions can be found at the next page.

Type Ø 100	Type Ø 160	Scale graduation		Display range
---	MSK -1160/21 CR*	0.02	for vacuum	-1/0 bar
MSK -106100/21 CR	---	0.05	for vacuum	-1/0.6 bar
---	MSK -11,5160/21 CR	0.05	for vacuum	-1/1.5 bar
---	MSK -15160/21 CR	0.1	for vacuum	-1/5 bar
---	MSK 1160/21 CR*	0.02		0/1 bar
MSK 1,6100/21 CR	MSK 1,6160/21 CR	0.05		0/1.6 bar
MSK 2,5100/21 CR	MSK 2,5160/21 CR	0.05		0/2.5 bar
MSK 4100/21 CR	MSK 4160/21 CR	0.1		0/4 bar
MSK 6100/21 CR	MSK 6160/21 CR	0.1		0/6 bar
MSK 10100/21 CR	MSK 10160/21 CR	0.2		0/10 bar
MSK 16100/21 CR	MSK 16160/21 CR	0.5		0/16 bar
MSK 25100/21 CR	MSK 25160/21 CR	0.5		0/25 bar
MSK 40100/21 CR	MSK 40160/21 CR	1		0/40 bar
MSK 60100/21 CR	MSK 60160/21 CR	1		0/60 bar
MSK 100100/21 CR	MSK 100160/21 CR	2		0/100 bar
MSK 160100/21 CR	MSK 160160/21 CR	5		0/160 bar
MSK 250100/21 CR	MSK 250160/21 CR	5		0/250 bar
MSK 400100/21 CR	MSK 400160/21 CR	10		0/400 bar
MSK 600100/21 CR	MSK 600160/21 CR	10		0/600 bar
Adjusting spanner as spare part				
MSK SCHLUSSEL				

* class 2.5, ** with centring pin for profiled seal

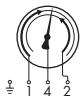
LOCTITE Liquid seals, gaskets & tapes from page 549

Stainless steel safety contact pressure gauges vertical Ø 100 mm — Class 1.0

Housing	Connection	Window
INOX	INOX	S

Pressure gauge with two switch contacts (magnetic quick contacts) for extra safety in line with S 3 EN 837-1 (DIN 16006) with blow-out back and unbreakable baffle wall
Materials: Housing: AISI 304, measuring system and connection: AISI 316L, window: Laminated safety glass
Connection thread: G 1/2"*

Dual contact: 1. Contact opens when exceeding the setpoint
2. Contact closes when exceeding the setpoint



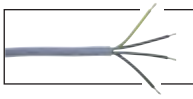
No. 21 (standard)

Class: 1.0
Temperature range: Environment: -20°C to max. +60°C, measured material: Max. +200°C
Protection class: IP 65
The switch function 21 is the one most commonly used. Should this not be as per your requirements, we request you to enquire with us. Further functions can be found at the bottom of this page

INOX Type	Scale grad.	Display range
MSK 1,6100/21 ES	0.05	0/1.6 bar
MSK 2,5100/21 ES	0.05	0/2.5 bar
MSK 4100/21 ES	0.1	0/4 bar
MSK 6100/21 ES	0.1	0/6 bar
MSK 10100/21 ES	0.2	0/10 bar
MSK 16100/21 ES	0.5	0/16 bar
MSK 25100/21 ES	0.5	0/25 bar
Adjusting spanner as spare part		
MSK SCHLUSSEL		

INOX Type	Scale grad.	Display range
MSK 40100/21 ES	1	0/40 bar
MSK 60100/21 ES	1	0/60 bar
MSK 100100/21 ES	2	0/100 bar
MSK 160100/21 ES	5	0/160 bar
MSK 250100/21 ES	5	0/250 bar
MSK 400100/21 ES	10	0/400 bar
MSK 600100/21 ES	10	0/600 bar
Adjusting spanner as spare part		
MSK SCHLUSSEL		

* with centring pin for profiled seal

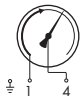


Flexible control cables on page 641

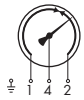
More switching options with contact pressure gauges

Single contact

No. 1
Contact closes when exceeding the setpoint.

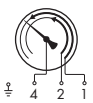


No. 2
Contact opens when exceeding the setpoint.

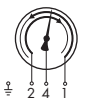


No. 3
The contact switches over (changer), i.e. the contact opens and closes when exceeding the setpoint.

Double contact



No. 11
The 1st and 2nd contact close when exceeding the setpoints.



No. 12
The 1st contact closes when exceeding the setpoints, the 2nd contact opens when exceeding the setpoints.

No 21 **(standard design)**
The 1st contact opens when exceeding the setpoints; the 2nd contact closes when exceeding the setpoints.

Double contact

No. 22
The 1st and 2nd contact open when exceeding the setpoints.

Triple contact

No. 212
The 1st contact opens, the 2nd contact closes, the 3rd contact opens when the setpoints are exceeded.

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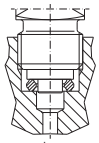
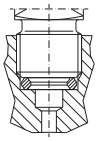
Pressure gauges - accessories

Pressure gauges - profiled seals



internal centring (standard)



external centring

Application: Profiled seals are often used to install pressure gauges. Compared with flat seals or sealing edge rings, they have the advantage of being able to turn one rotation more after the pressure gauge has been sealed (profiled seals made of stainless steel can turn approx. 1/2 rotation more). Therefore, it is possible to position the pressure gauge in such a way that the display can be read. When installing a pressure gauge with a plastic thread, we recommend using the extra soft aluminium gasket. In general, a profiled seal cannot be reused after being installed!

Type **copper (standard)**	Type **aluminium**	Type **stainless steel AISI 316Ti** (INOX)	For threads	External Ø	Internal Ø	Height
Internal centring via centring pin on the measuring device (standard)						
DR 18 MANO CU	---	---	G 1/8"	8.0	4.1	2.7
DR 14 MANO CU	DR 14 MANO A	DR 14 MANO ES	G 1/4"	9.3	5.4	3.2
DR 38 MANO CU	---	DR 38 MANO ES	G 3/8"	14.8	8.0	4.2
DR 12 MANO CU	---	DR 12 MANO ES	G 1/2"	14.8	8.0	4.2
External centring in the screw-in hole (for measuring device thread without centring pin)						
DR 14 MANO CUA	DR 14 MANO AA	---	G 1/8"	11.0	5.5	3.2
DR 12 MANO CUA	---	---	G 1/4"	18.2	11.0	4.2

Pressure gauges - flat seals acc. to EN 837-1 (DIN 16258)/sealing edge rings

flat seal

sealing edge ring

Application: Flat seals and sealing edge rings only allow the pressure gauge to be rotated a little further, or not at all, after it has been sealed. It is only possible to position the reading direction to a limited extent, which is why we recommend using the profiled seals specially developed for sealing pressure gauges when sealing such a gauge. Sealing edge rings are generally used in hydraulic cutting ring fittings made of steel or stainless steel. They are enclosed with the new fittings and therefore are solely intended as spare parts.

Type **copper (standard)**	Type **stainless steel AISI 316Ti** (INOX)	Type **PTFE**	Type **zinc-plated steel**	For threads	External Ø	Internal Ø	Height
Flat seals (standard)							
DR 14 MANO FCU	DR 14 MANO FES	DR 14 MANO FTE	---	G 1/4"	9.5	5.2	1.5*
DR 12 MANO FCU	DR 12 MANO FES	DR 12 MANO FTE	---	G 1/2"	17.5	6.2	2.0*
Sealing edge rings for hydraulic cutting ring fittings							
---	DR 14 MANO DKA ES	---	DR 14 MANO DKA	G 1/4"	10.9 - 11.4	6.0	4.5
---	DR 12 MANO DKA ES	---	DR 12 MANO DKA	G 1/2"	18.0 - 18.5	12.1	5.0

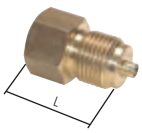
* type PTFE: 0.5 mm

Pressure gauges safety caps

Application: The safety caps act as shock protectors for the pressure gauge. They can be used for horizontally as well as vertically positioned pressure gauges. For mounting on a vertical press. gauge, the rubber protection is punched laterally.

Type **blue**	Type **red**	Type **grey**	Type **black**	For pressure gauge Ø
GS 40 BLAU	GS 40 ROT	GS 40 GRAU	GS 40 SCHWARZ	40
GS 50 BLAU	GS 50 ROT	GS 50 GRAU	GS 50 SCHWARZ	50
GS 63 BLAU	GS 63 ROT	GS 63 GRAU	GS 63 SCHWARZ	63
GS 100 BLAU	GS 100 ROT	GS 100 GRAU	GS 100 SCHWARZ	100

Reducers for pressure gauge connections with pins



with hexagonal

self-sealing without hexagonal

Type **brass**	PN bar	Type **AISI 316Ti** (INOX)	PN bar	Thread male	Thread female	L
With hexagonal, imperial						
RN MANO 1814 MS	250	RN MANO 1814 ES	400	G 1/8"*	G 1/4"	28
RN MANO 1418 MS	250	RN MANO 1418 ES	400	G 1/4"	G 1/8"	28
RN MANO 1438 MS	250	RN MANO 1438 ES	400	G 1/4"	G 3/8"	37
RN MANO 1412 MS	250	RN MANO 1412 ES	400	G 1/4"	G 1/2"	37
RN MANO 3814 MS	250	RN MANO 3814 ES	400	G 3/8"	G 1/4"	35
RN MANO 3812 MS	250	RN MANO 3812 ES	400	G 3/8"	G 1/2"	45
RN MANO 1218 MS	250	RN MANO 1218 ES	400	G 1/2"	G 1/8"	28
RN MANO 1214 MS	250	RN MANO 1214 ES	400	G 1/2"	G 1/4"	37
RN MANO 1238 MS	250	RN MANO 1238 ES	400	G 1/2"	G 3/8"	45
RN MANO 1234 MS	250	RN MANO 1234 ES	400	G 1/2"	G 3/4"	45
RN MANO 3412 MS	250	RN MANO 3412 ES	400	G 3/4"	G 1/2"	45
With hexagonal, metric						
RN MANO M121514 MS	250	RN MANO M121514 ES	400	M 12 x 1.5	G 1/4"	28
RN MANO 14M1215 MS	250	RN MANO 14M1215 ES	400	G 1/4"	M 12 x 1.5	28
RN MANO M121512 MS	250	RN MANO M121512 ES	400	M 12 x 1.5	G 1/2"	39
RN MANO 12M1215 MS	250	RN MANO 12M1215 ES	400	G 1/2"	M 12 x 1.5	38
RN MANO M201512 MS	250	RN MANO M201512 ES	400	M 20 x 1.5	G 1/2"	45
RN MANO 12M2015 MS	250	RN MANO 12M2015 ES	400	G 1/2"	M 20 x 1.5	45
Self-sealing without hexagonal, imperial						
RNMANO 1214-19 MS	400	RNMANO 1214-19 ES	400	G 1/2"	G 1/4"	19
RNMANO 1418-15 MS	400	---	400	G 1/4"	G 1/8"	11

* without a centring pin for profiled seal

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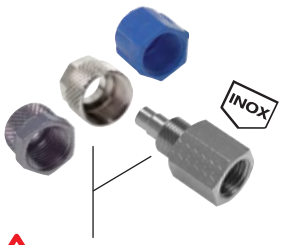
Screwed-on screw connections with female threads (pressure gauge couplings)

Type AISI 316Ti (INOX)	Thread female	Hose Ø male x female	Thread for union nut
AK 184 ES	G 1/8"	6 x 4	M 10 x 1
AK 186 ES	G 1/8"	8 x 6	M 12 x 1
AK 144 ES	G 1/4"	6 x 4	M 10 x 1
AK 146 ES	G 1/4"	8 x 6	M 12 x 1
AK 148 ES	G 1/4"	10 x 8	M 14 x 1
AK 386 ES	G 3/8"	8 x 6	M 12 x 1
AK 388 ES	G 3/8"	10 x 8	M 16 x 1

Nuts AISI 316Ti (INOX)	Nuts brass nickel-plated	Nuts POM
MCK 4 ES	MCK 4 MSV	MCK 4 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 4 ES	MCK 4 MSV	MCK 4 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK 8 ES	MCK 8 MSV	MCK 8 K
MCK 6 ES	MCK 6 MSV	MCK 6 K
MCK8M16 ES	---	---



Order accessories at the same time!

1 piece union nut
(found in the adjacent table)

Pressure gauge snubbers for liquids and gases — PN 250/400

Materials: Brass/NBR, AISI 316Ti/FKM or steel/NBR
Temperature range: -10°C to max. +120°C

Type brass (250 bar)	Type AISI 316Ti (400 bar) (INOX)	Type steel (400 bar)	Thread
MANOS 14 MS	MANOS 14 ES	---	G 1/4"*
MANOS 12 MS	MANOS 12 ES	MANOS 12 ST	G 1/2"*

* male thread with centring pin for profiled seal

Pressure gauge snubbers for liquids and gases — PN 1000

Materials: Body: AISI 316Ti, Filter element: AISI 316L
Temperature range: -10°C to max. +200°C
Pore width in the filter: 200 µm
Suitable: For installation of pressure gauges in hydraulic and pneumatic system circuits susceptible to dirt. The preliminary filters prevent clogging of small pressure entry channels / capillaries as well as a build up of solids and suspended matter in the process medium chambers. At the same time they have a throttling and damping effect and thus protect the measuring devices from pressure thrusts and pressure surges. If a filter element is clogged, this can easily be replaced by a replacement element.

Type (INOX)	Ø Filter element	Thread
Preliminary filter assembly		
MANOF 14 ES	5.5	G 1/4"
MANOF 12 ES	7.0	G 1/2"
Replacement filter element		
MANOF 14 ES REP	5.5	G 1/4"
MANOF 12 ES REP	7.0	G 1/2"

Preliminary filter assembly

Replacement filter element

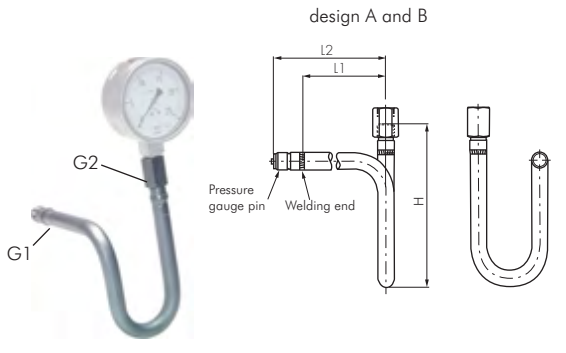
Water-filled U-tubes DIN 16282 — PN 25/100

A water-filled U-tube is used to cool off the measured material (liquid or gas) at a temperature compatible with the measuring device. They are mounted directly in front of the measuring device.
Temperature/pressure: To +120°C = 100%; to +300°C = 80%; to +400°C = 63%

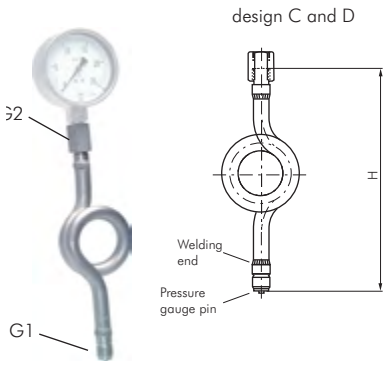
Type AISI 316Ti (INOX)	Type steel ST 35.8	Design	G 1	G 2	PN	L 1	L 2	H
U-shape								
WSRU 1212 ES	WSRU 1212 ST	A (DIN 16282)	G 1/2" MT pin**	G 1/2" FT clamping socket*	100 bar	---	180	200
WSRU 0012 ES	WSRU 0012 ST	B (DIN 16282)	Welding end***	G 1/2" FT clamping socket*	100 bar	145	---	200
WSRU 0000 ES	---		Welding end***	Welding end***	100 bar	145	---	165
WSRUH 1414 ES	WSRUH 1414 ST	H	G 1/4" (MT)	G 1/4" (MT)	25 bar	---	225	170
WSRUH 1212 ES	WSRUH 1212 ST	H	G 1/2" (MT)	G 1/2" (MT)	25 bar	---	225	170
Circular								
WSRK 1212 ES	WSRK 1212 ST	C (DIN 16282)	G 1/2" MT pin**	G 1/2" FT clamping socket*	100 bar	---	---	275
WSRK 0012 ES	WSRK 0012 ST	D (DIN 16282)	Welding end***	G 1/2" FT clamping socket*	100 bar	---	---	240
WSRK 0000 ES	---		Welding end***	Welding end***	100 bar	---	---	220
WSRKH 1414 ES	WSRKH 1414 ST		G 1/4" (MT)	G 1/4" (MT)	25 bar	---	---	240
WSRKH 1212 ES	WSRKH 1212 ST****		G 1/2" (MT)	G 1/2" (MT)	25 bar	---	---	240

* the clamping socket is equipped with a left-hand and right-hand thread and allows the measuring device to be positioned freely. It functions similarly to a union nut with a flat seal. The clamping socket is available in AISI 304 for stainless steel water-filled U-tube. The pressure gauge gasket must be ordered separately, ** male thread with centring pin for profiled seal, *** welding ends 20 x 2.5, **** H = 230 mm

Type U-shape



Type circular



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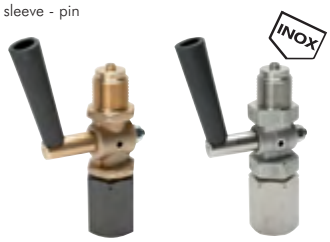
Pressure gauges - accessories

sleeve - sleeve

sleeve - pin



clamping socket - pin

test connection 60 x 25 x 10

test connection 40 x 5

Pressure gauge stop cocks DIN 16261/DIN 16262/DIN 16263 — up to 25 bar

Materials: Body and hood: Brass or AISI 316Ti, handle: Plastic
Application: Pressure gauge stop cocks are used to protect pressure gauges against spikes in pressure and vibrations. The lever can be switched to "Continuous" - pressure is applied to the measuring device, "Shut-off" - pressure gauge is separated from the supply line but the pressure is not released, or "Shut-off with draining" - pressure gauge is separated from the supply line and pressure is released into the atmosphere from the space between the cock and the pressure gauge. For high pressures or aggressive substances, we recommend using pressure gauge shut-off valves.
Temperature range: -10°C to max. +50°C

Type brass	PN	Type AISI 316Ti (INOX)	PN	Gauge port (FT)	Pressure input	Test connection	Standard
Sleeve - sleeve							
MAH 14 MM MS	6 bar	---	---	G 1/4"	G 1/4"	---	---
MAH 38 MM MS	16 bar	---	---	G 3/8"	G 3/8"	---	---
MAH 12 MM MS	16 bar	MAH 12 MM ES	25 bar	G 1/2"	G 1/2"	---	DIN 16261 A
MAH 12 MMP MS	16 bar	---	---	G 1/2"	G 1/2"	60 x 25 x 10	---
MAH 12 MMP4 MS	16 bar	---	---	G 1/2"	G 1/2"	Ø 40 x 5	---
Sleeve - pin**							
MAH 14 MZ MS	6 bar	MAH 14 MZ ES	6 bar	G 1/4"	G 1/4"	---	---
MAH 38 MZ MS	16 bar	---	---	G 3/8"	G 3/8"	---	---
MAH 12 MZ MS	16 bar	MAH 12 MZ ES	25 bar	G 1/2"	G 1/2"	---	DIN 16261 B
MAH 12 MZP MS	16 bar	---	---	G 1/2"	G 1/2"	60 x 25 x 10	---
MAH 12 MZP4 MS	16 bar	---	---	G 1/2"	G 1/2"	Ø 40 x 5	---
Clamping socket* - pin**							
MAH 14 SMZ MS	6 bar	---	---	G 1/4"	G 1/4"	---	DIN 16262 B
MAH 12 SMZ MS	16 bar	MAH 12 SMZ ES	25 bar	G 1/2"	G 1/2"	---	DIN 16262 A
MAH 12 SMZP MS	16 bar	MAH 12 SMZP ES	25 bar	G 1/2"	G 1/2"	60 x 25 x 10	DIN 16263
MAH 12 SMZP4 MS	16 bar	---	---	G 1/2"	G 1/2"	Ø 40 x 5	---

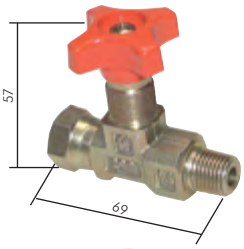
* the clamping socket is equipped with a left-hand and right-hand thread and allows the measuring device to be positioned freely. It functions similarly to a union nut with a flat seal. The clamping socket is available in steel for brass valves, in AISI 304 for stainless steel valves. The pressure gauge gasket must be ordered separately, ** male thread with centring pin for profiled seal

Pressure gauge pushbutton valves with DVGW approval — PN 25*

Application: Pressure gauge pushbutton valves are used for spot pressure measurement. If the cock is not operated the pressure gauge remains unpressurised. When the pushbutton is depressed the pressure gauge is set under pressure and the system pressure is displayed. On releasing the button, the system is automatically disconnected and the pressure in the pressure gauge is released into the atmosphere.
Temperature range: -20° C to max. +60° C

Type brass nickel-plated	Thread female
MAH 12 DK	G 1/2"

* gas max. PN 4 bar



clamping socket - sleeve

clamping socket - pin

rotatable sleeve - pin with shaft for mounting bracket

test connection 60 x 25 x10

test connection M 20 x 1.5

Pressure gauge shut-off valves, compact designs — PN 400

Application: Pressure gauge shut-off valves are installed to protect pressure gauges. The fulfil a double function,damping of pressure thrusts through flow control direction, and they also isolate the pressure gauge from the pressure line. The rotatable union nut permits the pressure gauge to be positioned in the desired direction. The inserted O-ring seal is included in delivery. There is no pressure relief of the pressure gauge.
Materials: Body: Zinc-plated steel, seal: NBR
Temperature range: -20°C to max. +100°C

Type	Thread female	Thread male
MAV 14 HD	G 1/4" (union nut, flat sealing)	R 1/4"

Pressure gauge shut-off valves DIN 16270/DIN 16271 — up to 250 bar

Application: Pressure gauge shut-off valves are used to protect pressure gauges against spikes in pressure and vibrations. Setting the valve to throttle can cushion spikes in pressure and vibrations, and separate the measuring device from the supply line completely. A bleed screw can be used to release pressure from the gauge. Otherwise, no pressure is released from the gauge while the valve is closed. For low pressures and non-aggressive substances, we recommend using pressure gauge stop cocks.
Materials: Seals: PTFE, hand wheel: Plastic
Temperature range: -10°C to max. +120°C, higher temperatures are possible at reduced pressures

Type brass	PN	Gauge port (FT)	Pressure input	Test connection	Standard
Clamping socket* - sleeve					
MAV 14 SMM MS	125 bar	G 1/4"	G 1/4"	---	---
Clamping socket* - pin					
MAV 12 SMZ MS	250 bar	G 1/2"	G 1/2"	---	DIN 16270 A
MAV 12 SMZP MS	250 bar	G 1/2"	G 1/2"	60 x 25 x 10	DIN 16271 A
MAV 12 SMZP2 MS	250 bar	G 1/2"	G 1/2"	M 20 x 1.5	DIN 16271 A
Rotatable sleeve - pin with shaft for mounting bracket**					
MAV 12 SMZM MS	250 bar	G 1/2"	G 1/2"	---	DIN 16270 B
MAV 12 SMZMP MS	250 bar	G 1/2"	G 1/2"	60 x 25 x 10	DIN 16271 B
MAV 12 SMZMP2 MS	250 bar	G 1/2"	G 1/2"	M 20 x 1.5	DIN 16271 B

* the clamping socket is equipped with a left-hand and right-hand thread and allows the measuring device to be positioned freely. It functions similarly to a union nut with a flat seal. The clamping socket is available in steel for brass valves according to DIN. The pressure gauge gasket must be ordered separately, ** male thread with centring pin for profiled seal

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Pressure gauge shut-off valves DIN 16270/DIN 16271 — up to 400 bar

Application: Pressure gauge shut-off valves are used to protect pressure gauges against spikes in pressure and vibrations. Setting the valve to throttle can cushion spikes in pressure and vibrations, and separate the measuring device from the supply line completely. A bleed screw can be used to release pressure from the gauge. Otherwise, no pressure is released from the gauge while the valve is closed. For low pressures and non-aggressive substances, we recommend using pressure gauge stop cocks.
Materials: Seals: PTFE, hand wheel plastic
Temperature range: -10°C to max. +120°C (type AISI 316Ti: -20°C to max. +200°C), higher temperatures are possible at reduced pressures

Type AISI 316Ti	Type steel	PN	Gauge port (FT)	Pressure input	Test connection	Standard
Clamping socket* - clamping socket*						
MAV 14 SMSM ES	---	250 bar	G 1/4"	G 1/4"	---	---
MAV 12 SMSM ES	MAV 12 SMSM ST	400 bar	G 1/2"	G 1/2"	---	DIN 16270 A
Clamping socket* - pin**						
MAV 12 SMZ ES	MAV 12 SMZ ST	400 bar	G 1/2"	G 1/2"	---	DIN 16270 A
MAV 12 SMZP ES	MAV 12 SMZP ST	400 bar	G 1/2"	G 1/2"	60 x 25 x 10	DIN 16271 A
MAV 12 SMZP2 ES	MAV 12 SMZP2 ST	400 bar	G 1/2"	G 1/2"	M 20 x 1.5	DIN 16271 A
Rotatable sleeve - pin with shaft for mounting bracket**						
MAV 12 SMZM ES	MAV 12 SMZM ST	400 bar	G 1/2"	G 1/2"	---	DIN 16270 B
MAV 12 SMZMP ES	MAV 12 SMZMP ST	400 bar	G 1/2"	G 1/2"	60 x 25 x 10	DIN 16271 B
MAV 12 SMZMP2 ES	MAV 12 SMZMP2 ST	400 bar	G 1/2"	G 1/2"	M 20 x 1.5	DIN 16271 B

* the clamping socket is equipped with a left-hand and right-hand thread and allows the measuring device to be positioned freely. It functions similarly to a union nut with a flat seal. The clamping socket is available in AISI 304 for stainless steel valves. The pressure gauge gasket must be ordered separately, ** male thread with centring pin for profiled seal

clamping socket - clamping socket

clamping socket - pin

rotatable sleeve - pin with shaft for mounting bracket

LOCTITE Liquid seals, gaskets & tapes from page 549

Hydraulic hoses from page 231

Cutting ring fittings from page 77

test connection 60 x 25 x10

test connection M 20 x 1.5

Mounting brackets DIN 16281

Materials: AISI 316Ti, aluminum, painted black
Measuring instrument mounting: Ø 26, wall bracket with triangular base plate

Type AISI 316Ti	Type aluminium	L
MGH 2660 ES	MGH 2660 A	60
MGH 26100 ES	MGH 26100 A	100
MGH 26160 ES	MGH 26160 A	160

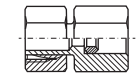
Pressure gauge extension pieces w/ pins and shafts for mounting brackets DIN 16281

Type brass	PN	Type AISI 316Ti	Type steel	PN	Length over all	Thread female	Thread male
MZS 1212 MS	250 bar	MZS 1212 ES	MZS 1212 ST	400 bar	70	G 1/2"	G 1/2"*

* with centring pin for profiled seal

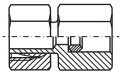
Pressure gauge couplings (to screw on a screw connection)

Type zinc-plated steel	Type AISI 316Ti	Tube Ø external	Thread female
Light model series			
MAV EV 6 LR	MAV EV 6 LR ES	6 L	G 1/4"
MAV EV 8 LR	MAV EV 8 LR ES	8 L	G 1/4"
MAV EV 10 LR	MAV EV 10 LR ES	10 L	G 1/4"
MAV EV 12 LR	MAV EV 12 LR ES	12 L	G 1/4"
Heavy model series			
MAV EV 6 SR	MAV EV 6 SR ES	6 S	G 1/2"
MAV EV 8 SR	MAV EV 8 SR ES	8 S	G 1/2"
MAV EV 10 SR	MAV EV 10 SR ES	10 S	G 1/2"
MAV EV 12 SR	MAV EV 12 SR ES	12 S	G 1/2"



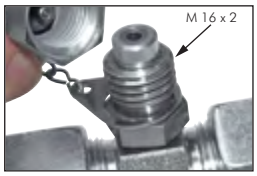
Pressure gauge couplings with sealing cones (to screw on a screw connection)

Type zinc-plated steel	Type AISI 316Ti	Tube Ø external	Thread female
Light model series			
MAVE 6 LR	MAVE 6 LR ES	6 L	G 1/4"
MAVE 8 LR	MAVE 8 LR ES	8 L	G 1/4"
MAVE 10 LR	MAVE 10 LR ES	10 L	G 1/4"
MAVE 12 LR	MAVE 12 LR ES	12 L	G 1/4"
Heavy model series			
MAVE 6 SR	MAVE 6 SR ES	6 S	G 1/2"
MAVE 8 SR	MAVE 8 SR ES	8 S	G 1/2"
MAVE 10 SR	MAVE 10 SR ES	10 S	G 1/2"
MAVE 12 SR	MAVE 12 SR ES	12 S	G 1/2"



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Test couplings - M 16 x 2



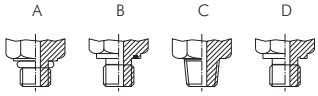
Test couplings with M 16 x 2 screw couplings

Type zinc-plated steel
Materials: Body: Zinc-plated steel, elastomer seal: NBR
Temperature range: -20°C to max. +100°C

Type AISI 316Ti
Materials: Body: AISI 316Ti, elastomer seal: FKM
Temperature range: -20°C to max. +200°C

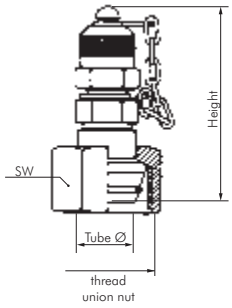
Application: Test couplings are used to control the operating pressure as well as for venting if inconveniently laid tubes are in use. The screw coupling is closed and opens mechanically only after a measuring hose is screwed onto it. In this way a connection is made to the medium.

seal shape



Test couplings M 16 x 2 screw couplings with male threads — up to 630 bar

Type zinc-plated steel	Seal shape	Type AISI 316Ti	Seal shape	Screw-in thread	Operating pressure
ME 8x1	D	ME 8x1 ES	A	M 8 x 1	250 bar
ME 10x1	B	ME 10x1 ES	A	M 10 x 1	400 bar
ME 12x1.5	B	ME 12x1.5 ES	B	M 12 x 1.5	630 bar
ME 14x1.5	B	ME 14x1.5 ES	B	M 14 x 1.5	630 bar
ME 16x1.5	B	---	-	M 16 x 1.5	630 bar
ME 18	B	ME 18 ES	B	G 1/8"	400 bar
ME 14	B	ME 14 ES	B	G 1/4"	630 bar
ME 38	B	ME 38 ES	D	G 3/8"	630 bar
ME 12	B	ME 12 ES	D	G 1/2"	630 bar
ME 18 NPT	C	ME 18 ES NPT	C	NPT 1/8"	400 bar
ME 14 NPT	C	ME 14 ES NPT	C	NPT 1/4"	630 bar



Test couplings M 16 x 2 screw couplings with HD screw connections — up to 630 bar

Type zinc-plated steel	Type AISI 316Ti	Union nut thread	Tube Ø external	SW	Height*	Operating pressure
Light model series						
ME DKO 6 L	ME DKO 6 L ES	M 12 x 1.5	6 L	14	53	315 bar
ME DKO 8 L	ME DKO 8 L ES	M 14 x 1.5	8 L	17	53	315 bar
ME DKO 10 L	ME DKO 10 L ES	M 16 x 1.5	10 L	19	50	315 bar
ME DKO 12 L	ME DKO 12 L ES	M 18 x 1.5	12 L	22	50	315 bar
ME DKO 15 L	ME DKO 15 L ES	M 22 x 1.5	15 L	27	51	315 bar
ME DKO 18 L	ME DKO 18 L ES	M 26 x 1.5	18 L	32	59	315 bar
ME DKO 22 L	ME DKO 22 L ES	M 30 x 2	22 L	36	59	160 bar
ME DKO 28 L	ME DKO 28 L ES	M 36 x 2	28 L	41	61	160 bar
ME DKO 35 L	ME DKO 35 L ES	M 45 x 2	35 L	50	64	160 bar
ME DKO 42 L	ME DKO 42 L ES	M 52 x 2	42 L	60	65	160 bar
Heavy model series						
ME DKO 6 S	ME DKO 6 S ES	M 14 x 1.5	6 S	17	54	630 bar
ME DKO 8 S	ME DKO 8 S ES	M 16 x 1.5	8 S	19	51	630 bar
ME DKO 10 S	ME DKO 10 S ES	M 18 x 1.5	10 S	22	51	630 bar
ME DKO 12 S	ME DKO 12 S ES	M 20 x 1.5	12 S	24	51	630 bar
ME DKO 14 S	ME DKO 14 S ES	M 22 x 1.5	14 S	27	61	630 bar
ME DKO 16 S	ME DKO 16 S ES	M 24 x 1.5	16 S	30	57	400 bar
ME DKO 20 S	ME DKO 20 S ES	M 30 x 2	20 S	36	62	400 bar
ME DKO 25 S	ME DKO 25 S ES	M 36 x 2	25 S	46	53	400 bar
ME DKO 30 S	ME DKO 30 S ES	M 42 x 2	30 S	50	58	400 bar
ME DKO 38 S	ME DKO 38 S ES	M 52 x 2	38 S	60	60	315 bar

* details apply for the type zinc-plated steel. For all other types, please ask.

replacement O-rings made of FKM/NBR are found on page 95.

Test couplings M 16 x 2 with pipe nozzles — up to 630 bar

Type zinc-plated steel	Tube Ø external	Height	Operating pressure light/heavy model series
ME RS 6	6	57	315 bar/630 bar
ME RS 8	8	57	315 bar/630 bar
ME RS 10	10	59	315 bar/630 bar
ME RS 12	12	59	315 bar/630 bar
ME RS 15	15	59	315 bar

Test couplings M 16 x 1.5 can be found in our Online Shop

Many additional products and sizes are available in our **Online Shop!**

☞ **Order example:** ME 1615
Standard type

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Test couplings M 16 x 2 in straight screw connections — up to 630 bar

Type zinc-plated steel	Type AISI 316Ti (INOX)	Union nut thread	Tube Ø external	SW	Height*	Operating pressure
Light model series						
ME 6 L	ME 6 L ES	M 12 x 1.5	6 L	14	49.0	315 bar
ME 8 L	ME 8 L ES	M 14 x 1.5	8 L	17	49.0	315 bar
ME 10 L	ME 10 L ES	M 16 x 1.5	10 L	19	49.0	315 bar
ME 12 L	ME 12 L ES	M 18 x 1.5	12 L	22	49.0	315 bar
ME 15 L	ME 15 L ES	M 22 x 1.5	15 L	27	52.0	315 bar
ME 18 L	ME 18 L ES	M 26 x 1.5	18 L	32	53.0	315 bar
ME 22 L	ME 22 L ES	M 30 x 2	22 L	36	55.0	160 bar
ME 28 L	ME 28 L ES	M 36 x 2	28 L	41	57.5	160 bar
ME 35 L	ME 35 L ES	M 45 x 2	35 L	50	60.0	160 bar
ME 42 L	ME 42 L ES	M 52 x 2	42 L	60	64.5	160 bar
Heavy model series						
ME 6 S	ME 6 S ES	M 14 x 1.5	6 S	17	49.0	630 bar
ME 8 S	ME 8 S ES	M 16 x 1.5	8 S	19	49.0	630 bar
ME 10 S	ME 10 S ES	M 18 x 1.5	10 S	22	49.0	630 bar
ME 12 S	ME 12 S ES	M 20 x 1.5	12 S	24	49.0	630 bar
ME 14 S	ME 14 S ES	M 22 x 1.5	14 S	27	50.5	630 bar
ME 16 S	ME 16 S ES	M 24 x 1.5	16 S	30	52.0	400 bar
ME 20 S	ME 20 S ES	M 30 x 2	20 S	36	55.0	400 bar
ME 25 S	ME 25 S ES	M 36 x 2	25 S	46	57.5	400 bar
ME 30 S	ME 30 S ES	M 42 x 2	30 S	50	60.0	400 bar
ME 38 S	ME 38 S ES	M 52 x 2	38 S	60	64.5	315 bar

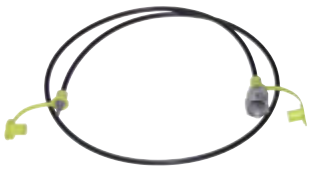
* pipe centre/top edge

Measuring hoses M 16 x 2 — up to 630 bar

Materials: Zinc-plated steel/stainless steel, hose: Polyamide with fabric, **media:** Hydraulic oils, mineral oils
Temperature range: -20°C to max. +100°C
☞ **Optional:** For inert gases (such as Nitrogen, Argon, ...) **-G**

Type zinc-plated steel	Type AISI 303 (INOX)	Length
Measuring hoses M 16 x 2 - M 16 x 2 (PN 630)		
ME SL 162/200	ME SL 162/200 ES	200
ME SL 162/300	---	300
ME SL 162/400	ME SL 162/400 ES	400
ME SL 162/630	ME SL 162/630 ES	630
ME SL 162/800	ME SL 162/800 ES	800
ME SL 162/1000	ME SL 162/1000 ES	1000
ME SL 162/1500	ME SL 162/1500 ES	1500
ME SL 162/2000	ME SL 162/2000 ES	2000
ME SL 162/2500	---	2500
ME SL 162/3000	---	3000
ME SL 162/3200	---	3200
ME SL 162/3500	---	3500
ME SL 162/4000	---	4000
ME SL 162/5000	---	5000
ME SL 162/5500	---	5500
Measuring hoses M 16 x 2 - push-in fitting (PN 400)		
ME SL ST 162/1000	---	1000

type ME SL 162/...



type ME SL ST 162/1000

☞ **Order example:** ME SL 162/200 **

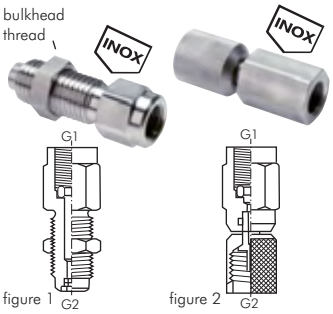
Standard type

Designation for the options:
For inert gases . . . . . .-G

Adapters for test couplings/pressure gauges — PN 630

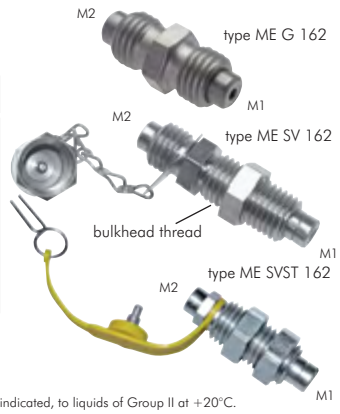
Type zinc-plated steel	Type AISI 316Ti (INOX)	Figure	Thread G1 (pressure gauge)	Thread G2 (test coupling)	Bulkhead thread
To screw into the measuring hose					
ME MAAG 14	ME MAAG 14 ES	1	G 1/4" (FT)	M 16 x 2 (MT)	M 16 x 2
ME MAAG 12	ME MAAG 12 ES	1	G 1/2" (FT)	M 16 x 2 (MT)	M 16 x 2
ME MAAG 14 NPT	---	1	NPT 1/4" (FT)	M 16 x 2 (MT)	M 16 x 2
To screw onto the test coupling					
ME MAIG 14	ME MAIG 14 ES*	2	G 1/4" (FT)	M 16 x 2 (FT)	---
ME MAIG 12	ME MAIG 12 ES*	2	G 1/2" (FT)	M 16 x 2 (FT)	---
ME MAIG 14 NPT	---	2	NPT 1/4" (FT)	M 16 x 2 (FT)	---

* AISI 303



Adapters for test couplings/hose connectors — up to 630 bar

Type zinc-plated steel	Thread M1	Thread M2	Bulkhead thread	Operating pressure
Hose connector without safety cap				
ME G 162	M 16 x 2	M 16 x 2	---	630 bar
ME G 1621615	M 16 x 2	M 16 x 1.5	---	630 bar
Bulkhead screw connection, safety cap (one-sided)				
ME SV 162	M 16 x 2	M 16 x 2	M 16 x 2	400 bar
ME SVST 162	M 16 x 2	STECK	M 16 x 2	400 bar



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Pressure gauge transducers

Pressure gauge transducers — up to 0.25% of the span

Economical

Application: For general applications
Materials: Housing: AISI 304, measured material touching parts: AISI 304/ceramic (≥ 100 bar: AISI 304/630), FKM
Temperature range: Measured material temperature: -20°C to max. +125°C (≥ 100 bar: -40°C to max. +125°C), ambient temperature: -20°C to max. +85°C (≥100 bar: -30°C to max. +100°C)
Protection class: IP 65
Connection: G 1/4"*
Power supply: 10-30 V DC, elbow plug DIN 43560/EN 175301-803 (size 3, 4-pin)
Output signal: 4...20 mA two-terminal
Non-linearity: 0.25% (1000 bar: 0.5%) of the span (BFSL)

Type (INOX)		Measuring range
DMUB -10,6	for vacuum	-1/0.6 bar
DMUB 1,6		0/1.6 bar
DMUB 2,5		0/2.5 bar
DMUB 4		0/4 bar
DMUB 6		0/6 bar
DMUB 10		0/10 bar
DMUB 16		0/16 bar
DMUB 25		0/25 bar

Type (INOX)	Measuring range
DMUB 40	0/40 bar
DMUB 60	0/60 bar
DMUB 100	0/100 bar
DMUB 160	0/160 bar
DMUB 250	0/250 bar
DMUB 400	0/400 bar
DMUB 600	0/600 bar
DMUB 1000	0/1000 bar

* with centring pin for profiled seal

Pressure gauge transducers — 0.5% of the span

Economical

Application: For general applications
Materials: Housing: AISI 316L, measured material touching parts: AISI 316L
Temperature range: Measured material temperature: 0°C to max.+80°C, ambient temperature: 0°C to max. +80°C
Protection class: IP 65
Connection: G 1/4" (with elastomer seal)
Power supply: 8-30 V DC, elbow plug DIN 43560/EN 175301-803 (size 3, 4-pin)
Output signal: 4...20 mA two-terminal
Non-linearity: 0.5% of the span (BFSL)

Type (INOX)	Measuring range
DMUB 1 ES	0/1 bar
DMUB 1,6 ES	0/1.6 bar
DMUB 2,5 ES	0/2.5 bar
DMUB 4 ES	0/4 bar
DMUB 6 ES	0/6 bar
DMUB 10 ES	0/10 bar
DMUB 16 ES	0/16 bar
DMUB 25 ES	0/25 bar

Type (INOX)	Measuring range
DMUB 40 ES	0/40 bar
DMUB 60 ES	0/60 bar
DMUB 100 ES	0/100 bar
DMUB 160 ES	0/160 bar
DMUB 250 ES	0/250 bar
DMUB 400 ES	0/400 bar
DMUB 600 ES	0/600 bar

Pressure gauge transducers — 0.25% of the span

Robust

Application: For general applications
Materials: Housing: AISI 316Ti, measured material touching parts: AISI 316L
Temperature range: Measured material temperature -30°C to max. +100°C, ambient temperature: -30°C to max. +100°C
Protection class: IP 65
Connection: G 1/2"*
Power supply: 8-36 V DC, elbow plug DIN 43560/EN 175301-803 (size 3, 4-pin)
Output signal: 4...20 mA two-terminal
Non-linearity: 0.25% of the span (BFSL)

Type (INOX)		Measuring range
DMU -1 ESB	for vacuum	-1/0 bar
DMU 0,4 ESB		0/0.4 bar
DMU 1 ESB		0/1 bar
DMU 4 ESB		0/4 bar
DMU 6 ESB		0/6 bar
DMU 10 ESB		0/10 bar
DMU 16 ESB		0/16 bar
DMU 25 ESB		0/25 bar

Type (INOX)	Measuring range
DMU 40 ESB	0/40 bar
DMU 60 ESB	0/60 bar
DMU 100 ESB	0/100 bar
DMU 160 ESB	0/160 bar
DMU 250 ESB	0/250 bar
DMU 400 ESB	0/400 bar
DMU 600 ESB	0/600 bar

* with centring pin for profiled seal

Pressure gauge transducers — 0.2% of the span

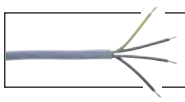
Adjustable zero

Application: For general applications, adjustable zero and span
Materials: Housing and measured material touching parts: AISI 316Ti
Temperature range: Measured material temperature: -30°C to max.+100°C, ambient temperature: -20°C to max. +80°C
Protection class: IP 65
Connection: G 1/2"*
Power supply: 10-30 V DC, elbow plug DIN 43560/EN 175301-803 (size 3, 4-pin)
Output signal: 4...20 mA two-terminal
Non-linearity: 0.2% of the span (BFSL)

Type (INOX)		Measuring range
DMU -1 ES	for vacuum	-1/0 bar
DMU 0,25 ES		0/0.25 bar
DMU 0,4 ES		0/0.4 bar
DMU 0,6 ES		0/0.6 bar
DMU 1 ES		0/1 bar
DMU 1,6 ES		0/1.6 bar
DMU 2,5 ES		0/2.5 bar
DMU 4 ES		0/4 bar
DMU 6 ES		0/6 bar
DMU 10 ES		0/10 bar

Type (INOX)	Measuring range
DMU 16 ES	0/16 bar
DMU 25 ES	0/25 bar
DMU 40 ES	0/40 bar
DMU 60 ES	0/60 bar
DMU 100 ES	0/100 bar
DMU 160 ES	0/160 bar
DMU 250 ES	0/250 bar
DMU 400 ES	0/400 bar
DMU 600 ES	0/600 bar
DMU 1000 ES	0/1000 bar

* with centring pin for profiled seal



Flexible control cables on page 641

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Switch power supply for power supply of the pressure gauge transducer and digital displays

Function: Stabilised output voltage 24V DC, housing for standard rail assembly

Type	Input voltage	Output	Nominal performance
S8VS01524	100 - 240V AC	24V DC (max. 650 mA)	15 W

Universal built-in display and controller

Materials: Housing and window: polycarbonate
Temperature range: -20°C to max. +50°C
Protection class: front side: IP 65
Input signals: Standard signals (0-20 mA, 4-20 mA, 0-50 mV, 0-1V, 0-2V and 0-10V), resistor thermometers (Pt100 and Pt1000), thermocouples (types K, J, N, T, S, R, B, E and L), frequency / speed (TTL and switch contact)
Outputs: 2 switch contacts (not galvanised isolated, PNP, NPN or push-pull)
Output functions: 2 point, 3 point, 2 point with alarm, min/max alarm together or separated, switch points user defined
Conversion rate: Standard signal and frequency measurement: approx. 100 measurements/sec., temperature measurement: approx. 1 measurement per second
Display accuracy: ±0.2% of the span for voltage signals
Power supply: 9 - 28V DC
Display: four-digit, red LED display, character height: 10 mm
Dimensions: front frame: 24 x 48 mm, installation depth (with plug-in terminal): approx. 67 mm

Type	Description
Di 32-1	Digital display for installation into a panel cut-out 22.4 x 45.3 mm

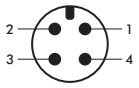
Digital plug-on displays for pressure gauge transducers (LCD)

Materials: Housing: ABS, front window: Polycarbonate
Temperature range: 0°C to max. +50°C
Protection class: IP 65
Electrical connection: A transmitter with 4-20 mA outlet in a 2-wire system and elbow plug DIN 43650/EN 175301-803 (size 3, 4-pin)
Conversion rate: 5 meas./sec.
Display accuracy: ± 0.2% of the span, ± 1 digit
Programming: Using 3 keys under the housing face plate, menu guided: Scaling of the display area, decimal point, cushioning
Dimensions: Front frame: 49 x 49 mm, depth: 35.5 mm

Type	Description
DAA 4	Four digit LCD plug-on display for gauge transducer, character height: 10 mm

Electronic pressure switches — up to 600 bar

IO-Link



M 12 - Plug

Materials: Body and thread connector: Stainless steel (AISI 304/316L), display: Plastic, measured material touching parts: Stainless steel (AISI 316L)
Temperature range: -20°C to max. +80°C, measured material: Max. +85°C
Protection class: IP 67
Supply voltage: 15-35V DC, 45 mA
Electrical connection: Plug M12 (4-pin)
Control output (PNP): 2 control outputs (contacts, break contacts, windows and 250 mA hysteresis can be freely adjusted for each control output), max. 250 mA
Switching accuracy: ±1% of the span
Connection: G 1/4" MT (with elastomer seal)
Service life: 100 million relay switches

Advantages:
- Easy-to-read, sturdy LED display
- Intuitive and quick operation
- Easily adjustable to various installation situations, e.g. by using a display that can be rotated 300° or digits that can be rotated 180° on the display
- Thread connector equipped with elastomer seal
- Honoured with the IF product design award
- Password-protected menu navigation

Type straight connector	Type angled connector 90°
3 m cable, 4-wire with coupling, M12 x 1	
KAB M12 3 G	KAB M12 3 W
5 m cable, 4-wire with coupling, M12 x 1	
KAB M12 5 G	KAB M12 5 W
10 m cable, 4-wire with coupling, M12 x 1	
KAB M12 10 G	KAB M12 10 W

Optional: IO-Link communication standard for quicker installation and parametrisation **-IO**

Type		Settings range	Protected against overpressure to
DRSEW -1	for vacuum	-1 to 0 bar	2 bar
DRSEW 1		0 - 1 bar	2 bar
DRSEW 1,6		0 - 1.6 bar	3.2 bar
DRSEW 2,5		0 - 2.5 bar	5 bar
DRSEW 4		0 - 4 bar	8 bar
DRSEW 6		0 - 6 bar	12 bar
DRSEW 10		0 - 10 bar	20 bar
DRSEW 16		0 - 16 bar	32 bar
DRSEW 25		0 - 25 bar	50 bar
DRSEW 40		0 - 40 bar	80 bar
DRSEW 60		0 - 60 bar	120 bar
DRSEW 100		0 - 100 bar	200 bar
DRSEW 160		0 - 160 bar	320 bar
DRSEW 250		0 - 250 bar	500 bar
DRSEW 400		0 - 400 bar	800 bar
DRSEW 600		0 - 600 bar	1200 bar

Order example: DRSEW -1 **
Standard type
Designation for the options: IO-Link . . . . . -IO

LOCTITE Liquid seals, gaskets & tapes from page 549

OKS Cleaner and service products from page 564

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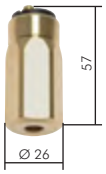
Pressure switches

vacuum switch



pressure switches

safety caps

Pressure switches with screw terminals — up to 150 bar

Materials: Body: Zinc-plated steel (vacuum switch: brass), diaphragm: NBR (vacuum switch: FKM), DRSS/DRSO 150: piston AISI 303 with NBR seal
Temperature range: -30°C to max. +100°C (vacuum switch -5°C to max. +120°C)
Switchback difference: 5 to 15%
Protection class: IP 65 (clamps IP 00)
Cable connection: Using M 3 screw terminals
Media: Hydraulic oil, machine oil, turpentine, heating oil, air (also partially suitable for water)

Type NO contact	Type NC contact		Settings range	Thread	Protected against overpressure to	Switching capacity
Vacuum switch						
DRSS -1	DRSO -1	for vacuum	-0.95 to -0.2 bar	G 1/8" (FT)	20 bar	42 V/100 VA
Pressure switches						
DRSS 1*	DRSO 1*		0.1 - 1 bar	G 1/4" (MT)	300 bar	42 V/100 VA
DRSS 10*	DRSO 10		1 - 10 bar	G 1/4" (MT)	300 bar	42 V/100 VA
DRSS 20	DRSO 20		10 - 20 bar	G 1/4" (MT)	300 bar	42 V/100 VA
DRSS 50	DRSO 50		20 - 50 bar	G 1/4" (MT)	300 bar	42 V/100 VA
DRSS 150	DRSO 150		50 - 150 bar	G 1/4" (MT)	600 bar	42 V/100 VA
Safety caps for vacuum and pressure switches (please order separately)						
DRSS SCHUTZKAPPE						

* with AMP 6.3 x 0.8 push-in fitting

Especially good value!

vacuum switch

safety caps

pressure switches

safety caps

Pressure switches with flat connectors — up to 350 bar

Materials: Body: Zinc-plated steel or stainless steel AISI 303 (vacuum switch: brass), diaphragms**: NBR
Temperature range: -25°C to max. +85°C
Switchback difference: 15 to 20% (vacuum switch 15 to 25%)
Protection class: IP 65 (clamps IP 00)
Cable connection: Via flat connector (NC contact/NO contact: 2 x 6.3 x 0.8, changer: 3 x 6.3 x 0.8)
Media: Hydraulic oil, oil emulsion, air, (also partially suitable for water)

Type NO contact	Type NC contact	Type changer		Settings range	Thread male	Prot. against overpres. to	Switching capacity	H
Vacuum switch, brass								
---	---	VAKUSW 18 B	for vacuum	-0.98 to -0.2 bar	G 1/8"	2 bar	42 V/5 A*	51
Pressure switch, zinc-plated steel								
DRSS 2 B	DRSO 2 B	DRSW 2 B		0.5 - 2 bar	G 1/4"	10 bar	42 V/5 A*	49
DRSS 10 B	DRSO 10 B	DRSW 10 B		1 - 10 bar	G 1/4"	20 bar	42 V/5 A*	49
DRSS 70 B	DRSO 70 B	DRSW 70 B		10 - 70 bar	G 1/4"	120 bar	42 V/5 A*	56
DRSS 200 B	DRSO 200 B	DRSW 200 B		50 - 200 bar	G 1/4"	300 bar	42 V/5 A*	56
DRSS 350 B[1]	DRSO 350 B[1]	---		100 - 350 bar	G 1/4"	500 bar	42 V/5 A*	48
Pressure switch, stainless steel AISI 303 INOX								
DRSS 2 B ES	DRSO 2 B ES	DRSW 2 B ES		0.5 - 2 bar	G 1/4"	10 bar	42 V/5 A*	49
DRSS 10 B ES	DRSO 10 B ES	DRSW 10 B ES		1 - 10 bar	G 1/4"	20 bar	42 V/5 A*	49
DRSS 70 B ES	DRSO 70 B ES	DRSW 70 B ES		10 - 70 bar	G 1/4"	120 bar	42 V/5 A*	56
Safety caps for vacuum and pressure switches (please order separately)								
DRSS SCHUTZKAPPE			Used for vacuum switch					
DRSB SCHUTZKAPPE			Used for pressure switch					

* at 30 V DC, ** settings range > 10 bar controller using stainless steel pistons, seal: UR
[1] Ø 28, switchback difference: 10 to 15%

pressure switches

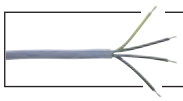
safety caps

Pressure switches - small shape — up to 10 bar

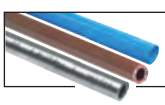
Materials: Body: Brass, diaphragms: NBR
Temperature range: -25°C to max. +85°C
Switchback difference: <10%
Protection class: IP 65 (clamps IP 00)
Cable connection: Via flat connector 2 x 6.3 x 0.8
Media: Hydraulic oil, oil emulsion, water, air

TIP *For assembly in restricted conditions*

Type NO contact	Type NC contact	Settings range	Thread male	Prot. against overpres. to	Switching capacity
DRSS 2 MINI	DRSO 2 MINI	0.3 - 2 bar	G 1/8"	5 bar	42 V/100 VA
DRSS 10 MINI	DRSO 10 MINI	1 - 10 bar	G 1/8"	20 bar	42 V/100 VA
Safety caps for pressure switches (please order separately)					
DRSM2 SCHUTZKAPPE					


Flexible control cables on page 641

Push-in hoses on page 228


Aluminium, copper and steel pipes on page 250

Compressed air reservoir from page 514

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Stainless steel pressure switches — up to 200 bar

Materials: Body: AISI 303, seal and diaphragms**: FKM
Temperature range: -5°C to max. +120°C
Switchback difference: 10 to 30%
Protection class: IP 65 (clamps IP 00)
Cable connection: Via flat connector 3 x 6.3 x 0.8
☞ **Optional:** Diaphragms made of EPDM (-30°C to max. +120°C) **-EP**

Type changer	Settings range	Thread male	Prot. against overpress. to	Switching capacity
DRS 5 ES	0.5 - 5 bar	G 1/4"	300 bar	250 V/4 A*
DRS 10 ES	1 - 10 bar	G 1/4"	300 bar	250 V/4 A*
DRS 50 ES	10 - 50 bar	G 1/4"	300 bar	250 V/4 A*
DRS 100 ES	10 - 100 bar	G 1/4"	300 bar	250 V/4 A*
DRS 200 ES	50 - 200 bar	G 1/4"	600 bar	250 V/4 A*
Connectors for stainless steel pressure switch (please order separately)				
DRS STECKDOSE				

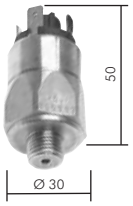
* at 30 V DC, ** type DRS 200 ES, controller using pistons

☞ **Order example:** DRS 5 ES **

Standard type

Designation for the options:
Diaphragms made of EPDM . . .**-EP**

pressure switches



connector

Pressure switches — up to 400 bar

Materials: Body: Aluminium, diaphragms**: NBR (vacuum switch: ECO)
Temperature range: -20°C to max. +100°C
Switchback difference: 10 to 30%
Protection class: IP 65, type B2: Elbow plug connection DIN 43560/EN 175301-803 (size 3, 4-pin)
Media: Hydraulic oil, machine oil, turpentine, heating oil, air

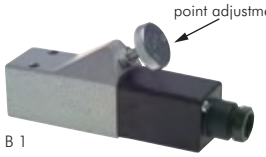
Type **B 1** changer	Type **B 2** changer		Settings range	Thread female	Prot. against overpress.e to	Switching capacity
Vacuum switch						
---	VAKUS	for vacuum	-0.95 to -0.1 bar	G 1/8"	20 bar	250 V/3.5 A*
Pressure switches						
DRS 2	---		0.2 - 2 bar	G 1/4"	200 bar	250 V/2 A*
DRS 5	DRSV 5		0.5 - 5 bar	G 1/4"	200 bar	250 V/2 A*
DRS 10	DRSV 10		1 - 10 bar	G 1/4"	200 bar	250 V/2 A*
DRS 20	---		2 - 20 bar	G 1/4"	200 bar	250 V/2 A*
DRS 50	---		5 - 50 bar	G 1/4"	200 bar	250 V/2 A*
DRS 100	---		10 - 100 bar	G 1/4"	200 bar	250 V/2 A*
DRS 250	---		25 - 250 bar	G 1/4"	600 bar	250 V/2 A*
DRS 400	---		40 - 400 bar	G 1/4"	600 bar	250 V/2 A*

* for 30 V DC, ** settings range > 100 bar controller using pistons
B 1 = design type 1: lateral adjustment screw, **B 2** = design type 2: the setting can only be completed after removing the safety cap

vacuum switch

Lateral switching point adjustment

type B 1



type B 2

Pressure switches - with bayonet connections IP 67 — up to 200 bar

Materials: Body: Zinc-plated steel, seals/diaphragms: NBR
Temperature range: -25°C to max. +85°C
Switchback difference: 15 to 25%
Protection class: IP 67 (clamps: IP 00)
Cable connection: Via bayonet coupling, DIN 72585 (connector diameter 2.5 mm)
Media: Hydraulic oil, machine oil, heating oil, air, water (only type DRSIP)

✓ **Advantages:** • Ideal for outdoor use in construction or farm equipment, as a protection class of IP 67 is achieved through the use of bayonet couplings.

Type		Settings range	Thread male	Prot. against overpress. to	Switching capacity
Changer					
DRSIP 2		0.3 - 2 bar	G 1/4"	15 bar	42 V/5 A*
DRSIP 10		1 - 10 bar	G 1/4"	20 bar	42 V/5 A*
DRSIP 70**		10 - 70 bar	G 1/4"	120 bar	42 V/5 A*
DRSIP 200**		50 - 200 bar	G 1/4"	300 bar	42 V/5 A*
NO contact	**NC contact**				
DRSIPS 1	DRSIPO 1	0.1 - 1 bar	G 1/4"	300 bar	42 V/100 VA
DRSIPS 10	DRSIPO 10	1 - 10 bar	G 1/4"	300 bar	42 V/100 VA
DRSIPS 20	DRSIPO 20	10 - 20 bar	G 1/4"	300 bar	42 V/100 VA
DRSIPS 50	DRSIPO 50	20 - 50 bar	G 1/4"	300 bar	42 V/100 VA
DRSIPS 150**	DRSIPO 150**	50 - 150 bar	G 1/4"	600 bar	42 V/100 VA
Connector, for pressure switch with bayonet connection					
DRSIP STECKDOSE		(straight)			
DRSIP STECKDOSE 90		(angled)			

* for 30 V DC, ** controller using pistons, seal: UR (type DRSIPS 150 and DRSIPO 150: NBR)

type changer

type NO/NC contact

type DRSIP STECKDOSE

type DRSIP STECKDOSE 90

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Pressure switches

type MDR 2

type MDR 2...K

type MDR 3

type MDR 3...K

type MDR 5

type MDR 5...K

Pressure switches with diaphragms for compressors — MDR

Media: Air, water (MDR 3 ... RM and MDR 53, many other media also possible)
Protection class: IP 54 (MDR 2: IP 44)

Type **without rotary switch**	Type **with rotary switch**	Settings range	Press. conn.	Other conn.*	Switching capacity
MDR 2/11	MDR 2/11 K	4 - 12 bar	G 1/4"	3 x 1/4"	1-pin 230V-2.2kW
MDR 3/6	MDR 3/6 K	1.3 - 6 bar	G 1/2"	---	3-pole 230V-5.5kW / 400V-7.5kW
MDR 3/11	MDR 3/11 K	4 - 11 bar	G 1/2"	3 x 1/4"	3-pole 230V-5.5kW / 400V-7.5kW
MDR 3/16	MDR 3/16 K	6 - 16 bar	G 1/2"	3 x 1/4"	3-pole 230V-5.5kW / 400V-7.5kW
MDR 3/25	MDR 3/25 K	7.5 - 25 bar	G 1/2"	---	3-pole 230V-5.5kW / 400V-7.5kW
MDR 3/35	MDR 3/35 K	12 - 35 bar	G 1/2"	---	3-pole 230V-5.5kW / 400V-7.5kW
---	MDR 4S/11 K	4 - 11 bar	G 1/2"	1 x 1/4"	3-pole 230V-4.0kW / 400V-5.5kW
With roller type diaphragm for small pressure differences, enhanced medium tolerance					
MDR 3/6 RM	---	1 - 6 bar	G 1/2"	---	3-pole 230V-5.5kW / 400V-7.5kW
MDR 3/10 RM	MDR 3/10 K RM	3 - 10 bar	G 1/2"	---	3-pole 230V-5.5kW / 400V-7.5kW
MDR 3/16 RM	MDR 3/16 K RM	5 - 16 bar	G 1/2"	---	3-pole 230V-5.5kW / 400V-7.5kW

Type **without pushbutton**	Type **with pushbutton****	Settings range	Press. conn.	Switching capacity
MDR 5/5	MDR 5/5 K	1.5 - 5 bar	G 1/2"	3-pin 230V-4kW / 400V-5.5kW
MDR 5/8	MDR 5/8 K	2 - 8 bar	G 1/2"	3-pin 230V-4kW / 400V-5.5kW
MDR 5/11	MDR 5/11 K	2 - 11 bar	G 1/2"	3-pin 230V-4kW / 400V-5.5kW
MDR 5/16	MDR 5/16 K	2.5 - 16 bar	G 1/2"	3-pin 230V-4kW / 400V-5.5kW
Control pressure switch for screw compressors				
MDR 53/8		0.5 - 8 bar	G 1/2"	1 changeover contact
MDR 53/11		6 - 11 bar	G 1/2"	1 changeover contact
MDR 53/16		6 - 16 bar	G 1/2"	1 changeover contact

* only for rotary switch type

** Only to be used with overload relays for switching on and off use

type R 3/...

type R 5/...

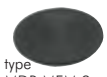
Overload relay (overload relays) — for MDR pressure switches

Type for **MDR 3/... K**	Settings range
R 3/1,0	0.63 - 1 A
R 3/1,6	1 - 1.6 A
R 3/2,5	1.6 - 2.5 A
R 3/4	2.5 - 4 A
R 3/6,3	4 - 6.3 A
R 3/10	6.3 - 10 A
R 3/16	10 - 16 A
R 3/20*	16 - 20 A
R 3/24*	20 - 24 A

Type for **MDR 5/... K**	Settings range
R 5/1,5	0.86 - 1.5 A
R 5/2,45	1.5 - 2.45 A
R 5/4,2	2.4 - 4.2 A
R 5/7	4 - 7 A
R 5/10,3	6.1 - 10.3 A
R 5/14	9 - 14 A
R 5/18	11 - 18 A

* higher switching capacity available on request

type MDR MEM 2


type MDR MEM 3

type MDR MEM RM

type MDR MEM 5

Accessories - replacement diaphragms — for MDR pressure switches

Type	For pressure switches
MDR MEM 2	MDR 2/...
MDR MEM 3	MDR 3/...
MDR MEM RM	MDR 3/... RM
MDR MEM 5	MDR 5/...

type MDRH 2 K

type MDRH 3 K

Accessories - replacement hoods — for MDR pressure switches

Type **without rotary switch/pushbutton**	Type **with rotary switch/pushbutton**	For pressure switches
MDRH 2	MDRH 2 K	MDR 2/...
MDRH 3	MDRH 3 K	MDR 3/...
MDRH 5	MDRH 5 K	MDR 5/...

type MDR ENTLAST 2

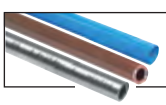
type MDR ENTLAST 3/4

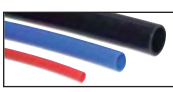
type MDR ENTLAST 5

Accessories - relief valves — for MDR pressure switches

Type	Operating pressure	For pressure switches
6 mm push-in fitting		
MDR ENTLAST 2	Up to 12 bar	MDR 2/...
6 mm cutting ring		
MDR ENTLAST 3/4	Up to 16 bar	MDR 3/... and MDR 4/...
MDR ENTLAST 5	Up to 16 bar	MDR 5/...

LOCTITE Liquid seals, gaskets & tapes from page 549


Aluminium, copper and steel pipes from page 250


PA hoses from page 196

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Plastic flow indicators — PN 1

Especially good value!

Materials: Body: Polycarbonate, impeller: Polypropylene, filter: Polypropylene 70 to 130 µm
Temperature range: 0°C to max. +55°C
Installation position: Arbitrarily, flow direction, only into one direction
Media: Water

Advantages: • In-built, back flushable filters, economical price, also indicates the lowest flow rates

Type	Thread internal	Installation length	Diameter
DMA 14 K	G 1/4"	58	24

Impeller flow indicators — up to 30 bar

Materials: Body: Brass nickel-plated, impeller: PA 66, inspection glass: Pyrex
Temperature range: Up to max. +90°C
Installation position and flow direction: Arbitrary
Media: Aqueous, non-aggressive liquids

Type	Flow H_2O [l/min]	Thread internal	Length	Width	Operating pressure	Replace. inspection glass
DMA 14 MSV	0.6 - 3	G 1/4"	66	37	30 bar	DMA 14 REP
DMA 38 MSV	1.1 - 5.5	G 3/8"	94	58	30 bar	DMA 38 REP
DMA 12 MSV	1.3 - 6.3	G 1/2"	94	58	30 bar	DMA 12 REP
DMA 34 MSV	1.6 - 17	G 3/4"	105	67	30 bar	DMA 34 REP
DMA 10 MSV	2.2 - 27	G 1"	105	67	30 bar	DMA 10 REP
DMA 114 MSV	9 - 55	G 1 1/4"	156	80	15 bar	DMA 114 REP
DMA 112 MSV	11 - 60	G 1 1/2"	156	80	15 bar	DMA 112 REP

Viscosity compensating flow meters — PN 16

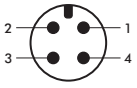
Application: Flow meters measure the flow quantity at a specific point in a machine or a system. It is read out directly from the device.
Materials: Body: Polysulphone, spring: AISI 301, seal: NBR (for oil: klingerit-Oilit)
Temperature range: 0°C to max. +120°C
Connection: G 1" MT
Measurement principle: Spring-loaded, float, **installation position:** Arbitrary

Advantages: • Scale does not have to be adjusted to medium and pressure.

Type **for water as medium**	Display range
DM 20 K	2 - 20 l/min.
DM 35 K	5 - 35 l/min.
DM 50 K	5 - 50 l/min.
DM 80 K	10 - 80 l/min.
DM 100 K	20 - 100 l/min.

Type **for oil as medium (100 cSt)**	Display range
DM 18 K	1 - 18 l/min.
DM 30 K	2 - 30 l/min.
DM 45 K	5 - 45 l/min.
DM 75 K	10 - 75 l/min.

Air consumption meter (compressed air meter) — PN 16



M 12 - Plug

IO-Link

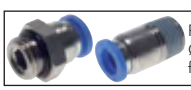
Function: With the compressed air meter, the consumption volume, flow volume, velocity of flow and average temperature of compressed air can be obtained and evaluated effectively. Each unit is fitted with two switching outputs, each of which can be programmed as an analogue or pulse output for external recording of the readings. The following readings can be directly read from the device: Peak consumption, total consumption, instantaneous consumption. The display and units can be switched between l/min and m^3/min (at STP).
Operating voltage: 18-30V DC
Display unit/measuring unit: Nl/min or Nm3/h
Response time: <100 ms
Measurement error: Air class 141: ± 3% of reading or + 0.3% of the measuring range end value,
air class 344: ± 6% of reading or + 0.6% of the measuring range end value
Current loading capacity/power input: 2 x 250 mA / <100 mA
Analogue output: 4-20 mA, max. 500 Ohm
Pulse output: 1 Nl or 1 Nm3 per impulse (impulse length 2 or 100 ms adjustable)
Outputs: OUT1: Control output (NC contact/NO contact) PNP, programmable hysteresis or switching range, IO-Link,
OUT2: Control output (NC contact/NO contact) PNP, programmable hysteresis or switching range or analogue (4-20 mA) or pulse output (2 or 100 ms pulse duration)
Display: 4 digit LED display
Protection class: IP 65, protection class III
Electrical connection: M12 push-in connector (4-pin)

Advantages:
- Lower purchase price, therefore the counter can be firmly installed on the consumer
- Smallest leaks are identified and can be eliminated early
- Air consumption quantities can be allocated to production units
- Display for total consumption or current consumption on site
- Switch, pulse or analogue output for external further processing
- Maintenance intervals can be specified depending on use
- Pressure loss-free measurement using special design of the sensor
- Response time in milliseconds
- Precise measurement regardless of the pressure and temperature (max. +60°C)
- Reading and saving of current process values and changing of parameter settings via IO-Link possible

Type	Thread male	DN	Length	Height (incl. tube)	Measuring range Nm^3/h	Measuring range Nl/min
LVM 12	R 1/2"	15	300	77	0.25 - 75	4 - 1250
LVM 10	R 1"	25	475	89	0.75 - 225	12.5 - 3750
LVM 112	R 1 1/2"	40	475	120	1.3 - 410	22.2 - 6830
LVM 20	R 2"	50	475	133	2.3 - 700	39 - 11670
Accessories						
LVM NETZ	Power supply for air consumption meter (optional to use with LVM without control outputs)					

Gardena flow meter on page 181

PU, PA, PTFE and PE hoses from page 192


Push-in fittings Ø 3 - 32 mm from page 24

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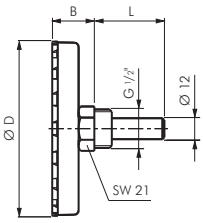
Bimetallic thermometers

★★★★★



Bimetallic thermometers horizontal w/ plastic housings and CU thermowells Class 2.0

Materials: Housing: Plastic, thermowell: Copper, window: Acrylic glass
Display correction: At stem end
Connection: G ½"
Stem with thermowell: 12 mm
Class: 2.0
Operating pressure at the thermowell: Max. 6 bar
Installation dimension: Ø 63: W = 23 mm, **Ø 80 and 100:** W = 24.5 mm
Available stem lengths: L = 40, 60, 100 mm (please specify when ordering)

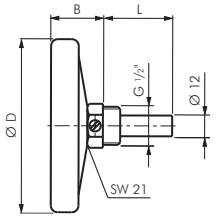
Type Ø 63 = D	Type Ø 80 = D	Type Ø 100 = D	Display range	Scale grad.
TW 6063 ** KU	TW 6080 ** KU	TW 60100 ** KU	0°C/+60°C	1°C
TW 12063 ** KU	TW 12080 ** KU	TW 120100 ** KU	0°C/+120°C	2°C

** please specify desired stem length: 40, 60 or 100 mm

Order example: TW 6063 ** KU
Standard type

Stem length L:	
40 mm	-40
60 mm	-60
100 mm	-100

★★★★★



Bimetallic thermometers horizontal w/ aluminium housings and CU thermowells Class 2.0

Materials: Housing: Aluminium, thermowell: Cu-alloy, window: Acrylic glass
Display correction: At stem end
Connection: G ½"
Stem with thermowell and locking bolt: 12 mm
Class: 2.0
Operating pressure at the thermowell: Max. 6 bar
Installation dimension: Ø 63: W = 23 mm, **Ø 100:** W = 30 mm
Available stem lengths: L= 40, 60, 100, 160, 200 mm (please specify when ordering)

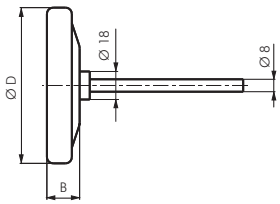
Type	Available stem lengths (L)	Display range	Scale grad.
Ø 63 = D			
TW 3563 ** AL	40, 60, 100, 160	-30°C/+50°C	1°C
TW 2663 ** AL	40, 60	-20°C/+60°C	1°C
TW 6063 ** AL	40, 60, 100, 160	0°C/+60°C	1°C
TW 8063 ** AL	40, 60	0°C/+80°C	1°C
TW 12063 ** AL	40, 60, 100, 160, 200	0°C/+120°C	2°C
TW 16063 ** AL	40, 60, 100, 160	0°C/+160°C	2°C
TW 20063 ** AL	40, 60, 100	0°C/+200°C	5°C
Ø 100 = D			
TW 35100 ** AL	40, 60, 100	-30°C/+50°C	1°C
TW 26100 ** AL	60, 100, 160, 200	-20°C/+60°C	1°C
TW 60100 ** AL	40, 60, 100, 160	0°C/+60°C	1°C
TW 80100 ** AL	60, 100, 200	0°C/+80°C	1°C
TW 120100 ** AL	40, 60, 100, 160, 200	0°C/+120°C	2°C
TW 160100 ** AL	60, 100, 160, 200	0°C/+160°C	2°C
TW 200100 ** AL	60, 100, 160, 200	0°C/+200°C	5°C

** please specify desired stem length: 40, 60, 100, 160 or 200 mm

Order example: TW 3563 ** AL
Standard type

Stem length L:	
40 mm	-40
60 mm	-60
100 mm	-100
160 mm	-160
200 mm	-200

★★★★★



Bimetallic thermometers horizontal without thermowells, 18 mm collar Class 1.0

Materials: Housing: AISI 304, stem: AISI 316Ti, window: Instrument plate glass
Display correction: Adjustable indicator
Protection class: IP 43
Connection: 18 mm collar
Stem: 8 mm
Class: 1.0
Installation dimension: Ø 63: W = 16 mm, **Ø 100:** W = 21 mm
Available stem lengths: 63, 100, 160, 200 mm (please specify when ordering)

Thermowell type
A
Page 399

Type INOX	Display range	Scale grad.
Ø 63 = D		
TWT 3563 ** ES	-30°C/+50°C	1°C
TWT 2663 ** ES	-20°C/+60°C	1°C
TWT 6063 ** ES	0°C/+60°C	1°C
TWT 8063 ** ES	0°C/+80°C	1°C
TWT 12063 ** ES	0°C/+120°C	2°C
TWT 16063 ** ES	0°C/+160°C	2°C
TWT 25063 ** ES	0°C/+250°C	5°C
Ø 100 = D (standard)		
TWT 35100 ** ES	-30°C/+50°C	1°C
TWT 26100 ** ES	-20°C/+60°C	1°C
TWT 60100 ** ES	0°C/+60°C	1°C
TWT 80100 ** ES	0°C/+80°C	1°C
TWT 120100 ** ES	0°C/+120°C	1°C
TWT 160100 ** ES	0°C/+160°C	2°C
TWT 200100 ** ES	0°C/+200°C	2°C
TWT 250100 ** ES	0°C/+250°C	2°C

** please specify desired stem length: 63, 100, 160 or 200 mm

Order example: TWT 3563 ** ES
Standard type

Stem length:	
63 mm	-63
100 mm	-100
160 mm	-160
200 mm	-200

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Bimetallic thermometers horizontal without thermowells - Industrial Version Class 1.0

★★★★☆

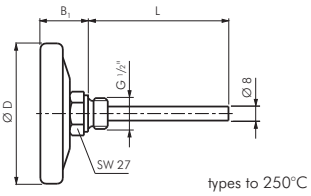
Materials: Housing: AISI 304, stem: AISI 316Ti, window: Instrument plate glass
Display correction: Adjustable indicator
Protection class: IP 43
Connection: G 1/2"
Stem: 8 mm
Class: 1.0
Operating pressure at the stem: Max. 25 bar
Installation dimension: Ø 63: B_1 = 29 mm, B_2 = 46 mm, **Ø 80:** B_1 = 30 mm, B_2 = 47 mm, **Ø 100:** B_1 = 35 mm, B_2 = 52 mm, **Ø 160:** B_1 = 39 mm, B_2 = 57 mm
Available stem lengths: L = 63, 100, 160, 200 mm (please specify when ordering)

Thermowell type B

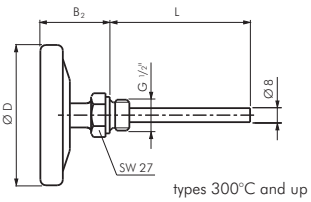
Page 399

Type Ø 63 = D	Scale grad.	Type Ø 80 = D	Type (standard) Ø 100 = D	Type Ø 160 = D	Scale grad.	Display range
TW 3563 **	1°C	TW 3580 **	TW 35100 **	TW 35160 **	1°C	-30°C/+50°C
TW 6063 **	1°C	TW 6080 **	TW 60100 **	TW 60160 **	1°C	0°C/+60°C
TW 8063 **	1°C	TW 8080 **	TW 80100 **	TW 80160 **	1°C	0°C/+80°C
TW 10063 **	2°C	TW 10080 **	TW 100100 **	TW 100160 **	1°C	0°C/+100°C
TW 12063 **	2°C	TW 12080 **	TW 120100 **	TW 120160 **	1°C	0°C/+120°C
TW 16063 **	2°C	TW 16080 **	TW 160100 **	TW 160160 **	2°C	0°C/+160°C
TW 20063 **	5°C	TW 20080 **	TW 200100 **	TW 200160 **	2°C	0°C/+200°C
TW 25063 **	5°C	TW 25080 **	TW 250100 **	TW 250160 **	2°C	0°C/+250°C
TW 30063 **	5°C	TW 30080 **	TW 300100 **	TW 300160 **	2°C	0°C/+300°C
TW 40063 **	5°C	TW 40080 **	TW 400100 **	TW 400160 **	5°C	0°C/+400°C
TW 50063 **	5°C	TW 50080 **	TW 500100 **	TW 500160 **	5°C	0°C/+500°C

** please specify desired stem length: 63, 100, 160 or 200 mm



types to 250°C



types 300°C and up

☞ **Order example:** TW 3563 **

Standard type

Stem length L:
63 mm . . . . . **-63**
100 mm . . . . . **-100**
160 mm . . . . . **-160**
200 mm . . . . . **-200**

Bimetallic thermometers horizontal without thermowells - Chemical Version Class 1.0

★★★★★

Application: For aggressive measured material in chemistry, petro-chemistry, process engineering. Also for apparatus engineering, food industry or similar. The devices meet the highest requirements for measuring technology.
Materials: Housing: AISI 304, stem: AISI 316Ti, window: Instrument plate glass
Display correction: Indicator with micro-adjustment
Protection class: IP 65
Connection: Male thread G 1/2"
Stem: 8 mm
Class: 1.0
Operating pressure at the stem: Max. 25 bar
Installation dimension: Ø 63: B_1 = 60 mm (≥ +300°C: 100 mm), B_2 = 35 mm, **Ø 100:** B_1 = 83 mm (≥ +300°C: 123 mm), B_2 = 50 mm
Available stem lengths: L = 63, 100, 160, 200 mm (please specify when ordering)

Thermowell type B

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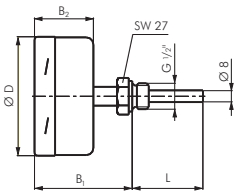
Type Ø 63 = D	Type (standard) Ø 100 = D	Display range	Measuring area	Scale graduation	Error limit
TW 5563 ** ES	TW 55100 ** ES	-50°C/+50°C	-40°C/+40°C	1°C	1°C
TW 3563 ** ES	TW 35100 ** ES	-30°C/+50°C	-20°C/+40°C	1°C	1°C
TW 2663 ** ES	TW 26100 ** ES	-20°C/+60°C	-10°C/+50°C	1°C	1°C
TW 6063 ** ES	TW 60100 ** ES	0°C/+60°C	+10°C/+50°C	1°C	1°C
TW 8063 ** ES	TW 80100 ** ES	0°C/+80°C	+10°C/+70°C	1°C	1°C
TW 10063 ** ES	TW 100100 ** ES	0°C/+100°C	+10°C/+90°C	1°C	1°C
TW 12063 ** ES	TW 120100 ** ES	0°C/+120°C	+20°C/+100°C	2°C	2°C
TW 16063 ** ES	TW 160100 ** ES	0°C/+160°C	+20°C/+140°C	2°C	2°C
TW 20063 ** ES	TW 200100 ** ES	0°C/+200°C	+20°C/+180°C	2°C	2°C
TW 25063 ** ES	TW 250100 ** ES	0°C/+250°C	+30°C/+220°C	5°C	2.5°C
TW 30063 ** ES	TW 300100 ** ES	0°C/+300°C	+30°C/+270°C	5°C	5°C
TW 40063 ** ES	TW 400100 ** ES	0°C/+400°C	+50°C/+350°C	5°C	5°C
TW 50063 ** ES	TW 500100 ** ES	0°C/+500°C	+50°C/+450°C	5°C	5°C
TW 60063 ** ES	TW 600100 ** ES	0°C/+600°C	+100°C/+500°C	10°C	10°C

** please specify desired stem length: 63, 100, 160 or 200 mm



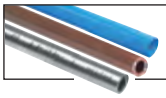
☞ **Order example:** TW 5563 ** ES

Standard type

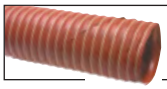
Stem length L:
63 mm . . . . . **-63**
100 mm . . . . . **-100**
160 mm . . . . . **-160**
200 mm . . . . . **-200**

OKS Cleaner and service products from page 564

Temperature switches from page 401



Aluminium, copper and steel pipes from page 250

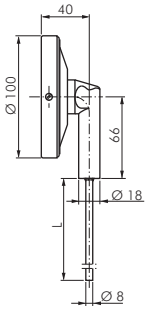


Silicone hot air hoses from page 224

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Bimetallic thermometers

★★★☆☆



Bimetallic thermometers vertical without thermowells, 18 mm collar — Class 1.0

Materials: Housing: AISI 304, stem: AISI 316Ti, window: Instrument plate glass
Display correction: Adjustable indicator
Protection class: IP 43
Connection: 18 mm collar
Stem: 8 mm
Class: 1.0
Available stem lengths: 63, 100, 160, 200 mm (please specify when ordering)

Thermowell type **A**

Page 399

Type (standard) Ø 100	Display range	Scale grad.
TST 35100 ** ES	-30°C/+50°C	1°C
TST 26100 ** ES	-20°C/+60°C	1°C
TST 60100 ** ES	0°C/+60°C	1°C
TST 80100 ** ES	0°C/+80°C	1°C
TST 120100 ** ES	0°C/+120°C	1°C
TST 160100 ** ES	0°C/+160°C	2°C
TST 200100 ** ES	0°C/+200°C	2°C
TST 250100 ** ES	0°C/+250°C	2°C

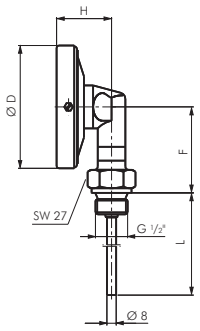
** please specify desired stem length: 63, 100, 160 or 200 mm

Order example: TST 35100 ** ES
Standard type

Stem length:
63 mm . . . . . **-63***
100 mm . . . . . **-100**
160 mm . . . . . **-160**
200 mm . . . . . **-200**

* not for 0°C/+60°C thermometer

★★★★☆



Bimetallic thermometers vertical without thermowells - Industrial Version — Class 1.0

Materials: Housing: AISI 304, stem: AISI 316Ti, window: Instrument plate glass
Display correction: Adjustable indicator
Protection class: IP 43
Connection: Male thread G ½"
Stem: 8 mm
Class: 1.0
Operating pressure at the stem: Max. 25 bar
Installation dimension: Ø 100: F = 66 mm, H = 40 mm, **Ø 160:** F = 96 mm, H = 42.5 mm
Available stem lengths: L = 63, 100, 160, 200 mm (please specify when ordering)

Thermowell type **B**

Page 399

Type (standard) Ø100 = D	Type Ø 160 = D	Display range	Scale grad.
TS 35100 **	TS 35160 **	-30°C/+50°C	1°C
TS 60100 **	TS 60160 **	0°C/+60°C	1°C
TS 80100 **	TS 80160 **	0°C/+80°C	1°C
TS 100100 **	TS 100160**	0°C/+100°C	1°C
TS 120100 **	TS 120160 **	0°C/+120°C	1°C
TS 160100 **	TS 160160 **	0°C/+160°C	2°C
TS 200100 **	TS 200160 **	0°C/+200°C	2°C
TS 250100 **	TS 250160 **	0°C/+250°C	2°C

** please specify desired stem length: 63, 100, 160 or 200 mm

Order example: TS 35100 **
Standard type

Stem length L:
63 mm . . . . . **-63***
100 mm . . . . . **-100**
160 mm . . . . . **-160**
200 mm . . . . . **-200**

* not for 0°C/+60°C thermometer

6

2/2, 3/2 directional valves of brass or stainless steel from page 404

Manual slide valves with venting from page 287

Ball valves from page 280

Flame retardence and insulation hoses on page 224

Bolts, nuts and washers from page 615

tesa®-adhesive technology from page 585

Manual tools can be found in the Online Shop

Hydraulic pumps and electric motors can be found in the Online Shop

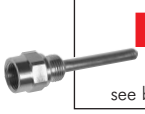
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

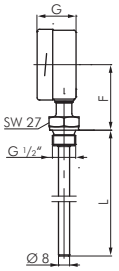
Bimetallic thermometers vertical without thermowells - Chemical Version — Class 1.0

★★★★★

Application: For aggressive measured material in chemistry, petro-chemistry, process engineering. Also for apparatus engineering, food industry or similar. The devices meet the highest requirements for measuring technology.
Materials: Housing: AISI 304, stem: AISI 316Ti, window: Polycarbonate (**Ø 100:** instrument plate glass)
Display correction: Indicator with micro-adjustment
Protection class: IP 65
Connection: Male thread G 1/2"
Stem: 8 mm
Class: 1.0
Operating pressure at the stem: Max. 25 bar
Installation dimension: Ø 63: F = 57 mm (≥ +300°C: 97 mm), G = 35 mm,
Ø 100: F = 83 mm (≥+300°C: 123 mm), G = 50 mm
Available stem lengths: L = 63, 100, 160, 200 mm (please specify when ordering)

Thermowell type **B** see below





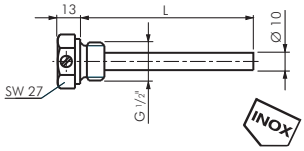
Type Ø 63 = D	Type (standard) Ø 100 = D	Display range	Measuring range	Scale graduation	Error limit
TS 5563 ** ES	TS 55100 ** ES	-50°C/+50°C	-40°C/+40°C	1°C	1°C
TS 3563 ** ES	TS 35100 ** ES	-30°C/+50°C	-20°C/+40°C	1°C	1°C
TS 2663 ** ES	TS 26100 ** ES	-20°C/+60°C	-10°C/+50°C	1°C	1°C
TS 6063 ** ES	TS 60100 ** ES	0°C/+60°C	+10°C/+50°C	1°C	1°C
TS 8063 ** ES	TS 80100 ** ES	0°C/+80°C	+10°C/+70°C	1°C	1°C
TS 10063 ** ES	TS 100100 ** ES	0°C/+100°C	+10°C/+90°C	1°C	1°C
TS 12063 ** ES	TS 120100 ** ES	0°C/+120°C	+20°C/+100°C	2°C	2°C
TS 16063 ** ES	TS 160100 ** ES	0°C/+160°C	+20°C/+140°C	2°C	2°C
TS 20063 ** ES	TS 200100 ** ES	0°C/+200°C	+20°C/+180°C	2°C	2°C
TS 25063 ** ES	TS 250100 ** ES	0°C/+250°C	+30°C/+220°C	5°C	2.5°C
TS 30063 ** ES	TS 300100 ** ES	0°C/+300°C	+30°C/+270°C	5°C	5°C
TS 40063 ** ES	TS 400100 ** ES	0°C/+400°C	+50°C/+350°C	5°C	5°C
TS 50063 ** ES	TS 500100 ** ES	0°C/+500°C	+50°C/+450°C	5°C	5°C
TS 60063 ** ES	TS 600100 ** ES	0°C/+600°C	+100°C/+500°C	10°C	10°C

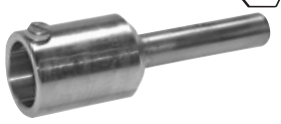
** please specify desired stem length: 63, 100, 160 or 200 mm

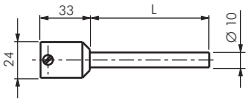
Order example: TS 5563 ** ES
Standard type

Stem length L:
63 mm . . . . . **-63**
100 mm . . . . . **-100**
160 mm . . . . . **-160**
200 mm . . . . . **-200**

Thermowells with fixation screws for bimetallic thermometers, 18 mm collar — Type A

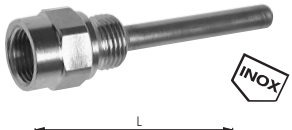


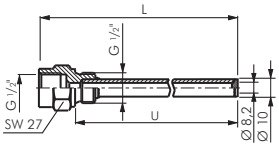


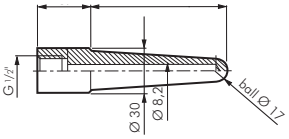


Type AISI 316Ti (max. 25 bar)	Type Cu-alloy (max. 6 bar)	Type unit 35 (max. 25 bar)	Suitable for stem lengths	L
To screw-in				
TR 63 BUND ES	TR 63 BUND CU	TR 63 BUND ST	63	63
TR 100 BUND ES	TR 100 BUND CU	TR 100 BUND ST	100	100
TR 160 BUND ES	TR 160 BUND CU	TR 160 BUND ST	160	160
TR 200 BUND ES	TR 200 BUND CU	TR 200 BUND ST	200	200
For welding				
TR 63 BUND AS ES			63	43
TR 100 BUND AS ES			100	80
TR 160 BUND AS ES			160	140
TR 200 BUND AS ES			200	180

Thermowells for bimetallic thermometers Industrial & Chemical Version — Type B



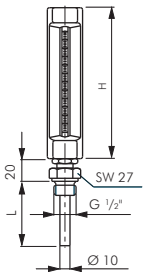


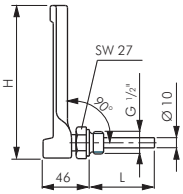


Type AISI 316Ti (max. 25 bar)	Type Cu-alloy (max. 6 bar)	Suitable for stem lengths	U	L
To screw-in				
TR 6312 ES	---	63	45	73
TR 10012 ES	TR 10012 CU	100	82	110
TR 16012 ES	TR 16012 CU	160	142	170
TR 20012 ES	TR 20012 CU	200	182	210
For welding				
TR 10012 AS ES		100		73
TR 16012 AS ES		160		133
TR 20012 AS ES		200		173

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Machine glass thermometers





Machine glass thermometers

Application: For use in general mechanical engineering, system- and container construction, as well as central heating or major heating systems
Materials: Housing: Aluminium brass coloured anodised
Connection: G 1/2"
Stem: 10 mm (thermowell, see at bottom of this page)
Error limit: In compliance with DIN 16195
Available stem lengths: L= 63, 100, 160, 250, 400 mm (please specify when ordering)

Thermowell type **C**

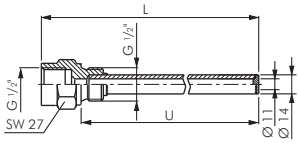
see below

Type 150 mm = H	Scale grad.	Type 200 mm = H	Scale grad.	Display range
Vertical design				
SITS 64150 **	2°C	SITS 64200 **	1°C	-60°C/+40°C
SITS 35150 **	1°C	SITS 35200 **	1°C	-30°C/+50°C
SITS 60150 **	1°C	SITS 60200 **	1°C	0°C/+60°C
SITS 100150 **	2°C	SITS 100200 **	1°C	0°C/+100°C
SITS 120150 **	2°C	SITS 120200 **	1°C	0°C/+120°C
SITS 160150 **	2°C	SITS 160200 **	2°C	0°C/+160°C
SITS 200150 **	2°C	SITS 200200 **	2°C	0°C/+200°C
Horizontal design				
SITW 64150 **	2°C	SITW 64200 **	1°C	-60°C/+40°C
SITW 35150 **	1°C	SITW 35200 **	1°C	-30°C/+50°C
SITW 60150 **	1°C	SITW 60200 **	1°C	0°C/+60°C
SITW 100150 **	2°C	SITW 100200 **	1°C	0°C/+100°C
SITW 120150 **	2°C	SITW 120200 **	1°C	0°C/+120°C
SITW 160150 **	2°C	SITW 160200 **	2°C	0°C/+160°C
SITW 200150 **	2°C	SITW 200200 **	2°C	0°C/+200°C

** please specify desired stem length: 63, 100, 160, 250 or 400 mm

Order example: SITS 64150 **
Standard type

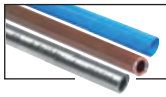
Stem length L:
63 mm . . . . . **-63**
100 mm . . . . . **-100**
160 mm . . . . . **-160**
250 mm . . . . . **-250**
400 mm . . . . . **-400**

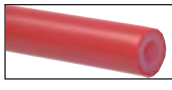


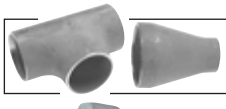
Thermowells for machine glass thermometers — Type C

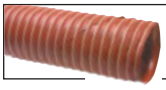
Type 35 bar INOX AISI 316Ti	Type 16 bar brass	Suitable for stem lengths	U	L
TR 6312 SI ES	TR 6312 SI MS	63	45	73
TR 10012 SI ES	TR 10012 SI MS	100	82	110
TR 16012 SI ES	TR 16012 SI MS	160	142	170
TR 25012 SI ES	TR 25012 SI MS	250	232	260
TR 40012 SI ES	TR 40012 SI MS	400	382	410

LOCTITE Liquid seals, gaskets & tapes from page 549


Aluminium, copper and steel pipes on page 250


Silicone and other technical hoses from page 215

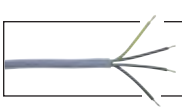

Butt weld fittings from page 254


Silicone hot air hoses from page 224

HYDAC Pipe clamps from page 244

to 160°C Mould couplings from page 164

Cutting ring fittings from page 77

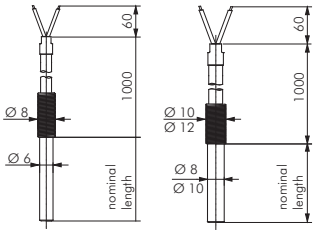

Flexible control cables on page 641

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Plug-in resistance thermometers with fixed cables — DIN EN 60751

Material: Thermowell: AISI 316Ti
Temperature range: -10°C to max. +350°C
Measuring set: 1 x Pt 100
Connection: 1 metre glass silk-stainless steel braiding, cable outlet with VA bend protection, pipelines not moisture sealed, only for dry environment

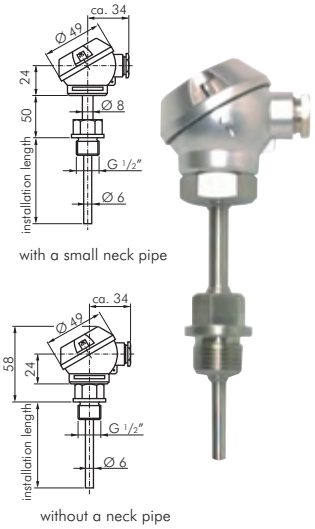
Type INOX thermowell 6 mm	Type INOX thermowell 8 mm	Type INOX thermowell 10 mm	Nominal length
PT 1006/50	PT 1008/50	PT 10010/50	50
PT 1006/100	PT 1008/100	PT 10010/100	100
---	PT 1008/150	PT 10010/150	150
---	---	PT 10010/200	200



Resistor thermometers with small connection heads — DIN EN 60751

Material: Thermowell: AISI 316Ti, connection head: die-cast aluminium
Temperature range: -50°C to max. +400°C (probe tip), -40°C to max. +100°C (connection head)
Measuring set: 1 x Pt 100
Protection class: IP 54
Connection: Screw terminals, cable inlet M16x1.5
Mounting thread: G 1/2"

Type with INOX a small neck pipe	Type without INOX a neck pipe	Nominal length
PT 1006/50 AK	PT 1006/50 AKK	50
PT 1006/100 AK	PT 1006/100 AKK	100
PT 1006/150 AK	PT 1006/150 AKK	150
PT 1006/200 AK	PT 1006/200 AKK	200
PT 1006/250 AK	PT 1006/250 AKK	250
PT 1006/300 AK	PT 1006/300 AKK	300

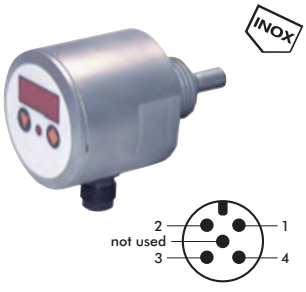


Electronic temperature switches with LED displays — PN 80

Material: AISI 316L
Protection class: IP 65
Supply voltage: 24V DC, 50 mA
Electrical connection: Plug M12 (5-pin)
Control output PNP: 24V DC, max. 300 mA, short-circuit protected
Contact function: NC or NO contact, programmable
Switch point setting: Programmable, LED switching status indicator
Display: 3 digit LED, character height 7 mm

Type INOX	Thread	Switching range
TSE 12 ES	G 1/2"	-20°C to max. +120°C
TSE 34 ES	G 3/4"	-20°C to max. +120°C

Type straight connector	Type angled connector 90°
3 m cable, 5-wire with coupling, M12 x 1	
KAB M125 3 G	KAB M125 3 W
5 m cable, 5-wire with coupling, M12 x 1	
KAB M125 5 G	KAB M125 5 W
10 m cable, 5-wire with coupling, M12 x 1	
KAB M125 10 G	KAB M125 10 W



M 12 - plug

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Chapter 7 - Valves- Throttles - Silencers

2/2-way and 3/2-way valves, process valves

2/2-way valves brass and stainless steel
404-408

3/2-way valves brass and stainless steel
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Vacuum valves
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Hydraulic 2/2-way valves
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Pneumatically activated shut-off valves
Page 302-303

Solenoid valves

3/2-way flange & combi-valves
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3/2-way
Page 412-414

5/2-way
Page 415

Valves from Festo can be found in our **Online Shop**

ISO valves
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Solenoid valves - accessories
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Pneumatically actuated valves

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Signal interrupter & two-hand safety blocks
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Pneumatically actuated shut-off valves
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Standard valves

ISO 1
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ISO 3 can be found in our **Online Shop!**

Namur valves
Page 416-417

Standard valves from Festo can be found in our **Online Shop**

Standard valves from Aventics can be found in our **Online Shop**

Base plates (ISO 5599/1)
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Special valves

Oscillating valves
Page 432

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Counter
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Spring pin valves
Page 428

Two-hand safety blocks
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Time valves and signal interrupters
Page 434

OR-/AND-/ quick venting valves
Page 435

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Mechanically actuated valves

Eco-Line hand lever valves Page 424+426

Hand lever valves Page 425

Hand lever valves from Festo and Aventics can be found in our **Online Shop**

Tilt lever valves Page 427

Limit switches Page 428

Press. buttons and pressure switches Page 429

Foot valves and electric foot switches Page 430

One-way control valves, check valves

One-way control valves Page 440

One-way control valves with slotted screws Page 440

One-way control valves MSV, Alu, plastic Page 443

Flow control and one-way control valves Page 441-442

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Silencers

Silencer made of sintered bronze Page 436

Sintered bronze with brass threads Page 437

Silencers made of stainless steel Page 436-437

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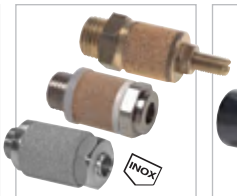
High performance silencers Page 438



Flow control silencers Page 439

Silencers for ejectors Page 438

Hydraulic valves

Hand lever valves Page 456-457

NG 6 valves Page 452-454

Intermediate plate valves & connecting plates Page 453-454

6/2-way valves Page 452

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Choke valves & one-way control valves Page 445

Block one-way control valves, safety valves

One-way control valves Page 444

Choke valves Page 444

Choke valves, one-way control valves, stainless steel Page 444

High pressure choke valves Page 445

Safety valves Page 518-521

Safety valves stainless steel 518-520

Safety valves & relief valves Page 520-521

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

2/2-way solenoid valves brass

Especially good value!

G 1/8" & G 1/4"

G 3/8" - G 1"

G 1 1/4" - G 2"

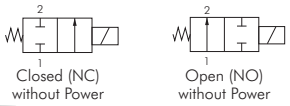
2/2-way solenoid valves from brass — Eco-Line

Materials: Body: Brass, internal parts: Brass/stainless steel, seal: NBR (types with G 1/8" and G 1/4": FKM)
Temperature range: -10°C to max. +80°C , environment: max. +50°C
Media: Compressed air, neutral gases, water, neutral low-viscosity media, other media on request
Installation position: With upright magnets
Voltages: Standard: 24V=, 230V AC, upon request: See order examples for other voltages
Protection class: IP 65
☞ **Optional:** FKM seal (-10°C to max. +130°C) **-V**, EPDM seal for air and warm water (-10°C to max. +120°C) **-EP**

Type **Closed (NC) without power**	Magnetic coil [3]	Type **Open (NO) without power**	Magnetic coil [3]	Thread	DN	L	Op. pressure (bar) NC / NO	kv-value [1]
ELP 18 **	Y	ELPH 18 **	Z	G 1/8"	3	39	0 - 13 / 0 - 8	3,2 l/min.
ELP 14 **	Y	ELPH 14 **	Z	G 1/4"	3	39	0 - 13 / 0 - 8	3,2 l/min.
ELP 38 **	Y	ELPH 38 **	Z	G 3/8"	15	66	0,5 - 16 / 0,5 - 13	64 l/min.
ELP 12 **	Y	ELPH 12 **	Z	G 1/2"	15	66	0,5 - 16 / 0,5 - 13	64 l/min.
ELP 34 **	Y	ELPH 34 **	Z	G 3/4"	20	75	0,5 - 16 / 0,5 - 13	108 l/min.
ELP 10 **	Y	ELPH 10 **	Z	G 1"	25	96	0,5 - 16 / 0,5 - 13	171 l/min.
SLP 114 **	P	---	---	G 1 1/4"	35	131	0,5 - 16 / ---	313 l/min.
SLP 112 **	P	---	---	G 1 1/2"	40	131	0,5 - 16 / ---	427 l/min.
SLP 20 **	P	---	---	G 2"	50	165	0,5 - 16 / ---	684 l/min.

1) water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge, 3) magnetic coils and accessories from page 420
** please enter required voltage, see order example

These valves are generally delivered with coils and plugs!



Dimensions can be found in the item details in our Online Shop

☞ **Order example:** ELP 18 ** **

Standard type

Designation for the options:
FKM seal . . . . . **-V**
EPDM seal . . . . . **-EP**

Available voltages
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
24V AC . . . . . **-24VAC**

For opening or closing, servo-controlled valves require a pressure difference between the valve inlet and valve outlet. The pressure difference is given as minimum pressure. There is a pressure compensation in the valve, resulting that no or little medium is used at the valve outlet, the valve will no longer function (it opens or closes unreliably).

2/2-way solenoid valves from brass

Materials: Body: Brass, internal parts: Brass/stainless steel, seal: NBR (types with G 1/8" and G 1/4": FKM)
Temperature range: -10°C to max. +85°C (types with G 1/8" and G 1/4": -10°C to max. +130°C), environment: -10°C to max. +50°C
Media: Compressed air, neutral gases, water, neutral low-viscosity media, heating oil, other media on request
Installation position: With upright magnets
Voltages: Standard: 24V=, 230V AC, upon request: See order examples for other voltages, **protection class:** IP 65
☞ **Optional:** FKM seal (-10°C to max. +130°C) **-V**, EPDM seal for air and warm water (-10°C to max. +120°C) **-EP**, EX protected** **-EX**

Type **(DC) 24V=**	Type **(AC) 230V AC**	Thread	DN	L	Op. pressure (bar) DC/AC	kv value [1]
Closed (NC) without power						
M 218 24V=	M 218 230V	G 1/8"	2.2	38	0 - 16/0 - 15	2.4 l/min*
M 214 24V=	M 214 230V	G 1/4"	2.2	38	0 - 16/0 - 15	2.4 l/min*
M 238 24V=	M 238 230V	G 3/8"	13	67	0.3 - 16/0.3 - 16	55 l/min
M 212 24V=	M 212 230V	G 1/2"	13	67	0.3 - 16/0.3 - 16	63 l/min
M 234 24V=	M 234 230V	G 3/4"	21	82	0.3 - 16/0.3 - 16	100 l/min
M 210 24V=	M 210 230V	G 1"	25	96	0.3 - 16/0.3 - 16	160 l/min
M 2114 24V=	M 2114 230V	G 1 1/4"	40	140	0.5 - 16/0.5 - 16	370 l/min
M 2112 24V=	M 2112 230V	G 1 1/2"	40	140	0.5 - 16/0.5 - 16	400 l/min
M 220 24V=	M 220 230V	G 2"	50	168	0.5 - 16/0.5 - 16	540 l/min
Open (NO) without power						
MO 218 24V=	MO 218 230V	G 1/8"	2.5	40	0 - 16/0 - 18	3.4 l/min
MO 214 24V=	MO 214 230V	G 1/4"	3	40	0 - 8/0 - 15	4.5 l/min
MO 238 24V=	MO 238 230V	G 3/8"	13	67	0.3 - 16/0.3 - 16	55 l/min
MO 212 24V=	MO 212 230V	G 1/2"	13	67	0.3 - 16/0.3 - 16	63 l/min
MO 234 24V=	MO 234 230V	G 3/4"	21	82	0.3 - 16/0.3 - 16	100 l/min
MO 210 24V=	MO 210 230V	G 1"	25	96	0.3 - 16/0.3 - 16	160 l/min
MO 2114 24V=	MO 2114 230V	G 1 1/4"	40	140	0.5 - 16/0.5 - 16	370 l/min
MO 2112 24V=	MO 2112 230V	G 1 1/2"	40	140	0.5 - 16/0.5 - 16	400 l/min
MO 220 24V=	MO 220 230V	G 2"	50	168	0.5 - 16/0.5 - 16	540 l/min

* type AC: kv=4.5 l/min.** please indicate protection category, only NC-valves

[1] water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
Flow for air [l/min] ≈ 13.4 · kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

G 1/8" & G 1/4"

G 3/8" - G 2"

These valves are generally delivered with coils and plugs!

For opening or closing, servo-controlled valves require a pressure difference between the valve inlet and valve outlet. The pressure difference is given as minimum pressure. There is a pressure compensation in the valve, resulting that no or little medium is used at the valve outlet, the valve will no longer function (it opens or closes unreliably).

☞ **Order example:** M 218 ** **

Standard type

Designation for the options:
FKM seal . . . . . **-V**
EPDM seal . . . . . **-EP**
EX protected** . . . . . **-EX**

Available voltages
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
48V= . . . . . **-48V=**
24V AC . . . . . **-24VAC**
115V AC . . . . . **-115=V**
48V AC . . . . . **-48VAC**

LOCTITE
Liquid seals, gaskets & tapes from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

7

2/2-way solenoid valves from brass, force controlled — Eco-Line

Especially good value!

Materials: Body: Brass, internal parts: Brass/stainless steel, seal: NBR
Temperature range: -10°C to max. +80°C, environment: Max. +65°C
Operating pressure: DC: 0 - 6 bar, AC: 0 - 10 bar
Power consumption: Direct current (DC): 20 W, G 1 1/4" - G 2": 45 W, alternating current (AC): 24 VA, G 1 1/4" - G 2": 36 VA (draw: 60/90 VA)
Media: Compressed air, neutral gases, water, neutral low-viscosity media, other media on request
Installation position: With upright magnets
Voltages: Standard: 24V=, 230V AC, upon request: See order examples for other voltages
Protection class: IP 65

Type (DC) 24V=	Type (AC) 230V AC	Thread	DN	L	kv value[1]	Replacement diaphragm
Closed (NC) without power						
ZS 38 24V=	ZS 38 230V	G 3/8"	16	69	68 l/min	ZS 381234 MEM **
ZS 12 24V=	ZS 12 230V	G 1/2"	16	69	68 l/min	ZS 381234 MEM **
ZS 34 24V=	ZS 34 230V	G 3/4"	20	73	108 l/min	ZS 381234 MEM **
ZS 10 24V=	ZS 10 230V	G 1"	25	99	171 l/min	ZS 10 MEM **
ZS 114 24V=	ZS 114 230V	G 1 1/4"	32	112	342 l/min	ZS 114 MEM **
ZS 112 24V=	ZS 112 230V	G 1 1/2"	40	123	413 l/min	ZS 112 MEM **
ZS 20 24V=	ZS 20 230V	G 2"	50	168	684 l/min	ZS 20 MEM **

These valves are generally delivered with coils and plugs!

[1] water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
Flow for air [l/min] ≈ 13.4 · kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

** please enter the required material: N=NBR, EP=EPDM, V=FKM

☞ **Order example:** ZS 38 **

Standard type

Available voltages
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
24V AC . . . . . **-24VAC**

2/2-way solenoid valves from brass, force controlled

Dimensions can be found in the item details in our Online Shop.

Materials: Body: Brass, internal parts: Brass/stainless steel, seal: NBR
Temperature range: -10°C to max. +85°C, environment: -10°C to max. +50°C
Media: Compressed air, neutral gases, water, neutral low-viscosity media, heating oil, other media on request
Installation position: With upright magnets, opened without power (NO), also with horizontal magnets
Voltages: Standard: 24V=, 230V AC, upon request: See order examples for other voltages
Protection class: IP 65
☞ **Optional:** FKM seal (-10°C to max. +130°C, G 1 1/4" - G 1 1/2": max. +85°C) **-V**, EPDM seal for air and hot water (-10°C to max. +120°C) **-EP**, EX protected* **-EX**

Type (DC) 24V=	Type (AC) 230V AC	Thread	DN	L	Op. pressure (bar) DC/AC	kv value[1]
Closed (NC) without power						
M 2380 24V=	M 2380 230V	G 3/8"	15	75	0 - 6/0 - 16	60 l/min
M 2120 24V=	M 2120 230V	G 1/2"	15	75	0 - 6/0 - 16	65 l/min
M 2340 24V=	M 2340 230V	G 3/4"	15	85	0 - 6/0 - 16	80 l/min
M 2100 24V=	M 2100 230V	G 1"	15	85	0 - 6/0 - 16	85 l/min
M 21140 24V=	M 21140 230V	G 1 1/4"	40	140	0 - 10/0 - 10	366 l/min
M 21120 24V=	M 21120 230V	G 1 1/2"	40	140	0 - 10/0 - 10	416 l/min
Open (NO) without power						
MO 2100 24V=	MO 2100 230V	G 1"	25	95	0 - 16/0 - 16	216 l/min

These valves are generally delivered with coils and plugs!

* please specify protection category/class, only NC valves

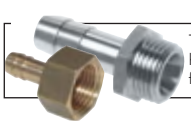
[1] water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
Flow for air [l/min] ≈ 13.4 · kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

☞ **Order example:** M 2380 ** **

Standard type

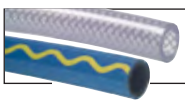
Designation for the options:
FKM seal . . . . . **-V**
EPDM seal . . . . . **-EP**
EX protected* . . . . . **-EX**

Available voltages
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
48V= . . . . . **-48V=**
24V AC . . . . . **-24VAC**
115V AC . . . . . **-115V**
48V AC . . . . . **-48VAC**


Threaded nozzles & hose nozzles from page 64

Cutting ring fittings from page 77

Garden hose couplings from page 178


Compressed air and water hoses from page 208

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

2/2-way solenoid valves stainless steel

Especially good value!

2/2-way solenoid valves from stainless steel — Eco-Line

Materials: Body: AISI 316, internal parts: Stainless steel, seal: FKM
Temperature range: -20°C to max. +120°C, environment: Max. +65°C
Power consumption: Direct current: 13 W, alternating current: 22 VA (draw: 40 VA)
Media: Compressed air, neutral gases, water, neutral low-viscosity media, other media on request
Installation position: With upright magnets
Voltages: Standard: 24V=, 230V AC, upon request: Other voltages (see order examples)
Protection class: IP 65

G 1/8" & G 1/4"

G 3/8" - G 2"

Type 24V=	Type 230V AC	Thread	DN	L	Op. press. (bar)	kv value[1]	Replacement diaphragm
Closed (NC) without power							
SLP 18 ES 24V=	SLP 18 ES 230V	G 1/8"	3	40	0 - 13	3.2 l/min	---
SLP 14 ES 24V=	SLP 14 ES 230V	G 1/4"	3	40	0 - 13	3.2 l/min	---
SLP 38 ES 24V=	SLP 38 ES 230V	G 3/8"	13	66	0.5 - 16	64 l/min	SLP 38 MEM **
SLP 12 ES 24V=	SLP 12 ES 230V	G 1/2"	13	66	0.5 - 16	64 l/min	SLP 12 MEM **
SLP 34 ES 24V=	SLP 34 ES 230V	G 3/4"	20	75	0.5 - 16	108 l/min	SLP 34 MEM **
SLP 10 ES 24V=	SLP 10 ES 230V	G 1"	25	96	0.5 - 16	171 l/min	SLP 10 MEM **
SLP 114 ES 24V=	SLP 114 ES 230V	G 1 1/4"	35	131	0.5 - 16	313 l/min	SLP 114112 MEM **
SLP 112 ES 24V=	SLP 112 ES 230V	G 1 1/2"	40	131	0.5 - 16	427 l/min	SLP 114112 MEM **
SLP 20 ES 24V=	SLP 20 ES 230V	G 2"	50	165	0.5 - 16	684 l/min	SLP 20 MEM **

[1] water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
Flow for air [l/min] ≈ 13.4 · kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

** please enter the required material: N=NBR, EP=EPDM, V=FKM

These valves are generally delivered with coils and plugs!

For opening or closing, servo-controlled valves require a pressure difference between the valve inlet and valve outlet. The pressure difference is given as minimum pressure. There is a pressure compensation in the valve, resulting that no or little medium is used at the valve outlet, the valve will no longer function (it opens or closes unreliably).

Order example: SLP 18 ES **
Standard type

Available voltages
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
24V AC . . . . . **-24VAC**

Dimensions can be found in the item details in our Online Shop

2/2-way solenoid valves from stainless steel

Materials: Body G 1/8" & G 1/4": AISI 430F, G 1/2" to G 2": AISI 316 (internal parts AISI 430F), seal: FKM
Temperature range: -20°C to max. +130°C
Media: Compressed air, neutral gases, water, neutral low-viscosity media, other media on request
Installation position: With upright magnets, (G 3/8"- G 2" also with horizontal magnets)
Voltages: Standard: 24V=, 230V AC, upon request: Other voltages (see order examples)
Protection class: IP 65
Optional: NPT thread **-NPT**, EX protected* **-EX**

G 1/8" & G 1/4"

G 3/8" - G 2"

Type (DC) 24V=	Type (AC) 230V AC	Thread	DN	L	Op. pressure (bar) DC/ AC	kv value[1]
Closed (NC) without power						
M 218 ES 24V=	M 218 ES 230V	G 1/8"	3	45	0 - 8/0 - 15	4.5 l/min
M 214 ES 24V=	M 214 ES 230V	G 1/4"	3	45	0 - 8/0 - 15	4.5 l/min
M 238 ES 24V=	M 238 ES 230V	G 3/8"	13	67	0.3 - 20/0.3 - 20	55 l/min
M 212 ES 24V=	M 212 ES 230V	G 1/2"	13	67	0.3 - 20/0.3 - 20	63 l/min
M 234 ES 24V=	M 234 ES 230V	G 3/4"	25	95	0.3 - 20/0.3 - 20	183 l/min
M 210 ES 24V=	M 210 ES 230V	G 1"	25	95	0.3 - 20/0.3 - 20	216 l/min
M 2114 ES 24V=	M 2114 ES 230V	G 1 1/4"	40	130	0.5 - 16/0.5 - 16	500 l/min
M 2112 ES 24V=	M 2112 ES 230V	G 1 1/2"	40	130	0.5 - 16/0.5 - 16	533 l/min
M 220 ES 24V=	M 220 ES 230V	G 2"	50	168	0.5 - 16/0.5 - 16	750 l/min
Open (NO) without power						
MO 218 ES 24V=	MO 218 ES 230V	G 1/8"	3	45	0 - 8/0 - 15	4.5 l/min
MO 214 ES 24V=	MO 214 ES 230V	G 1/4"	3	45	0 - 8/0 - 15	4.5 l/min
MO 238 ES 24V=	MO 238 ES 230V	G 3/8"	13	67	0.3 - 20/0.3 - 20	55 l/min
MO 212 ES 24V=	MO 212 ES 230V	G 1/2"	13	67	0.3 - 20/0.3 - 20	63 l/min
MO 234 ES 24V=	MO 234 ES 230V	G 3/4"	25	95	0.3 - 20/0.3 - 20	183 l/min
MO 210 ES 24V=	MO 210 ES 230V	G 1"	25	95	0.3 - 20/0.3 - 20	216 l/min
MO 2114 ES 24V=	MO 2114 ES 230V	G 1 1/4"	40	130	0.5 - 16/0.5 - 16	500 l/min
MO 2112 ES 24V=	MO 2112 ES 230V	G 1 1/2"	40	130	0.5 - 16/0.5 - 16	533 l/min
MO 220 ES 24V=	MO 220 ES 230V	G 2"	50	168	0.5 - 16/0.5 - 16	750 l/min

* please indicate protection class

[1] water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
Flow for air [l/min] ≈ 13.4 · kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

These valves are generally delivered with coils and plugs!

For opening or closing, servo-controlled valves require a pressure difference between the valve inlet and valve outlet. The pressure difference is given as minimum pressure. There is a pressure compensation in the valve, resulting that no or little medium is used at the valve outlet, the valve will no longer function (it opens or closes unreliably).

Order example: M 218 ES ** **
Standard type
Designation for the options:
EX protected* . . . . . **-EX**

Available voltages
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
48V= . . . . . **-48V=**
24V AC . . . . . **-24VAC**
115V AC . . . . . **-115V**
48V AC . . . . . **-48VAC**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

2/2-way solenoid valves from stainless steel, force controlled — Eco-Line

Especially good value!

Materials: Body: AISI 304L, internal parts: Stainless steel, seal: FKM
Temperature range: -20°C to max. +120°C, environment: Max. +65°C
Operating pressure: DC: 0 - 6 bar, AC: 0 - 10 bar
Power consumption: Direct current (DC): 20 W, G 1 1/4" - G 2": 45 W, alternating current (AC): 24 VA, G 1 1/4" - G 2": 36 VA (draw: 60/90 VA)
Media: Compressed air, neutral gases, water, neutral low-viscosity media, other media on request
Installation position: With upright magnets
Voltages: Standard: 24V=, 230V AC, upon request: See order examples for other voltages
Protection class: IP 65

Type (DC) 24V=	Type (AC) 230V AC	Thread	DN	L	kv value[1]	Replacement diaphragm
Closed (NC) without power						
ZS 38 ES 24V=	ZS 38 ES 230V	G 3/8"	16	69	68 l/min	ZS 381234 MEM **
ZS 12 ES 24V=	ZS 12 ES 230V	G 1/2"	16	69	68 l/min	ZS 381234 MEM **
ZS 34 ES 24V=	ZS 34 ES 230V	G 3/4"	20	73	108 l/min	ZS 381234 MEM **
ZS 10 ES 24V=	ZS 10 ES 230V	G 1"	25	99	171 l/min	ZS 10 MEM **
ZS 114 ES 24V=	ZS 114 ES 230V	G 1 1/4"	32	112	342 l/min	ZS 114 MEM **
ZS 112 ES 24V=	ZS 112 ES 230V	G 1 1/2"	40	123	413 l/min	ZS 112 MEM **
ZS 20 ES 24V=	ZS 20 ES 230V	G 2"	50	168	684 l/min	ZS 20 MEM **

These valves are generally delivered with coils and plugs!

[1] water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge
Flow for air [l/min] ≈ 13.4 · kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

** please enter the required material N=NBR, EP=EPDM, V=FKM

Order example: ZS 38 ES **

Standard type

Available voltages
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
24V AC . . . . . **-24VAC**

2/2-way solenoid valves from stainless steel, force controlled

Dimensions can be found in the item details in our Online Shop

Materials: Body: AISI 316 (internal parts AISI 430F), seal: FKM
Temperature range: -20°C to max. +130°C
Operating pressure: 0 - 16 bar
Installation position: With upright magnets, opened without power (NO), also with horizontal magnets
Voltages: Standard: 24V=, 230V AC, upon request: Other voltages (see order examples)
Protection class: IP 65
Optional: NPT thread **-NPT**, EX protected* **-EX**

Type (DC) 24V=	Type (AC) 230V AC	Thread	DN	L	kv value[1]
Closed (NC) without power					
M 2120 ES 24V=	M 2120 ES 230V	G 1/2"	13	67	65 l/min
M 2340 ES 24V=	M 2340 ES 230V	G 3/4"	25	95	180 l/min
M 2100 ES 24V=	M 2100 ES 230V	G 1"	25	95	216 l/min
M 21140 ES 24V=	M 21140 ES 230V	G 1 1/4"	40	140	433 l/min
M 21120 ES 24V=	M 21120 ES 230V	G 1 1/2"	40	140	533 l/min
M 2200 ES 24V=	M 2200 ES 230V	G 2"	50	168	750 l/min
Open (NO) without power					
MO 2120 ES 24V=	MO 2120 ES 230V	G 1/2"	13	67	65 l/min
MO 2340 ES 24V=	MO 2340 ES 230V	G 3/4"	25	95	180 l/min
MO 2100 ES 24V=	MO 2100 ES 230V	G 1"	25	95	216 l/min
MO 21140 ES 24V=	MO 21140 ES 230V	G 1 1/4"	40	140	433 l/min
MO 21120 ES 24V=	MO 21120 ES 230V	G 1 1/2"	40	140	533 l/min
MO 2200 ES 24V=	MO 2200 ES 230V	G 2"	50	168	750 l/min

These valves are generally delivered with coils and plugs!

* please indicate protection class

[1] water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
Flow for air [l/min] ≈ 13.4 · kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

Order example: M 2120 ES ** **

Standard type

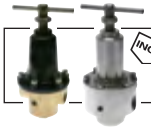
Designation for the options:
EX protected* . . . . . **-EX**

Available voltages
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
48V= . . . . . **-48V=**
24V AC . . . . . **-24VAC**
115V AC . . . . . **-115V**

Parker
Push-in hoses on page 228

Stainless steel pipe from page 253

Stainless steel ball valves with welded ends from page 290


Pressure regulators of stainless steel and brass from page 355

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

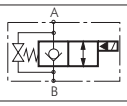
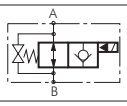
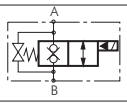
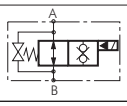
2/2-way solenoid valves

2/2-way poppet valves — PN 250

Suitable: Pilot-operated 2/2-way poppet valves in the aluminium housing with emergency release screw for load relief from A to B in the closed valve. The valves are constructed in the seat design and block a leak-proof oil flow. When selecting the valves, note the reverse biased.
Materials: Housing: Aluminium, screw-in valve: Zinc-plated steel, seals: NBR
Temperature range: Medium: -30°C to max. +100°C, environment: -20°C to max. +50°C
Operating pressure: 10 to 250 bar
Power consumption: 20 W
Protection class: IP 65, plug size 3
Media: Hydraulic oils on the basis of mineral oil

type 2WV14/38...

type 2WV12/34...

Type	Thread	Nominal flow	Symbol
Closed without power, locked on one side			
2WV14NCE-**	G 1/4"	5 - 20 l/min	
2WV38NCE-**	G 3/8"	10 - 40 l/min	
2WV12NCE-**	G 1/2"	20 - 50 l/min	
2WV34NCE-**	G 3/4"	30 - 70 l/min	
Open without power, locked on one side			
2WV14NOE-**	G 1/4"	5 - 20 l/min	
2WV38NOE-**	G 3/8"	10 - 40 l/min	
2WV12NOE-**	G 1/2"	20 - 50 l/min	
2WV34NOE-**	G 3/4"	30 - 70 l/min	
Closed without power, locked on both sides			
2WV14NCB-**	G 1/4"	5 - 20 l/min	
2WV38NCB-**	G 3/8"	10 - 40 l/min	
2WV12NCB-**	G 1/2"	20 - 50 l/min	
2WV34NCB-**	G 3/4"	30 - 70 l/min	
Open without power, locked on both sides			
2WV14NOB-**	G 1/4"	5 - 20 l/min	
2WV38NOB-**	G 3/8"	10 - 40 l/min	
2WV12NOB-**	G 1/2"	20 - 50 l/min	
2WV34NOB-**	G 3/4"	30 - 70 l/min	

* valve plug with rectifier is included in the scope of delivery

Order accessories at the same time!

Please enter the required voltage here in your order!

Order example: 2WV14NCE-**

Standard type

Available voltage variants:
12V= ..... -12V=
24V= ..... -24V=
230V AC* ..... -230V

2/2-way vacuum valves - direct control without external air

Materials: Housing: Brass, internal parts: AISI 430F, seal: FKM
Temperature range: -10°C to +80°C, environment: Max. +35°C
Protection class: IP 65
Media: Neutral, gas forming and liquid media
Flow direction: From P to A

Type 24V=	Type 230V AC	Thread	DN	Suction performance (m³/h)	Op. pressure	Installation pos.	L
Closed (NC) without power							
M 214 VU 24V=	M 214 VU 230V	G 1/4"	6	10	-0.9 to 4 bar	Arbitrary	50
M 238 VU 24V=	M 238 VU 230V	G 3/8"	10	24	-0.9 to 2 bar	Standing magnet	54
M 212 VU 24V=	M 212 VU 230V	G 1/2"	10	32	-0.9 to 2 bar	Standing magnet	54
M 234 VU 24V=	M 234 VU 230V	G 3/4"	18	90	-0.9 to 1 bar	Standing magnet	75
M 210 VU 24V=	M 210 VU 230V	G 1"	24	150	-0.9 to 1 bar	Standing magnet	90

These valves are generally delivered with coils and plugs!

2/2-way compressor relief valves (special valves for high temperatures)

Materials: Body: Brass, internal parts: Brass/stainless steel, seal: FKM
Media: Compressed air, neutral gases, water, neutral low-viscosity media, other media on request
Voltages: 230V AC
Protection class: IP 65

Type	Usage	Thread	Op. pressure	Installation position
Open (NO) without power				
ENTLAST 12	For piston compressors	G 1/2"	1 - 16 bar	Standing magnet
ENTLAST 10	For piston compressors	G 1"	1 - 16 bar	Arbitrary
ENTLAST 14 SCH	For screw compressors	G 1/4"	1 - 16 bar	Not at the top
ENTLAST 12 SCH	For screw compressors	G 1/2"	1 - 16 bar	Arbitrary

These valves are generally delivered with coils and plugs!

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

3/2-way solenoid valves from brass

Materials: Body: Brass, internal parts: Brass/stainless steel, seal: NBR (G 1/8"-G 1/4": FKM)
Temperature range: 0°C to +90°C (G 1/8"-G 1/4": -10°C to max. +130°C)
Media: Compressed air, neutral gases, water, neutral low-viscosity media, heating oil, other media on request
Voltages: Standard: 24V=, 230V AC, upon request: See order examples for other voltages
Protection class: IP 65

Type 24V=	Type 230V AC	Thread	DN	Op. pressure (bar)	Installation pos.	kv value[1]
Closed (NC) without power						
M 318 24V=*	M 318 230V*	G 1/8"	2.5	0 - 7	Standing magnet	3.4 l/min
M 314 24V=*	M 314 230V*	G 1/4"	2.5	0 - 7	Standing magnet	3.4 l/min
M 338 24V=	M 338 230V	G 3/8" (exhaust G 3/4")	12	0.5 - 16	Arbitrary	38 l/min
M 312 24V=	M 312 230V	G 1/2" (exhaust G 3/4")	12	0.5 - 16	Arbitrary	43 l/min
M 334 24V=	M 334 230V	G 3/4" (exhaust G 1")	20	0.5 - 16	Arbitrary	110 l/min
M 310 24V=	M 310 230V	G 1" (exhaust G 1 1/4")	25	0.5 - 10	Arbitrary	166 l/min
M 3112 24V=	M 3112 230V	G 1 1/2" (exhaust G 2")	40	0.5 - 10	Arbitrary	400 l/min
Open (NO) without power						
MO 318 24V=*	MO 318 230V*	G 1/8"	2.5	0 - 7	Standing magnet	3.4 l/min
MO 314 24V=*	MO 314 230V*	G 1/4"	2.5	0 - 7	Standing magnet	3.4 l/min
MO 338 24V=	MO 338 230V	G 3/8" (exhaust G 3/4")	12	0.5 - 16	Arbitrary	38 l/min
MO 312 24V=	MO 312 230V	G 1/2" (exhaust G 3/4")	12	0.5 - 16	Arbitrary	43 l/min
MO 334 24V=	MO 334 230V	G 3/4" (exhaust G 1")	20	0.5 - 16	Arbitrary	110 l/min
MO 310 24V=	MO 310 230V	G 1" (exhaust G 1 1/4")	25	0.5 - 10	Arbitrary	166 l/min
MO 3112 24V=	MO 3112 230V	G 1 1/2" (exhaust G 2")	40	0.5 - 10	Arbitrary	400 l/min

[1] water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
Flow for air [l/min] ≈ 13.4 · kv · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)
* warning: Pressure input at connection 2, venting over connection 3

For opening or closing, servo-controlled valves require a pressure difference between the valve inlet and valve outlet. The pressure difference is given as minimum pressure. There is a pressure compensation in the valve, resulting that no or little medium is used at the valve outlet, the valve will no longer function (it opens or closes unreliably).

type M 318 and M 314
type MO 318 and MO 314

☞ **Order example:** M 318 **

Standard type

Available voltages
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
48V= . . . . . **-48V=**
24V AC . . . . . **-24VAC**
115V AC . . . . . **-115V**
48V AC . . . . . **-48VAC**

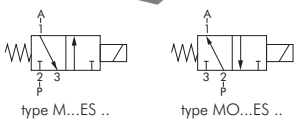
3/2-way solenoid valves from stainless steel

Materials: Body: AISI 430F, seal: FKM
Temperature range: -10°C to max. +120°C
Installation position: With upright magnets
Voltages: Standard: 24V=, 230V AC, upon request: See order examples for other voltages
Protection class: IP 65, plug size 3
Warning: Pressure connection contrary to the standard at connection 2, venting via connection 3

☞ **Optional:** NPT thread **-NPT**

Type 24V=	Type 230V AC	Thread	DN	Operating pressure (bar)	kv valuet[1]	Basic setting
M 318 ES 24V=	M 318 ES 230V	G 1/8"	2	0 - 10	2.2 l/min.	Closed (NC)
M 314 ES 24V=	M 314 ES 230V	G 1/4"	2	0 - 10	2.2 l/min.	Closed (NC)
MO 318 ES 24V=	MO 318 ES 230V	G 1/8"	2	0 - 10	2.2 l/min.	Open (NO)
MO 314 ES 24V=	MO 314 ES 230V	G 1/4"	2	0 - 10	2.2 l/min.	Open (NO)

to 2" connection thread with kv=484 l/min. available, Please ask us.
[1] water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
Air flow [l/min] ≈ 13.4 kv · Pinput, if Poutput < $\frac{P_{input}}{2}$ (Pinput and Poutput are absolute values in bar.)



type M...ES .. type MO...ES ..

☞ **Order example:** M 318 ES ** **

Standard type

Designation for the options:
NPT thread . . . . . **-NPT**

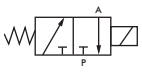
Available voltages
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
48V= . . . . . **-48V=**
24V AC . . . . . **-24VAC**
115V AC . . . . . **-115V**
48V AC . . . . . **-48VAC**

These valves are generally delivered with coils and plugs!

3/2-way vacuum valves - direct control without external air 4 - 130 m³/h

Controller: Direct control, closed without power
Materials: Housing: Brass, internal parts: AISI 430F, seal: FKM
Temperature range: -10°C to max. +80°C, environment: Max. +35°C
Protection class: IP 65
Media: Neutral, gas forming and liquid media
Flow direction: From A to P
In a standard type, the breathing takes place via the anchor (M 5 female thread).

Type 24V=	Type 230V AC	Thread	DN	Suction performance (m³/h)	Operating pressure (bar)	Installation pos.	L
Standard							
M 314 VU 24V=	M 314 VU 230V	G 1/4"	3	4	-0.9 to 6	Arbitrary	40
M 338 VU 24V=	M 338 VU 230V	G 3/8"	3	5	-0.9 to 6	Arbitrary	50
M 312 VU 24V=	M 312 VU 230V	G 1/2"	3	5	-0.9 to 6	Arbitrary	60
For high flow rates							
M 314 VU H 24V=	M 314 VU H 230V	G 1/4"	6	13	-0.9 to 8	Standing magnet	55
M 338 VU H 24V=	M 338 VU H 230V	G 3/8"	11	26	-0.9 to 10	Standing magnet	70
M 312 VU H 24V=	M 312 VU H 230V	G 1/2"	11	30	-0.9 to 10	Standing magnet	70
M 334 VU H 24V=	M 334 VU H 230V	G 3/4"	21	130	-0.9 to 1	Standing magnet	95
M 310 VU H 24V=	M 310 VU H 230V	G 1"	21	130	-0.9 to 1	Standing magnet	95



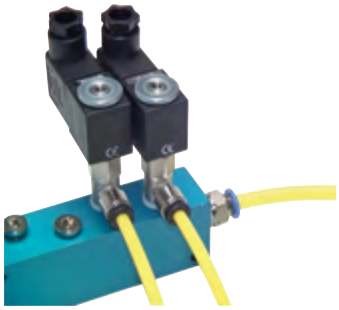
standard

for high flow values

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Please order accessories separately.
Silencer SD 50

2/2-way & 3/2-way banjo bolt solenoid valves NW 1.3

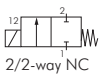


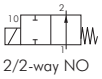
Materials: Banjo bolt and banjo: Nickel-plated brass, internal parts: Brass / stainless steel, seals: FKM/PA/PVC
Temperature range: -20°C to +50°C
Operating pressure: 0 - 15 bar (3/2-way: 0 - 10 bar)
Media: Oiled and unoiled filtered compressed air, neutral gasses
Switching time: <12 ms
Control voltages: Standard: 24 V=, 230 V AC, upon request: other voltages
Power consumption: Direct current: 6 W, alternating current: 9 VA
Protection class (VDE 0470/EN 60529): IP 65
Solenoid[3]**:** U (plug size 1)
Operating recommendations: Solenoid with **"pressure input banjo bolt"** are suitable for the assembly on a central compressed air supply, to control a consumer via the banjo. Solenoid valves with **"pressure input banjo"** can be screwed directly into a consumer (e.g. pneumatic cylinder) via the banjo and supplied with compressed air via the banjo. If a pneumatic cylinder should be controlled, then we recommend installing a NO valve (MHZO...) in one connection and an NC valve (MHZ...) in the other connection.

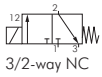
Advantages:
- economical price
- compact design

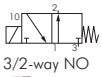
Note: We recommend ordering an SD 50 silencer separately for the 3/2-directional valves, which can be screwed into the anchor hole

3) Magnetic coils and accessories from page 420


2/2-way NC


2/2-way NO


3/2-way NC

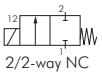

3/2-way NO

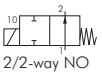
These valves are generally delivered with coils and plugs!

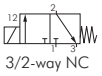
2/2-way & 3/2-way banjo bolt solenoid valves with hose screw connection NW 1.3

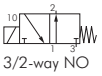
Type **closed (NC) without power**	Type **open (NO) without power**	function	Banjo bolt screw in thread	Banjo Hose Ø outside x inside
Pressure input: Banjo bolt				
MH 2184 **	MHO 2184 **	2/2-way	G 1/8"	6 x 4
MH 2186 **	MHO 2186 **	2/2-way	G 1/8"	8 x 6
MH 3184 **	MHO 3184 **	3/2-way, Venting: M5 (FT)	G 1/8"	6 x 4
MH 3186 **	MHO 3186 **	3/2-way, Venting: M5 (FT)	G 1/8"	8 x 6
Pressure input: Banjo				
MHZ 2184 **	MHZO 2184 **	2/2-way	G 1/8"	6 x 4
MHZ 2186 **	MHZO 2186 **	2/2-way	G 1/8"	8 x 6
MHZ 3184 **	MHZO 3184 **	3/2-way, Venting: M5 (FT)	G 1/8"	6 x 4
MHZ 3186 **	MHZO 3186 **	3/2-way, Venting: M5 (FT)	G 1/8"	8 x 6

** please enter desired voltage, see order example


2/2-way NC


2/2-way NO


3/2-way NC


3/2-way NO

These valves are generally delivered with coils and plugs!

2/2-way & 3/2-way banjo bolt solenoid valves with push-in fitting NW 1.3

Type **closed (NC) without power**	Type **open (NO) without power**	function	Banjo bolt screw in thread	Banjo D
Pressure input: Banjo bolt				
MH 240 **	MHO 240 **	2/2-way	G 1/8"	4
MH 260 **	MHO 260 **	2/2-way	G 1/8"	6
MH 280 **	MHO 280 **	2/2-way	G 1/8"	8
MH 340 **	MHO 340 **	3/2-way, Venting: M5 (FT)	G 1/8"	4
MH 360 **	MHO 360 **	3/2-way, Venting: M5 (FT)	G 1/8"	6
MH 380 **	MHO 380 **	3/2-way, Venting: M5 (FT)	G 1/8"	8
Pressure input: Banjo				
MHZ 240 **	MHZO 240 **	2/2-way	G 1/8"	4
MHZ 260 **	MHZO 260 **	2/2-way	G 1/8"	6
MHZ 280 **	MHZO 280 **	2/2-way	G 1/8"	8
MHZ 340 **	MHZO 340 **	3/2-way, Venting: M5 (FT)	G 1/8"	4
MHZ 360 **	MHZO 360 **	3/2-way, Venting: M5 (FT)	G 1/8"	6
MHZ 380 **	MHZO 380 **	3/2-way, Venting: M5 (FT)	G 1/8"	8

** please enter desired voltage, see order example

Order example: MH 2184 **

Standard type

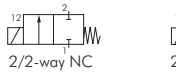
Available voltage variants
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
24V AC . . . . . **-24VAC**
115V AC . . . . . **-110V**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

2/2-way & 3/2-way banjo bolt solenoid valves with female thread — NW 1.3

Type closed (NC) without power	Type open (NO) without power	function	Banjo bolt screw in thread	Banjo female thread
Pressure input: Banjo bolt				
MH 218 **	MHO 218 **	2/2-way	G 1/8"	G 1/8"
MH 318 **	MHO 318 **	3/2-way, Venting: M5 (FT)	G 1/8"	G 1/8"
Pressure input: Banjo				
MHZ 218 **	MHZO 218 **	2/2-way	G 1/8"	G 1/8"
MH 318 **	MHZO 318 **	3/2-way, Venting: M5 (FT)	G 1/8"	G 1/8"

** please enter desired voltage, see order example



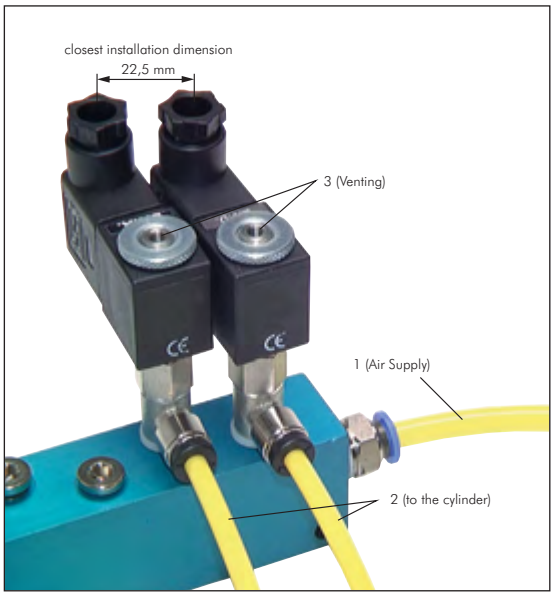
These valves are generally delivered with coils and plugs!

☞ **Order example:** MH 218 **

Standard type

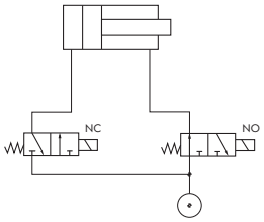
Available voltage variants

24V= (standard)	**-24V=**
230V AC (standard)	**-230V**
12V=	**-12V=**
24V AC	**-24VAC**
115V AC	**-110V**

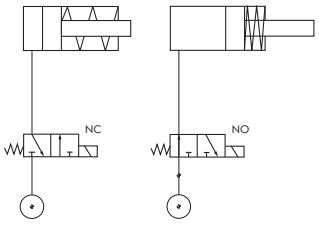


TIP *Here are a few ideas for applications...*

Double acting cylinders



Single acting cylinders



Basic section moved to

Basic setting moved away from

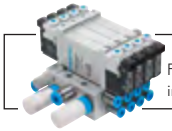
Hoses
Other manufacturers can be found in our Online Shop. Simply look for the original item number!

7

FESTO Mini-carriages are found in our Online Shop

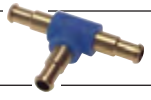
FESTO You will find grippers in our Online Shop

FESTO You will find Festo stop cylinders in our Online Shop



FESTO Festo valves can be found in our Online Shop

Push-in fittings Ø 3 - 32 mm from page 24



PK push-in nipple from page 60

Pressure regulator valves with push-in fittings from page 34

Distributor bars from page 132

Service units FUTURA series from page 330

PU, PA, PTFE and PE hoses from page 192

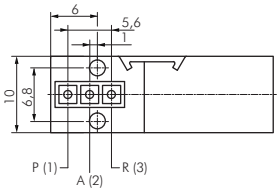
Ball valves from page 280

Multiple couplings from page 41

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

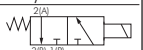
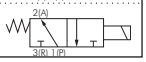
3/2-way flange valves

Valve width: 10 mm
Other dimensions can be found in the item details in our Online Shop



3/2-way solenoid valves with spring returns — Model series YS10

Materials: Body: Plastic, seals: NBR
Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): <5 ms
Nominal width: 0.7 mm
Control voltage: 24V=
Voltage tolerance: ±10%
Power consumption: 0.8 W
Protection class (VDE 0470/EN 60529): IP 50
Version: With 2-pin connector and LED (including 600 mm cable)
Note: Connections P and R are exchanged with NO type

Type	Basic setting	Connection	Op. pressure	Flow	Symbol
YS10 ML-D4	Closed (NC)	Flange	0 - 7.5 bar	23 l/min.	
YS11 ML-D4	Open (NO)	Flange	0 - 7.5 bar	23 l/min.	

Multiple manifolds — for model series YS10

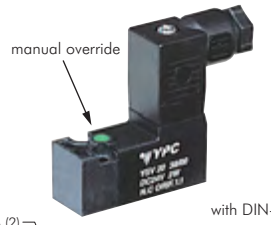
Materials: Body: Aluminium, seals: NBR
Supply volume: Basic body with screws and seals (please order valves separately)
Connection thread: P=M5, R=M5, A=M5

Type	Description
YMF10-**	Manifold for YS10 and YS11 (unmixed)
YMF10-BLK	Blind plate to seal unused connecting points

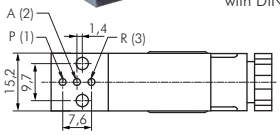
Order example: YMF10- **
Standard type

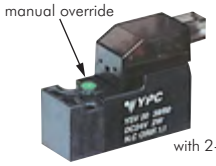
Number of required stations:
2 stations . . . . . -2
4 stations . . . . . -4
6 stations . . . . . -6
Up to 14 stations . . . . . -14

Valve width: 15 mm
Other dimensions can be found in the item details in our Online Shop



with DIN-plug

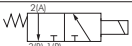




with 2-pin plug

3/2-way solenoid valves with spring returns — Model series YSV20

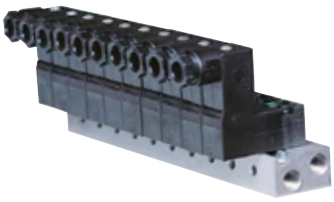
Materials: Body: Plastic, seals: NBR
Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): <20 ms
Nominal width: 1.1 mm
Control voltage: Standard: 24V=, 230V AC
Voltage tolerance: ±10%
Power consumption: Direct current: 2.5 W, alternating current: 3.5 VA
Protection class (VDE 0470/EN 60529): IP 65 (IP 50 with a 2-pin plug)
Optional: Control voltages 12V= **-D2**, 115V AC **-A1**

Type	Basic setting	Connection	Op. pressure	Flow	Symbol
With DIN plug (size 0)					
YSV20 DPSC-**	Closed (NC)	Flange	0 - 8 bar	28 l/min.	
2-pin plug and LED (including 600 mm cable)					
YSV20 DPSM-D4	Closed (NC)	Flange	0 - 8 bar	28 l/min.	

Order example: YSV20 DPSC- **
Standard type

Available voltage variants*:
24V= . . . . . -D4
230V AC . . . . . -A2
12V= . . . . . -D2
115V AC . . . . . -A1
* only DIN plugs

Multiple manifolds — for model series YSV20

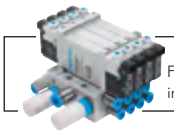


Materials: Body: Aluminium, seals: NBR
Supply volume: Basic body (screws and seals included in the scope of delivery of the valve. Please order valves separately.)
Connection thread: P=G1/8", R=G1/8", A=M5

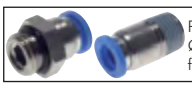
Type	Description
YMF20-**	Manifold for YSV20
YMF20-BLK	Blind plate to seal unused connecting points

Order example: YMF20- **
Standard type

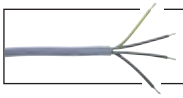
Number of required stations:
2 stations . . . . . -2
4 stations . . . . . -4
6 stations . . . . . -6
Up to 14 stations . . . . . -14



FESTO
Festo valves can be found in our Online Shop


Push-in fittings Ø 3 - 32 mm from page 24

One-way flow controls from page 440

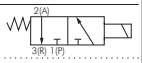
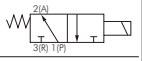
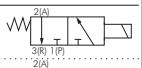
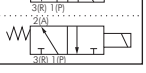

Flexible control cables on page 641

PU, PA, PTFE and PE hoses from page 192

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

3/2-way solenoid valves with spring returns M5 — Model series YSV200

Materials: Body: Aluminium, seals: NBR, pilot: Polyamide (glass fibre reinforced)
Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): <20 ms
Nominal width: 1.1 mm
Control voltages: Standard: 24V=, 230V AC
Voltage tolerance: ±10%
Power consumption: Direct current: 2.5 W, alternating current: 3.5 VA (60 Hz)
Protection class (VDE 0470/EN 60529): IP 65 (IP 50 with a 2-pin plug)
☞ **Optional:** Control voltages 12V= **-D2**, 24V AC **-A4**, 115V AC **-A1**

Type	Basic setting	Thread	Op. pressure	Flow	Symbol
With DIN plug (size 0)					
YSV211 DPSC-**	Closed (NC)	M5	0 - 8 bar	28 l/min.	
YSV221 DPSC-**	Open (NO)	M5	0 - 8 bar	28 l/min.	
2-pin plug with LED and protection circuit, 24=, including 600 mm cable					
YSV211-DPSM-D4	Closed (NC)	M5	0 - 8 bar	28 l/min.	
YSV221-DPSM-D4	Open (NO)	M5	0 - 8 bar	28 l/min.	

☞ **Order example:** YSV211 DPSC- **

Standard type

Available voltage variants*:
24V= . . . . . **-D4**
230V AC . . . . . **-A2**
12V= . . . . . **-D2**
24V AC . . . . . **-A4**
115V AC . . . . . **-A1**

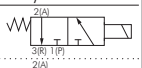
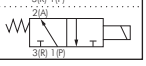
* only DIN plugs

Valve width: 20 mm
More sizes can be found in our Online Shop

These valves are generally delivered with coils and plugs!

3/2-way solenoid valves with spring returns G 1/8" — Model series YSV300

Materials: Body: Aluminium, seals: NBR, pilot: Polyamide (glass fibre reinforced)
Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): <20 ms
Nominal width: 1.5 mm
Control voltages: Standard: 24V=, 230V AC
Voltage tolerance: ±10%
Power consumption: Direct current: 2.1 W, alternating current: 4.1 VA (50 Hz)
Protection class (VDE 0470/EN 60529): IP 65, plug size: 1
☞ **Optional:** Control voltages 12V= **-D2**, 24V AC **-A4**, 115V AC **-A1**

Type	Basic setting	Thread	Op. pressure	Flow	Symbol
YSV311 DPSC-**	Closed (NC)	G 1/8" (exhaust M 5)	0 - 8 bar	75 l/min.	
YSV321 DPSC-**	Open (NO)	G 1/8" (supply M 5)	0 - 8 bar	75 l/min.	

☞ **Order example:** YSV311 DPSC- **

Standard type

Available voltage variants:
24V= . . . . . **-D4**
230V AC . . . . . **-A2**
12V= . . . . . **-D2**
24V AC . . . . . **-A4**
115V AC . . . . . **-A1**

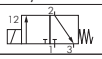
Valve width: 27 mm
More sizes can be found in our Online Shop

These valves are generally delivered with coils and plugs!

3/2-way solenoid valves G 1/8" — Model series VP321

Materials: Body: Die-cast zinc, seals: NBR, pilot: Polyamide
Temperature range: -5°C to max. +60°C
Operating pressure: 0 - 8 bar
Medium: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): < 50 ms, max. 10 switching cycles/sec.
Nominal width: 1.2 mm
Control voltages: Standard: 24V=, 230V AC, other voltages on request (see order example)
Voltage tolerance: ±10% **Power consumption:** Direct current: 4.8 W, alternating current: 5 VA, plug size 1
Protection class (VDE 0470/EN 60529): IP 65
Service life: Approx. 12 million switching cycles
Supply volume: Valve incl. interlinking accessories and locking screw (for individual use of the valve).

✓ **Advantages:** • The seal and screw included in the delivery, multiple valves should be interlinked with each other easily.

Type	Basic setting	Thread	Flow	Symbol
VP 321-**	Closed (NC)	G 1/8"	50 l/min.	

** please enter the required voltage

☞ **Order example:** VP 321- **

Standard type

Available voltage variants:
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
24V AC . . . . . **-24VAC**

Example of linked valves

Valve width: 25 mm
More sizes can be found in our Online Shop

These valves are generally delivered with coils and plugs!

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

3/2-, 5/2- and 5/3-way solenoid valves — Model series RV10 - RV40

Materials: Body and slider: Aluminium, seals: NBR, pilot: Polyamide
Temperature range: -5°C to max. +60°C
Operating pressure: 1,5 - 8 bar
Medium: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): <50 ms, max. 5 switching cycles/sec. (5/3-way: max. 3 switching cycles/sec.)
Control voltages: Standard: 24V=, 230V AC, other voltages on request (see order example)
Voltage tolerance: ±10%
Protection class (VDE 0470/EN 60529): IP 65
Service life: Approx. 12 million switching cycles

3/2-way solenoid valves G 1/8" — Model series RV10

Power consumption: Direct current: 2,8 W, alternating current: 3 VA
Magnetic coil[3]: S (plug size 0)

Type	Basic setting	Thread	Flow	Symbol
RV 3211-06 **	Closed (NC)	G 1/8"	500 l/min.	
RV 3211-06H **	Open (NO)	G 1/8"	500 l/min.	
RV 3212-06 **	Pulse valve	G 1/8"	500 l/min.	

** please enter required voltage, see order example, 3) magnetic coils and accessories from page 420

These valves are generally delivered with coils and plugs!

3/2-way solenoid valves G 1/4" — Model series RV20

Power consumption: Direct current: 3 W, alternating current: 4 VA
Magnetic coil[3]: T (plug size 1)

Type	Basic setting	Thread	Flow	Symbol
RV 3221-08 **	Closed (NC)	G 1/4"	800 l/min.	
RV 3221-08H **	Open (NO)	G 1/4"	800 l/min.	
RV 3222-08 **	Pulse valve	G 1/4"	800 l/min.	

** please enter required voltage, see order example, 3) magnetic coils and accessories from page 420

These valves are generally delivered with coils and plugs!

3/2-way solenoid valves G 1/4" — Model series RV30

Power consumption: Direct current: 3 W, alternating current: 4 VA
Magnetic coil[3]: T (plug size 1)

Type	Basic setting	Thread	Flow	Symbol
RV 3231-08 **	Closed (NC)	G 1/4"	1150 l/min.	
RV 3231-08H **	Open (NO)	G 1/4"	1150 l/min.	
RV 3232-08 **	Pulse valve	G 1/4"	1150 l/min.	

** please enter required voltage, see order example, 3) magnetic coils and accessories from page 420

These valves are generally delivered with coils and plugs!

3/2-way solenoid valves G 1/2" — Model series RV40

Power consumption: Direct current: 3 W, alternating current: 4 VA
Magnetic coil[3]: T (plug size 1)

Type	Basic setting	Thread	Flow	Symbol
RV 3241-15 **	Closed (NC)	G 1/2"	2250 l/min.	
RV 3241-15H **	Open (NO)	G 1/2"	2250 l/min.	
RV 3242-15 **	Pulse valve	G 1/2"	2250 l/min.	

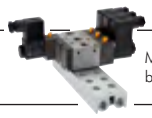
** please enter required voltage, see order example, 3) magnetic coils and accessories from page 420

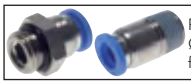
These valves are generally delivered with coils and plugs!

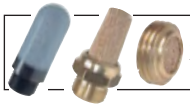
☞ **Order example:** RV 3211-06 **

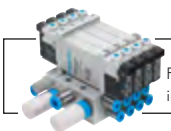
Standard type

Available voltage variants:
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
24V AC . . . . . **-24VAC**


Multiple manifolds can be found on page 423


Push-in fittings Ø 3 - 32 mm from page 24


Silencer from page 436


FESTO
Festo valves can be found in our Online Shop

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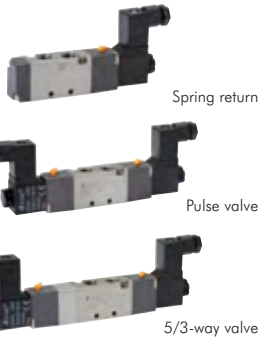
5/2-way and 5/3-way solenoid valves G 1/8" — Model series RV10

Power consumption: Direct current: 2,8 W, alternating current: 3 VA
Magnetic coil[3]: S (plug size 0)

Type	Function	Thread	Flow	Symbol
5/2-way				
RV 5211-06 **	Spring return	G 1/8"	500 l/min.	
RV 5212-06 **	Pulse valve	G 1/8"	500 l/min.	
5/3-way				
RV 5312-06C **	Centre position closed	G 1/8"	450 l/min.	
RV 5312-06E **	Centre position vented	G 1/8"	450 l/min.	
RV 5312-06P **	Centre position ventilated	G 1/8"	450 l/min.	

** please enter required voltage, see order example, 3) magnetic coils and accessories from page 420



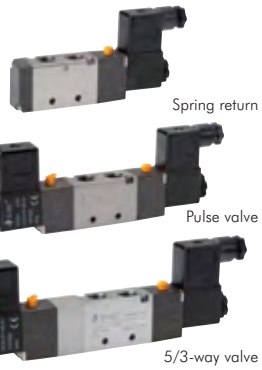
These valves are generally delivered with coils and plugs!

5/2-way and 5/3-way solenoid valves G 1/4" — Model series RV20

Power consumption: Direct current: 3 W, alternating current: 4 VA
Magnetic coil[3]: T (plug size 1)

Type	Function	Thread	Flow	Symbol
5/2-way				
RV 5221-08 **	Spring return	G 1/4" (exhaust G 1/8")	800 l/min.	
RV 5222-08 **	Pulse valve	G 1/4" (exhaust G 1/8")	800 l/min.	
5/3-way				
RV 5322-08C **	Centre position closed	G 1/4" (exhaust G 1/8")	600 l/min.	
RV 5322-08E **	Centre position vented	G 1/4" (exhaust G 1/8")	600 l/min.	
RV 5322-08P **	Centre position ventilated	G 1/4" (exhaust G 1/8")	600 l/min.	

** please enter required voltage, see order example, 3) magnetic coils and accessories from page 420



These valves are generally delivered with coils and plugs!

5/2-way and 5/3-way solenoid valves G 1/4" — Model series RV30

Power consumption: Direct current: 3 W, alternating current: 4 VA
Magnetic coil[3]: T (plug size 1)

Type	Function	Thread	Flow	Symbol
5/2-way				
RV 5231-08 **	Spring return	G 1/4"	1150 l/min.	
RV 5232-08 **	Pulse valve	G 1/4"	1150 l/min.	
5/3-way				
RV 5332-08C **	Centre position closed	G 1/4"	850 l/min.	
RV 5332-08E **	Centre position vented	G 1/4"	850 l/min.	
RV 5332-08P **	Centre position ventilated	G 1/4"	850 l/min.	

** please enter required voltage, see order example, 3) magnetic coils and accessories from page 420

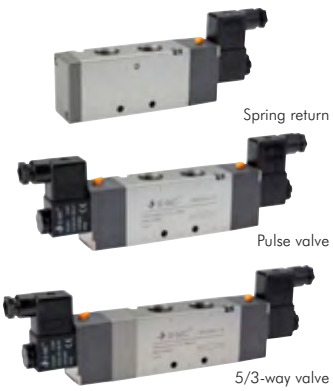
These valves are generally delivered with coils and plugs!

5/2-way and 5/3-way solenoid valves G 1/2" — Model series RV40

Power consumption: Direct current: 3 W, alternating current: 4 VA
Magnetic coil[3]: T (plug size 1)

Type	Function	Thread	Flow	Symbol
5/2-way				
RV 5241-15 **	Spring return	G 1/2"	2250 l/min.	
RV 5242-15 **	Pulse valve	G 1/2"	2250 l/min.	
5/3-way				
RV 5342-15C **	Centre position closed	G 1/2"	1350 l/min.	
RV 5342-15E **	Centre position vented	G 1/2"	1350 l/min.	
RV 5342-15P **	Centre position ventilated	G 1/2"	1350 l/min.	

** please enter required voltage, see order example, 3) magnetic coils and accessories from page 420



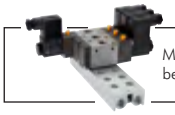
These valves are generally delivered with coils and plugs!

☞ **Order example:** V 5211-06 **

Standard type

Available voltage variants:
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
24V AC . . . . . **-24VAC**

PU, PA, PTFE and PE hoses from page 192



Multiple manifolds can be found on page 423

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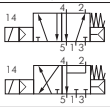
7

Namur valves

3/2-way and 5/2-way Namur solenoid valves G 1/4" — Model series V30

Materials: Body and slider: Aluminium, seals: NBR, pilot: Polyamide
Temperature range: -5°C to max. +60°C
Operating pressure: 1.5 - 8 bar
Medium: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): < 50 ms, max. 5 switching cycles/sec.
Control voltages: Standard: 24V=, 230V AC, other voltages on request (see order example)
Voltage tolerance: ±10%
Power consumption: Direct current: 4.8 W, alternating current: 5 VA
Protection class (VDE 0470/EN 60529): IP 65, plug size 1
Service life: Approx. 12 million switching cycles

Advantages: • Simply by rotating the seal, the valve can be changed between 3/2-way and 5/2-way function.
• Economical, as the same valve can be used for single acting drives.

Type	Function	Thread	Flow	Symbol
V 5231-08MG **	5/2-way with spring return or 3/2-way with spring return	G 1/4"	1800 l/min. or 1000 l/min.	

These valves are generally delivered with coils and plugs!

** please enter the required voltage

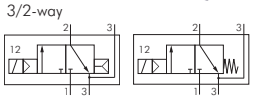
Order example: V 5231-08MG **

Standard type

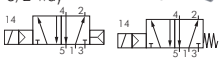
Available voltage variants:
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
24V AC . . . . . **-24VAC**

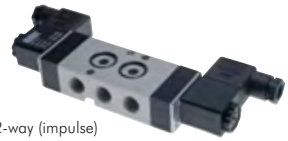
5/2-way and 3/2-way solenoid valves w/ spring returns and hole patterns acc. to NAMUR

3/2-way

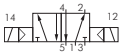


5/2-way





5/2-way (impulse)



Materials: Body: Aluminium anodised and plastic, internal parts: Aluminium, stainless steel and brass, seal: NBR
Temperature range: -10° C to max. +70° C
Operating pressure: 3 - 10 bar (pulse valve: 2 - 10 bar)
Control voltages: Standard: 24V=, 230V AC, many other voltages possible
Power consumption: Direct current: 4.2 W, alternating current: 4.0 VA (draw: 7.0 VA)
Protection class: IP 65, plug size 1
Mode of operation: 3/2-way version vented in the spring chamber of the actuator, therefore an exhaust air flow control is not possible. For 5/2-way version, an exhaust air flow control (speed controller) is possible with help from 2 piece flow control silencer **DS 14**. Please order flow control silencers separately (see page 718).

Type		Used for	Connection Thread	Function	Resetting	Flow
KN 05 310 HN **	Ex 1)	Single act. actuator	G 1/4"	3/2-way	Pneumatic spring	780 l/min
KN 05 311 HN **	Ex 1)	Single act. actuator	G 1/4"	3/2-way	Spring	780 l/min
KN 05 510 HN **	Ex 1)	Double act. actuator	G 1/4"	5/2-way	Pneumatic spring	900 l/min
KN 05 511 HN **	Ex 1)	Double act. actuator	G 1/4"	5/2-way	Spring	800 l/min
KN 05 520 HN **	Ex 1)	Double act. actuator	G 1/4"	5/2-way	Pulse valve	900 l/min

1) available with ATEX approval Ex II 2GD c T5 T100°C, T_{Medium}/T_{amb}: -10? to max. +50°C, see the operating instructions for full details

Order example: KN 05 310 HN **

Standard type

Available voltage variants
24V= (standard) . . . . . **-24V=**
230V AC (standard) . . . . . **-230V**
12V= . . . . . **-12V=**
48V= . . . . . **-48V=**
24V AC . . . . . **-24VAC**
42V AC . . . . . **-42VAC**
115V AC . . . . . **-115V**
24V= Ex II 2G EEx m IIC T5/ Ex II 2D IP 65 T95°C . . . . . **-24X** [2]
230V AC Ex II 2G EEx m IIC T5/ Ex II 2D IP 65 T95°C . . . . . **-230X** [2]
24V= Ex II 2G EEx ia IIC T6 (max. 8 bar) . . . . . **-24XE** [3]

[2] is delivered with 3-meter cables.
[3] supply via intrinsically safe circuits U ≤ 28 V, I ≤ 115 mA, P ≤ 1.6 W

These valves are generally delivered with coils and plugs!

NAMUR adapter plates with one-way control valves/spacer plates

type DR NAMUR FSFO

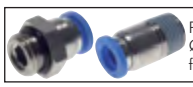
type DR NAMUR

type DR NAMUR DIS

Materials: Body: Aluminium anodised, flow control valves: Brass nickel-plated, seal: NBR

Advantages: • Precise adjustment of the opening or closing speed of the actuator
• For actuators with spring return (3/2 way) the reset speed can also be set

Type	Function	Height
DR NAMUR FS	3/2-way flow control for exhaust air of the side where pressure is applied	25
DR NAMUR FO	3/2-way flow control for supply air of the side where pressure is applied	25
DR NAMUR FSFO	3/2-way flow cont. for supply and exh. air of the side where press. is applied	30
DR NAMUR	5/2-way flow control on both sides	25
DR NAMUR DIS6	Spacer plate (6 mm)	6


Push-in fittings Ø 3 - 32 mm from page 24

PU, PA, PTFE and PE hoses from page 192

Universal signal boxes for rotary actuators on page 311

Pneumatically activated ball valves from page 304

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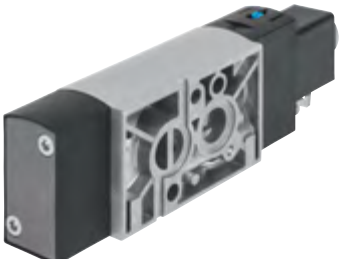

- G¼ connection
- Flow 900 ... 1350 l/min
- Voltage 12, 24, 48 V DC, 24, 48,120, 230 V AC
- Namur wiring diagram according to VDE/VDI 3845
- Electrically actuated, pilot operated
- Mechanical reset
- Can be adjusted from 5/2-way function to 3/2-way function
- Selected types acc. to ATEX Guideline for potentially explosive atmospheres

Order key

001	002	003	004	005	006	007	008	009	010	011	012
VSNC	F		C	M52	M	D	G14				

Legend: Mandatory input Optional input

001	Type
VSNC	solenoid valve

002	Type of directional valve
F	flange valve

003	Design principle
–	piston pusher

004	Additional function
C	valve function adjustable

005	Valve function
M52	5/2- directional valve, monostable

006	Type of reset for monostable valves
M	mechanical spring

007	Hand assist actuation
D	tentative, ratcheting

008	Pneumatic connection
G14	G¼

009	Venting
–	without screw connection

010	Valve control interface
F8	with 8 mm long anchor pipe
FN	with 9 mm long anchor pipe

011	Nominal operating voltage
–	without
1	24V DC

012	Electrical connection
–	without
B2	connection cable Shape B, industrial standard

Product options

T poppet valve
B52 5/2- directional valve, bistable
M32C 3/2-way valve, idle position closed
P53C 5/3-way valve, centre position closed
P53E 5/3-way valve, centre position vented
P53U 5/3-way valve, centre position breathing

H Hand assist actuation, tentative, resetting
S Hand assist actuation, covered

Venting
QN with screw connection
U1 Silencer with metal housing
U3 Silencer with polymer housing

Pneumatic connection
Q6 push in fitting 6 mm
Q8 push in fitting 8 mm
Q10 push in fitting 10 mm

Nominal operating voltage
1A 24V AC/50-60 Hz
3A 230V AC/50-60 Hz
3W 230V AC/240V AC/50-60 Hz
7A 48V AC/50-60 Hz
16B 120V AC/60 Hz and 110V AC/50-60 Hz
5 12V DC

Ignition protection
A intrinsically safe
M cast enclosure
N non-sparking

Electrical accessories valve
G Connector without LED

Electrical connection
A1 connection cable shape A, according to EN 175301
C3 cable, 3m
K11 wire with insulating tube connection

Protection category electric
S8 IP67

EU-permission
EX2 II 3GD
EX4 II 2GD

Permission
U4 class 1 Div 1 acc. to NEC 500

FESTO Mini-carriages are found in our Online Shop

FESTO Festo cylinders can be found in our Online Shop

FESTO You will find grippers in our Online Shop

FESTO You will find Festo stop cylinders in our Online Shop

FESTO Festo shock absorbers can be found in our Online Shop

FESTO Festo rotary actuators can be found in our Online Shop

FESTO Festo valves can be found in our Online Shop

FESTO Festo screwed connections can be found in our Online Shop

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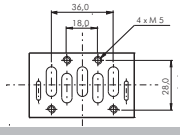
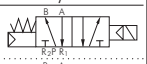
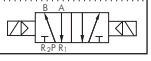


Dimensions acc. to ISO 1, other dimensions can be found in the item details in our Online Shop

5/2-way solenoid valves (ISO 5599/1) — Size 1 - Model series SIV400

Materials: Body and slider: Aluminium, seals: NBR, pilot: Polyamide (glass fibre reinforced)
Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): <30 ms
Control voltage: Standard: 24V=, 230V AC
Voltage tolerance: +/- 10%
Power consumption: Direct current: 2.1 W, alternating current: 4.1 VA (50 Hz)
Protection class (VDE 0470/EN 60529): IP 65, plug size: 1
Optional: Control voltages 12V= **-D2**, 24V AC **-A4**, 115V AC **-A1**

Type	Function	ISO	Operating pressure	Flow	Symbol
SIV411 IPSC-**	Spring return	1	1.5 - 10 bar	1600 l/min.	
SIV420 IPSC-**	Pulse valve	1	1.5 - 10 bar	1600 l/min.	

Order example: SIV411 IPSC- **

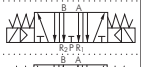
Standard type

Available voltage variants:
24V= ..... **-D4**
230V AC ..... **-A2**
12V= ..... **-D2**
24V AC ..... **-A4**
115V AC ..... **-A1**

These valves are generally delivered with coils and plugs!

5/3-way solenoid valves (ISO 5599/1) — Size 1 - Model series SIV400

Materials: Body and slider: Aluminium, seals: NBR, pilot: Polyamide (glass fibre reinforced)
Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): <40 ms
Control voltages: Standard: 24V=, 230V AC
Voltage tolerance: +/- 10%
Power consumption: Direct current: 2.1 W, alternating current: 4.1 VA (50 Hz)
Protection class (VDE 0470/EN 60529): IP 65, plug size: 1
Optional: Control voltages 12V= **-D2**, 24V AC **-A4**, 115V AC **-A1**

Type	Centre position	ISO	Operating pressure	Flow	Symbol
SIV433 IPSC-**	Closed	1	2 - 10 bar	1500 l/min.	
SIV443 IPSC -**	Vented	1	2 - 10 bar	1500 l/min.	
SIV453 IPSC -**	Ventilated	1	2 - 10 bar	1500 l/min.	

Order example: SIV433 IPSC- **

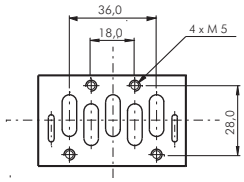
Standard type

Available voltage variants:
24V= ..... **-D4**
230V AC ..... **-A2**
12V= ..... **-D2**
24V AC ..... **-A4**
115V AC ..... **-A1**

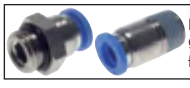
These valves are generally delivered with coils and plugs!

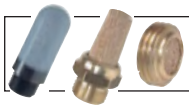
Base plates (ISO 1 5599/1) — Size 1 - Model series SIV400

Materials: Body: Aluminium, seals: NBR
Supply volume: Complete with seals

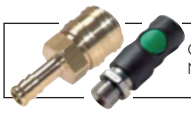


Type	Description	Thread
SIB42-S	Base plate complete	G 3/8"
SIB43-S	Base plate complete	G 1/2"
SIB40 REP	Replacement seal & screws for SIV4...	


Push-in fittings Ø 3 - 32 mm from page 24


Silencer from page 436

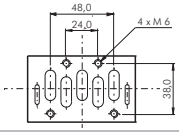
Cutting ring fittings from page 77


Coupling sockets NW7 from page 150

Push-in hoses on page 228

Hoses from page 192

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



5/2-way solenoid valves (ISO 5999/1) — Size 2 - Model series SIV500

Materials: Body and slider: Aluminium, seals: NBR, pilot: Polyamide (glass fibre reinforced)
Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): < 35 ms
Control voltage: Standard: 24V=, 230V AC, upon request: 12V=, 24V AC, 115V AC
Voltage tolerance: +/- 10%
Power consumption: Direct current: 2.1 W, alternating current: 4.1 VA (50 Hz)
Protection class (VDE 0470/EN 60529): IP 65, plug size: 1
☞ **Optional:** Control voltages 12V= **-D2**, 24V AC **-A4**, 115V AC **-A1**

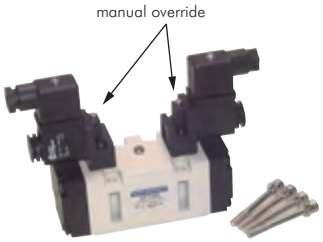
Type	Function	ISO	Operating pressure	Flow	Symbol
SIV511 IPSC-**	Spring return	2	1.5 - 10 bar	3500 l/min.	
SIV520 IPSC-**	Pulse valve	2	1.5 - 10 bar	3500 l/min.	

☞ **Order example:** SIV511 IPSC- **

Standard type

Available voltage variants:
24V= . . . . . **-D4**
230V AC . . . . . **-A2**
12V= . . . . . **-D2**
24V AC . . . . . **-A4**
115V AC . . . . . **-A1**

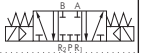
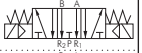
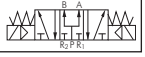
Dimensions acc. to ISO 2, other dimensions can be found in the item details in our Online Shop



These valves are generally delivered with coils and plugs!

5/3-way solenoid valves (ISO 5599/1) — Size 2 - Model series SIV500

Materials: Body and slider: Aluminium, seals: NBR, pilot: Polyamide (glass fibre reinforced)
Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled filtered compressed air
Switching time (at 5 bar): < 45 ms
Control voltages: Standard: 24V=, 230V AC, upon request: 12V=, 24V AC, 115V AC
Voltage tolerance: +/- 10%
Power consumption: Direct current: 2.1 W, alternating current: 4.1 VA (50 Hz)
Protection class (VDE 0470/EN 60529): IP 65, plug size: 1
☞ **Optional:** Control voltages 12V= **-D2**, 24V AC **-A4**, 115V AC **-A1**

Type	Centre position	ISO	Operating pressure	Flow	Symbol
SIV533 IPSC-**	Closed	2	2 - 10 bar	2200 l/min.	
SIV543 IPSC-**	Vented	2	2 - 10 bar	2200 l/min.	
SIV553 IPSC-**	Ventilated	2	2 - 10 bar	2200 l/min.	

☞ **Order example:** SIV533 IPSC- **

Standard type

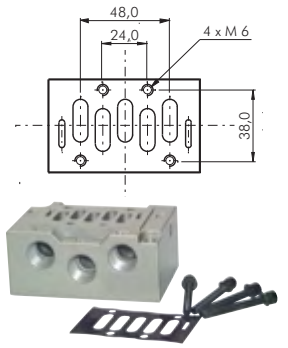
Available voltage variants:
24V= . . . . . **-D4**
230V AC . . . . . **-A2**
12V= . . . . . **-D2**
24V AC . . . . . **-A4**
115V AC . . . . . **-A1**

These valves are generally delivered with coils and plugs!

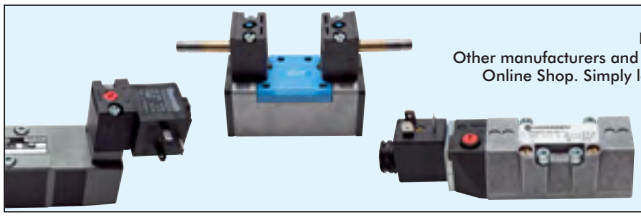
Base plates (ISO 5599/1) — Size 2 - Model series SIV500

Materials: Body: Aluminium, seals: NBR
Supply volume: Complete with seals

Type	Description	Thread
SIB53-S	Base plate complete	G 1/2"
SIB54-S	Base plate complete	G 3/4"
SIB50 REP	Replacement seal & screws for SIV5...	



ISO valves



ISO valves
Other manufacturers and our ISO 3-valves can be found in our Online Shop. Simply look for the original item number!

Many additional products and sizes are available in our **Online Shop!**

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Accessories - solenoid valves

Magnetic coils for solenoid valves — for model series RV

Suitable: For solenoid valve model series RV10, RV20, RV30 and RV40
Supply volume: Coil incl. plug

Type **size 0**	Voltage	Power consumption
For model series RV10		
Plug size 0 (industrial design, design C)		
MAG S 12V=	12V DC	2.8 W
MAG S 24V=	24V DC	2.8 W
MAG S 24VAC	24V AC	3.0 VA
MAG S 230V	230V AC	3.0 VA

Type **size 1**	Voltage	Power consumption
For model series RV20, RV30, RV40		
Plug size 1 (industrial design, design B)		
MAG T 12V=	12V DC	3 W
MAG T 24V=	24V DC	3 W
MAG T 24VAC	24V AC	4 VA
MAG T 230V	230V AC	4 VA

Magnetic coils for 2/2-way solenoid valves — for model series ELP/SLP/ZS

Suitable: For solenoid valves ELP, ELPH, SLP and ZS, in brass and stainless steel
Supply volume: Magnetic coil incl. plug

Type **12V=**	Type **24V=**	Type **24V AC**	Type **230V AC**	Plug size	For valve
MAG P 12V=	MAG P 24V=	MAG P 24VAC	MAG P 230V	3	All SLP valves
MAG Q 12V=	MAG Q 24V=	MAG Q 24VAC	MAG Q 230V	3	ZS 38 - ZS 10
MAG R 12V=	MAG R 24V=	MAG R 24VAC	MAG R 230V	3	ZS 114 - ZS 20
MAG Y 12V=	MAG Y 24V=	MAG Y 24VAC	MAG Y 230V	1	ELP valves
MAG Z 12V=	MAG Z 24V=	MAG Z 24VAC	MAG Z 230V	1	ELPH valves

Plug size 0 Plug size 1

type MAG L 24V= 2

Magnetic coils for solenoid valves

Suitable: For solenoid valve models YSV, SF and SIV
Supply volume: Magnetic coil incl. plug

Type **size 0**	Voltage	Power consumption
Plug size 0 (industrial design, design C)		
MAG L 12V=	12V=	2.5 W
MAG L 24V=	24V=	2.5 W
MAG L 24VAC	24V AC	3.5 VA
MAG L 115V	115V AC	3.5 VA
MAG L 230V	230V AC	3.5 VA
2-pin plug, including 600 mm cable		
MAG L 24V= 2	24V=	2.5 W
Fastening nut for magnetic coil		
CO 15 BM	---	---

Type **size 1**	Voltage	Power consumption
Plug size 1 (industrial design, design B)		
MAG M 12V=	12V=	2.1 W
MAG M 24V=	24V=	2.0 W
MAG M 24VAC	24V AC	3.6 VA
MAG M 115V	115V AC	4.1 VA
MAG M 230V	230V AC	3.9 VA
Fastening nut for magnetic coil		
CO 22 BM	---	---

TIP *For testing magnetic coils in operation*

Solenoid testers with clips for magnetic coils

Suitable: For functional tests of magnetic coils on valves without putting the machine out of operation. You carry out the test in the centre of the magnetic coil and by lighting the control lamps, the tester shows whether the magnetic coil is working. Also suitable for non-visible permanent magnets (e.g. magnetic pistons). If you fit the magnetic ring on the test tip, the magnetic tester works as a torch. The battery can be replaceable without any problems. The solenoid tester can be used, regardless of the coil voltage.

Type	Length
MAGNETTESTER	165 mm

2-pin plugs with cables

Can be used for 2-pin plug magnetic coils

Type	Plug width	Cable length
KAB SY100 0,6	7 mm	600 mm
KAB SY100 1	7 mm	1000 mm

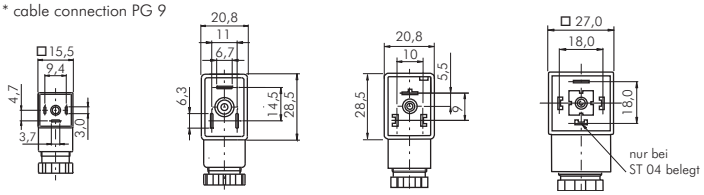
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Standard connectors for magnetic coils

Description: Push-in connector according to DIN 43650/EN 175301-803 or industry standard. Solenoid valves are normally connected using industry standard plugs.
Voltage: Max. 250V AC/300V DC
Supply volume: Plug including screw and flat seal (plug size 3: Profile seal)

Type black	Type grey	Plug size	Standard	N° of contacts + safety contacts	Height	Cable connection
Standard						
ST 00	---	0	Industry standard C	2	27	PG 7
ST 01	---	1	Industry standard B	2	31	M 16 x 1.5
ST 03	ST 03 G*	3	DIN/EN-A	2	28	M 16 x 1.5
ST 03 H	ST 03 HG	3	DIN/EN-A	2	35	M 16 x 1.5
ST 04	---	3	DIN/EN-A	3	28	M 16 x 1.5
With bridge rectifier, 250V AC/DC						
ST 03 GL	---	3	DIN/EN-A	2	36	M 16 x 1.5
Special model DIN 43650/EN 175301-803-B						
ST 01 B	---	1	DIN/EN-B	2	31	PG 9

* cable connection PG 9

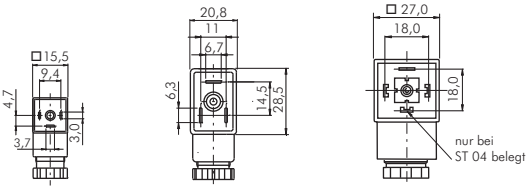


Plug size 0 (Industry standard C) | Plug size 1 (Industry standard B) | Plug size 1 (DIN/EN-B) | Plug size 3 (DIN/EN-A)

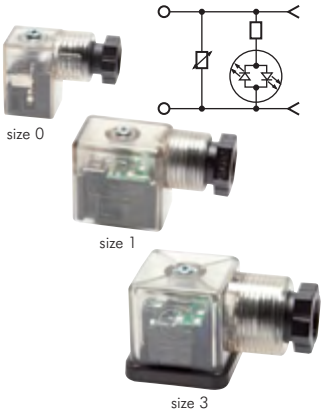
Standard connectors for magnetic coils (with protection circuits and LED displays)

Description: Push-in connector with LED display according to DIN 43650/EN 175301-803 or industry standard. Solenoid valves are normally connected using industry standard plugs. The colour of the LED is yellow for 24V AC/DC types, red for 230V AC sort.
Supply volume: Plug including screw and flat seal (plug size 3: Profile seal)

Type 24V AC/DC	Type 230V AC	Plug size	Standard	Dimensions	Cable connection
ST 00 LED 24V	ST 00 LED 230V	0	Industry standard C	15 x 15	PG 7
ST 01 LED 24V	ST 01 LED 230V	1	Industry standard B	20 x 30	M 16 x 1.5
ST 03 LED 24V	ST 03 LED 230V	3	DIN/EN-A	27 x 27	M 16 x 1.5



Plug size 0 (Industry standard C) | Plug size 1 (Industry standard B) | Plug size 3 (DIN/EN-A)



Replacement seals for standard connectors

Description: Elastomer seal for standard connector according to DIN 43650/EN 175301-803 or industry standard
Warning: Profile seals increase the plug outer dimensions by approx. 2 mm. We recommend checking the installation situation prior to use!

Type flat seal	Type profile seal	Suitable for plug size
ST 00 DICHT F	ST 00 DICHT P	0 (industry standard C)
ST 01 DICHT F	ST 01 DICHT P	1 (industry standard B)
ST 03 DICHT F	ST 03 DICHT P	3 (DIN/EN-A)

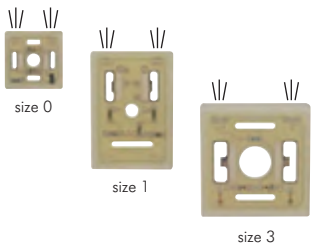
type flat seal (Size 1) | type profile seal (Size 1)

Light emitting seals for standard connectors

Application: The glowing seal is inserted between the standard connector and magnetic coil in place of the usual seal to display the switching status of the valve. It is equipped with reverse polarity protection and a protection circuit with a green LED. The LED is positioned right opposite the safety contact.

Type 12-24V AC/DC	Type 230V AC/DC*	Type 115V AC/DC	Suitable for plug size	Dimensions
LD ST00 24V	LD ST00 230V	LD ST00 115V*	0 (industry standard C)	15.5 x 15.5 x 1.9
LD ST01 24V	LD ST01 230V	LD ST01 115V	1 (industry standard B)	21.0 x 28.5 x 2.1
LD ST03 24V	LD ST03 230V	LD ST03 115V	3 (DIN/EN-A)	27.5 x 27.5 x 2.0

* without protection circuit



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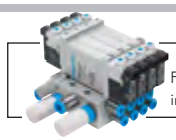
Pneumatic valves - Eco-Line



FESTO
Festo valves can be found in our Online Shop

3/2-, 5/2- and 5/3-way pneumatic valves

Materials: Body and slider: Aluminium, seals: NBR, pilot: Polyamide
Temperature range: -5°C to max. +60°C
Operating pressure: 1.5 - 8 bar
Medium: Oiled and unoiled filtered compressed air
Service life: Approx. 12 million switching cycles

3/2-way pneumatic valves G 1/8" — Model series RV10

NC/NO

Pulse valve

Type	Basic setting	Thread	Flow	Symbol
RV 3211-06 A	Closed (NC)	G 1/8"	500 l/min.	
RV 3211-06H A	Open (NO)	G 1/8"	500 l/min.	
RV 3212-06 A	Pulse valve	G 1/8"	500 l/min.	

3/2-way pneumatic valves G 1/4" — Model series RV20

NC/NO

Pulse valve

Type	Basic setting	Thread	Flow	Symbol
RV 3221-08 A	Closed (NC)	G 1/4" (pilot G 1/8")	800 l/min.	
RV 3221-08H A	Open (NO)	G 1/4" (pilot G 1/8")	800 l/min.	
RV 3222-08 A	Pulse valve	G 1/4" (pilot G 1/8")	800 l/min.	

3/2-way pneumatic valves G 1/4" — Model series RV30

NC/NO

Pulse valve

Type	Basic setting	Thread	Flow	Symbol
RV 3231-08 A	Closed (NC)	G 1/4" (pilot G 1/8")	1150 l/min.	
RV 3231-08H A	Open (NO)	G 1/4" (pilot G 1/8")	1150 l/min.	
RV 3232-08 A	Pulse valve	G 1/4" (pilot G 1/8")	1150 l/min.	

3/2-way pneumatic valves G 1/2" — Model series RV40

NC/NO

Pulse valve

Type	Basic setting	Thread	Flow	Symbol
RV 3241-15 A	Closed (NC)	G 1/2" (pilot G 1/8")	2250 l/min.	
RV 3241-15H A	Open (NO)	G 1/2" (pilot G 1/8")	2250 l/min.	
RV 3242-15 A	Pulse valve	G 1/2" (pilot G 1/8")	2250 l/min.	

5/2-way and 5/3-way pneumatic valves G 1/8" — Model series RV10

Spring return

Pulse valve

5/3-way valve

Type	Function	Thread	Flow	Symbol
5/2-way				
RV 5211-06 A	Spring return	G 1/8"	500 l/min.	
RV 5212-06 A	Pulse valve	G 1/8"	500 l/min.	
5/3-way				
RV 5312-06C A	Centre position closed	G 1/8"	450 l/min.	
RV 5312-06E A	Centre position vented	G 1/8"	450 l/min.	
RV 5312-06P A	Centre position ventilated	G 1/8"	450 l/min.	

5/2-way and 5/3-way pneumatic valves G 1/4" — Model series RV20

Spring return

Pulse valve

5/3-way valve

Type	Function	Thread	Flow	Symbol
5/2-way				
RV 5221-08 A	Spring return	G 1/4" (pilot & exhaust G 1/8")	800 l/min.	
RV 5222-08 A	Pulse valve	G 1/4" (pilot & exhaust G 1/8")	800 l/min.	
5/3-way				
RV 5322-08C A	Centre position closed	G 1/4" (pilot & exhaust G 1/8")	600 l/min.	
RV 5322-08E A	Centre position vented	G 1/4" (pilot & exhaust G 1/8")	600 l/min.	
RV 5322-08P A	Centre position ventilated	G 1/4" (pilot & exhaust G 1/8")	600 l/min.	

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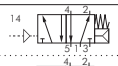
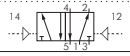
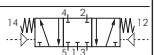
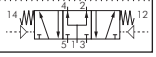
5/2-way and 5/3-way pneumatic valves G 1/4" — Model series RV30

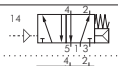
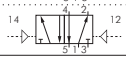
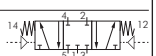
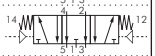
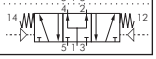
Type	Function	Thread	Flow	Symbol
5/2-way				
RV 5231-08 A	Spring return	G 1/4" (pilot G 1/8")	1150 l/min.	
RV 5232-08 A	Pulse valve	G 1/4" (pilot G 1/8")	1150 l/min.	
5/3-way				
RV 5332-08C A	Centre position closed	G 1/4" (pilot G 1/8")	850 l/min.	
RV 5332-08E A	Centre position vented	G 1/4" (pilot G 1/8")	850 l/min.	
RV 5332-08P A	Centre position ventilated	G 1/4" (pilot G 1/8")	850 l/min.	

Federrückstellung

Impulsventil

5/3-Wege Ventil

5/2-way and 5/3-way pneumatic valves G 1/2" — Model series RV40

Type	Function	Thread	Flow	Symbol
5/2-way				
RV 5241-15 A	Spring return	G 1/2" (pilot G 1/8")	2250 l/min.	
RV 5242-15 A	Pulse valve	G 1/2" (pilot G 1/8")	2250 l/min.	
5/3-way				
RV 5342-15C A	Centre position closed	G 1/2" (pilot G 1/8")	1350 l/min.	
RV 5342-15E A	Centre position vented	G 1/2" (pilot G 1/8")	1350 l/min.	
RV 5342-15P A	Centre position ventilated	G 1/2" (pilot G 1/8")	1350 l/min.	

Federrückstellung

Impulsventil

5/3-Wege Ventil

Multiple manifolds — for model series RV10 - RV40

Materials: Body: Aluminium, seals: NBR
Supply volume: Basic body with screws and seals (please order valves separately)

Type for 3/2-way valves	Type for 5/2- and 5/3-way valves	Description
For model series V10		
V 31-**	V 51-**	Multiple manifold
V 31-BP	V 51-BP	Blind plate* to close not required connecting points
V 31-REP	V 51-REP	Replacement seal incl. screws for valve assembly
For model series V20		
V 32-**	V 52-**	Multiple manifold
V 32-BP	V 52-BP	Blind plate* to close not required connecting points
V 32-REP	V 52-REP	Replacement seal incl. screws for valve assembly
For model series V30		
V 33-**	V 53-**	Multiple manifold
V 33-BP	V 53-BP	Blind plate* to close not required connecting points
V 33-REP	V 53-REP	Replacement seal incl. screws for valve assembly
For model series V40		
V 34-**	V 54-**	Multiple manifold
V 34-BP	V 54-BP	Blind plate* to close not required connecting points
V 34-REP	V 54-REP	Replacement seal incl. screws for valve assembly

* incl. screws, without seal, ** please enter number of stations (2, 4, 6, 8, 10, 12, 14)

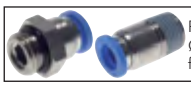
for 3/2-way valves

for 5/2-Wege and 5/3-way valves

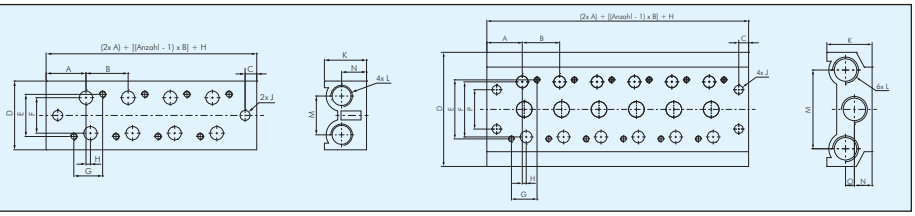
☞ **Order example:** V 31- **

Standard type

Number of required stations:
2 stations . . . . . -2
4 stations . . . . . -4
6 stations . . . . . -6
Up to 14 stations . . . . . -14


Push-in fittings
Ø 3 - 32 mm
from page 24

Dimensions can be found in our Online Shop



Many additional products and sizes are available in our **Online Shop!**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hand lever valves Eco-Line

Especially good value!

3/2-, 5/2- and 5/3-way hand lever valves — Model series VH10 - VH40

Materials: Body and slider: Aluminium, seals: NBR
Temperature range: -5°C to max. +60°C
Operating pressure: 0 - 8 bar
Medium: Oiled and unoiled filtered compressed air

3/2-way hand lever valves — Model series VH

Type	Model series	Thread	Flow
With spring return			
H 321-06 S	VH10	G 1/8"	500 l/min.
H 322-08 S	VH20	G 1/4"	800 l/min.
H 324-15 S	VH40	G 1/2"	2250 l/min.
With detend			
H 321-06	VH10	G 1/8"	500 l/min.
H 322-08	VH20	G 1/4"	800 l/min.
H 324-15	VH40	G 1/2"	2250 l/min.

5/2-way hand lever valves — Model series VH

Type	Model series	Thread	Flow
With spring return			
H 521-06 S	VH10	G 1/8"	500 l/min.
H 522-08 S	VH20	G 1/4" (exhaust G 1/8")	800 l/min.
H 524-15 S	VH40	G 1/2"	2250 l/min.
With detend			
H 521-06	VH10	G 1/8"	500 l/min.
H 522-08	VH20	G 1/4" (exhaust G 1/8")	800 l/min.
H 524-15	VH40	G 1/2"	2250 l/min.

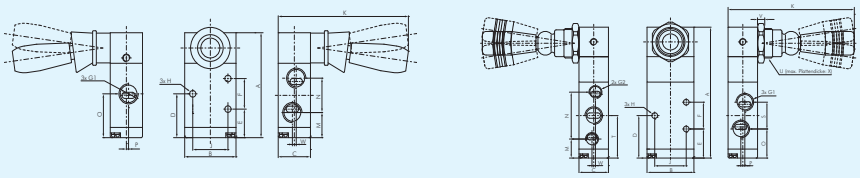
5/3-way hand lever valves — Model series VH

Type	Model series	Thread	Flow
Centre position closed, with spring return			
H 531-06 CS	VH10	G 1/8"	450 l/min.
H 532-08 CS	VH20	G 1/4" (exhaust G 1/8")	600 l/min.
H 534-15 CS	VH40	G 1/2"	1350 l/min.
Centre position closed, with detend			
H 531-06 C	VH10	G 1/8"	450 l/min.
H 532-08 C	VH20	G 1/4" (exhaust G 1/8")	600 l/min.
H 534-15 C	VH40	G 1/2"	1350 l/min.
Centre position vented, with spring return			
H 531-06 ES	VH10	G 1/8"	450 l/min.
H 532-08 ES	VH20	G 1/4" (exhaust G 1/8")	600 l/min.
H 534-15 ES	VH40	G 1/2"	1350 l/min.
Centre position vented, with detent			
H 531-06 E	VH10	G 1/8"	450 l/min.
H 532-08 E	VH20	G 1/4" (exhaust G 1/8")	600 l/min.
H 534-15 E	VH40	G 1/2"	1350 l/min.
Centre position ventilated, with spring return			
H 531-06 PS	VH10	G 1/8"	450 l/min.
H 532-08 PS	VH20	G 1/4" (exhaust G 1/8")	600 l/min.
H 534-15 PS	VH40	G 1/2"	1350 l/min.
Centre position ventilated, with detend			
H 531-06 P	VH10	G 1/8"	450 l/min.
H 532-08 P	VH20	G 1/4" (exhaust G 1/8")	600 l/min.
H 534-15 P	VH40	G 1/2"	1350 l/min.

FESTO
Festo valves can be found in our Online Shop

Dimensions can be found in our Online Shop

Dimensions can be found in our **Online Shop!**



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

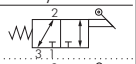
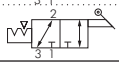
3/2-way hand lever valves

Materials: Body and slider: Aluminium, seals: NBR
Temperature range: -15°C to max. +60°C
Operating pressure: -0.95 to 10 bar
Media: Oiled and unoiled filtered compressed air

Dimensions can be found in the item details in our Online Shop

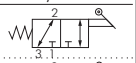
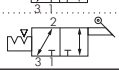
3/2-way hand lever valves G 1/8" — Model series XMV 100

Nominal width: 5 mm

Type	Function	Thread	Flow	Symbol
XMV 110	Spring return	G 1/8"	550 l/min.	
XMV 120	Detend	G 1/8"	550 l/min.	

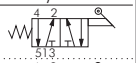
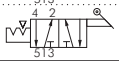
3/2-way hand lever valves G 1/4" — Model series XMV 200

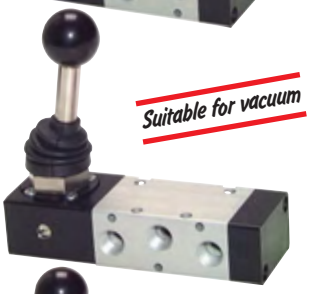
Nominal width: 7.5 mm

Type	Function	Thread	Flow	Symbol
XMV 210	Spring return	G 1/4"	1100 l/min.	
XMV 220	Detend	G 1/4"	1100 l/min.	

5/2-way hand lever valves G 1/8" — Model series XMV 1000

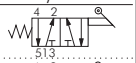
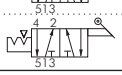
Nominal width: 5 mm

Type	Function	Thread	Flow	Symbol
XMV 1110	Spring return	G 1/8"	550 l/min.	
XMV 1220	Detend	G 1/8"	550 l/min.	



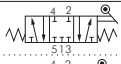
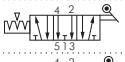
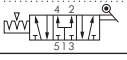
5/2-way hand lever valves G 1/4" — Model series XMV 2000

Nominal width: 7.5 mm

Type	Function	Thread	Flow	Symbol
XMV 2110	Spring return	G 1/4"	1100 l/min.	
XMV 2220	Detend	G 1/4"	1100 l/min.	

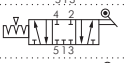
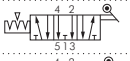
5/3-way hand lever valves G 1/8" — Model series XMV 1000

Nominal width: 5 mm

Type	Function	Centre position	Thread	Flow	Symbol
XMV 1310	Spring return	Closed	G 1/8"	550 l/min.	
XMV 1320	Detend	Closed	G 1/8"	550 l/min.	
XMV 1410	Spring return	Vented	G 1/8"	550 l/min.	
XMV 1420	Detend	Vented	G 1/8"	550 l/min.	
XMV 1510	Spring return	Ventilated	G 1/8"	550 l/min.	
XMV 1520	Detend	Ventilated	G 1/8"	550 l/min.	

5/3-way hand lever valves G 1/4" — Model series XMV 2000

Nominal width: 7.5 mm

Type	Function	Centre position	Thread	Flow	Symbol
XMV 2310	Spring return	Closed	G 1/4"	1100 l/min.	
XMV 2320	Detend	Closed	G 1/4"	1100 l/min.	
XMV 2410	Spring return	Vented	G 1/4"	1100 l/min.	
XMV 2420	Detend	Vented	G 1/4"	1100 l/min.	
XMV 2510	Spring return	Ventilated	G 1/4"	1100 l/min.	
XMV 2520	Detend	Ventilated	G 1/4"	1100 l/min.	

Dimensions can be found in the item details in our Online Shop

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Axial hand lever valves Eco-Line

3/2-, 5/2-way axial hand lever valves — Model series VL10 - VL40

Materials: Body and slider: Aluminium, seals: NBR
Temperature range: -5°C to max. +60°C
Operating pressure: 0 - 8 bar
Medium: Oiled and unoiled filtered compressed air

3/2-way axial hand lever valves — Model series VL

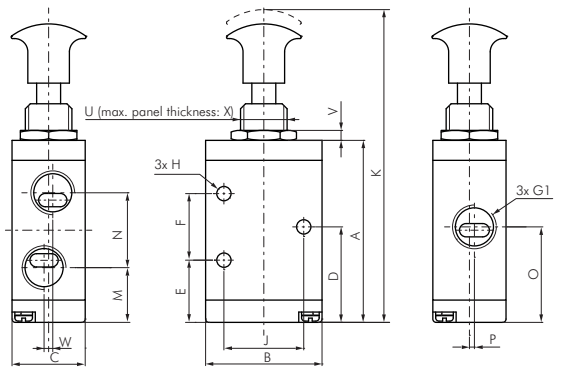
Type	Model series	Thread	Flow
With spring return			
L 321-06 S	VL10	G 1/8"	500 l/min.
L 322-08 S	VL20	G 1/4"	800 l/min.
L 324-15 S	VL40	G 1/2"	2250 l/min.
With detend			
L 321-06	VL10	G 1/8"	500 l/min.
L 322-08	VL20	G 1/4"	800 l/min.
L 324-15	VL40	G 1/2"	2250 l/min.

5/2-way axial hand lever valves — Model series VL

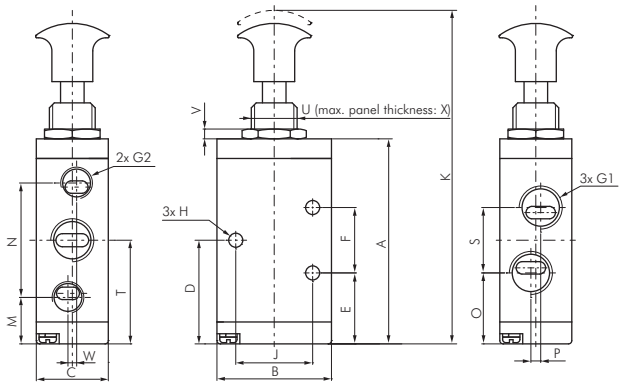
Type	Model series	Thread	Flow
With spring return			
L 521-06 S	VL10	G 1/8"	500 l/min.
L 522-08 S	VL20	G 1/4" (exhaust G 1/8")	800 l/min.
L 524-15 S	VL40	G 1/2"	2250 l/min.
With detend			
L 521-06	VL10	G 1/8"	500 l/min.
L 522-08	VL20	G 1/4" (exhaust G 1/8")	800 l/min.
L 524-15	VL40	G 1/2"	2250 l/min.

Dimensions 3/2- and 5/2-way axial hand lever valves — Model series VL10 - VL40

3/2-way axial hand lever valves

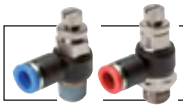


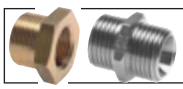
5/2-way axial hand lever valves



Type	Model series	A	B	C	D	E	F	G1	G2	H	J	K	M	N	O	P	S	T	U	V	W	X
3/2-way valve																						
L 321-06 (S)	VL10	44.7	27	18	23.7	16.7	14	G 1/8"	---	3.1	19	85	14.7	16	23.7	1	---	---	M 14 x 1	3	2	8
L 322-08 (S)	VL20	54.7	35	22	28.7	18.7	20	G 1/4"	---	4.3	24	94	16.5	22.5	28.7	1.5	---	---	M 14 x 1	3	0	8
L 324-15 (S)	VL40	87.5	50	34	45	31	28	G 1/2"	---	5.5	36	141	29.3	31.5	45	2	---	---	M 22 x 1.5	5	0	9.5
5/2-way valve																						
L 521-06 (S)	VL10	55.7	27	18	28.2	21.2	14	G 1/8"	G 1/8"	3.3	19	96	14.2	28	20.2	3	16	28.2	M 14 x 1	3	2	8
L 522-08 (S)	VL20	62.7	35	22	31.7	21.7	20	G 1/4"	G 1/8"	4.3	24	102	14.2	35	21.7	3	20	31.7	M 14 x 1	3	0	8
L 524-15 (S)	VL40	111.5	50	34	57	43	28	G 1/2"	G 1/2"	5.5	36	165	25.5	63	39	4	36	57	M 22 x 1.5	5	0	9.5

Push-in fittings Ø 4 - 32 mm from page 24


One-way control valves from page 440


Threaded fittings from page 102

Cylinder from page 460

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

2/2-, 3/2- and 4/2-way tilt lever valves

Materials: Body: Brass nickel-plated, internal parts: Brass/stainless steel, seal: NBR
Temperature range: -5°C to +70°C
Operating pressure: 0 to 10 bar (M5: 8 bar)
Media: Filtered compressed air, neutral gases
Required mounting hole for panel mounting: Ø 12.0 mm, maximum sheet metal thickness: 4 mm

Advantages:
- Economical price
- Extensive operating options
- Simple, quick assembly of a circuit

2/2-way and 3/2-way tilt lever valves

Application: To actuate **single acting** cylinders, screw the 3/2-way valve (K 3...) directly in the cylinder.

2/2-way and 3/2-way valves with M 5 threads

Type 2/2-way	Type 3/2-way	1 (input) thread female	2 (output) thread female	3 (venting) thread female
K 25	K 35	M5	M5	M5

2/2-way and 3/2-way valves with CK connection

Type 2/2-way[1]	Type 3/2-way pressure input: banjo	Type 3/2-way pressure input: thread	Hose connection Ø external x internal	Screw-in thread (MT)
K 21864	K 31864	KO 31864	6 x 4	G 1/8"
K 21886	K 31886	KO 31886	8 x 6	G 1/8"
K 21464	K 31464	KO 31464	6 x 4	G 1/4"
K 21486	K 31486	KO 31486	8 x 6	G 1/4"
K 214108	K 314108	KO 314108	10 x 8	G 1/4"

2/2-way and 3/2-way valves with push-in fitting

Type 2/2-way[1]	Type 3/2-way pressure input: banjo	Type 3/2-way pressure input: thread	Push-in hose Ø external	Screw-in thread (MT)
K 21804	K 31804	KO 31804	4	G 1/8"
K 21806	K 31806	KO 31806	6	G 1/8"
K 21406	K 31406	KO 31406	6	G 1/4"
K 21408	K 31408	KO 31408	8	G 1/4"
K 214010	K 314010	KO 314010	10	G 1/4"

2/2-way and 3/2-way valves with female threads

Type 2/2-way[1]	Type 3/2-way pressure input: banjo	Type 3/2-way pressure input: thread	Thread female	Screw-in thread (MT)
K 21818	K 31818	KO 31818	G 1/8"	G 1/8"
K 21414	K 31414	KO 31414	G 1/4"	G 1/4"

[1] choice of compressed air supply at the screw-in thread or banjo.

4/2-way tilt lever valves

Application: To actuate **double-acting** cylinders, use the valve directly in a connection of the cylinder. Using the hose, connect the upper banjo with the other connection of the cylinder. The valve is supplied with compressed air by means of the lower banjo.

4/2-way valves with CK connection

Type	Hose connection Ø external x internal	Screw-in thread (MT)
K 41464	6 x 4	G 1/4"
K 41486	8 x 6	G 1/4"
K 414108	10 x 8	G 1/4"

type with CK connection

4/2-way valves with push-in fitting

Type	Push-in hose Ø external	Screw-in thread (MT)
K 41406	6	G 1/4"
K 41408	8	G 1/4"
K 414010	10	G 1/4"

4/2-way valves with thread female

Type	Thread female	Screw-in thread (MT)
K 41414	G 1/4"	G 1/4"

type with push-in fittings

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Limit switches

3/2-way Lug | 3/2-way Roller lever

5/2-way Lug | 5/2-way Roller lever

3/2- and 5/2-way limit switches — Eco-Line

Materials: Body and slider: Aluminium, seals: NBR
Temperature range: -5°C to max. +60°C
Operating pressure: 0 - 8 bar
Flow: 800 l/min
Media: Oiled and unoiled filtered compressed air

Type	Actuation	Thread	Symbol
3/2-way			
M 322-S7	Lug	G 1/4"	
M 322-S2	Roller lever	G 1/4"	
5/2-way			
M 522-S7	Lug	G 1/4" (exhaust G 1/8")	
M 522-S2	Roller lever	G 1/4" (exhaust G 1/8")	

type ER 18 510

type E 18 510

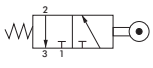
type EL 18 510

5/2-way limit switches

Materials: Body: Aluminium anodised, internal parts: Stainless steel, brass and aluminium, lever: Aluminium, Plunger and roller: Stainless steel and plastic
Temperature range: -10°C to max. +70°C
Media: Oiled and unoiled filtered compressed air
Nominal width: 4 mm

Type	Version	Connection	Op. pressure	Flow	Actuating force*	Symbol
E 18 510	With lug	G 1/8"	0 - 12 bar**	320 l/min.	28 N	
ER 18 510	With roller	G 1/8"	0 - 12 bar**	320 l/min.	18 N	
EL 18 510	With roller op. with free return	G 1/8"	0 - 12 bar**	320 l/min.	18 N	

* at 6 bar, ** vacuum upon request



3/2-way roller valves, push-in fittings 4 mm

Temperature range: -10°C to max. +60°C
Materials: Body: Plastic, seals: NBR, lever: Steel, roller: Plastic

Type	Hose connection	Nominal width	Flow	Operating pressure	Base position	Actuating force at 8 bar
ER S4	4 mm	2	45 l/min.	1.5 - 8 bar	Closed	1 N

TIP *Type EF 18 310 has an outstanding value!*

Spring pin valves

Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled filtered compressed air
Nominal width: 5 mm (type EF 25 310: 2 mm)

Type	Function	Connection	Op. pressure	Flow	Actuating force*	Symbol
EF 25 310[1)]	3/2-way (NC)	M 5	2 - 10 bar	76 l/min.	0.05 N	
EF 18 310 *Outstanding value!*	3/2-way (NC)	G 1/8"	2.5 - 10 bar	550 l/min.	0.6 N	
EF 18 510	5/2-way	G 1/8"	2.5 - 10 bar	550 l/min.	0.6 N	
Replacement parts						
EF 25 FEDER		Replacement spring pin for type EF 25 310				
EF 18 FEDER		Replacement spring pin for type EF 18 310 and EF 18 510				

* at 6 bar
[1)] low own air consumption and very low actuating force

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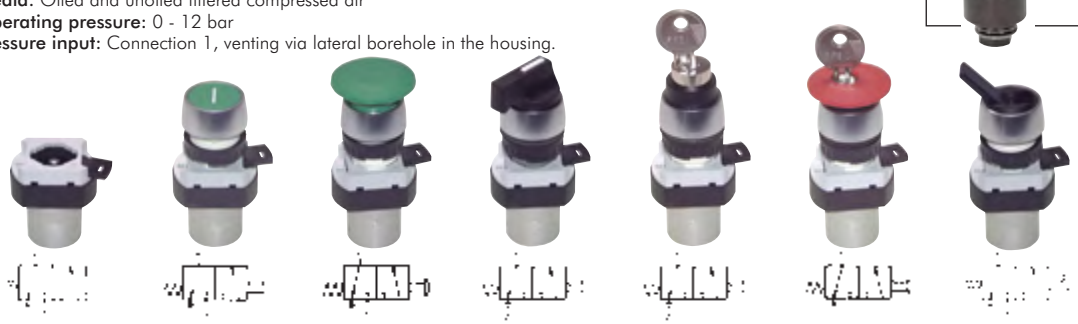
3/2-way button activated valves M5 for panel mounting Ø 22.5 mm — Model series T 22

Materials: Body: Aluminium anodised, internal parts: Aluminium, brass and stainless steel, seals: NBR
Temperature range: -10°C to max +70°C
Flow: 80 l/min (NW 2)
Media: Oiled and unoiled filtered compressed air
Operating pressure: 0 - 12 bar
Pressure input: Connection 1, venting via lateral borehole in the housing.

Round sheet metal punches on page 545



Type **basic body**	Type **pushbutton**	Type **mushroom button**	Type **toggle grip**	Type **key switch**	Type **stop button**	Type **tumbler switch**
T 30 310	T 22 311 black T 22 311 red* T 22 311 green** T 22 311 yellow T 22 311 blue	T 22 312 black T 22 312 red T 22 312 green	T 22 313	T 22 314	T 22 315	T 22 316
	Actuating force: 13 N	Actuating force: 13 N	Actuating force: 26 N	Actuating force: 24 N	Actuating force: 17 N	Actuating force: 6 N

* with a white circle (OFF)
** with white stripe (ON)

5/2-way button activated valves M 5 for panel mounting Ø 22.5 mm — Model series T 22

Materials: Body: Aluminium anodised, internal parts: Aluminium, brass and stainless steel, seals: NBR/plastic
Temperature range: -10°C to max +70°C
Flow: 100 l/min (NW 2.4)
Media: Oiled and unoiled filtered compressed air
Operating pressure: 0 - 12 bar
Pressure input: Arbitrary

Dimensions can be found in the item details in our Online Shop!

Type **basic body**	Type **pushbutton**	Type **mushroom button**	Type **toggle grip**	Type **key switch**	Type **stop button**	Type **tumbler switch**
T 30 510	T 22 511 black T 22 511 red* T 22 511 green** T 22 511 yellow T 22 511 blue	T 22 512 black T 22 512 red T 22 512 green	T 22 513	T 22 514	T 22 515	T 22 516
	Actuating force: 23 N	Actuating force: 23 N	Actuating force: 25 N	Actuating force: 34 N	Actuating force: 27 N	Actuating force: 12 N

* with a white circle (OFF)
** with white stripe (ON)

3/2- and 5/2-way buttons and rotary switches — Eco-Line

Switch panel borehole: 30.5 mm

Type	Actuation	Colours	Thread	Symbol
3/2-way				
M 322-S6-**	Mushroom button	red, green, black	G 1/4"	
M 322-S5-**	Pushbutton	red, green, black	G 1/4"	
M 322-S1	Rotary switch	black	G 1/4"	
M 322-S3	Emerg. stop button	red	G 1/4"	
5/2-way				
M 522-S6-ROT	Mushroom button	red	G 1/4" (exhaust G 1/8")	
M 522-S5-ROT	Pushbutton	red	G 1/4" (exhaust G 1/8")	
M 522-S1	Rotary switch	black	G 1/4" (exhaust G 1/8")	
M 522-S3	Emerg. stop button	red	G 1/4" (exhaust G 1/8")	

5/2-way Mushroom button

5/2-way Pushbutton

5/2-way Rotary switch

5/2-way Emerg. stop button

☞ **Order example:** M 322-S6- **

Standard type

Available colours of the actuators:
Red . . . . . -ROT
Green . . . . . -GRUN
Black . . . . . -SCHWARZ

body 3/2-way valve

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Foot valves and foot switches

Especially good value!

5/2- and 5/3-way foot valves — Model series FT

Materials: Valve body: Aluminium, foot pedal: Aluminium, seals: NBR
Temperature range: -10°C to max. +60°C
Operating pressure: 1.5 - 8 bar (type 1/2": 0 - 8 bar)
Media: Oiled and unoiled filtered compressed air

1/2"

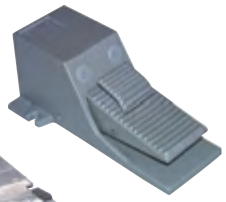
Type spring return	Type detend	Thread	Function	Flow	Symbol
FT410S	---	G 1/4" (venting G 1/8")	5/2-way	980 l/min.	
FT510S	---	G 3/8" (venting G 1/4")	5/2-way	1960 l/min.	
FT610S	FT620D	G 1/2"	5/2-way	5000 l/min.	
FT630S	FT630D	G 1/2"	5/3-way centre position closed	5000 l/min.	
FT640S	FT640D	G 1/2"	5/3-way centre position vented	5000 l/min.	
FT650S	FT650D	G 1/2"	5/3-way centre position breathing	5000 l/min.	

Foot valves

Temperature range: -10°C to max. +60°C
Operating pressure: 2.5 - 10 bar (model series heavy duty: 0 - 10 bar)
Media: Oiled and unoiled filtered compressed air

standard

solid



Heavy Duty

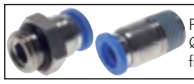
rocker valve

Type spring return	Type detend	Thread	Function	Flow	Symbol
Model series standard (valve: aluminium, bodies: plastic, foot pedal: plastic)					
F 514	FMR 514	G 1/4"	5/2-way	650 l/min.	
Model series solid (valve: aluminium, bodies: plastic, foot pedal: aluminium)					
F 514 LO	FMR 514 LO	G 1/4"	5/2-way	800 l/min.	
Model series Heavy Duty (valve: aluminium, bodies: aluminium, foot pedal: aluminium)					
F 314	FMR 314	G 1/4"	3/2-way	600 l/min.	
F 414	FMR 414	G 1/4"	4/2-way	600 l/min.	
Rocker valve (valve: aluminium, bodies: Plastic foot pedal: aluminium)					
FG 5314	FGMR 5314	G 1/4"	5/3-way (centre position closed)	1200 l/min.	
FO 5314	FOMR 5314	G 1/4"	5/3-way (centre position vented)	1200 l/min.	

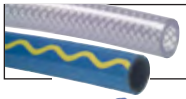
Foot switches

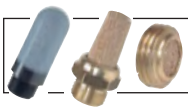
Materials: Foot pedal: Plastic, housing and protective hood: Aluminium die casting
Temperature range: -30°C to max. +80°C
Rated operating voltage: 240 V
Conventional thermal current: 10 A
Protection class: IP 65
Cable inlet: M 20 x 1.5

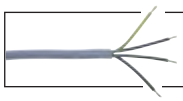
Type	Description
FSE	Electric floor control switch, 1 NC contact, 1 NO contact, industrial version

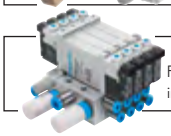

Push-in fittings Ø 3 - 32 mm from page 24

Threaded fittings from page 102


Compressed air and water hoses from page 208


Silencers from page 436


Flexible control cables on page 641


FESTO Festo valves can be found in our Online Shop

Screw connections with union nuts from page 53

PU, PA, PTFE and PE hoses from page 192

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Pilot operated check valves MSV

One-way control valves with pilot operated check valve on page 469

Materials: Body and sleeve: Brass nickel-plated, seals: NBR, holding claws: Stainless steel (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: 0.5 - 10 bar
Media: Oiled and unoiled compressed air, neutral and non-hazardous gasses
Function: The check valve function can be used for a brief intermediate stop of an actuator. If a control signal is applied to the actuating connection, the flow between banjo and male threads is possible in both directions. If there is no control signal, the valve locks the flow from the male thread to the banjo (venting the actuator), thus causing it to stop briefly. The flow from the banjo to the male threads (towards the actuator) is unaffected by the control signal.

Type **without manual override**	G_2 actuation (FT)	Type **with manual override**	D_2 actuation (push-in fitting)	G_1 Screw-in thread	D Banjo connection
Banjo with female threads					
STOP 18 MSV	M 5	STOP 18 HN MSV	4	G 1/8"	G 1/8"
STOP 14 MSV	G 1/8"	STOP 14 HN MSV	4	G 1/4"	G 1/4"
Banjo with push-in fitting					
STOP 184 MSV	M 5	STOP 184 HN MSV	4	G 1/8"	4
STOP 186 NSV	M 5	STOP 186 HN NSV	4	G 1/8"	6
STOP 188 MSV	M 5	STOP 188 HN NSV	4	G 1/8"	8
STOP 146 MSV	G 1/8"	STOP 146 HN MSV	4	G 1/4"	6
STOP 148 MSV	G 1/8"	STOP 148 HN MSV	4	G 1/4"	8
STOP 1410 MSV	G 1/8"	STOP 1410 HN MSV	4	G 1/4"	10
STOP 1412 MSV	G 1/8"	STOP 1412 HN MSV	4	G 1/4"	12

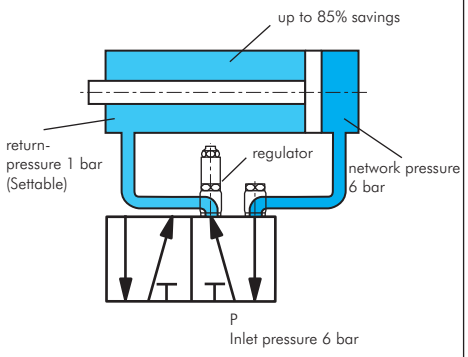
Air-Saving valves - pressure regulator with check valves

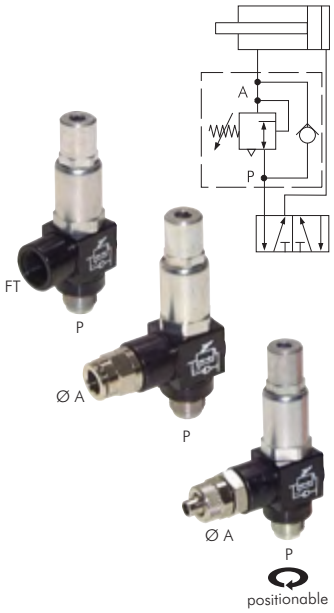
TIP ... save up to 85% air!

Temperature range: -10°C to max. +70°C
Operating pressure: 1 - 16 bar
Setting pressure: 1 - 8 bar
Media: Compressed air, neutral gases
Function:
- In many applications, the working pressure is only required in one direction. Consequently, significant air can be saved by reducing the reset pressure.
- The configured pressure also remains constant when the input pressure drops.
- If the primary pressure builds up from the thread side, the configured pressure will escape on the connection side. The compressed air can flow through a bypass in the opposing direction without a throttle. The pressure regulator can also be inserted behind a valve.

Type	P (MT)	FT	Ø A
Air-Saving valves with female threads			
RSV 18/i18	G 1/8"	G 1/8"	---
RSV 14/i14	G 1/4"	G 1/4"	---
RSV 38/i38	G 3/8"	G 3/8"	---
RSV 12/i12	G 1/2"	G 1/2"	---
Air-Saving valves with push-in fittings			
RSV 14/L4	R 1/4"	---	4
RSV 14/L6	R 1/4"	---	6
RSV 14/L8	R 1/4"	---	8
Air-Saving valves with hose connection			
RSV 14/RS4	R 1/4"	---	6 x 4
RSV 14/RS6	R 1/4"	---	8 x 6
RSV 14/RS8	R 1/4"	---	10 x 8

Application example as economy valve





Signal screw connections

Function: A pneumatic sensor fitting takes over the function of the limit switch (pneumatic or electric signal).
The screw connection is screwed into the input hole of a cylinder and scans the working pressure of the cylinder.
If the screw connection (figure 2) shows no pressure, the screw connection switches over from (P) 1 to (S) 5.
Operating pressure: 3 - 8 bar (PPM type: 3 - 10 bar)
Opening pressure: 0.6 bar (type PPL ...), 0.5 bar (type: PPE), 0.3 bar (type PPM ...)
Switching time: 3 ms
Electrical connection values (valid for type PPE ...): Max. 2 A, DC: 0-48V, AC: 250V 50Hz
Caution: The pneumatic sensor fitting can only determine that the cylinder no longer moves. This can be: a) in the end position or b) when the cylinder is prevented from moving. For a more accurate position request, please use the pneumatic cylinder switch (further up on this page)

Pneumatic signal	Signal connection	**Electric signal (changer)**	Cable length	Thread female/male
With threaded connection				
PPL 18	M 5	PPE 18	2 m	G 1/8"
PPL 14	M 5	PPE 14	2 m	G 1/4"
With push-in fitting				
PPM 18	4 mm	---	---	G 1/8"
PPM 14	4 mm	---	---	G 1/4"
PPM 38	4 mm	---	---	G 3/8"

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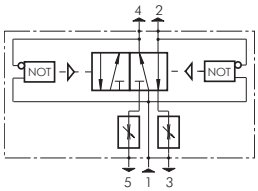
Oscillating valves/counters



Oscillating valves G 1/4" (stroke-controlled)

Temperature range: -10°C to max. +60°C
Operating pressure: 3 - 8 bar
Flow: 1300 l/min
Function: The oscillating valve generates oscillatory actions such as vibrations, tapping or dipping in connection with double acting cylinders. If input 1 is supplied with compressed air, the compressed air is alternately applied to outlets 4 and 2. **The valve switches over as soon as the cylinder travels to the end position or the line pressure rises.** The speed of the controlled cylinder and the stroke frequency are both set using the exhaust air flow controls. Limit switches are not required.

Type	Function	Thread
OS 514	5/2-way	G 1/4"

Dimensions can be found in the item details in our Online Shop

Especially good value!

Oscillating valves G 1/4" (time-controlled)

Temperature range: -10°C to max. +60°C
Operating pressure: 3 - 10 bar
Flow: 1100 l/min
Function: The oscillating valve generates oscillatory actions such as vibrations, tapping or dipping in connection with double acting cylinders. If input 1 is supplied with compressed air, the compressed air is alternately applied to outlets 4 and 2. **The valve switches over into a time-pulse (Forward and return strokes) that can be adjusted using 2 adjustment screws.** The speed of the controlled cylinder must be adjusted separately using the bi-directional flow control valves.

Type	Adjustable cycle time	Function	Thread
OS 514 B	0-15 seconds	5/2-way	G 1/4"

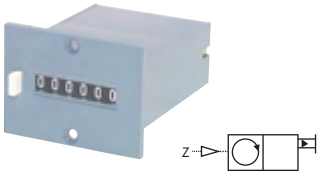
Binary reduction valves/Flip-Flop

Function: The valve switches following every 12 incoming signals (Z) - (Flip-Flop). The last switching position is maintained, even if the working pressure is off.

Signal to pilot entry	Connection 2 (A)	Connection 4 (B)
On	On	Off
Off	On	Off
On	Off	On
Off	Off	On
On	On	Off

Type	Function	Thread	Operating pressure	Control pressure	Signal duration	Temperature range
VLL 5 14	5/2-way	G 1/4" (pilot G 1/8")	2 - 10 bar	3 - 10 bar	Min. 10 ms	0 to +60°C

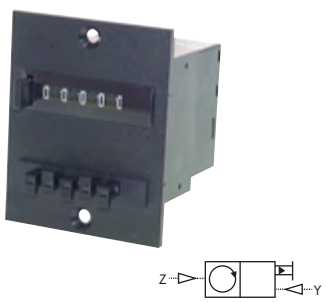
Dimensions can be found in the item details in our Online Shop



Cumulative counters - pneumatic

Function:
- Arriving signals are added.
- At the time of mechanical reset (using the key), the figure 000000 appears.
- Manual reset

Type	Display	Character height	Hose connection	Working pressure
PIZ	6 digit	4 mm	M 5	1.5 - 8 bar



Preset counters - pneumatic

Function:
- The counter subtracts pneumatic signals from a preselected number and on attaining "00000" a pneumatic output signal is emitted.
- Resetting takes place pneumatically or by pressing the cylindrical turning.

Type	Display	Character height	Hose connection	Working pressure
PEZ	5 digit	4 mm	M 5	2 - 8 bar

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Two-hand safety blocks

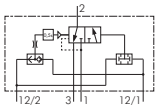
Materials: Body: Aluminium anodised, internal parts: Aluminium, brass and stainless steel, seals: Plastic and NBR
Temperature range: -10°C to max. +70°C (standard design: -10°C to max. +60°C)
Media: Oiled and unoiled filtered compressed air
Pressure input: Connection P (type SZ 18 310 B: air supply via control signals)

Function SZ: The valve switches when two input signals Z 1 and Z 2 are received within a span of 0.5 sec. On deleting one or both the signals, the piston is reset. The valve does not switch if the input signals are not received within 0.5 sec. To restart, both the signals must be deleted first.
Application SZ: For machines and devices that must be turned on using both hands (e.g. presses). Cylinders up to Ø 160 can be operated directly using valve SZ 14510 or SZS 14510.

Function SZS: In addition to the two signal inlets Z 1 and Z 2, this two hand control block also has the signal connection Y. Signal to Y switches the two hand control block like a normal 5/2-way valve.
Application SZS:
1. For machines and equipment that need to be turned on using both hands, however shortly before stroke-end switch to "detend". Both manual buttons can already be released before the stroke-end. Detend is turned on by the limit switch (signal to Y), and released by a time valve or pressure switch.
2. For machines and equipment that optionally can be turned on with both hands or one hand, or by means of a foot switch.

standard design

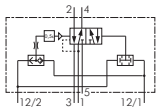
precision design



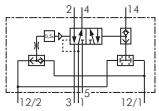
type SZ 18 310

Type	Thread	Nominal width	Flow	Operating pressure	Control pressure*	Control conn. 14 - 12
3/2-way (NC) precision design						
SZ 18 310	G 1/8"	4 mm	280 l/min.	3 - 10 bar	3 - 10 bar	G 1/8"
3/2-way (NC) standard design						
SZ 18 310 B	G 1/8"	2 mm	100 l/min.	3 - 8 bar	3 - 8 bar	G 1/8"
5/2-way						
SZ 14 510	G 1/4"	8 mm	1,300 l/min.	3 - 10 bar	3 - 10 bar	G 1/8"
5/2-way with detend connection (Y)						
SZS 14 510	G 1/4"	8 mm	1,300 l/min.	3 - 10 bar	3 - 10 bar	G 1/8"

* depends on working pressure



type SZ 14 510

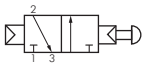


type SZS 14 510

3/2-way servo key return switches with "low actuating force"

Materials: Body: Aluminium anodised, internal parts: Aluminium, brass and stainless steel, seal: Plastic/NBR
Temperature range: -10°C to max. +70°C
Construction type and function:
- Pilot operated piston valve with low actuating force. If not activated, a small air quantity of approx. 2.5 l/min escapes from the pilot part.
- Pressure connection always at 1, outlet at 2, venting through a borehole on the surface of the valve.
- The surface within the four bases of the valve may not be covered.
- At actuation the valve switches from throughway 1 to 2.

Application:
- For turning on machines and equipment of all types, especially in pairs as two-hand indenting. With the small switch force of the Servo principle, a fatigue proof working is guaranteed in the continuous operation. The bracket around the button protects against accidental actuation.



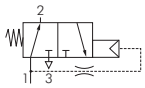
Type	Thread	Nominal width	Flow	Operating pressure	Switch force at 6 bar	Basic setting
ST 18 310	G 1/8"	3 mm	220 l/min.	3 - 10 bar	3.5 N	Closed

Signal interrupters

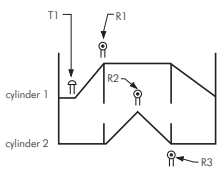
Materials: Body: Aluminium anodised, internal parts: Aluminium and stainless steel (standard design: brass), seals: Plastic and NBR
Temperature range: -10°C to max. +70°C (standard design: -10°C to max. +60°C)
Media: Oiled and unoiled compressed air
Function: This valve intercepts a continuous signal, so that the continuous signal at the input connection 1 generates only a short pulse at the outlet 2. A signal received at 1 flows to the outlet 2. After the pulse, the pressure generated in the valve switches over the piston. Connection 1 is blocked, outlet 2 vents after 3.

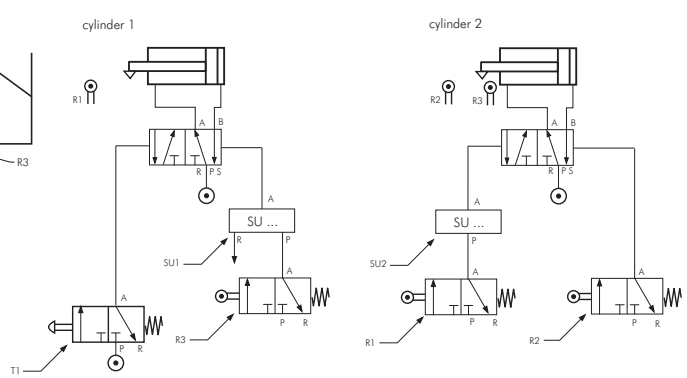
precision design

standard design



Type	Thread	Pulse length	Operating pressure
Precision design			
SU 25 310	M 5	Approx. 0.3 sec.	3 - 10 bar
SU 18 310	G 1/8"	Approx. 0.3 sec.	3 - 10 bar
Standard design			
SU 18 310 B	G 1/8"	0 - 10 sec. (adjustable)	2 - 10 bar



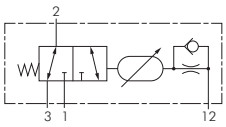


Push-in fittings Ø 3 - 32 mm from page 24

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Time valves/logic valves

3/2-way time valves (precision design) — 0.25 to 20 seconds

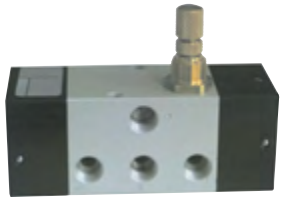


Materials: Body: Aluminium anodised, internal parts: Aluminium, brass and stainless steel, seals: Plastic and NBR
Temperature range: -10°C to max. +70°C
Media: Oiled and unoiled filtered compressed air
Pressure input: Connection P (1) (closed basic setting) or connection R (3) (open basic setting)
Function: This valve switches on after a delay. It can be used when closed in the idle position or when open in the idle position. Pressure connection at P (1) shows the function "Closed in idle position", while the pressure connection at R (3) shows the function "Open in idle position". In the idle position, the flow from R (3) to A (2), connection P (1) is blocked. After the set time elapses, a signal received at Z (12) switches the valve to flow from P (1) to A (2), R (3) is blocked. On deleting these signals, a spring immediately resets the piston. A connection of the signal conductor Z (12) to P (1) or R (3) is possible. It must be noted here that the signal conductor to the valve connection P (1) or R (3) is not longer than the signal conductor to Z (12).

Type	Thread	Nominal width	Flow	Operating pressure	Time range	Control conn. Z
VZ 25 310	M 5	3.2 mm	160 l/min.	3 - 10 bar	0.25 - 5 sec.	M 5
VZ 18 310	G 1/8"	6 mm	600 l/min.	3 - 10 bar	0.5 - 10 sec.	G 1/8"
VZ 18 310/20	G 1/8"	6 mm	600 l/min.	3 - 10 bar	1.0 - 20 sec.	G 1/8"

Dimensions can be found in the item details in our Online Shop

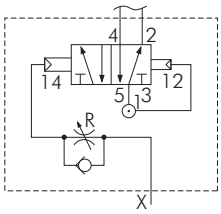
5/2-way time valves (standard design) — 1 to 10 seconds



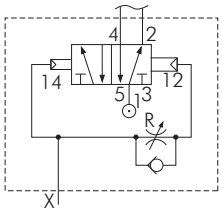
Materials: Body: Aluminium anodised, internal parts: Aluminium, brass and stainless steel, seals: NBR
Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled filtered compressed air
Pressure input: Connection 1
Function: Type VZ 15 812 B (reaction: delayed, backwash filter: immediately): A continuous signal at connection X triggers the switching of the valve according to the time set. If no signal is at connection X, then the valve switches back to the initial position.
Type VZ 18 513 B (reaction: immediate, backwash filter: delayed): A continuous signal at the connection X triggers an immediate switching of the valve. The valve switches back to the initial position according to the time set. If no signal is at connection X, then the valve also switches back to the initial position.

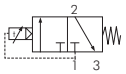
Type	Thread	Flow	Operating pressure	Time range	Function
VZ 18 512 B	G 1/8"	530 l/min.	3 - 10 bar	1 - 10 sec.	Reaction delayed
VZ 18 513 B	G 1/8"	530 l/min.	3 - 10 bar	1 - 10 sec.	Backwash filter delayed

type VZ 18 512 B



type VZ 18 513 B





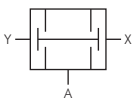
3/2-way time valves — 20 to 300 seconds

Materials: Plastic
Temperature range: 0°C to max. +60°C
Media: Oil-free compressed air
Function: If pressure is applied to connection 1, the time set starts to run. After the time set has expired, input 1 is switched to outlet 2. The resetting is carried out by interrupting the supply air at input 1.
Time adjustment: Continuously adjusted using the rotary knob

Type	Thread	Operating pressure	Time range
VZ 25 310/300	M 5	2 - 6 bar	20 - 300 sec.

Suitable for vacuum

precision design



standard design

AND valves

Materials: Body: Aluminium anodised, internal parts: Aluminium, brass and stainless steel, seals: Plastic and NBR
Temperature range: -10°C to max. +70°C (standard design: max. +60°C)
Media: Oiled and unoiled filtered compressed air
Operating pressure: -0.95 to 10 bar (standard design: 2 to 10 bar)
Function: At outlet A a signal appears only if a signal exists on both inlets at the same time. For different pressures, the lowest pressure will reach outlet A.
The AND member has no separate venting as a passive element. After deleting one or both input signals, ventilation occurs via the upstream signal members.

Warning! An AND-element does not replace a two hand control block! (see page 433).

Type	Thread	Nominal width	Flow
Precision design			
AN 25	M 5	3.2 mm	160 l/min.
AN 18	G 1/8"	4.0 mm	280 l/min.
Standard design			
AN 25 B	M 5	2.5 mm	100 l/min.
AN 18 B	G 1/8"	2.5 mm	100 l/min.

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

OR valves

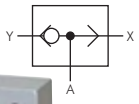
Materials: Body: Aluminium anodised, internal parts: Brass and stainless steel (standard design: brass and plastic), seals: NBR
Temperature range: -10°C to max. +70°C (standard design: max. +60°C)
Media: Oiled and unoiled filtered compressed air
Operating pressure: -0.95 to 10 bar (standard design: 2 to 10 bar)
Function: A signal appears at outlet A, only if on inlet X or Y there is a signal. If signals are positioned at both inlets, then the higher pressure will reach outlet A.
The OR member has no separate venting as a passive element. After deleting both input signals ventilation occurs via the upstream signal members.

Type	Connection	Nominal width	Flow
Precision design			
OR 25	M 5	3.2 mm	160 l/min.
OR 18	G 1/8"	4.0 mm	280 l/min.
OR 03	Push-in hose 4.3 x 3	2.5 mm	120 l/min.
OR 04	Push-in hose 6 x 4	3.0 mm	150 l/min.
Standard design			
OR 18 B	G 1/8"	6.5 mm	500 l/min.
OR 14 B	G 1/4"	8.0 mm	1,200 l/min.

Dimensions can be found in the item details in our Online Shop

Suitable for vacuum

precision design



standard design

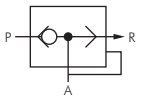
Quick exhaust valves

Precision design:
Materials: Body: Aluminium anodised, seals: NBR
Temperature range: -10°C to max. +70°C
Operating pressure: 0.5 to 10 bar
Media: Oiled and unoiled filtered compressed air

Standard design:
Materials: Body: Brass nickel-plated, seals: NBR/Polyurethane
Temperature range: -20°C to max. +70°C
Operating pressure: 1 to 10 bar
Media: Oiled and unoiled filtered compressed air
☞ **Optional:** FKM seal (-20°C to max. +150°C) **-V**

Function: These valves are used to vent the cylinders quickly and enhance the cylinder speed. For this, they are screwed directly on the cylinder using the connection A.
Working: The air flowing through the control valve can flow continuously from connection P to the connection A.
Exhaust: When the control valve switches over to venting, P becomes depressurised. The valve switches to flow from A to R and the air from the cylinder can be freely vented into the open.

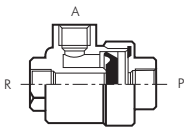
precision design



Warning! Only for use in cylinders where there is sufficient end position damping (adjustable cushion, shock absorber).
When using a silencer in connection R, this must be large enough to avoid dynamic pressure (we recommend using our silencer as of page 436).

Type	Connect. A	Connect. P	Connect. R	Breathing P → A	Venting A → R	Replacement diaphragms
Precision design						
SE 18	G 1/8"	G 1/8"	G 1/4"	600 l/min.	1,200 l/min.	---
SE 14	G 1/4"	G 1/4"	G 3/8"	1,200 l/min.	2,400 l/min.	---
SE 12	G 1/2"	G 1/2"	G 3/4"	2,800 l/min.	5,600 l/min.	---
Standard design						
SV 25	M5	M5	M5	220 l/min.	300 l/min.	SV 25 MEMBRANE
SV 18	G 1/8"	G 1/8"	G 1/8"	650 l/min.	1,100 l/min.	SV 18 MEMBRANE
SV 14	G 1/4"	G 1/4"	G 1/4"	1,200 l/min.	2,250 l/min.	SV 1438 MEMBRANE
SV 38	G 3/8"	G 3/8"	G 3/8"	1,200 l/min.	2,250 l/min.	SV 1438 MEMBRANE
SV 12	G 1/2"	G 1/2"	G 1/2"	3,200 l/min.	7,400 l/min.	SV 12 MEMBRANE
SV 34	G 3/4"	G 3/4"	G 3/4"	3,800 l/min.	14,000 l/min.	SV 34 MEMBRANE
SV 10	G 1"	G 1"	G 1"	6,280 l/min.	15,900 l/min.	SV 10 MEMBRANE

standard design



☞ **Order example:** SV 12 **

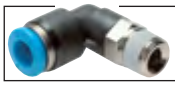
Standard type

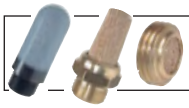
Designation for the option:
FKM seal (not for M5) . . . . . **-V**

PU, PA, PTFE and PE hoses from page 192

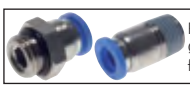
Hose terminal strip and sockets from page 247

Ball valves from page 280


FESTO Festo screwed connections can be found in our Online Shop


Silencers from page 436

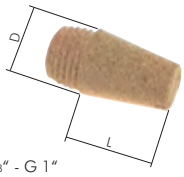
FESTO Festo valves can be found in our Online Shop


Push-in fittings Ø 3 - 32 mm from page 24

PU, PA, PTFE and PE hoses from page 192

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Silencers

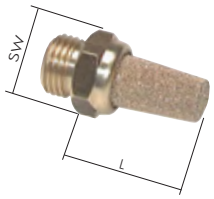


G 1/8" - G 1"

Silencers made of sintered bronze with sintered threads and slots

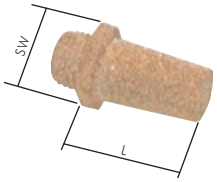
Type	Thread	D	L
SD 50*	M 5	8.5	15
SD 70*	M 7	10.0	15
SD 18	G 1/8"	11.0	16
SD 14	G 1/4"	14.0	19
SD 38	G 3/8"	18.0	25
SD 12	G 1/2"	24.0	32
SD 34	G 3/4"	29.5	52
SD 10	G 1"	35.5	60

* copper-plated thread, body without a slot



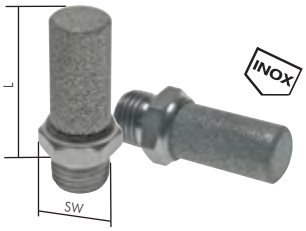
Silencers made of sintered bronze with brass threads

Type	Thread	SW	L
SD 18 MS	G 1/8"	13	18
SD 14 MS	G 1/4"	16	25
SD 38 MS	G 3/8"	19	33
SD 12 MS	G 1/2"	24	39
SD 34 MS	G 3/4"	30	47
SD 10 MS	G 1"	36	57



Silencers made of sintered bronze with hexagons

Type	Thread	SW	L
SDS 18	G 1/8"	13	22
SDS 14	G 1/4"	17	25
SDS 38	G 3/8"	22	26
SDS 12	G 1/2"	27	32
SDS 34	G 3/4"	32	40
SDS 10	G 1"	41	50
SDS 20	G 2"	70	59



Silencers made of stainless steel

Materials: Body: AISI 303, filter: AISI 304

☞ **Optional:** NPT thread **-NPT** (only for types SD 18 ES to SD 12 ES)

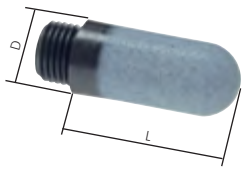
Type	Thread	SW	L
SD 50 ES	M 5	8	16
SD 18 ES*	G 1/8"	13	20
SD 14 ES*	G 1/4"	16	31
SD 38 ES*	G 3/8"	19	33
SD 12 ES*	G 1/2"	24	39
SD 34 ES	G 3/4"	30	46
SD 10 ES	G 1"	36	54

* optional NPT thread

☞ **Order example:** SD 18 ES **

Standard type

Designation for the options:
NPT thread* . . . . . .-NPT



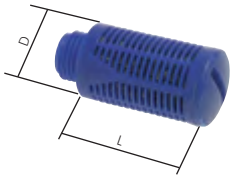
Silencers made of plastic (porous low pressure polyethylene)

Operating pressure: Max. 10 bar

Type	Thread	Ø D	L
U 50	M 5	6.5	18
U 70*	M 7	9.8	24
U 18	G 1/8"	12.5	29
U 14	G 1/4"	15.5	36
U 38	G 3/8"	18.5	57
U 12	G 1/2"	23.3	67
U 34	G 3/4"	38.5	115
U 10	G 1"	49.0	141

* special model

TIP *Self-cleaning by the granular filling!*



Silencers made of plastic with granular fillings

Operating pressure: Max. 6 bar

Type	Thread	Ø D	L
KU 18	G 1/8"	16.0	26
KU 14	G 1/4"	20.0	35
KU 38	G 3/8"	24.0	47
KU 12	G 1/2"	24.0	47
KU 34	G 3/4"	SW50	97
KU 10	G 1"	SW50	97

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Silencers with stainless steel wire meshes

Materials: Wire mesh: AISI 304
☞ **Optional:** NPT thread **-NPT**

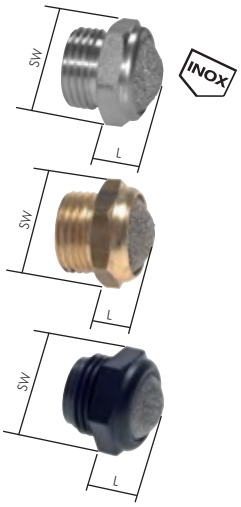
Type brass	Type brass nickel-plated	Type AISI 303 (INOX)	Type polyamide	Thread	SW	L
SDD 50	SDD 50 MSV	SDD 50 ES	---	M 5	8	7
SDD 18	SDD 18 MSV	SDD 18 ES	SDD 18 K	G 1/8"	13	9
SDD 14	SDD 14 MSV	SDD 14 ES	SDD 14 K	G 1/4"	16	11
SDD 38	SDD 38 MSV	SDD 38 ES	SDD 38 K	G 3/8"	19	12
SDD 12	SDD 12 MSV	SDD 12 ES	SDD 12 K	G 1/2"	24	12
SDD 34	SDD 34 MSV	SDD 34 ES	---	G 3/4"	30	16
SDD 10	SDD 10 MSV	SDD 10 ES	---	G 1"	36	16

☞ **Order example:** SDD 18 **

Standard type

Designation for the options:
NPT thread* . . . . . **-NPT**

* not type polyamide

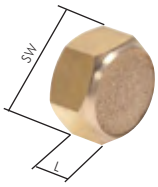


Silencers to countersink in female threads

Type	Thread	L
SD 18 F	G 1/8"	5
SD 14 F	G 1/4"	6
SD 38 F	G 3/8"	7
SD 12 F	G 1/2"	8
SD 34 F	G 3/4"	9
SD 10 F	G 1"	10

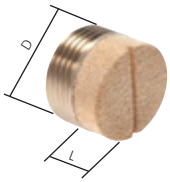
Silencers made of sintered bronze with female threads

Type	Thread	SW	L
SDi 50	M 5	8	8
SDi 18	G 1/8"	13	10
SDi 14	G 1/4"	16	11
SDi 38	G 3/8"	19	12
SDi 12	G 1/2"	24	13
SDi 34	G 3/4"	32	18
SDi 10	G 1"	41	22



Silencers made of sintered bronze with male threads, cylinder shaped

Type	Thread	D	L
SDZ 18 MS	G 1/8"	9.5	6.0
SDZ 14 MS	G 1/4"	12.6	7.0
SDZ 38 MS	G 3/8"	16.2	8.5
SDZ 12 MS	G 1/2"	20.5	9.6
SDZ 34 MS	G 3/4"	26.0	12.0
SDZ 10 MS	G 1"	33.0	11.0

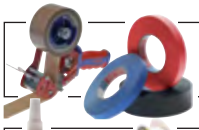


Silencers with push-in nipples*

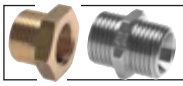
Type	D
IQSSD 40	4
IQSSD 60	6
IQSSD 80	8

Type	D
IQSSD 100	10
IQSSD 120	12

* operating pressure: 10 bar, max. 80°C, material: PE


tesa® tesa®-adhesive technology from page 585

OKS Cleaner and service products from page 564

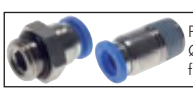

Threaded fittings from page 102

Valves from page 404

LOCTITE Liquid seals, gaskets & tapes from page 549

FESTO Festo valves can be found in our Online Shop

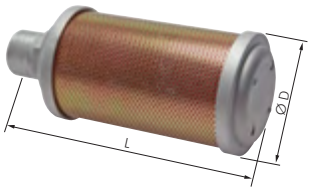
PU, PA, PTFE and PE hoses from page 192


Push-in fittings Ø 3 - 32 mm from page 24

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Silencers

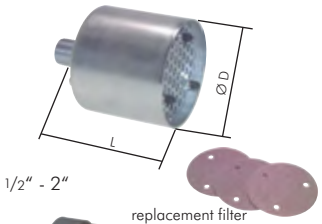
Especially good value!



High performance silencers, lightweight designs — PN 10

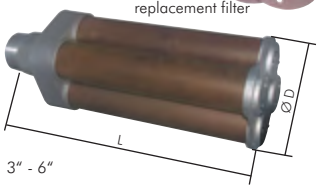
Type	Thread	Ø D	L	Flow*
SDH 18 E	G 1/8"	47	73	1.1 m³/min
SDH 14 E	G 1/4"	47	103	2.4 m³/min
SDH 38 E	G 3/8"	66	120	4.5 m³/min
SDH 12 E	G 1/2"	80	137	6.7 m³/min
SDH 34 E	G 3/4"	87	171	14.0 m³/min
SDH 10 E	G 1"	99	204	19.8 m³/min
SDH 114 E	G 1 1/4"	99	208	35 m³/min
SDH 112 E	G 1 1/2"	134	320	53 m³/min
SDH 20 E	G 2"	134	449	83 m³/min

* at 5 bar

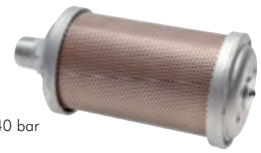


1/2" - 2"

replacement filter



3" - 6"



40 bar

High performance silencers

☞ **Optional:** 40 bar operating pressure (R thread) **-40**

Type	Thread	Ø D	L	Flow*	PN	Replacement filter element
SDH 12	G 1/2"	80	89	13 m³/min	6 bar	SDHE 12/34
SDH 34	G 3/4"	80	90	16 m³/min	6 bar	SDHE 12/34
SDH 10	G 1"	110	112	23 m³/min	6 bar	SDHE 10/114
SDH 114	G 1 1/4"	110	116	31 m³/min	6 bar	SDHE 10/114
SDH 112	G 1 1/2"	150	144	53 m³/min	6 bar	SDHE 112/20
SDH 20	G 2"	150	144	56 m³/min	6 bar	SDHE 112/20
SDH 30	R 3"	210	559	200 m³/min	10 bar	SDHE 30
SDH 40	R 4"	238	559	395 m³/min	10 bar	SDHE 40
SDH 60	R 6"	334	742	1,000 m³/min	10 bar	SDHE 60

* at 6 bar

☞ **Order example:** SDH 12 **

Standard type

Designation for the options:
40 bar operating pressure **.-40**

Free-Flow silencers for ejectors

Materials: Housing: Aluminium anodised, insert: PUR foam
Temperature range: -10°C to max. +80°C

✓ **Advantages:**
- Very good sound damping
- Absolute free flow, no clogging
- Low flow resistance

Type	Thread	Ø D	L
FFSD 18	G 1/8"	19	46
FFSD 14	G 1/4"	19	46
FFSD 38	G 3/8"	24	70
FFSD 12	G 1/2"	38	75
FFSD 34	G 3/4"	38	75
FFSD 10	G 1"	57	138
FFSD 112	G 1 1/2"	57	138

Vacuum
Check valves
from page 449

Vacuum
Ejectors
from page 506

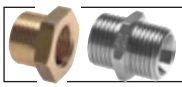
Vacuum
Suction cups
from page 510

Exhaust silencers with microfilters — technically oil-free exhaust

No oil in the exhaust air technically oil-free
Noise reducing: Up to 69 dB (A)
Temperature range: -20°C to max. +100°C
Operating pressure: Max. 6 bar

Type	Ø D	H	Thread	Flow	Replacement elements
SDF 12	90	181	G 1/2"	75 m³/h	SDFE 12/34
SDF 34	90	181	G 3/4"	100 m³/h	SDFE 12/34
SDF 10	110	254	G 1"	175 m³/h	SDFE 10

LOCTITE
Liquid seals, gaskets & tapes
from page 549



Threaded fittings
from page 102

Ball valves
from page 280

Valves
from page 404

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

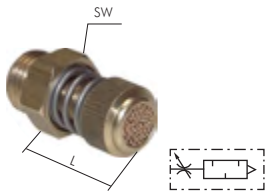
Flow control silencers

Construction type: Cone screw-in nozzle with silencer, inhibition by spring force
Application: Exhaust air flow control after a control valve

Advantages: • Affordable speed controller incl. silencer

Especially good value!

Type	Thread	SW	L min.	L max.
DS 18 B	G 1/8"	13	17	19
DS 14 B	G 1/4"	15	20	22
DS 38 B	G 3/8"	22	25	28
DS 12 B	G 1/2"	22	26	29
DS 34 B	G 3/4"	30	32	37
DS 10 B	G 1"	36	32	37

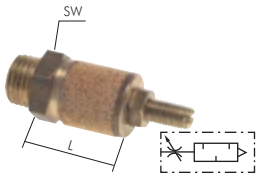


Flow control silencers

Construction type: Cone screw-in nozzle with silencer
Application: Exhaust air flow control after a control valve

Advantages: • Affordable speed controller incl. silencer

Type	Thread	SW	L
DS 50	M 5	8	12
DS 18	G 1/8"	16	24
DS 14	G 1/4"	16	24
DS 38	G 3/8"	22	33
DS 12	G 1/2"	22	32
DS 34	G 3/4"	30	48
DS 10	G 1"	36	52

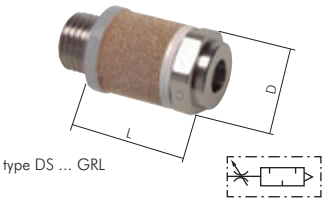


Precision flow control silencers

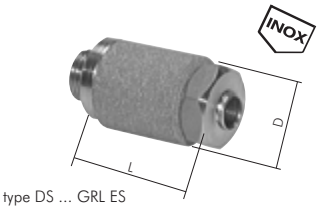
Construction type: Precise choke spindles, as found in elbow choke valves, act as a basic body and permit very good flow setting in this way. The large silencer surface made from sintered metal reduces the exhaust noise to a minimum.
Materials: Type brass nickel-plated: Banjo flow control: Brass nickel-plated, seals and O-rings: NBR, silencers: Bronze sintered metal, type AISI 316Ti: Banjo flow control: AISI 316Ti, seals and O-rings: FKM, silencers: Sintered metal AISI 316
Operating pressure: Max. 10 bar

Advantages: • Small installation dimensions
• Precise flow control
• Low sound level

Type **brass nikkel-plated**	D	L	Type **AISI 316Ti** (INOX)	D	L	Thread	SW
DS 50 GRL	9.2	19.5	---	---	---	M 5	8
DS 18 GRL	14.0	25.0	DS 18 GRL ES	16.1	26.0	G 1/8"	14
DS 14 GRL	18.5	26.0	DS 14 GRL ES	20.1	32.7	G 1/4"	17
DS 38 GRL	21.0	33.5	---	---	---	G 3/8"	22
DS 12 GRL	26.0	52.5	---	---	---	G 1/2"	27



type DS ... GRL



type DS ... GRL ES

Valves
Other manufacturers
can be found in our Online Shop.
Simply look for the original item number!

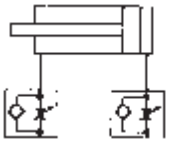
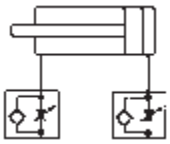
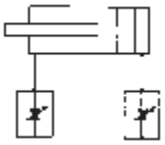
Silencers
Other manufacturers can be found in our Online Shop.
Simply look for the original item number!

Choke valves
Other manufacturers
can be found in our Online Shop.
Simply look for the original item number!

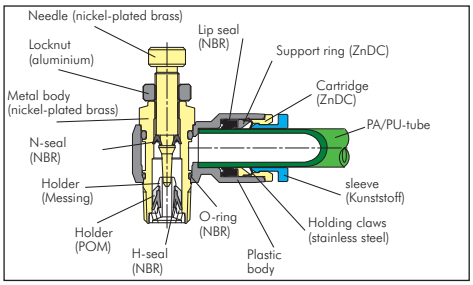
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

One-way control valves

Function of flow control and one-way control valves

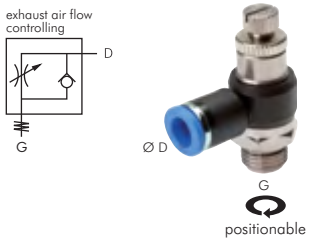
Exhaust air can be controlled (One-way control)	Supply air can be controlled (On-way control)	Supply and exhaust air can be controlled (flow control valve)
		
Standard (exhaust air) Exhaust air can be controlled - free of supply air (throttled from male thread to the hose) **Recommended use:** For cylinder from Ø 16 mm **Advantages:** • Good operating options without jumping • Smooth operation • Forward and return strokes possible at different speeds	**Special version (supply air)** Supply air can be controlled - free of supply air (throttled from hose to male thread) **Recommended use:** For smaller Ø and short strokes (small volumes) **Advantages:** • Even small air volumes can be controlled • Forward and return strokes possible at different speeds	**Special version (flow control valve)** Supply and exhaust air can be controlled **Recommended use:** For small and single-acting cylinder **Advantages:** • Inlet and return flow same speeds **Disadvantages:** • Only used rarely without "jumping"
Item: GRLAIQSM ... GRLAIQS ... GRAIQS ... GRL ...	**Item:** GRLBIQS ... GRLA ...	**Item:** GRLD ...

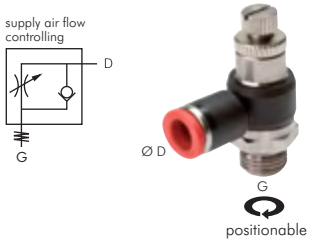
IQS one-way control valves — Standard/Mini



Functional principle: One-way control valves choke the flow in one direction, while the flow remains unrestricted in the other direction. The standard construction of the one-way control valves is "exhaust air flow controlling". If they are screwed into a cylinder, for example, then they provide for an even flow without causing a slip-stick effect. In the case of cylinders with small volumes (a small diameter/low stroke rate), one-way control valves are utilised with the special "supply air flow controlling" construction.
Media: Compressed air, neutral gases

One-way control valves, cylindrical threads — Standard





Materials: Body: Brass nickel-plated/PA 66, sleeve: PA 66, seal: NBR, holding claws: Stainless steel, cartridge: ZnDC zinc-plated (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: -0.95 to 20 bar

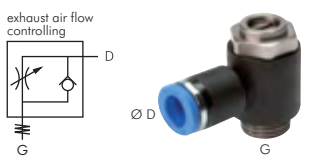
Advantages: • Compact design
• Can be easily adjusted without tools

Type exhaust air flow controlling	Type supply air flow controlling	G	D
GRLAIQS M54	GRLBIQS M54	M 5	4
GRLAIQS M56	GRLBIQS M56	M 5	6
GRLAIQS 184 G	GRLBIQS 184 G	G 1/8"	4
GRLAIQS 186 G	GRLBIQS 186 G	G 1/8"	6
GRLAIQS 188 G	GRLBIQS 188 G	G 1/8"	8
GRLAIQS 144 G	GRLBIQS 144 G	G 1/4"	4
GRLAIQS 146 G	GRLBIQS 146 G	G 1/4"	6
GRLAIQS 148 G	GRLBIQS 148 G	G 1/4"	8

Type exhaust air flow controlling	Type supply air flow controlling	G	D
GRLAIQS 1410 G	GRLBIQS 1410 G	G 1/4"	10
GRLAIQS 386 G	GRLBIQS 386 G	G 3/8"	6
GRLAIQS 388 G	GRLBIQS 388 G	G 3/8"	8
GRLAIQS 3810 G	GRLBIQS 3810 G	G 3/8"	10
GRLAIQS 3812 G	GRLBIQS 3812 G	G 3/8"	12
GRLAIQS 128 G	GRLBIQS 128 G	G 1/2"	8
GRLAIQS 1210 G	GRLBIQS 1210 G	G 1/2"	10
GRLAIQS 1212 G	GRLBIQS 1212 G	G 1/2"	12

One-way control valves with slotted screws — Standard

Only with screwdriver adjustable



Materials: Body: Brass nickel-plated/PA 66, sleeve: PA 66, seal: NBR, holding claws: Stainless steel, cartridge: ZnDC zinc-plated (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: -0.95 to 20 bar

Advantages: • Compact design
• Can be easily adjusted without tools

Type exhaust air flow controlling	G	D
GRLAIQS M54 S	M 5	4
GRLAIQS M56 S	M 5	6
GRLAIQS 184 G S	G 1/8"	4
GRLAIQS 186 G S	G 1/8"	6
GRLAIQS 188 G S	G 1/8"	8
GRLAIQS 144 G S	G 1/4"	4

Type exhaust air flow controlling	G	D
GRLAIQS 146 G S	G 1/4"	6
GRLAIQS 148 G S	G 1/4"	8
GRLAIQS 1410 G S	G 1/4"	10
GRLAIQS 386 G S	G 3/8"	6
GRLAIQS 388 G S	G 3/8"	8
GRLAIQS 3810 G S	G 3/8"	10

Type exhaust air flow controlling	G	D
GRLAIQS 3812 G S	G 3/8"	12
GRLAIQS 128 G S	G 1/2"	8
GRLAIQS 1210 G S	G 1/2"	10
GRLAIQS 1212 G S	G 1/2"	12

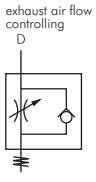
PU, PA, PTFE and PE hoses
from page 192

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

One-way control valves - straight forms — Standard

Materials: Body: Brass nickel-plated/PBT, seal: NBR, holding claw: Stainless steel, cartridge: ZnDC nickel-plated, sleeve: PBT (only silicone-free seals and lubricants are used during assembly)
Operating pressure: -0.95 to 10 bar
Temperature range: 0°C to max. +60°C

Advantages: • Very compact design
• Can be easily adjusted without tools



Type **exhaust air flow controlling**	R	D
GRAIQS M54	M 5	4
GRAIQS M56	M 5	6
GRAIQS 184	R 1/8"	4
GRAIQS 186	R 1/8"	6

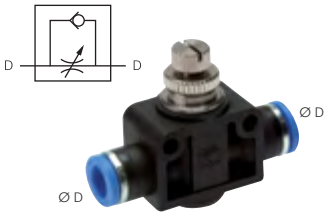
Type **exhaust air flow controlling**	R	D
GRAIQS 188	R 1/8"	8
GRAIQS 146	R 1/4"	6
GRAIQS 148	R 1/4"	8
GRAIQS 1410	R 1/4"	10

Type **exhaust air flow controlling**	R	D
GRAIQS 388	R 3/8"	8
GRAIQS 3810	R 3/8"	10
GRAIQS 1210	R 1/2"	10
GRAIQS 1212	R 1/2"	12

Line one-way control valves — Standard/Mini

Materials: Body: Nickel-plated brass/PA 66, sleeve: PA 66, seal: NBR, holding claws: Stainless steel, cartridge: Zinc-plated ZnDC (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: -0.95 to 20 bar

Advantages: • Compact design
• Can be easily adjusted without tools



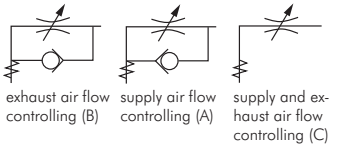
Type	D
IQSDRV 30*	3
IQSDRV 40	4
IQSDRV 60	6

Type	D
IQSDRV 80	8
IQSDRV 100	10
IQSDRV 120	12

* mini design, 0°C to max. +60°C, -0.95 to 10 bar

Throttles/one-way control valves with aluminium banjos - hose screw connections

Materials: Banjo bolt: AISI 316Ti, banjo AISI 316Ti, seals: FKM/PTFE
Temperature range: -20°C to max. +150°C
Pressure range: 0.2 to max. 10 bar
Media: Oiled and unoiled compressed air, as well as non-toxic gasses (50 µm)

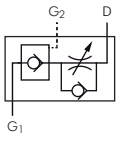


Type **exhaust air flow controlling (B)**	Type **supply air flow controlling (A)**	Type **supply and exh. air flow contr. (C)**	Thread
With slotted screw (can be adjusted using a screwdriver)			
GRL 50 ES	GRLA 50 ES	GRLD 50 ES	M 5
GRL 18 ES	GRLA 18 ES	GRLD 18 ES	G 1/8"
GRL 14 ES	GRLA 14 ES	GRLD 14 ES	G 1/4"

One-way control valves with pilot operated check valves — Standard

Materials: Body: Brass nickel-plated/PA 66, sleeve: PA 66, seal: NBR, holding claws: Stainless steel, cartridge: ZnDC zinc-plated (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: 0 - 10 bar
Function: This functional combination combines the function of a one-way control valve used to regulate exhaust air flow with that of a check valve that can be unlocked pneumatically. The check valve function can be used for a brief intermediate stop. If a control signal is applied to the female thread, the exhaust air flow is controlled from the male thread to the hose. If there is no control signal on the female thread, the valve locks the flow from the male thread to the hose (venting the actuator), thus causing it to stop briefly. The flow from the hose to the male thread (towards the actuator) is not regulated by the valve and is always possible (regardless of whether or not there is a signal).

Advantages: • Compact design
• Can be easily adjusted without tools
• Hose and thread connector can be positioned freely, thus allowing for maximum flexibility when installing the tubes



Type	G1	G2	D
GRAIQS 186 G STOP	G 1/8"	M 5	6
GRAIQS 188 G STOP	G 1/8"	M 5	8
GRAIQS 146 G STOP	G 1/4"	G 1/8"	6

Type	G1	G2	D
GRAIQS 148 G STOP	G 1/4"	G 1/8"	8
GRAIQS 3810 G STOP	G 3/8"	G 1/8"	10
GRAIQS 1212 G STOP	G 1/2"	G 1/4"	12

FESTO
Festo screwed connections can be found in our Online Shop

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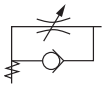
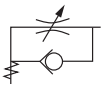
One-way control valves


exhaust air flow controlling (B)


supply air flow controlling (A)

supply and exhaust air flow controlling (C)

Throttles/one-way control valves (brass) — female thread

Materials: Banjo bolt: Brass nickel-plated, banjo: Brass nickel-plated, seals: NBR, sealing and spacer ring: Plastic
Temperature range: -20°C to max. +80°C
Pressure range: 0.2 to max. 10 bar

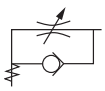
Advantages: • Compact design
• Undetachable marking on width flat shows the use and function of the banjo bolt even after years (B-exhaust air flow controlling, A-supply air flow controlling, C-exhaust and supply air flow controlling)

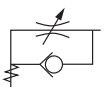
with slotted screw

with slotted screw and locking nut

with knurled screw and locking nut

Type **exhaust air flow controlling (B)**	Type **supply air flow contr. (A)**	Type **supply and exh. air flow contr. (C)**	Thread male
With slotted screw (can be adjusted using a screwdriver)			
GRL 50 MSV	GRLA 50 MSV	GRLD 50 MSV	M 5
GRL 18 MSV	GRLA 18 MSV	GRLD 18 MSV	G 1/8"
GRL 14 MSV	GRLA 14 MSV	GRLD 14 MSV	G 1/4"
GRL 38 MSV	GRLA 38 MSV	GRLD 38 MSV	G 3/8"
GRL 12 MSV	GRLA 12 MSV	GRLD 12 MSV	G 1/2"8 x 6
With slotted screw and locking nut (can be adjusted using a screwdriver and locked using an open-end wrench)			
GRL 18 MSV KO	GRLA 18 MSV KO	---	G 1/8"
GRL 14 MSV KO	GRLA 14 MSV KO	---	G 1/4"
With knurled screw and locking nut (can be adjusted without a tool and locked using an open-end wrench)			
GRL 50 MSV KOR	GRLA 50 MSV KOR	---	M 5
GRL 18 MSV KOR	GRLA 18 MSV KOR	---	G 1/8"
GRL 14 MSV KOR	GRLA 14 MSV KOR	---	G 1/4"


exhaust air flow controlling (B)


supply air flow controlling (A)

supply and exhaust air flow controlling (C)

Throttles/one-way control valves (brass) — hose screw connection

Materials: Banjo bolt: Brass nickel-plated, banjo: Brass nickel-plated, seals: NBR, sealing and spacer ring: Plastic
Temperature range: -20°C to max. +80°C
Pressure range: 0.2 to max. 10 bar

Advantages: • Compact design
• Undetachable marking on width flat shows the use and function of the banjo bolt even after years (B-exhaust air flow controlling, A-supply air flow controlling, C-exhaust and supply air flow controlling)

with slotted screw

with slotted screw and locking nut

with knurled screw and locking nut

Type **exhaust air flow contr. (B)**	Type **supply air flow contr. (A)**	Type **supply and exh. air flow contr. (C)**	Thread male	Hose Ø ext. x internal
With slotted screw (can be adjusted using a screwdriver)				
GRL 53 MSV	GRLA 53 MSV	GRLD 53 MSV	M 5	4.3 x 3
GRL 54 MSV	GRLA 54 MSV	GRLD 54 MSV	M 5	6 x 4
GRL 184 MSV	GRLA 184 MSV	GRLD 184 MSV	G 1/8"	6 x 4
GRL 186 MSV	GRLA 186 MSV	GRLD 186 MSV	G 1/8"	8 x 6
GRL 144 MSV	GRLA 144 MSV	GRLD 144 MSV	G 1/4"	6 x 4
GRL 146 MSV	GRLA 146 MSV	GRLD 146 MSV	G 1/4"	8 x 6
GRL 148 MSV	GRLA 148 MSV	GRLD 148 MSV	G 1/4"	10 x 8
GRL 388 MSV	GRLA 388 MSV	GRLD 388 MSV	G 1/4"	10 x 8
GRL 128 MSV	GRLA 128 MSV	GRLD 128 MSV	G 1/2"	10 x 8
With slotted screw and locking nut (can be adjusted using a screwdriver and locked using an open-end wrench)				
GRL 184 MSV KO	GRLA 184 MSV KO	---	G 1/8"	6 x 4
GRL 186 MSV KO	GRLA 186 MSV KO	---	G 1/8"	8 x 6
GRL 144 MSV KO	GRLA 144 MSV KO	---	G 1/4"	6 x 4
GRL 146 MSV KO	GRLA 146 MSV KO	---	G 1/4"	8 x 6
GRL 148 MSV KO	GRLA 148 MSV KO	---	G 1/4"	10 x 8
With knurled screw and locking nut (can be adjusted without a tool and locked using an open-end wrench)				
GRL 53 MSV KOR	GRLA 53 MSV KOR	---	M 5	4.3 x 3
GRL 54 MSV KOR	GRLA 54 MSV KOR	---	M 5	6 x 4
GRL 184 MSV KOR	GRLA 184 MSV KOR	---	G 1/8"	6 x 4
GRL 186 MSV KOR	GRLA 186 MSV KOR	---	G 1/8"	8 x 6
GRL 144 MSV KOR	GRLA 144 MSV KOR	---	G 1/4"	6 x 4
GRL 146 MSV KOR	GRLA 146 MSV KOR	---	G 1/4"	8 x 6
GRL 148 MSV KOR	GRLA 148 MSV KOR	---	G 1/4"	10 x 8

PU, PA, PTFE and PE hoses
from page 192

One-way control valves with push-in fittings can be found at:

page 33

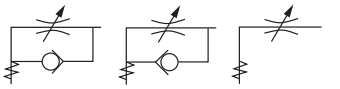
page 52

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Throttles /one-way control valves (aluminium) — female thread

Materials: Banjo bolt: Brass nickel-plated, banjo: Aluminium anodised, seals: NBR, sealing and spacer ring: Plastic
Temperature range: -20°C to max. +80°C
Pressure range: 0.2 to max. 10 bar

Advantages:
- Compact design
- Undetachable marking on width flat shows the use and function of the banjo bolt even after years (B-exhaust air flow controlling, A-supply air flow controlling, C-exhaust and supply air flow controlling)



Type exhaust air flow contr. (B)	Type supply air flow contr. (A)	Type supply and exh. air flow contr. (C)	Thread
W/ slotted screw (can be adjusted using a screwdriver)			
GRL 18 A	GRLA 18 A	GRLD 18 A	G 1/8"
GRL 14 A	GRLA 14 A	GRLD 14 A	G 1/4"
W/ slotted screw and locking nut (can be adjusted using a screwdriver and locked using an open-end wrench)			
GRL 18 A KO	GRLA 18 A KO	---	G 1/8"
GRL 14 A KO	GRLA 14 A KO	---	G 1/4"
W/ knurled screw and locking nut (can be adjusted without a tool and locked using an open-end wrench)			
GRL 18 A KOR	GRLA 18 A KOR	---	G 1/8"
GRL 14 A KOR	GRLA 14 A KOR	---	G 1/4"

with slotted screw

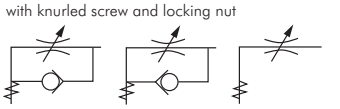
with slotted screw and locking nut

with knurled screw and locking nut

Throttles/one-way control valves (aluminium) — hose screw connection

Materials: Banjo bolt: Brass nickel-plated, banjo: Aluminium anodised, seals: NBR, sealing and spacer ring: Plastic
Temperature range: -20°C to max. +80°C
Pressure range: 0.2 to max. 10 bar

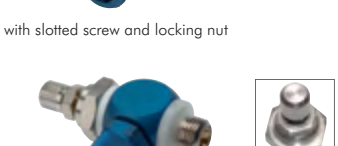
Advantages:
- Compact design
- Undetachable marking on width flat shows the use and function of the banjo bolt even after years (B-exhaust air flow controlling, A-supply air flow controlling, C-exhaust and supply air flow controlling)



Type exhaust air flow contr. (B)	Type supply air flow contr. (A)	Type supply and exh. air flow contr. (C)	Thread male	Hose Ø ext. x internal
W/ slotted screw (can be adjusted using a screwdriver)				
GRL 184 A	GRLA 184 A	GRLD 184 A	G 1/8"	6 x 4
GRL 186 A	GRLA 186 A	GRLD 186 A	G 1/8"	8 x 6
GRL 144 A	GRLA 144 A	GRLD 144 A	G 1/4"	6 x 4
GRL 146 A	GRLA 146 A	GRLD 146 A	G 1/4"	8 x 6
W/ slotted screw and locking nut (can be adjusted using a screwdriver and locked using an open-end wrench)				
GRL 184 A KO	GRLA 184 A KO	---	G 1/8"	6 x 4
GRL 186 A KO	GRLA 186 A KO	---	G 1/8"	8 x 6
GRL 144 A KO	GRLA 144 A KO	---	G 1/4"	6 x 4
GRL 146 A KO	GRLA 146 A KO	---	G 1/4"	8 x 6
GRL 148 A KO	GRLA 148 A KO	---	G 1/4"	10 x 8
W/ knurled screw and locking nut (can be adjusted without a tool and locked using an open-end wrench)				
GRL 184 A KOR	GRLA 184 A KOR	---	G 1/8"	6 x 4
GRL 186 A KOR	GRLA 186 A KOR	---	G 1/8"	8 x 6
GRL 144 A KOR	GRLA 144 A KOR	---	G 1/4"	6 x 4
GRL 146 A KOR	GRLA 146 A KOR	---	G 1/4"	8 x 6

with slotted screw

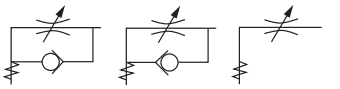
with slotted screw and locking nut


with knurled screw and locking nut

Throttles/one-way control valves (plastic) — hose screw connection

Materials: Banjo bolt: Brass nickel-plated, banjo: Plastic, seals: NBR, sealing and spacer ring: Plastic
Temperature range: -20°C to max. +80°C
Pressure range: 0.2 to max. 10 bar

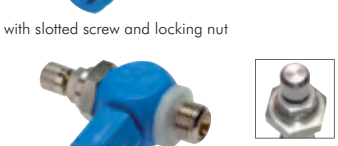
Advantages:
- Compact design
- Undetachable marking on width flat shows the use and function of the banjo bolt even after years (B-exhaust air flow controlling, A-supply air flow controlling, C-exhaust and supply air flow controlling)



Type exhaust air flow contr. (B)	Type supply air flow contr. (A)	Type supply and exh. air flow contr. (C)	Thread male	Hose Ø ext. x internal
W/ slotted screw (can be adjusted using a screwdriver)				
GRL 184 K	GRLA 184 K	GRLD 184 K	G 1/8"	6 x 4
GRL 186 K	GRLA 186 K	GRLD 186 K	G 1/8"	8 x 6
GRL 144 K	GRLA 144 K	GRLD 144 K	G 1/4"	6 x 4
GRL 146 K	GRLA 146 K	GRLD 146 K	G 1/4"	8 x 6
W/ slotted screw and locking nut (can be adjusted using a screwdriver and locked using an open-end wrench)				
GRL 184 K KO	GRLA 184 K KO	---	G 1/8"	6 x 4
GRL 186 K KO	GRLA 186 K KO	---	G 1/8"	8 x 6
GRL 144 K KO	GRLA 144 K KO	---	G 1/4"	6 x 4
GRL 146 K KO	GRLA 146 K KO	---	G 1/4"	8 x 6
W/ knurled screw and locking nut (can be adjusted without a tool and locked using an open-end wrench)				
GRL 184 K KOR	GRLA 184 K KOR	---	G 1/8"	6 x 4
GRL 186 K KOR	GRLA 186 K KOR	---	G 1/8"	8 x 6
GRL 144 K KOR	GRLA 144 K KOR	---	G 1/4"	6 x 4
GRL 146 K KOR	GRLA 146 K KOR	---	G 1/4"	8 x 6

with slotted screw

with slotted screw and locking nut


with knurled screw and locking nut

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Block one-way control valves

One-way control valves — Standard

Supply volume: Valve incl. fastening nut
Temperature range: 0°C to max. +60°C
Operating pressure: 0 - 10 bar

Type	Connection thread	Thread for panel mounting	Flow r egulated	Flow unregulated	Length
DRVE 18	G 1/8"	M 12 x 0.75	5 - 80 l/min.	325 l/min.	32
DRVE 14	G 1/4"	M 12 x 0.75	8 - 435 l/min.	850 l/min.	39
DRVE 38	G 3/8"	M 18 x 1	10 - 820 l/min.	1300 l/min.	56
DRVE 12	G 1/2"	M 18 x 1	15 - 1450 l/min.	2000 l/min.	56

One-way control valves — Compact

Supply volume: Valve incl. fastening nut
Temperature range: -20°C to max. +70°C
Operating pressure: 0 - 10 bar

Type	Connection thread	Thread for panel mounting	Flow regulated	Flow unregulated	Length
DRVE 18 C	G 1/8"	M 12 x 0.75	0 - 350 l/min.	300 l/min.	32
DRVE 14 C	G 1/4"	M 14 x 1	0 - 860 l/min.	760 l/min.	36
DRVE 38 C	G 3/8"	M 16 x 1	0 - 1650 l/min.	1320 l/min.	50
DRVE 12 C	G 1/2"	M 16 x 1	0 - 1900 l/min.	1610 l/min.	50

One-way control valves — Precision regulation

Temperature range: 0°C to max. +60°C
Operating pressure: 1 - 10 bar

Type	Connection thread	Thread for panel mounting	Flow regulated	Flow unregulated	Type fastening nut
DRVE 25 E	M 5	M 10 x 1	0 - 80 l/min.	80 l/min.	GM 101 MSV
DRVE 18 E	G 1/8"	M 12 x 1	0 - 125 l/min.	125 l/min.	GM 121 MSV
DRVE 14 E	G 1/4"	M 20 x 1.5	0 - 550 l/min.	550 l/min.	GM 2015 MSV
DRVE 38 E	G 3/8"	M 24 x 1.5	0 - 1050 l/min.	1050 l/min.	GM 2415 MSV
DRVE 12 E	G 1/2"	M 24 x 1.5	0 - 2000 l/min.	2000 l/min.	GM 2415 MSV

One-way control valves — Precision

Temperature range: -10°C to max. +70°C
Operating pressure: 0.5 - 10 bar

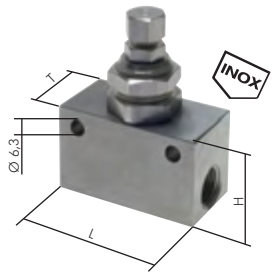
Type	Connection thread	Thread above	Flow regulated	Flow unregulated
DR 25	M 5	M 3	5 - 40 l/min.	120 l/min.
DR 18	G 1/8"	M 3	5 - 90 l/min.	480 l/min.
DR 14	G 1/4"	M 4	50 - 600 l/min.	1300 l/min.

Safety caps for one-way control valves

Suitable: The safety caps cover the valve spindles and valve inserts to protect them from cleaning agents and accidental misadjustments.

Type	Thread	Used for
DRV SK 25	M 10 x 1	DV 25 E, DRVE 25 E
DRV SK 18	M 12 x 1	DV 18 E, DRVE 18 E, DRVE 18 MS
DRV SK 14	M 20 x 1.5	DV 14 E, DRVE 14 E, DRVE 14 MS

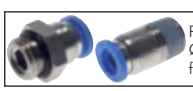
Especially good value!



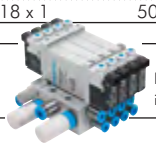
Stainless steel one-way control valves/choke valves — Eco-Line

Materials: Body and adjustment needle: AISI 316L, seals: FKM
Temperature range: 0°C to max. +150°C
Operating pressure: 0 to 10 bar
Media: Filtered and oiled compressed air

Type INOX	Connection thread	Thread for panel mounting	L	H	T	Flow	Type fastening nut INOX
One-way control valves							
DR 18 ES E	G 1/8"	M 12 x 0.75	34	20	15	220 l/min	GM 12075 ES
DR 14 ES E	G 1/4"	M 18 x 1	50	30	25	900 l/min	GM 181 ES
Choke valves							
DV 18 ES E	G 1/8"	M 12 x 0.75	34	20	15	220 l/min	GM 12075 ES
DV 14 ES E	G 1/4"	M 18 x 1	50	30	25	900 l/min	GM 181 ES


Push-in fittings Ø 3 - 32 mm from page 24

Screw connections with union nuts from page 53


FESTO
Festo valves can be found in our Online Shop

Cylinder from page 460

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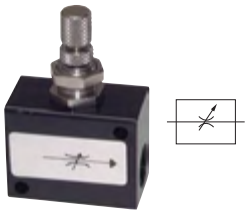
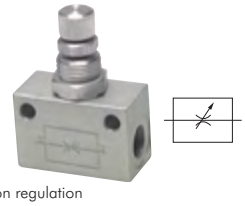
Choke valves

Temperature range: 0°C to +60°C
Operating pressure: 0 to 10 bar

Type	Type **for food industry**	Connection Thread	Thread for panel mounting	Flow	Type **fastening nut**
Standard choke valves					
DV 18	---	G 1/8"	M 12 x 0.75	5 - 80 l/min.	GM 12075 MSV**
DV 14	---	G 1/4"	M 12 x 0.75	8 - 435 l/min.	GM 12075 MSV**
DV 38	---	G 3/8"	M 18 x 1	10 - 820 l/min.	GM 181 MSV**
DV 12	---	G 1/2"	M 18 x 1	15 - 1450 l/min.	GM 181 MSV**
Choke valves with precision regulation					
DV 25 E	---	M 5	M 10 x 1	0 - 80 l/min.	GM 101 MSV
DV 18 E	DV 18 MS*	G 1/8"	M 12 x 1	0 - 125 l/min.	GM 121 MSV
DV 14 E	DV 14 MS*	G 1/4"	M 20 x 1.5	0 - 550 l/min.	GM 2015 MSV
DV 38 E	---	G 3/8"	M 24 x 1.5	0 - 1050 l/min.	GM 2415 MSV
DV 12 E	---	G 1/2"	M 24 x 1.5	0 - 2000 l/min.	GM 2415 MSV

* valve insert and spindle from brass, ** fastening nut included in the scope of delivery

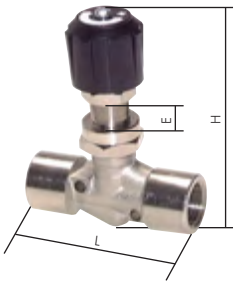

Standard


with precision regulation

Needle shut-off valves with bulkhead threads for panel mounting — PN 18

Materials: Housing: Brass nickel-plated, seal: NBR
Temperature range: -10°C to max. +80°C
Switch panel mounting: For borehole diameter Ø 14.5 mm

Type	Thread	DN	L	H	E_{max}
NADEL 18 MSV	G 1/8"	4	51.6	64	3
NADEL 14 MSV	G 1/4"	4	57.0	64	3
NADEL 38 MSV	G 3/8"	8	63.0	90	10
NADEL 12 MSV	G 1/2"	8	69.0	90	10

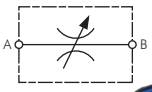


Flow control and one-way control valves — PN 350

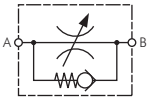
Suitable: Bidirectional flow control valves and one-way flow control valves influence the volume flow rate via an adjustable cross section constriction and are used to adjust the speed of cylinders or motors.
Materials: Valve body: Zinc-plated steel, rotary knob: Polyamide, seals: NBR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 350 bar
Media: Hydraulic oils on the basis of mineral oil

Type	Connection thread	Practical flow quantity	Max. flow quantity	Free reflux B - A at 5 bar pressure drop	Type **installation set for panel mounting**
Choke valves					
DV 18 HD	G 1/8"	10 l/min	14 l/min	---	DV EINBAUSET 18
DV 14 HD	G 1/4"	15 l/min	60 l/min	---	DV EINBAUSET 1438
DV 38 HD	G 3/8"	20 l/min	75 l/min	---	DV EINBAUSET 1438
DV 12 HD	G 1/2"	40 l/min	150 l/min	---	DV EINBAUSET 1234
DV 34 HD	G 3/4"	60 l/min	180 l/min	---	DV EINBAUSET 1234
DV 10 HD	G 1"	150 l/min	400 l/min	---	DV EINBAUSET 10
One-way control valves					
DRV 18 HD	G 1/8"	10 l/min	20 l/min	25 l/min	DV EINBAUSET 18
DRV 14 HD	G 1/4"	15 l/min	50 l/min	45 l/min	DV EINBAUSET 1438
DRV 38 HD	G 3/8"	20 l/min	60 l/min	65 l/min	DV EINBAUSET 1438
DRV 12 HD	G 1/2"	25 l/min	90 l/min	100 l/min	DV EINBAUSET 1234
DRV 34 HD	G 3/4"	60 l/min	180 l/min	140 l/min	DV EINBAUSET 1234
DRV 10 HD	G 1"	150 l/min	300 l/min	270 l/min	DV EINBAUSET 10

type DV ... HD

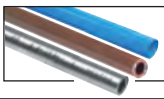


type DRV ... HD



Cutting ring fittings from page 77

HYDAC
Pipe clamps from page 244


Aluminium, copper and steel tube from page 250

Needle shut-off valves with hand wheels — up to 400 bar

Materials: Housing: Zinc-plated steel or stainless steel AISI 316Ti, seal: Graphite (type AISI 316Ti: PTFE), hand wheel: Pressed plastic
Temperature range: -30°C to max. +350°C (type AISI 316Ti: -30°C to max. +250°C)

Type **Zinc-plated steel**	Type **AISI 316Ti** (INOX)	Thread	DN	L	KV value*	PN
NADEL 18 HR	NADEL 18 HR ES	G 1/8"	4	45	4 l/min	400 bar
NADEL 14 HR	NADEL 14 HR ES	G 1/4"	5	55	8 l/min	400 bar
NADEL 38 HR	NADEL 38 HR ES	G 3/8"	6	55	10 l/min	400 bar
NADEL 12 HR	NADEL 12 HR ES	G 1/2"	7	60	12 l/min	400 bar
NADEL 34 HR	NADEL 34 HR ES	G 3/4"	9	75	18 l/min	200 bar
NADEL 10 HR	NADEL 10 HR ES	G 1"	12	100	32 l/min	200 bar
NADEL 114 HR	NADEL 114 HR ES	G 1 1/4"	15	110	60 l/min	160 bar
NADEL 112 HR	NADEL 112 HR ES	G 1 1/2"	22	130	115 l/min	120 bar
NADEL 20 HR	NADEL 20 HR ES	G 2"	22	130	130 l/min	120 bar

* water flow rate at +20°C, 1 bar pressure at the valve inlet, free discharge.
Air flow [l/min] ≈ 13.4 · K_V · P_{input}, if $P_{output} < \frac{P_{input}}{2}$ (P_{input} and P_{output} are absolute values in bar.)

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

+160°C
0°C

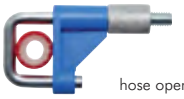
Hose clamps - speed controllers

Materials: Body: PVDF, hook screw: Zinc-plated steel, knurled grip nut: Aluminium
Temperature range: Up to max. +160°C
Operating range: Continuously adjusted flow controller of tubing made of PVC, PU, rubber, silicon, etc.

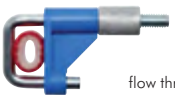
Advantage: • Using the micro threaded dosing screw permits a sensitive, continuously variable flow control. In the case of existing hose connections, the clamping bar can be easily removed from the hose clamp for assembly.

Type colour: blue	Type colour: red	Hose Ø external
SKL 10 BLAU	SKL 10 ROT	1 - 10
SKL 15 BLAU	SKL 15 ROT	2 - 15
SKL 20 BLAU	SKL 20 ROT	2 - 20

TIP *Can be mounted on already existing pipelines!*



hose open



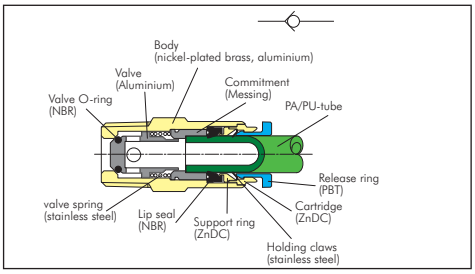
flow throttled

flow closed

Sang-A

Dimensions can be found in the item details in our Online Shop

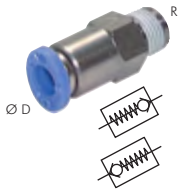
IQS check valves — Standard



Materials: Body: Brass nickel-plated/PBT/aluminium, valve: Aluminium, seal: NBR, holding claws: Stainless steel, cartridge: ZnDC nickel-plated, sleeve: PBT
Operating pressure: -0.95 to 10 bar
Opening pressure: < 0.2 bar
Temperature range: 0°C to max. +60°C
Functional principle: The check valves prevent a back-flow of the airflow
Media: Compressed air, neutral gases

Advantages: • Very compact design
• Economical price

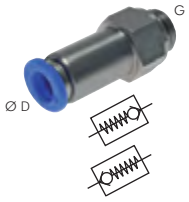
Check valves — Standard



Type flow from the thread to the hose	Type flow from the hose to the thread	R	D
HAIQS 184	HBIQS 184	R 1/8"	4
HAIQS 186	HBIQS 186	R 1/8"	6
HAIQS 188	HBIQS 188	R 1/8"	8
HAIQS 146	HBIQS 146	R 1/4"	6
HAIQS 148	HBIQS 148	R 1/4"	8
HAIQS 3810*	HBIQS 3810*	R 3/8"	10
HAIQS 3812*	HBIQS 3812*	R 3/8"	12
HAIQS 1212*	HBIQS 1212*	R 1/2"	12

* material aluminium

Check valves, cylindrical threads — Standard



Type flow from the thread to the hose	Type flow from the hose to the thread	G	D
HAIQS M54	HBIQS M54	M 5	4
HAIQS 184 G	HBIQS 184 G	G 1/8"	4
HAIQS 186 G	HBIQS 186 G	G 1/8"	6
HAIQS 188 G	HBIQS 188 G	G 1/8"	8
HAIQS 146 G	HBIQS 146 G	G 1/4"	6
HAIQS 148 G	HBIQS 148 G	G 1/4"	8
HAIQS 3810 G*	HBIQS 3810 G*	G 3/8"	10
HAIQS 3812 G*	HBIQS 3812 G*	G 3/8"	12
HAIQS 1212 G*	HBIQS 1212 G*	G 1/2"	12

* material aluminium

Check valves — Standard

Type	D
HIQS 40	4
HIQS 60	6
HIQS 80	8

Type	D
HIQS 100*	10
HIQS 120*	12

* material aluminium

Check valves — MSV

Materials: Body and sleeve: Brass nickel-plated, seals: NBR, holding claws: Stainless steel (only silicone-free seals and lubricants are used during assembly!)
Temperature range: -20°C to max. +80°C
Operating pressure: 0.2 to 10 bar
Media: Oiled and unoiled compressed air, neutral and non-hazardous gasses

Type	D
HIQS 40 MSV	4
HIQS 60 MSV	6
HIQS 80 MSV	8

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Laboratory check valves — PN 4

Materials: Polypropylene (approved in accordance with FDA 21 CFR 177.1520)
Temperature range: 0°C to max. +40°C

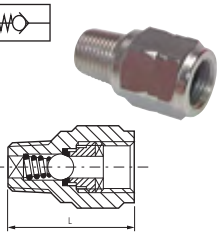
Type	Hose Ø internal
RUCKL 68	6 - 8
RUCKL 810	8 - 10
RUCKL 1014	10 - 14

Mini check valves brass nickel-plated — PN 10

Materials: Housing: Brass nickel-plated, spring: Stainless steel, seal: NBR, ball: Stainless steel AISI 420
Temperature range: -10°C to max. +85°C
Optional: FKM seal -10°C to max. +130°C **-V**

Type	Thread male	Thread female	L	SW	Installation pos.	Open. press. (approx.)
RUCK 18 iA MSV	R 1/8"	Rp 1/8"	26.0	14	Arbitrary	0.1 bar
RUCK 14 iA MSV	R 1/4"	Rp 1/4"	32.0	17	Arbitrary	0.1 bar
RUCK 38 iA MSV	R 3/8"	Rp 3/8"	40.5	22	Arbitrary	0.1 bar

Order example: RUCK 18 iA MSV **
Standard type
Designation for the options: FKM seal . . . . . .-V

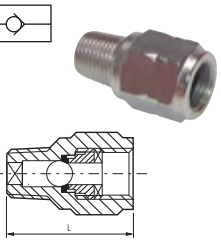


Mini check valves without spring brass nickel-plated — PN 10

Materials: Housing: Brass nickel-plated, seal: NBR, ball: Stainless steel AISI 420
Temperature range: -10°C to max. +85°C
Optional: FKM seal -10°C to max. +130°C **-V**

Type	Thread male	Thread female	L	SW	Installation pos.	Open. press. (approx.)
RUCK 18 iA OF MSV	R 1/8"	Rp 1/8"	26.0	14	MT above	0.1 bar
RUCK 14 iA OF MSV	R 1/4"	Rp 1/4"	32.0	17	MT above	0.1 bar
RUCK 38 iA OF MSV	R 3/8"	Rp 3/8"	40.5	22	MT above	0.1 bar

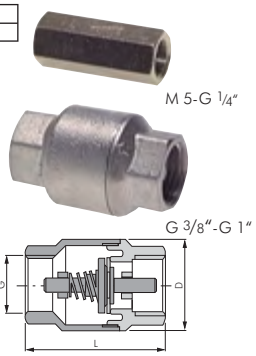
Order example: RUCK 18 iA OF MSV **
Standard type
Designation for the options: FKM seal . . . . . .-V



Check valves brass nickel-plated — up to 20 bar

Materials: Housing: Brass nickel-plated, spring: Stainless steel, seal: NBR, valve plug: Brass, (from G 3/8": POM)
Temperature range: -10°C to max. +95°C (M 5 to G 1/4": up to max. +60°C)

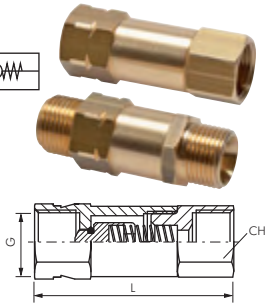
Type	G	L	D	PN	Open. press. (approx.)
RUCK 50 MSV	M 5	25	SW 8	10 bar	0.2 bar
RUCK 18 MSV	G 1/8"	37	SW 13	10 bar	0.2 bar
RUCK 14 MSV	G 1/4"	43	SW 16	10 bar	0.2 bar
RUCK 38 MSV	G 3/8"	55	35	20 bar	0.025 bar
RUCK 12 MSV	G 1/2"	55	35	20 bar	0.025 bar
RUCK 34 MSV	G 3/4"	62	42	20 bar	0.025 bar
RUCK 10 MSV	G 1"	72	50	20 bar	0.025 bar



Check valves brass — PN 16

Materials: Housing: Brass, spring: Stainless steel, seal: FKM, valve: Brass
Temperature range: -25°C to max. +180°C (G 3/4" & G 1": -10°C to max. +180°C)
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air

Type thread female	L	Type thread male	L	G	CH	Opening pressure (approx.)
RUCK 14 i	53	RUCK 14 A	54	G 1/4"	19	0.4 bar
RUCK 38 i	54	RUCK 38 A	53	G 3/8"	19	0.4 bar
RUCK 12 i	63	RUCK 12 A	68	G 1/2"	24	0.4 bar
RUCK 34 i	58	RUCK 34 A	77	G 3/4"	36	0.1 bar
RUCK 10 i	68	RUCK 10 A	84	G 1"	46	0.1 bar

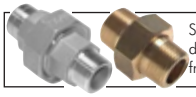


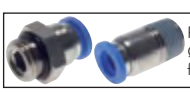
Distributor bars from page 132

Multiple couplings from page 41

Screw connections with union nuts from page 53

Service units FUTURA series from page 330


Separable double nipple from page 109

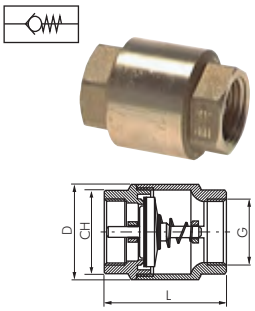

Push-in fittings Ø 3 - 32 mm from page 24

PU, PA, PTFE and PE hoses from page 192

Mini ball valves from page 288

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

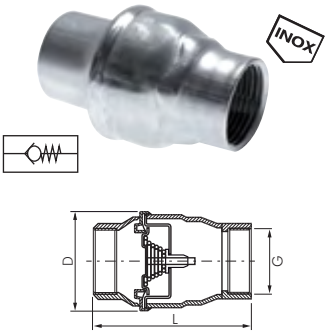
Check valves lightweight designs — up to 12 bar



Materials: Housing: Brass, spring: Stainless steel, seal: NBR, valve: PA 6
Temperature range: -20°C to max. +100°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air

Type brass	Type brass nickel-plated	G	L	D	CH	PN	Opening pressure (approx.)
RUCK 38	RUCK 38 MSV E	G 3/8"	46.5	34.5	SW 21	12 bar	0.02 bar
RUCK 12	RUCK 12 MSV E	G 1/2"	47.0	34.5	SW 26	12 bar	0.02 bar
RUCK 34	RUCK 34 MSV E	G 3/4"	53.0	42.0	SW 32	12 bar	0.02 bar
RUCK 10	RUCK 10 MSV E	G 1"	60.5	47.5	SW 39	12 bar	0.02 bar
RUCK 114	RUCK 114 MSV E	G 1 1/4"	66.5	59.5	SW 47	10 bar	0.02 bar
RUCK 112	RUCK 112 MSV E	G 1 1/2"	74.0	70.5	SW 55	10 bar	0.02 bar
RUCK 20	RUCK 20 MSV E	G 2"	80.0	86.0	SW 66	10 bar	0.02 bar
RUCK 212	RUCK 212 MSV E	G 2 1/2"	98.0	102.0	SW 83	8 bar	0.02 bar
RUCK 30	RUCK 30 MSV E	G 3"	103.0	125.0	SW 96	8 bar	0.02 bar
RUCK 40	RUCK 40 MSV E	G 4"	118.5	154.0	SW 123	8 bar	0.02 bar

Stainless steel check valves lightweight designs — PN 16



Materials: Housing: Stainless steel, seal: FKM, guiding ring: PTFE
Temperature range: -20°C to max. +150°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air

Type AISI 304 (INOX)	Type AISI 316 (INOX)	G	L	D	Opening pressure (approx.)
RUCK 14 ES	RUCK 14 ES 4A	G 1/4"	55	32	0.03 bar
RUCK 38 ES	RUCK 38 ES 4A	G 3/8"	55	32	0.03 bar
RUCK 12 ES	RUCK 12 ES 4A	G 1/2"	55	32	0.03 bar
RUCK 34 ES*	RUCK 34 ES 4A	G 3/4"	70	44	0.03 bar
RUCK 10 ES*	RUCK 10 ES 4A	G 1"	84	53	0.03 bar
RUCK 114 ES*	RUCK 114 ES 4A	G 1 1/4"	99	62	0.03 bar
RUCK 112 ES*	RUCK 112 ES 4A	G 1 1/2"	119	78	0.03 bar
RUCK 20 ES*	RUCK 20 ES 4A	G 2"	123	89	0.03 bar
RUCK 212 ES**	RUCK 212 ES 4A**	G 2 1/2"	147	113	0.03 bar
RUCK 30 ES**	RUCK 30 ES 4A**	G 3"	166	132	0.03 bar
RUCK 40 ES**	RUCK 40 ES 4A**	G 4"	193	167	0.03 bar

* optional: NPT thread **-NPT**
** for liquids only

Order example: RUCK 34 ES **
Standard type

Designation for the options:
NPT thread . . . . . **-NPT**

Foot valves lightweight designs

Materials: Housing: Brass, spring: Stainless steel, seal: NBR, valve: PA 6, strainer: Threaded part: Nylon 6, filter: AISI 304
Temperature range: -20°C to max. +100°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils

Type	G	Open. press. (approx.)
FU 38 MS	G 3/8"	0.02 bar
FU 12 MS	G 1/2"	0.02 bar
FU 34 MS	G 3/4"	0.02 bar
FU 10 MS	G 1"	0.02 bar
FU 114 MS	G 1 1/4"	0.02 bar

Type	G	Open. press. (approx.)
FU 112 MS	G 1 1/2"	0.02 bar
FU 20 MS	G 2"	0.02 bar
FU 212 MS	G 2 1/2"	0.02 bar
FU 30 MS	G 3"	0.02 bar
FU 40 MS	G 4"	0.02 bar

Stainless steel foot valves lightweight designs

Materials: Housing: AISI 304, seal: FKM, strainer: Threaded part and screen: AISI 316
Temperature range: -20°C to max. +150°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils

Type (INOX)	G	Open. press. (approx.)
FU 38 ES	G 3/8"	0.25 bar
FU 12 ES	G 1/2"	0.25 bar
FU 34 ES	G 3/4"	0.35 bar
FU 10 ES	G 1"	0.35 bar
FU 114 ES	G 1 1/4"	0.40 bar

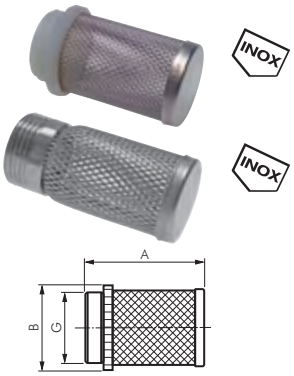
Type (INOX)	G	Open. press. (approx.)
FU 112 ES	G 1 1/2"	0.03 bar
FU 20 ES	G 2"	0.03 bar
FU 212 ES	G 2 1/2"	0.03 bar
FU 30 ES	G 3"	0.03 bar
FU 40 ES	G 4"	0.03 bar

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Strainers for check valves, lightweight designs

Materials: Type AISI 304: Threaded part: Nylon 6, filter: AISI 304, type AISI 316: Threaded part and filter: AISI 316

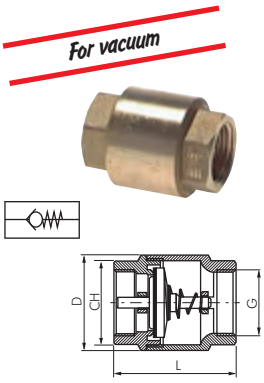
Type AISI 304	G	A	B	Mesh width	Type AISI 316	G	A	B	Mesh width
SK 38	G 3/8"	42	23	1.2 mm	SK 38 ES	G 3/8"	55	19	1.0 mm
SK 12	G 1/2"	47	28	1.2 mm	SK 12 ES	G 1/2"	55	22	1.0 mm
SK 34	G 3/4"	57	33	1.2 mm	SK 34 ES	G 3/4"	62	29	1.0 mm
SK 10	G 1"	69	42	1.2 mm	SK 10 ES	G 1"	71	36	1.0 mm
SK 114	G 1 1/4"	75	50	1.2 mm	SK 114 ES	G 1 1/4"	80	43	1.0 mm
SK 112	G 1 1/2"	83	55	1.2 mm	SK 112 ES	G 1 1/2"	90	49	1.0 mm
SK 20	G 2"	98	68	2.0 mm	SK 20 ES	G 2"	101	60	1.0 mm
SK 212	G 2 1/2"	123	86	2.0 mm	SK 212 ES	G 2 1/2"	111	80	1.8 mm
SK 30	G 3"	138	102	2.0 mm	SK 30 ES	G 3"	125	92	1.8 mm
SK 40	G 4"	153	129	2.0 mm	SK 40 ES	G 4"	144	105	1.8 mm



Check valves for vacuums — up to 25 bar

Materials: Housing: Brass, spring: Stainless steel, seal: NBR
Temperature range: -20°C to max. +100°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, low vacuum

Type	G	L	D	CH	PN	Open. press. (approx.)
RUCK 38 VU	G 3/8"	55.0	34.5	SW 23	25 bar	0.02 bar
RUCK 12 VU	G 1/2"	58.5	34.5	SW 27	25 bar	0.02 bar
RUCK 34 VU	G 3/4"	65.0	41.5	SW 33	25 bar	0.02 bar
RUCK 10 VU	G 1"	74.5	48.0	SW 40	25 bar	0.02 bar
RUCK 114 VU	G 1 1/4"	83.0	60.5	SW 50	18 bar	0.02 bar
RUCK 112 VU	G 1 1/2"	93.0	71.0	SW 55	18 bar	0.02 bar
RUCK 20 VU	G 2"	101.0	87.0	SW 70	18 bar	0.02 bar
RUCK 212 VU	G 2 1/2"	122.0	120.0	SW 87	12 bar	0.02 bar
RUCK 30 VU	G 3"	141.5	140.0	SW 101	12 bar	0.01 bar
RUCK 40 VU	G 4"	158.5	172.5	SW 128	12 bar	0.01 bar



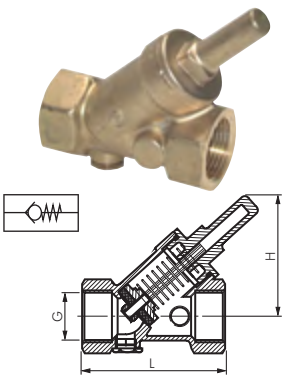
Y-check valves, DIN 3502 — up to 16 bar

Materials: Housing: Brass, seat seal: NBR (type DVGW: EPDM)
Temperature range: -10°C to max. +90°C
Length acc. to DIN 3202-M8, with test screw, DVGW type DIN-DVGW tested additionally for drinking water pipelines
Opening pressure: 0.1 - 0.2 bar
Optional: FKM seal (to 2", -20°C to max. +200°C) **-V**

Type **standard** PN 16	Type **DVGW** PN 10*	L	H	Type **standard** PN 10**	L	H	G
RUCK 38 SS	---	82	49.2	RUCK 38 SS/10	55	36	Rp 3/8"
RUCK 12 SS	RUCK 12 SS DVGW	65	49.2	RUCK 12 SS/10	59	36	Rp 1/2"
RUCK 34 SS	RUCK 34 SS DVGW	75	60.7	RUCK 34 SS/10	67	43	Rp 3/4"
RUCK 10 SS	RUCK 10 SS DVGW	90	76.9	RUCK 10 SS/10	83	67	Rp 1"
RUCK 114 SS	RUCK 114 SS DVGW	110	85.6	RUCK 114 SS/10	96	74	Rp 1 1/4"
RUCK 112 SS	RUCK 112 SS DVGW	120	87.5	RUCK 112 SS/10	106	87	Rp 1 1/2"
RUCK 20 SS	RUCK 20 SS DVGW	150	98.8	RUCK 20 SS/10	130	95	Rp 2"
---	RUCK 212 SS DVGW	180	130.0	---	---	---	Rp 2 1/2"
---	RUCK 30 SS DVGW	210	150.0	---	---	---	Rp 3"

Outstanding value!

* tested PN 16, not suitable for mineral oils!, ** without test screw, no DIN length



☞ **Order example:** RUCK 38 SS **

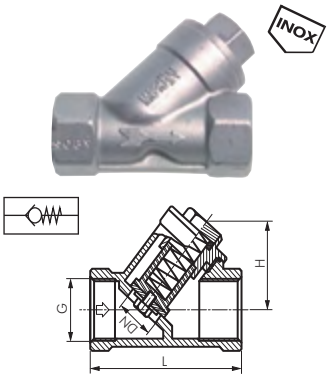
Standard type

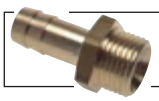
Designation for the options:
FKM seal (up to 2") . . . . . **-V**

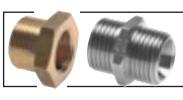
Stainless steel Y-check valves — PN 40

Materials: Housing AISI 316, seal: PTFE
Temperature range: -20°C to max. +200°C
Length according to DIN 3202-M8

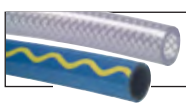
Type	G	DN	L	H	PN	Opening pressure
RUCK 14 SS ES	G 1/4"	11.5	65	31	40 bar	0.4 - 0.8 bar
RUCK 38 SS ES	G 3/8"	11.5	65	31	40 bar	0.4 - 0.8 bar
RUCK 12 SS ES	G 1/2"	11.5	65	31	40 bar	0.4 - 0.8 bar
RUCK 34 SS ES	G 3/4"	17.4	75	38	40 bar	0.4 - 0.8 bar
RUCK 10 SS ES	G 1"	22.5	90	43	40 bar	0.4 - 0.8 bar
RUCK 114 SS ES	G 1 1/4"	30.0	110	48	40 bar	0.4 - 0.8 bar
RUCK 112 SS ES	G 1 1/2"	34.0	120	57	40 bar	0.4 - 0.8 bar
RUCK 20 SS ES	G 2"	44.0	150	65	40 bar	0.1 - 0.3 bar




Threaded nozzles from page 64

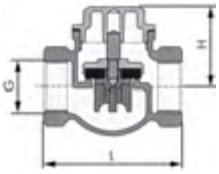

Threaded fittings from page 102

LOCTITE Liquid seals, gaskets & tapes from page 549


Compressed air and water hoses from page 208

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

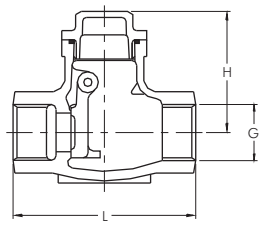
Check valves/hydraulic check valves



Check valves, heavy duty designs — up to 20 bar

Materials: Housing: Red bronze, screw: Brass, seal: PTFE
Temperature range: Water: -10°C to max. +100°C, saturated steam: 9 bar to max. +180°C
Installation position: Only horizontally!

Type	G	L	H	PN
RUCK 12 S	G 1/2"	60	36	20 bar
RUCK 34 S	G 3/4"	70	40	20 bar
RUCK 10 S	G 1"	84	49	20 bar
RUCK 114 S	G 1 1/4"	92	56	20 bar
RUCK 112 S	G 1 1/2"	107	61	20 bar
RUCK 20 S	G 2"	126	72	20 bar
RUCK 212 S	G 2 1/2"	135	74	16 bar
RUCK 30 S	G 3"	148	88	16 bar
RUCK 40 S	G 4"	190	110	16 bar

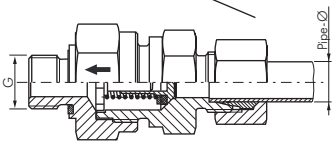


Swing check valves, metallic sealing — Eco-Line/PN 16

Materials: Housing: AISI 316, bolts: AISI 304
Temperature range: -20°C to max +200°C
☞ **Optional:** Certificate 3.1

⚠ **Warning:** Only suitable for fluid media. Flap valve closes by gravity, therefore only possible to be installed horizontally!

Type	G	L	H
RUCK 12 S ES E	G 1/2"	65	44
RUCK 34 S ES E	G 3/4"	80	52
RUCK 10 S ES E	G 1"	89	62
RUCK 114 S ES E	G 1 1/4"	105	67
RUCK 112 S ES E	G 1 1/2"	120	79
RUCK 20 S ES E	G 2"	139	80
RUCK 212 S ES E	G 2 1/2"	181	96
RUCK 30 S ES E	G 3"	200	104

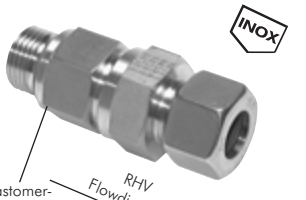


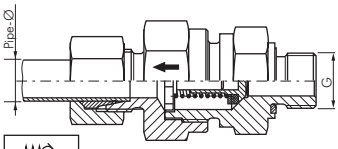
Check valves with cutting ring connections and screw-in threads

Materials: Type zinc-plated steel: Seal made of NBR, Type AISI 316Ti: Seal made of FKM
Temperature range: Type zinc-plated steel: -20°C to max. +100°C, Type AISI 316Ti: -20°C to max. +200°C
Opening pressure: Approx. 1 bar (±20%)
☞ **Optional:** Open. press.: (steel: 0.5 bar **-0.5**, 2.0 bar **-2**, 2.5 bar[1] **-2.5**, 3.0 bar[2] **-3**)

Type **zinc-plated steel**	Type **AISI 316Ti** (INOX)	Type **compr. ring AISI 316Ti (NC)** (INOX)	Tube Ø external	Screw-in thread	PN
Lightweight model series - metric screw-in threads					
RHZ 8 LM	---	---	8 L	M 12 x 1.5	250 bar
RHZ 10 LM	---	---	10 L	M 14 x 1.5	250 bar
RHZ 12 LM	---	---	12 L	M 16 x 1.5	250 bar
RHZ 15 LM	---	---	15 L	M 18 x 1.5	250 bar
RHZ 18 LM	---	---	18 L	M 22 x 1.5	160 bar
Lightweight model series - imperial screw-in threads					
RH** 6 LR	RH** 6 LR ES	RH** 6 LR NC	6 L	G 1/8"	250 bar
RH** 8 LR	RH** 8 LR ES	RH** 8 LR NC	8 L	G 1/4"	250 bar
RH** 10 LR	RH** 10 LR ES	RH** 10 LR NC	10 L	G 1/4"	250 bar
RH** 12 LR	RH** 12 LR ES	RH** 12 LR NC	12 L	G 3/8"	250 bar
RH** 15 LR	RH** 15 LR ES	RH** 15 LR NC	15 L	G 1/2"	250 bar
RH** 18 LR	RH** 18 LR ES	RH** 18 LR NC	18 L	G 1/2"	160 bar
RH** 22 LR	RH** 22 LR ES	RH** 22 LR NC	22 L	G 3/4"	160 bar
RH** 28 LR	RH** 28 LR ES	---	28 L	G 1"	100 bar
RH** 35 LR	RH** 35 LR ES	---	35 L	G 1 1/4"	100 bar
RH** 42 LR	RH** 42 LR ES	---	42 L	G 1 1/2"	100 bar
Heavy duty model series - imperial screw-in threads					
RH** 6 SR	RH** 6 SR ES	RH** 6 SR NC	6 S	G 1/4"	400 bar
RH** 8 SR	RH** 8 SR ES	RH** 8 SR NC	8 S	G 1/4"	400 bar
RH** 10 SR	RH** 10 SR ES	RH** 10 SR NC	10 S	G 3/8"	400 bar
RH** 12 SR	RH** 12 SR ES	RH** 12 SR NC	12 S	G 3/8"	400 bar
RH** 14 SR	RH** 14 SR ES	RH** 14 SR NC	14 S	G 1/2"	400 bar
RH** 16 SR	RH** 16 SR ES	RH** 16 SR NC	16 S	G 1/2"	400 bar
RH** 20 SR	RH** 20 SR ES	RH** 20 SR NC	20 S	G 3/4"	400 bar
RH** 25 SR	RH** 25 SR ES	RH** 25 SR NC	25 S	G 1"	250 bar
RH** 30 SR	RH** 30 SR ES	---	30 S	G 1 1/4"	250 bar
RH** 38 SR	RH** 38 SR ES	---	38 S	G 1 1/2"	250 bar

[1] only tube diameter ≥ 28 mm
[2] only tube diameter ≤ 25 mm





⚠ *In your order please enter the required opening pressure here!*

☞ **Order example:** RH** 6 LR **

Standard type

Designation for the options:
Required opening pressure . . . .-... bar

Please enter the required flow direction here.
Z = From tube to thread
V = From thread to tube

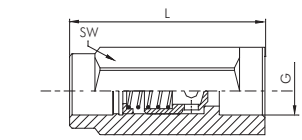
LOCTITE
Liquid seals, gaskets & tapes from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hydraulic check valves — up to 350 bar

Materials: Housing: Carbon steel zinc-plated, seals: Metallic sealing cone seat
Temperature range: -25°C to max. +200°C
☞ **Optional:** Opening pressures (from G 1/4"): 1.0 bar **-1**, 3.0 bar **-3**, 5.0 bar **-5**, 8.0 bar **-8**

Type	G	L	SW	DN	PN	Opening pressure
RUCK 18 HD	G 1/8"	44	14	4	350 bar	0.4-0.7 bar
RUCK 14 HD	G 1/4"	62	19	6	350 bar	0.4-0.7 bar
RUCK 38 HD	G 3/8"	68	24	9	350 bar	0.4-0.7 bar
RUCK 12 HD	G 1/2"	77	30	12	350 bar	0.4-0.7 bar
RUCK 34 HD	G 3/4"	88	36	16	350 bar	0.4-0.7 bar
RUCK 10 HD	G 1"	105	41	20	350 bar	0.4-0.7 bar
RUCK 114 HD	G 1 1/4"	135	55	24	300 bar	0.7-1.0 bar
RUCK 112 HD	G 1 1/2"	145	65	30	300 bar	0.7-1.0 bar
RUCK 20 HD	G 2"	160	75	40	200 bar	0.3 bar



In your order please enter the required opening pressure here!

☞ **Order example:** RUCK 18 HD **

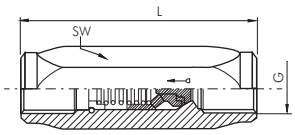
Standard type

Designation for the options:
Required opening pressure . . . . . .-... bar

Stainless steel hydraulic check valves — up to 350 bar

Materials: Housing: AISI 316L, seal: Cone seat with FKM soft seal
Temperature range: -25°C to max. +200°C
Opening pressure: Approx. 0.5 bar, other opening pressures on request

Type INOX	G	L	SW	DN	PN
RUCK 18 HD ES	G 1/8"	43	14	5	350 bar
RUCK 14 HD ES	G 1/4"	50	19	7	350 bar
RUCK 38 HD ES	G 3/8"	60	24	10	350 bar
RUCK 12 HD ES	G 1/2"	65	27	11	350 bar
RUCK 34 HD ES	G 3/4"	75	34	17	300 bar
RUCK 10 HD ES	G 1"	93	41	21	250 bar
RUCK 114 HD ES	G 1 1/4"	110	50	29	250 bar
RUCK 112 HD ES	G 1 1/2"	112	55	34	250 bar

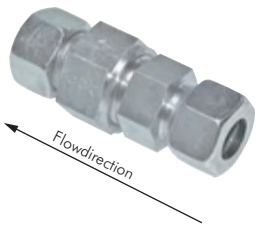


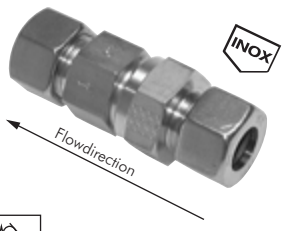
Check valves with cutting ring connections

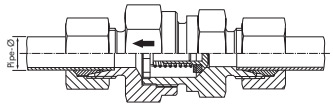
Materials: Type zinc-plated steel: Seal made of NBR, Type AISI 316Ti: Seal made of FKM
Temperature range: Type zinc-plated steel: -20°C to max. +100°C, Type AISI 316Ti: -20°C to max. +200°C
Opening pressure: Approx. 1 bar (±20%)
☞ **Optional:** Open. press.: (steel: 0.5 bar **-0.5**, 2.0 bar **-2**, 2.5 bar[1] **-2.5**, 3.0 bar[2] **-3**)

Type zinc-plated steel	Type AISI 316Ti INOX	Type compr. ring AISI 316Ti (NC) INOX	Tube Ø external	PN
Light model series				
RHD 6 L	RHD 6 L ES	RHD 6 L NC	6 L	250 bar
RHD 8 L	RHD 8 L ES	RHD 8 L NC	8 L	250 bar
RHD 10 L	RHD 10 L ES	RHD 10 L NC	10 L	250 bar
RHD 12 L	RHD 12 L ES	RHD 12 L NC	12 L	250 bar
RHD 15 L	RHD 15 L ES	RHD 15 L NC	15 L	250 bar
RHD 18 L	RHD 18 L ES	RHD 18 L NC	18 L	160 bar
RHD 22 L	RHD 22 L ES	RHD 22 L NC	22 L	160 bar
RHD 28 L	RHD 28 L ES	---	28 L	100 bar
RHD 35 L	RHD 35 L ES	---	35 L	100 bar
RHD 42 L	RHD 42 L ES	---	42 L	100 bar
Heavy duty model series				
RHD 6 S	RHD 6 S ES	RHD 6 S NC	6 S	400 bar
RHD 8 S	RHD 8 S ES	RHD 8 S NC	8 S	400 bar
RHD 10 S	RHD 10 S ES	RHD 10 S NC	10 S	400 bar
RHD 12 S	RHD 12 S ES	RHD 12 S NC	12 S	400 bar
RHD 14 S	RHD 14 S ES	RHD 14 S NC	14 S	400 bar
RHD 16 S	RHD 16 S ES	RHD 16 S NC	16 S	400 bar
RHD 20 S	RHD 20 S ES	RHD 20 S NC	20 S	400 bar
RHD 25 S	RHD 25 S ES	RHD 25 S NC	25 S	250 bar
RHD 30 S	RHD 30 S ES	---	30 S	250 bar
RHD 38 S	RHD 38 S ES	---	38 S	250 bar

[1] only tube diameter ≥ 28 mm
[2] only tube diameter ≤ 25 mm







In your order please enter the required opening pressure here!

☞ **Order example:** RHD 6 L **

Standard type

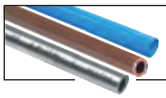
Designation for the options:
Required opening pressure . . . . . .-... bar

HYDAC
Pipe clamps
from page 244

Cutting ring fittings
from page 77

Hydraulic couplings
from page 170

Ready-made washing and hydraulic hoses
on page 231



Aluminium, copper and steel pipes down
page 250

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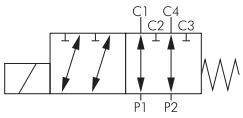
NG 6 hydraulic valves / 6/2-way valves



6/2-way gate valves — PN 250

Suitable: 6/2-way valves are electrical, direct actuating gate valves for inline assembly.
With this, 2 consumers can be alternating supplied by one source. These valves are frequently used if for example only one control device is available but an additional function is required.
Materials: Housing: Spheroidal cast iron, internal parts: Steel, seals: NBR
Temperature range: Medium: -20°C to max. +80°C, (ambient: -20°C to +50°C)
Operating pressure: 0 to max. 250 bar
Power consumption: 6WV38: 36 W, 6WV12: 45 W
Protection class: IP 65, plug size 3
Media: Hydraulic oils on the basis of mineral oil

Type	A	C	Thread	Nominal flow	Symbol
6WV38-**	192	93	G 3/8"	50 l/min	
6WV12-**	217	98	G 1/2"	90 l/min	

Order example: 6WV38- **

Standard type

Designation for the options:
12V= ..... -12V=
24V= ..... -24V=

Order accessories at the same time!

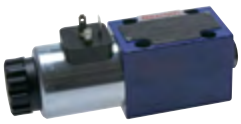
Rexroth
Bosch Group

TIP *Use valves up to 40 l/min.!*

Directional valves NG 6 electrically actuated in piston pusher designs up to 40 l/min.*

Suitable: These solenoid-operated way valves are used in hydraulic systems predominantly for starting, stopping and changing the direction of flow of the liquid. Using NG 6 the pressure valve, the flow control valve and the check valve sandwich plates are arranged like a stack to form a circuit in the smallest space possible.
Materials: Housing: Spheroidal cast iron, internal parts: Steel, seals: NBR
Temperature range: -30°C to max. +80°C
Operating pressure: 0 to 350 bar
Nominal flow: Up to max. 80 l/min. (request pressure loss curves if required), we recommend usage up to Max. 40 l/min.
Media: Hydraulic oils on the basis of mineral oil (viscosity: Bosch-Rexroth 2.8 - 500 mm²/s, alternative: 20 - 400 mm²/s)

4/3- directional valve



4/2- directional valve

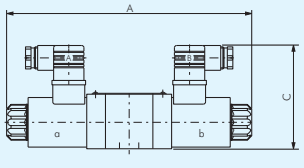
Type Bosch-Rexroth	Type alternative	Control voltage	Symbol
4/3-way valves			
4WE6H6X/EG24N9K4	LA-4WE6H/G24	24V DC	H
4WE6H6X/EW230N9K4	LA-4WE6H/W230	230V AC	
4WE6E6X/EG24N9K4	LA-4WE6E/G24	24V DC	E
4WE6E6X/EW230N9K4	LA-4WE6E/W230	230V AC	
4WE6G6X/EG24N9K4	LA-4WE6G/G24	24V DC	G
4WE6G6X/EW230N9K4	LA-4WE6G/W230	230V AC	
4WE6J6X/EG24N9K4	LA-4WE6J/G24	24V DC	J
4WE6J6X/EW230N9K4	LA-4WE6J/W230	230V AC	
4/2-way valves			
4WE6D6X/OFEG24N9K4	LA-4WE6D/OFG24	24V DC	D/OF
4WE6D6X/OFEW230N9K4	LA-4WE6D/OFW230	230V AC	
4WE6HA6X/EG24N9K4	LA-4WE6HA/G24	24V DC	HA
4WE6HA6X/EW230N9K4	LA-4WE6HA/W230	230V AC	
4WE6HB6X/EG24N9K4	LA-4WE6HB/G24	24V DC	HB
4WE6HB6X/EW230N9K4	LA-4WE6HB/W230	230V AC	
4WE6D6X/EG24N9K4	LA-4WE6D/G24	24V DC	D
4WE6D6X/EW230N9K4	LA-4WE6D/W230	230V AC	
4WE6Y6X/EG24N9K4	LA-4WE6Y/G24	24V DC	Y
4WE6Y6X/EW230N9K4	LA-4WE6Y/W230	230V AC	
Fastening screws DIN 912-M5-12.9 (CAUTION: Only these strength classes may be used!)			
912-M5x50 12.9	912-M5x45 12.9	Socket head cap screws with hexagon socket Strength: 10.9/12.9 Clamping length: 42 (Bosch-Rexroth)/37.3 (altern.)	
Blind plate for directional valves NG 6			
---	LA-4WE6V	Blind plate including 4 O-rings	
Spare parts for directional valves			
4WE6MAG12V=	LA-4WE6MAG12V=	Magnetic coil 12V DC	
4WE6MAG24V=	LA-4WE6MAG24V=	Magnetic coil 24V DC	
4WE6MAG230V	LA-4WE6MAG230V	Magnetic coil 230V AC	
4WE6MAGDICHT	---	Sealing set for Pohl tube	
ORING NG6	ORING NG6	O-ring set for connection plates (4 pieces O-rings)	

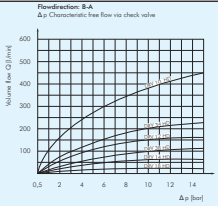
* our operating recommendations

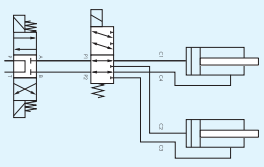
Order accessories at the same time!

Dimensions, valve flow diagrams & application examples can be found in our Online Shop

Many additional products and sizes are available in our **Online Shop!**







All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Intermediate plate valves NG6 — *up to 40 l/min**

Rexroth
Bosch Group

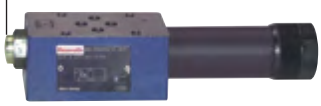
Suitable: NG 6 intermediate plate valves are used in combination with NG 6 directional valves. The intermediate plate valves are fitted between the directional valves and the connection plate. Each intermediate plate has a specific function, they control the strength, movement and speed of a hydraulic cylinder or a hydraulic motor.
Materials: Housing: Spheroidal cast iron, internal parts: Steel, seals: NBR
Temperature range: -30°C to max. +80°C
Operating pressure: 0 to 315 bar
Nominal flow: Up to approx. 60 l/min depending on the valve used (request pressure loss curves if required), we recommend usage up to approx. 40 l/min
Media: Hydraulic oils on the basis of mineral oil (viscosity: Bosch Rexroth: 10-500 mm²/s, alternatively: 20-400 mm²/s)

TIP *Use the valves up to approx. 40 l/min.!*

Function	Type **Bosch-Rexroth**	Pressure level	Type **alternative**	Pressure level	Symbol
Pressure limiting valves					
P → T	ZDB 6 VP2-4X/100V**	100 bar	LA-ZDB 6 P2/100	100 bar	
P → T	ZDB 6 VP2-4X/315V**	315 bar	LA-ZDB 6 P2/320	320 bar	
A → T	ZDB 6 VA2-4X/100V**	100 bar	LA-ZDB 6 A2/100	100 bar	
A → T	ZDB 6 VA2-4X/315V**	315 bar	LA-ZDB 6 A2/320	320 bar	
B → T	ZDB 6 VB2-4X/100V**	100 bar	LA-ZDB 6 B2/100	100 bar	
B → T	ZDB 6 VB2-4X/315V**	315 bar	LA-ZDB 6 B2/320	320 bar	
A → T & B → T	ZDB 6 VC2-4X/100V**	100 bar	LA-ZDB 6 C2/100	100 bar	
A → T & B → T	ZDB 6 VC2-4X/315V**	315 bar	LA-ZDB 6 C2/320	320 bar	
A → B & B → A	ZDB 6 VD2-4X/100V**	100 bar	LA-ZDB 6 D2/100	100 bar	
A → B & B → A	ZDB 6 VD2-4X/315V**	315 bar	LA-ZDB 6 D2/320	320 bar	
Pressure regulators					
P	ZDR 6 DP1-4X/75YM	75 bar	LA-ZDR 6 P1/100	100 bar	
P	ZDR 6 DP1-4X/210YM	210 bar	LA-ZDR 6 P1/210	210 bar	
A	ZDR 6 DA1-4X/75Y	75 bar	LA-ZDR 6 A1/100	100 bar	
A	ZDR 6 DA1-4X/210Y	210 bar	LA-ZDR 6 A1/210	210 bar	
B	ZDR 6 DB1-4X/75YM	75 bar	LA-ZDR 6 B1/100	100 bar	
B	ZDR 6 DB1-4X/210YM	210 bar	LA-ZDR 6 B1/210	210 bar	
One-way control valves (the one-way flow control can be changed by rotating)					
A	Z2FS 6 A2-4X/2QV**	---	LA-Z2FS 6 A	---	
B	Z2FS 6 B2-4X/2QV**	---	LA-Z2FS 6 B	---	
A + B	Z2FS 6 -2-4X/2QV**	---	LA-Z2FS 6 AB	---	
Pilot operated check valves					
A	Z2S 6 A1-6X/	---	LA-Z2S 6 A	---	
B	Z2S 6 B1-6X/	---	LA-Z2S 6 B	---	
A + B	Z2S 6 -1-6X/	---	LA-Z2S 6 AB	---	

* our operating recommendation ** seals made of FKM, temperature range -20°C to max. +80°C

Pressure gauge connection
G ¼" female thread



7

Cutting ring fittings from page 77

Parker Functional nut on page 99

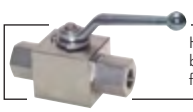
Hydraulic couplings from page 170

HYDAC Pipe clamps from page 244

Clamp brackets and steel cable clamps on pages 257-259

Parker Push-in hoses on page 228

Ready-made washing and hydraulic hoses on page 231



High pressure ball valves from page 292

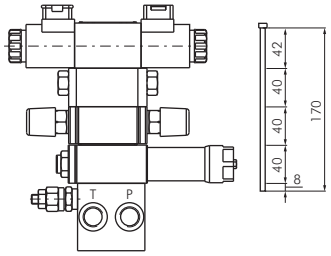
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

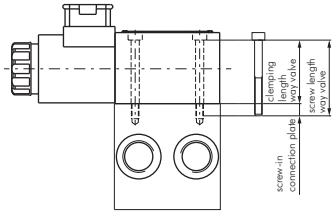
TIP 4 fastening screws are needed for each directional valve!

Fastening screws for NG 6 valves — DIN 912

Strength class: 12.9
Tightening torque: 8.9 Nm
Determining the screw length: The total screw length is determined by adding the screw length of the directional control valve + clamping length of the distance plates.
Supply volume: 1 pc screw

Screw length of the directional control valve + Total clamping length the intermediate plate valves = Total screw length





	Bosch-Rexroth	Alternative
Directional valve screw length	50	45
Clamping length of the intermediate plate valves	40	40*

* pressure regulators "alternative" 45 mm

Type	Screw length
912-M5X30 12.9	30
912-M5X45 12.9	45
912-M5X50 12.9	50
912-M5X70 12.9	70
912-M5X80 12.9	80
912-M5X85 12.9	85
912-M5X90 12.9	90
912-M5X100 12.9	100
912-M5X110 12.9	110
912-M5X120 12.9	120
912-M5X125 12.9	125
912-M5X130 12.9	130
912-M5X140 12.9	140
912-M5X150 12.9	150
912-M5X160 12.9	160
912-M5X170 12.9	170
912-M5X180 12.9	180

Connecting plates with pressure limiting valves for valves with NG 6 wiring diagrams

Materials: Connection plate: Cast iron, pressure limiting valve: Zinc-plated steel, seals: NBR
Pressurising agent temperature: -20°C to max. +80°C
Operating pressure: Max. 315 bar
Settings range for the pressure limiting valve: 100 to 350 bar
Flowrate range: Max. 30 l/min

Description: All connecting plates are equipped with a pressure limiting valve. The connections A + B are positioned lateral to the valve connection surface. The pressure and return flow connections P + T are drilled through and can be used optionally from both sides. The connection boards can optionally be mounted by the M8 female threads on the front, or alongside the existing mounting holes.

Type	Connection site	Total length L	Drilling distance LB
GRPDBV 61	1	120	108
GRPDBV 62	2	170	158
GRPDBV 63	3	220	208
GRPDBV 64	4	270	258
GRPDBV 65	5	320	308
GRPDBV 66	6	370	358
GRPDBV 67	7	420	408
GRPDBV 68	8	470	458

Connecting plates for valves with NG 6 wiring diagrams

Materials: Connection plate: Cast iron
Pressurising agent temperature: -20°C to max. +80°C
Operating pressure: Max. 315 bar
Flowrate range: Max. 30 l/min (GRPS 61: max. 50l/min)

Description: The connections A + B are positioned lateral to the valve connection surface. Pressure and return flow connections P + T are drilled through and can be optionally used by both the sides. The connection plate can be mounted using either the M8-female thread on the front side or the mounting holes* positioned longitudinally.

Type	Connection site	Total length L	Drilling distance LB
GRPS 61	1	80	57
GRPS 62	2	120	108
GRPS 63	3	170	158
GRPS 64	4	220	208
GRPS 65	5	270	258
GRPS 66	6	320	308
GRPS 67	7	370	358
GRPS 68	8	420	408

* not in type GRPS 61

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Pressure limiting valves for inline assemblies — up to 150 l/min

Suitable: The valves restrict the system pressure and are ideal for overpressure protection as well as for continuous operation.
Materials: Valve housing: Aluminium, screw-in valve: Zinc-plated steel, seal: NBR
Temperature range: -20 to max. +80°C
Media: Hydraulic oils on the basis of mineral oil

Type	Thread	Pressure level	Symbol
Direct control, nominal flow 30 l/min			
DBV38P50Q30	G 3/8"	50 bar	
DBV38P100Q30	G 3/8"	100 bar	
DBV38P210Q30	G 3/8"	210 bar	
DBV38P350Q30	G 3/8"	350 bar	
DBV12P50Q30	G 1/2"	50 bar	
DBV12P100Q30	G 1/2"	100 bar	
DBV12P210Q30	G 1/2"	210 bar	
DBV12P350Q30	G 1/2"	350 bar	
Direct control, nominal flow 80 l/min			
DBV12P50Q80	G 1/2"	50 bar	
DBV12P100Q80	G 1/2"	100 bar	
DBV12P250Q80	G 1/2"	250 bar	
DBV34P50Q80	G 3/4"	50 bar	
DBV34P100Q80	G 3/4"	100 bar	
DBV34P250Q80	G 3/4"	250 bar	
Pilot operated, nominal flow 150 l/min			
DBV12P70Q150	G 1/2"	70 bar	
DBV12P105Q150	G 1/2"	105 bar	
DBV12P210Q150	G 1/2"	210 bar	
DBV12P350Q150	G 1/2"	350 bar	
DBV34P70Q150	G 3/4"	70 bar	
DBV34P105Q150	G 3/4"	105 bar	
DBV34P210Q150	G 3/4"	210 bar	
DBV34P350Q150	G 3/4"	350 bar	
DBV10P210Q150	G 1"	210 bar	
DBV10P350Q150	G 1"	350 bar	

type DBV...Q30

type DBV...Q80

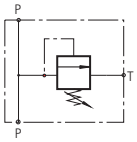
type DBV...Q150

Valve flow diagram can be found in the item details in our Online Shop

Pressure limiting valves for inline assemblies — up to 250 l/min

Description: The valves restrict the system pressure and are ideal for overpressure protection as well as for continuous operation.
Materials: Valve housing and screw-in valve: Steel, hand wheel: Plastic, seal: NBR
Temperature range: -30°C to max. +80° C
Media: Hydraulic oil on the basis of mineral oil

Type Bosch-Rexroth	Thread	Pressure level
Nominal flow 50 l/min		
DBDH6G1X/25	G 1/4"	25 bar
DBDH6G1X/50	G 1/4"	50 bar
DBDH6G1X/100	G 1/4"	100 bar
DBDH6G1X/200	G 1/4"	200 bar
DBDH6G1X/315	G 1/4"	315 bar
DBDH6G1X/400	G 1/4"	400 bar
Nominal flow 120 l/min		
DBDH10G1X/25	G 1/2"	25 bar
DBDH10G1X/50	G 1/2"	50 bar
DBDH10G1X/100	G 1/2"	100 bar
DBDH10G1X/200	G 1/2"	200 bar
DBDH10G1X/315	G 1/2"	315 bar
DBDH10G1X/400	G 1/2"	400 bar
Nominal flow 250 l/min		
DBDH20G1X/25	G 1"	25 bar
DBDH20G1X/50	G 1"	50 bar
DBDH20G1X/100	G 1"	100 bar



Valve flow diagram can be found in the item details in our Online Shop

Hydraulic pumps and electric motors can be found in the Online Shop

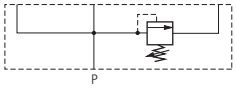
Hydraulic oil from page 574

Liquid seals, gaskets & tapes from page 549

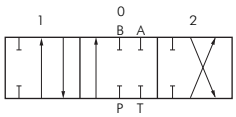
Cutting ring fittings from page 77

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

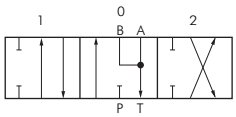
Hydraulic hand lever valves



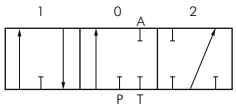
input element with pressure limiting valve
(type CH50 ELEMENT E)



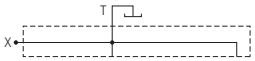
hand lever element
(type CH50 ELEMENT DRR)



hand lever element
(type CH50 ELEMENT LRR)



hand lever element
(type CH50 ELEMENT SRR)



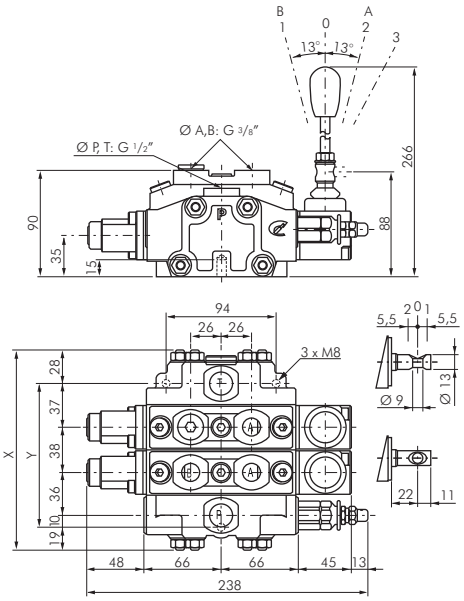
output element
(type CH50 ELEMENT S)

Hand lever valves in modular designs — up to 50 l/min

Suitable: These valves are used in mobile and industrial applications. Compact control blocks with up to 9 consumers such as hydraulic cylinders and hydraulic motors can be assembled using the modular system. In the basic components the zero position of the valve is always designed as a no-pressure cycle from P to T. The input element has a pressure limiting valve with a settings range of 40 - 320 bar. As a standard, the hand lever elements are provided with a spring return to the centre position. The components labelled as retrofitting kits are used to retrofit the basic components from spring return to detend or block the no-pressure cycle.
Materials: Body: Steel and plastic, internal parts: Steel, seal: Plastic, NBR
Temperature range: -30°C to max. +90°C
Operating pressure: Input pressure: 0 to max. 320 bar, return flow pressure max. 35 bar (input element with pressure limiting valve can be set between 40 and 320 bar)
Media: Hydraulic fluids on mineral oil basis viscosity 10 mm²/s to 300 mm²/s

Type	Description/function
Input and output elements	
CH50 ELEMENT E	Input element with pressure limiting valve
CH50 ELEMENT S	Output element with pressureless bypass
Hand lever elements	
CH50 ELEMENT DRR	Hand lever element double acting A/B blocked
CH50 ELEMENT LRR	Hand lever element double acting A/B open
CH50 ELEMENT SRR	Hand lever element single acting A blocked
Tie rod sets	
CH50 ZUGANKER T1	Tie rod set for 1 hand lever element
CH50 ZUGANKER T2	Tie rod set for 2 hand lever elements
CH50 ZUGANKER T3	Tie rod set for 3 hand lever elements
CH50 ZUGANKER T4	Tie rod set for 4 hand lever elements
CH50 ZUGANKER T5	Tie rod set for 5 hand lever elements
CH50 ZUGANKER T6	Tie rod set for 6 hand lever elements
CH50 ZUGANKER T7	Tie rod set for 7 hand lever elements
CH50 ZUGANKER T8	Tie rod set for 8 hand lever elements
CH50 ZUGANKER T9	Tie rod set for 9 hand lever elements
Retrofitting kits	
CH50 RASTUNG C3	Detend hand lever all positions
CH50 RASTUNG C1	Detend hand lever in position 1
CH50 RASTUNG C2	Detend hand lever in position 2
CH50 MODUL CSF	Pressure continuation or blocking the pressureless circulation (see application example)

Dimensions - hand lever valves



Number of hand lever elements	x	y	Max. flow l/min
1	130	83	50
2	168	121	50
3	206	159	45
4	244	197	45
5	282	235	45
6	320	273	40
7	358	311	40
8	396	349	35
9	434	387	35

Cutting ring fittings
from page 77

Hydraulic hoses
from page 231

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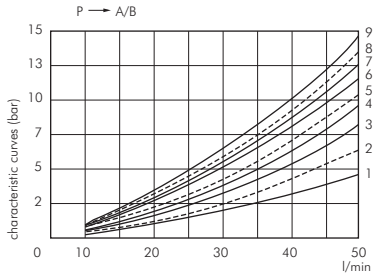
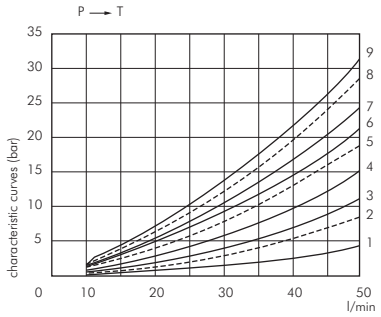
Pressure losses*



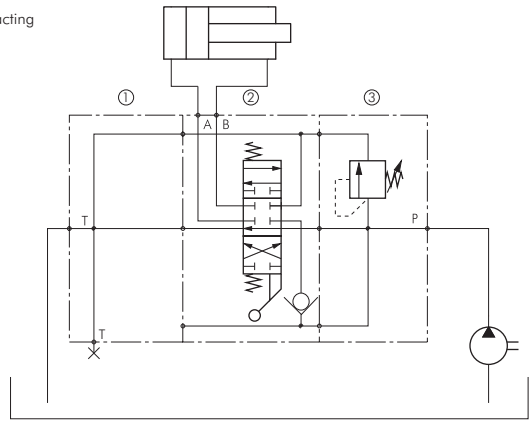


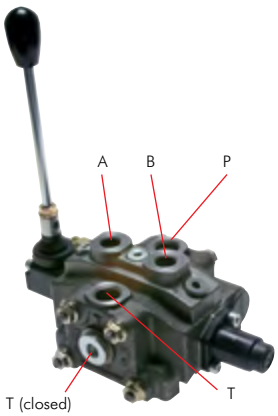
* measured at 30 mm²/s and 50°C

Application examples - hand lever valves

Constant pump (gear pump) with double acting cylinder and pressureless bypass

① CH50 ELEMENT S
② CH50 ELEMENT DRR
③ CH50 ELEMENT E

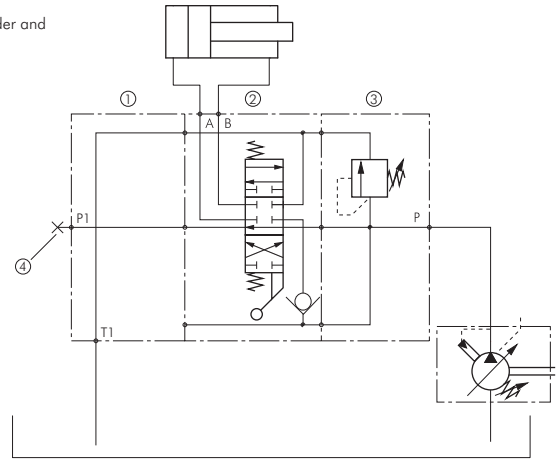


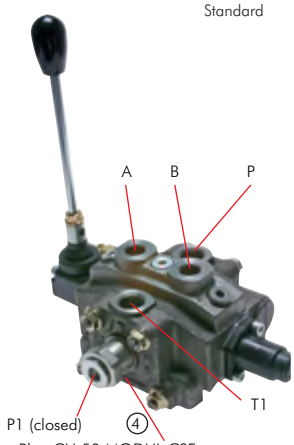


Standard

Regulating pump with double acting cylinder and closed, pressureless bypass

① CH50 ELEMENT S
② CH50 ELEMENT DRR
③ CH50 ELEMENT E
④ CH50 MODUL CSF

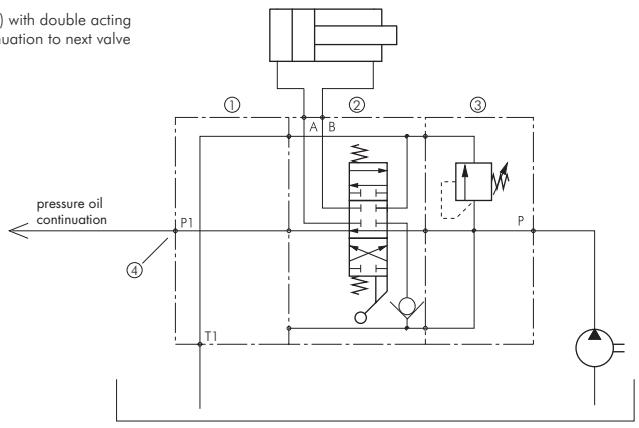


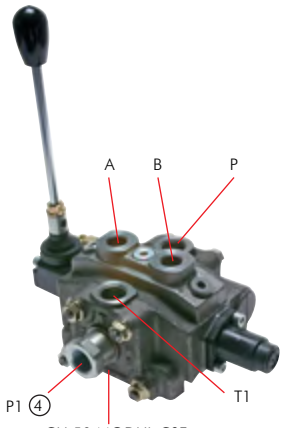


Plug CH 50 MODUL CSF

Constant pump (gear pump) with double acting cylinder and pressure continuation to next valve block

① CH50 ELEMENT S
② CH50 ELEMENT DRR
③ CH50 ELEMENT E
④ CH50 MODUL CSF





CH 50 MODUL CSF

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

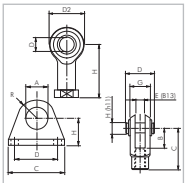
ISO 6432 - round cylinders, 8 to 63 mm

ISO small cylinders, single acting
Page 462

ISO small cylinders, double acting
Page 460

Stainless steel ISO small cylinder
Page 461

Round cylinder 32 - 63 mm
Page 466


Fastenings for small cylinders
Page 463-467

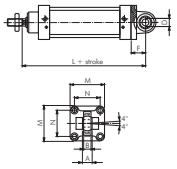
Cylinder switch for small cylinders
Page 465+468

Small cylinders from Festo can be found in our **Online Shop**

ISO 15552 - cylinders, 32 to 320 mm

ISO 15552 cylinders
Page 470

ISO cylinders up to Ø 320
Page 470


Fastenings for VDMA cylinders
Page 472-478

Guide units for VDMA cylinders
Page 479

Cylinder switch for VDMA cylinders
Page 477

Stainless steel ISO cylinder
Page 471

VDMA cylinders from Festo can be found in our **Online Shop**

Festo cylinders

Festo cylinders can be found in our **Online Shop**

Festo ADN compact cylinders can be found in our **Online Shop**

Festo DSBC standard cylinders can be found in our **Online Shop**

Festo round cylinders can be found in our **Online Shop**

ADVC, AEVC short stroke cyl. can be found in our **Online Shop**

Festo stop cylinders can be found in our **Online Shop**

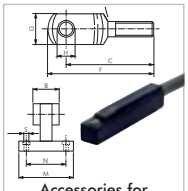
Festo mounting materials and accessories can be found in our **Online Shop**

Compact cylinders (UNITOP & ISO 21287)

Compact cylinders SQ
Page 480-481

Compact cylinders NXD
Page 482-484

Compact cylinders NXE single acting
Page 482

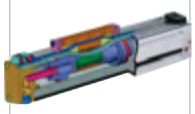

Accessories for compact cylinders
Page 485-487

Screw-in cylinders
Page 462

ISO 21287 compact cylinders
Page 488-493

Guide cylinders
Page 494-495

Rodless cylinders


Standard linear cylinders
Page 496-497

Linear cylinders with sliding guide
Page 496-497

Linear cylinders with double sliding guide
Page 496-497

Short cylinders
Page 496-497

Accessories for rodless cylinders
Page 498-500

Bellows cylinders can be found in our **Online Shop**

Rotary actuators, mini-carriages can be found in our **Online Shop**

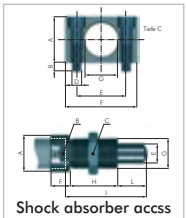
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Shock absorbers

Adjustable shock absorbers
Page 502+503

Self-adjusting shock absorbers
Page 502-504

Magnum shock absorbers
Page 503


Shock absorber accss
Page 504-505

FESTO

Shock absorbers from Festo can be found in our **Online Shop**

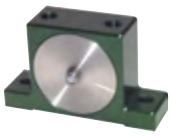
Shock absorbers from SMC can be found in our **Online Shop**

AVENTICS

Shock absorbers from Aventics can be found in our **Online Shop**

Vibrators, grippers, stop cylinders

Piston vibrators (linear)
Page 501


Ball vibrators (rotating)
Page 501

Roller vibrators (rotating)
Page 501

Turbine vibrators (rotating)
Page 501

Vibration dampers
Page 516

FESTO

Grippers can be found in our **Online Shop**

FESTO

Festo stop cylinders can be found in our **Online Shop**

Vacuums

Small ejectors
Page 506

Inline ejectors
Page 506

Multi stage ejectors
Page 506-508

Flat suction cups
Page 510

Bellows suction pad
Page 510-512

Oval suction pads
Page 512

Suction cup fixation and spring plunger
Page 513

Compressed air reservoirs, vacuum reservoirs

Lying reservoir
Page 514

Standing reservoir for stationary use
Page 514

Stainless steel reservoir
Page 515

Vibration dampers
Page 516

Fittings holders
Page 516

Drain valves
Page 516

Pressure increaser
Page 517

Safety valves

Mini safety valves
Page 518-520

Adjustable safety valves
Page 518-520

TÜV - permanently set safety valves
Page 518-520

Stainless steel safety valves
Page 518-520

High performance safety valves
Page 520

Safety valves with captured outlet
Page 520-521

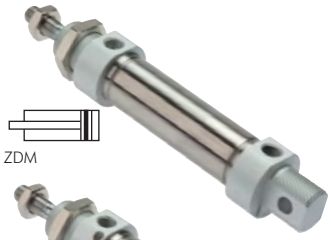
Relief valves
Page 521

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

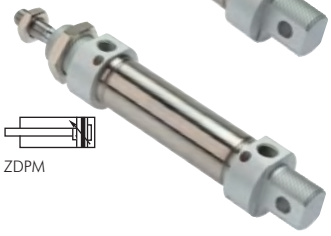
Small cylinders ISO 6432/CETOP RP 52 P

Pressure-force tables
can be found on page 3

Especially good value!



ZDM



ZDPM

Small cylinders ISO 6432/CETOP RP 52 P, double acting — *Eco-Line*

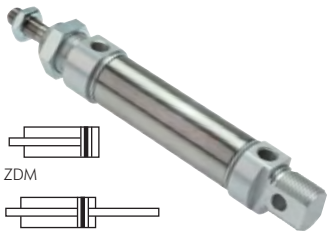
Materials: Head and foot: Aluminium anodised, cylinder tube: AISI 304, piston rod: AISI 303, seal: NBR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 10 bar

Piston Ø **16 mm**	Piston Ø **20 mm**	Piston Ø **25 mm**	Stroke
ZDM 16/10 E	ZDM 20/10 E	ZDM 25/10 E	10
ZDM 16/25 E	ZDM 20/25 E	ZDM 25/25 E	25
ZDM 16/40 E	ZDM 20/40 E	ZDM 25/40 E	40
ZDM 16/50 E	ZDM 20/50 E	ZDM 25/50 E	50
ZDM 16/80 E	ZDM 20/80 E	ZDM 25/80 E	80
ZDM 16/100 E	ZDM 20/100 E	ZDM 25/100 E	100
ZDM 16/125 E	ZDM 20/125 E	ZDM 25/125 E	125
ZDM 16/160 E	ZDM 20/160 E	ZDM 25/160 E	160
ZDM 16/200 E	ZDM 20/200 E	ZDM 25/200 E	200
ZDM 16/250 E	ZDM 20/250 E	ZDM 25/250 E	250
---	---	ZDM 25/320 E	320
---	---	ZDM 25/400 E	400
---	---	ZDM 25/500 E	500

Order example: ZD M 16/ ** E
Standard type
Piston Ø/stroke

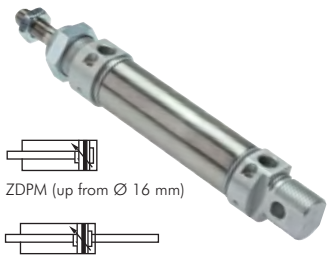
Order numbers suffixes:
Adjustable end position damping . . . . . **-P**
Magnetic piston (standard) . . . . . **-M**

Pressure-force tables
can be found on page 3



ZDM

ZDMK



ZDPM (up from Ø 16 mm)

ZDPMK (up from Ø 16 mm)

Small cylinders ISO 6432/CETOP RP 52 P, double acting

Materials: Head and foot: Aluminium anodised, cylinder tube: AISI 304, piston rod: AISI 303, seal: NBR/PUR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 10 bar
Optional: FKM seals (temperature range: -20°C to max. +150°C, without magnetic piston) **-V**, ATEX approval
II 2GD c T5 T100° -20°C<Ta<80°C **-X**

Piston Ø **8 mm**	Piston Ø **10 mm**	Piston Ø **12 mm**	Piston Ø **16 mm**	Piston Ø **20 mm**	Piston Ø **25 mm**	**Desired stroke/** standard stroke
ZDM 8/**	**ZDM 10/****	**ZDM 12/****	**ZDM 16/****	**ZDM 20/****	**ZDM 25/****	**1 to 1000**
ZDM 8/10	ZDM 10/10	ZDM 12/10	ZDM 16/10	ZDM 20/10	ZDM 25/10	10
ZDM 8/25	ZDM 10/25	ZDM 12/25	ZDM 16/25	ZDM 20/25	ZDM 25/25	25
ZDM 8/40	ZDM 10/40	ZDM 12/40	ZDM 16/40	ZDM 20/40	ZDM 25/40	40
ZDM 8/50	ZDM 10/50	ZDM 12/50	ZDM 16/50	ZDM 20/50	ZDM 25/50	50
ZDM 8/80	ZDM 10/80	ZDM 12/80	ZDM 16/80	ZDM 20/80	ZDM 25/80	80
ZDM 8/100	ZDM 10/100	ZDM 12/100	ZDM 16/100	ZDM 20/100	ZDM 25/100	100
ZDM 8/125	ZDM 10/125	ZDM 12/125	ZDM 16/125	ZDM 20/125	ZDM 25/125	125
---	ZDM 10/160	ZDM 12/160	ZDM 16/160	ZDM 20/160	ZDM 25/160	160
---	---	ZDM 12/200	ZDM 16/200	ZDM 20/200	ZDM 25/200	200
---	---	---	ZDM 16/250	ZDM 20/250	ZDM 25/250	250
---	---	---	ZDM 16/320	ZDM 20/320	ZDM 25/320	320
---	---	---	ZDM 16/400	ZDM 20/400	ZDM 25/400	400
---	---	---	ZDM 16/500	ZDM 20/500	ZDM 25/500	500

Enter your required stroke here on your order! (taking into account the buckling load)

Order example: ZD M 16/ ** **
Standard type
Piston Ø/stroke

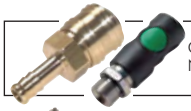
Designation for the options:
FKM seals . . . . . **-V**
ATEX approval II 2GD c T5 T100° -20°C≤Ta≤80°C . . . **-X**

Order numbers suffixes:
Adjustable end position damping (Ø 16, 20 and 25) . . . . . **-P**
Magnetic piston (standard) . . . . . **-M**
With hexagon piston rod (non-rotating) (Ø 16, 20 and 25) . . . . . **-O**
Continuous piston rod (Ø 16, 20 and 25) . . . . . **-K**
Extended piston rod by x mm . . . . . **-Lx**

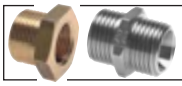
TIP *We produce your desired stroke!*

Service units
FUTURA series
from page 330

FESTO
Festo cylinders can be
found in our Online Shop

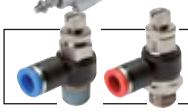


Coupling sockets
NW7 from page 150



Threaded fittings
from page 102

PU, PA, PTFE and
PE hoses
from page 192



One-way
control valves
from page 440

Pressure gauge
from page 366

Valves
from page 404

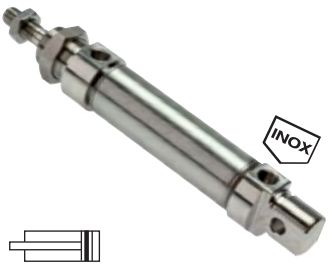
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

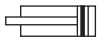
Stainless steel small cylinders ISO 6432/CETOP RP 52 P, double acting

Materials: Head and foot: AISI 304, cylinder tube: AISI 304, piston rod: AISI 316, seals: NBR/PUR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 10 bar
☞ **Optional:** FKM seals (temperature range: -20°C to max. +150°C, without magnetic piston) **-V**

Pressure-force tables can be found on page 3

Piston Ø 16 mm INOX	Piston Ø 20 mm INOX	Piston Ø 25 mm INOX	Desired stroke/ standard stroke
ZDM 16/**	ZDM 20/**	ZDM 25/**	1 to 1000
ZDM 16/10 ES	ZDM 20/10 ES	ZDM 25/10 ES	10
ZDM 16/25 ES	ZDM 20/25 ES	ZDM 25/25 ES	25
ZDM 16/40 ES	ZDM 20/40 ES	ZDM 25/40 ES	40
ZDM 16/50 ES	ZDM 20/50 ES	ZDM 25/50 ES	50
ZDM 16/80 ES	ZDM 20/80 ES	ZDM 25/80 ES	80
ZDM 16/100 ES	ZDM 20/100 ES	ZDM 25/100 ES	100
ZDM 16/125 ES	ZDM 20/125 ES	ZDM 25/125 ES	125
ZDM 16/160 ES	ZDM 20/160 ES	ZDM 25/160 ES	160
ZDM 16/200 ES	ZDM 20/200 ES	ZDM 25/200 ES	200
ZDM 16/250 ES	ZDM 20/250 ES	ZDM 25/250 ES	250
ZDM 16/320 ES	ZDM 20/320 ES	ZDM 25/320 ES	320
---	---	ZDM 25/400 ES	400
---	---	ZDM 25/500 ES	500




ZDM

ZDMK

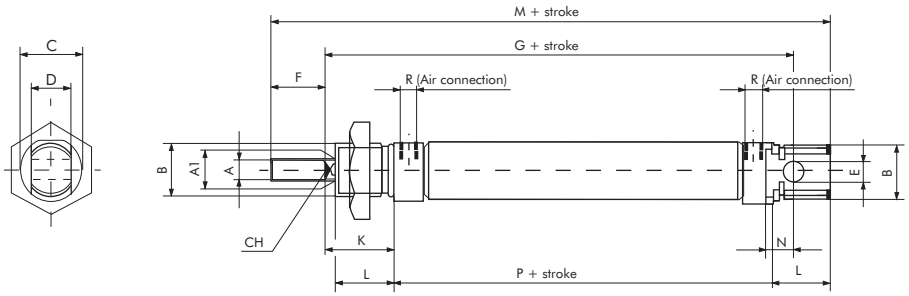
Enter your required stroke here on your order! (taking into account the buckling load)

☞ **Order example:** ZDM ** 16/ ** ES **
- Standard type
- Piston Ø/stroke
- **Designation for the options:** FKM seals . . . . . **-V**

Order numbers suffixes:
Continuous piston rod . . . . . **-K**

TIP *We produce your desired stroke!*

Main dimensions - small cylinders ISO 6432/CETOP RP 52 P

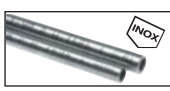


Piston Ø	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm
A	M 4	M 4	M 6	M 6	M 8	M 10 x 1.25
A1	4	4	6	6	8	10
B	M 12 x 1.25	M 12 x 1.25	M 16 x 1.5	M 16 x 1.5	M 22 x 1.5	M 22 x 1.5
C	16	16	19	19 (21.8*)	27 (29*)	30 (34*)
D	8	8	12	12	16	16
E	4	4	6	6	8	8
F	12	12	16	16	20	22
G	64	64	75	82	95	104
K	16	16	22	22	24	28
L	12	12	18	18 (17*)	20	22
M	86	86	104	109 (111*)	131 (126*)	140 (137*)
N	6	6	9	9	12	12
P	46	46	48	53 (56*)	67 (62*)	68 (65*)
R	M 5	M 5	M 5	M 5	G 1/8"	G 1/8"
CH	---	---	5	5	7 (6*)	9 (8*)

* Eco-Line

8

INOX Stainless steel screw connections from page 78


INOX Stainless steel pipe from page 253

LOCTITE Liquid seals, gaskets & tapes from page 549

INOX Push-in connectors made of stainless steel from page 42

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Single acting small cylinders ISO 6432/CETOP RP 52 P

Pressure-force tables
can be found on page 3

Small cylinders ISO 6432/CETOP RP 52 P, single acting with magnetic pistons

Materials: Head and foot: Aluminium anodised, cylinder tube: AISI 304, piston rod: AISI 303, seal: NBR/PUR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 10 bar

ZEM

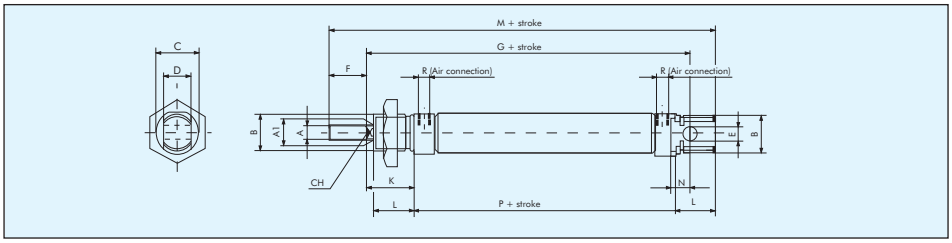
Piston Ø 8 mm	Piston Ø 10 mm	Piston Ø 12 mm	Piston Ø 16 mm	Piston Ø 20 mm	Piston Ø 25 mm	Desired stroke/ standard stroke
ZEM 8/**	ZEM 10/**	ZEM 12/**	ZEM 16/**	ZEM 20/**	ZEM 25/**	1 to 50
ZEM 8/10	ZEM 10/10	ZEM 12/10	ZEM 16/10	ZEM 20/10	ZEM 25/10	10
ZEM 8/25	ZEM 10/25	ZEM 12/25	ZEM 16/25	ZEM 20/25	ZEM 25/25	25
ZEM 8/40	ZEM 10/40	ZEM 12/40	ZEM 16/40	ZEM 20/40	ZEM 25/40	40
ZEM 8/50	ZEM 10/50	ZEM 12/50	ZEM 16/50	ZEM 20/50	ZEM 25/50	50

Enter your required stroke here on your order! (taking into account the buckling load)

Order example: ZEM 8/**
Standard type
Piston Ø/stroke

TIP *We produce your desired stroke!*

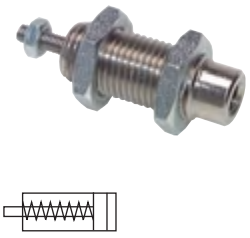
Dimensions are found on the previous page



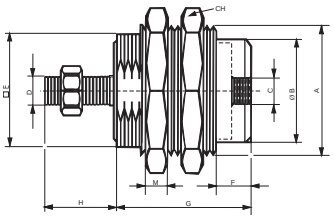
Pressure-force tables
can be found on page 3

Single acting screw-in cylinders

Materials: Body: Brass nickel-plated, piston rod: Stainless steel, seal: NBR
Temperature range: -20°C to max. +80°C
Operating pressure: 2 to 7 bar

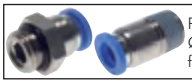


Piston Ø 6 mm	Piston Ø 10 mm	Piston Ø 16 mm	Spring force when closed	Spring force when open	Stroke
With threads on the piston rod					
HA 6/5	HA 10/5	HA 16/5	1.5 N	4 N	5
HA 6/10	HA 10/10	HA 16/10	2.5 N	6 N	10
HA 6/15	HA 10/15	HA 16/15	4.5 N	11 N	15
Without threads on the piston rod					
HB 6/5	HB 10/5	HB 16/5	1.5 N	4 N	5
HB 6/10	HB 10/10	HB 16/10	2.5 N	6 N	10
HB 6/15	HB 10/15	HB 16/15	4.5 N	11 N	15



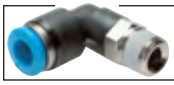
Piston Ø	A	B	C	D	E	F	G (with stroke) 5 mm	10 mm	15 mm	H	M	CH
6	M 10 x 1	8.5	M 5	M 3	9	5	18.5	25.5	32.5	9.0	3	14
10	M 15 x 1.5	13.0	M 5	M 4	14	5	20.5	27.0	34.0	11.5	4	19
16	M 22 x 1.5	19.0	M 5	M 5	20	6	23.5	29.5	36.0	14.0	5	27

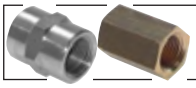
8


Push-in fittings
Ø 3 - 32 mm
from page 24

One-way
control valves
from page 440

Pressure regulator
valves with push-in
fittings from page 34


FESTO
Festo screwed connections can be found in our Online Shop


Sleeves
from page 118

Multiple couplings
from page 41

PU, PA, PTFE and
PE hoses
from page 192

Valves
from page 404

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Cylinder head fastening nuts — for small cylinders ISO 6432

Type zinc-plated steel	Type V4A (stainless steel)	Thread	SW	For cylinder Ø
GM 12125 ST	GM 12125 ES	M 12 x 1.25	19	8 and 10
GM 1615 ST	GM 1615 ES	M 16 x 1.5	24	12 and 16
GM 2215 ST	GM 2215 ES	M 22 x 1.5	32	20 and 25

Piston rod nuts — for small cylinders ISO 6432

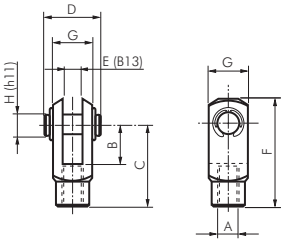
Type zinc-plated steel	Type V4A (stainless steel)	Thread	SW	For cylinder Ø
GM 4 ST	GM 4 ES	M 4	7	8 and 10
GM 6 ST	GM 6 ES	M 6	10	12 and 16
GM 8 ST	GM 8 ES	M 8	13	20
GM 10125 ST	GM 10125 ES	M 10 x 1.25	17	25

Yokes with bolts — for small cylinders ISO 6432

Optional: Material AISI 316Ti - **ES 4A**

Type zinc-plated steel	Type AISI 303*	A	B	C	D	E	F	G	H	For cylinder Ø
GAK 8/10	GAK 8/10 ES	M 4	8	16	11	4	21	8	4	8 and 10
GAK 12/16	GAK 12/16 ES	M 6	12	24	16	6	31	12	6	12 and 16
GAK 20	GAK 20 ES	M 8	16	32	23	8	42	16	8	20
GAK 25/32	GAK 25/32 ES	M 10 x 1.25	20	40	27	10	52	20	10	25

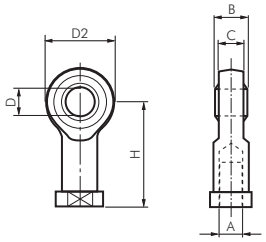
* type stainless steel can optically differ from the drawing



Swivel heads — for small cylinders ISO 6432

Materials: Type zinc-plated steel: Housing: Zinc-plated steel, bearing: Brass/PTFE, inside ring: 100Cr6
Type stainless steel: Housing: AISI 304, bearing: AISI 304/PTFE, inside ring: AISI 420

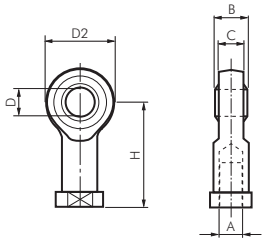
Type zinc-plated steel	Type stainless steel	A	B	C	D	D2	H	L	For cylinder Ø
SGS 8/10	SGS 8/10 ES	M 4	8	6.0	5	18	27	10	8 and 10
SGS 12/16	SGS 12/16 ES	M 6	9	6.75	6	20	30	12	12 and 16
SGS 20	SGS 20 ES	M 8	12	9.0	8	24	36	16	20
SGS 25/32	SGS 25/32 ES	M 10 x 1.25	14	10.5	10	28	43	20	25



Swivel heads made of plastic — for small cylinders ISO 6432

Materials: High performance polymer, self lubricating
Temperature range: -40°C to max. +80°C
Operating range: Wet environments, weak acids and alkalis, water, extreme dirt

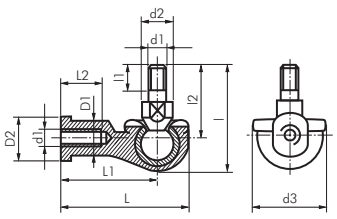
Type	A	B	C	D	D2	H	For cylinder Ø
SGS 12/16 KU	M 6	9	7.0	6	20	30	12 and 16
SGS 20 KU	M 8	12	9.0	8	24	36	20
SGS 25/32 KU	M 10 x 1.25	14	10.5	10	30	43	25



Swivel heads 90° — for small cylinders ISO 6432

Materials: Body: Die-cast aluminium, spigot and ball: Zinc-plated steel

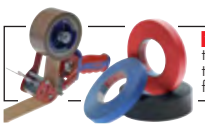
Type	d1	d2	d3	L	l	L1	l1	L2	l2	D1	D2	For cylinder Ø
SGS 12/16-90	M 6	10	20	40.5	36.0	30	11	14	26	10.0	13	12 and 16
SGS 20-90	M 8	12	24	49.0	43.5	36	12	17	31	12.5	16	20
SGS 25/32-90	M 10 x 1.25	14	30	58	51.5	43	15	21	37	15.0	19	25



FESTO
Festo cylinders can be found in our Online Shop

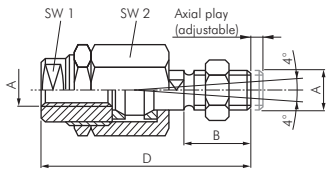
Manual tools can be found in Online Shop

Blow guns from page 524


tesa
tesa®-adhesive technology from page 585

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

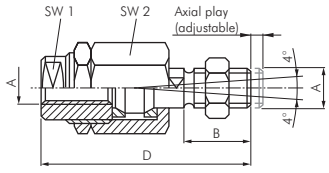
Small cylinders ISO 6432/CETOP RP 52 P - accessories



Flexo couplings — for small cylinders ISO 6432

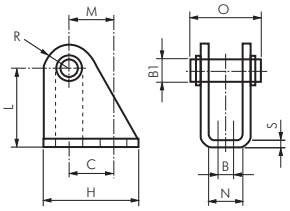
Type zinc-plated steel	Type AISI 303/304 (INOX)	A	B*	D*	SW 1*	SW 2	Radial play*	For cylinder Ø
FK 8/10	FK 8/10 ES	M 4	8	33.0	12	12	0.5	8 and 10
FK 12/16	FK 12/16 ES	M 6	10	35.0	7	15	2.0	12 and 16
FK 20	FK 20 ES	M 8	20	57.0	11	19	2.0	20
FK 25/32	FK 25/32 ES	M 10 x 1.25	20	71.5	19	30	2.0	25

* dimensions for stainless steel may vary



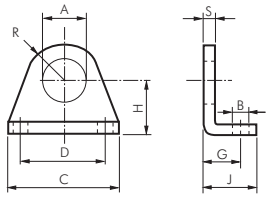
Flexo couplings — for screw-in cylinders

Type zinc-plated steel	A	B	D	SW 1	SW 2	Radial play*
FK M 5	M 5	12	39	7	13	0.5



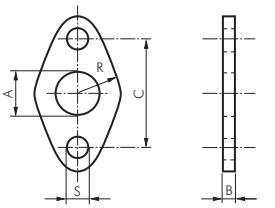
Bearing blocks with bolts — for small cylinders ISO 6432

Type zinc-plated steel	Type AISI 304 (INOX)	B	B1	C	H	L	N	O	R	S	M	For cylinder Ø
BG 8/10	BG 8/10 ES	4.5	4	12.5	20	24	8.1	17	5	2.5	11.25	8 and 10
BG 12/16	BG 12/16 ES	5.5	6	15	25	27	12.1	23	7	3	13	12 and 16
BG 20/25	BG 20/25 ES	6.6	8	20	32	30	16.1	29.5	10	4	16	20 and 25



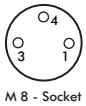
Foot fastenings — for small cylinders ISO 6432

Type zinc-plated steel	Type AISI 304 (INOX)	A	B	C	D	G	H	J	R	S	For cylinder Ø
BF 8/10	BF 8/10 ES	12	4.5	35	25	11	16	16	10	3	8 and 10
BF 12/16	BF 12/16 ES	16	5.5	42	32	14	20	20	12.5	4	12 and 16
BF 20/25	BF 20/25 ES	22	6.6	54	40	17	25	25	20	5	20 and 25



Flange fastenings — for small cylinders ISO 6432

Type zinc-plated steel	Type AISI 304 (INOX)	A	B	C	R	S	For cylinder Ø
BFL 8/10	BFL 8/10 ES	12	3	30	11	4.5	8 and 10
BFL 12/16	BFL 12/16 ES	16	4	40	15	5.5	12 and 16
BFL 20/25	BFL 20/25 ES	22	5	50	20	6.6	20 and 25



M 8 - Socket

Connection lines — M 8 (3 pin)

Description: Pre-fabricated connection lines with 3-pin M8 socket (M8 x1 female thread acc. to DIN EN 61076-2-104) on one side and 3 loose cable ends on the other side.
Temperature range: -25°C to max. +90°C
Voltage: max. 60V AC/DC, max. 4 A
Protection class: IP 67
Cable: PUR cable, 3 x 0,34 mm²
Cable layout: PIN 1 - brown, PIN 3 - blue, PIN 4 - black
Suitable: These cables are used preferentially for the connection of cylinder switches, inductive proximity switches or solenoid valves. Warning! They are not compatible with the (e.g. used frequently for light barriers) 4-pin M8 cable connectors.

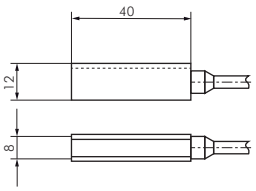
Type straight	Type angled	Cable length
KAB M8 1 G	KAB M8 1 W	1 mtr.
KAB M8 3 G	KAB M8 3 W	3 mtr.
KAB M8 5 G	KAB M8 5 W	5 mtr.
KAB M8 10 G	KAB M8 10 W	10 mtr.

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Cylinder switches for round cylinders and Mickey-Mouse profiles (TM/TME)

Material: PEI smoke
Connecting line: PVC cable
Protection class: IP 67
Temperature range: -25°C to max. +75°C
Note: The proximity switch with light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. The mounting is done by fixing clamps or tension bands, which must be ordered as accessories (see below).
Suitable: For ISO-15552 cylinder model series TM/TME (mounting using fixing clamps), round cylinders model series ZDM/ZDPM (Ø 8 - 25 mm), DSWPVM (Ø 32 - 63 mm) (mounting using tension bands) and other tie rod cylinders (mounting using fixing clamps or tension bands)

Especially good value!

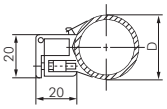


Type	Operating voltage	Switching	Max. switching current/performance	Electrical connection
2-wire reed sensor, red LED				
ZSC 12	10-250V AC/DC	NO contact	500 mA/20W	3 m, 2 x 0.25 mm²
ZSC 12-M8	10-60V AC/10-75V DC	NO contact	500 mA/20W	Cable plug M 8
Fully electronic sensor (reverse polarity protection/short circuit proof), yellow LED				
ZSC 33	10-30V DC	NO contact (PNP)	200 mA	3 m, 3 x 0.25 mm²
ZSC 33-M8	10-30V DC	NO contact (PNP)	200 mA	Cable plug M 8

M 8-Plug

Tension bands for cylinder switch type ZSC 33/ ZSC 12

Materials: Tape: AISI 304, clamping block: Aluminium
Suitable: For mounting cylinder switches type ZSC 33 and ZSC 12 on round cylinders.

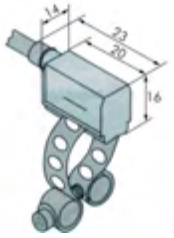


Type	Suitable for cylinder Ø	Clamping range (D)
ZSC1 8/25	8 - 25 mm	10 - 30 mm
ZSC1 32/63	32 - 63 mm	30 - 70 mm
ZSC1 80/100	80 - 100 mm	70 - 110 mm
ZSC1 125/200	125 - 200 mm	110 - 230 mm

Electronic cylinder switches for stainless steel cylinders

Materials: PA12 + 30% GF (corrosion and acid resistant)
Connecting line: 2 m PUR/PVC cable, cross section: 3 x 0.25 mm²
Temperature range: -25°C to max. +70°C
☞ **Optional:** Design as 2-wire NAMUR switch (for use in EX areas)* **-NAMUR**
Note: The electronic proximity switch with integrated protection circuit and light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. It is equipped with cycling short-circuit protection and a reverse polarity protection. The mounting is done using ES tension bands, which must be ordered as accessories (see below).
Suitable: For all stainless steel cylinders

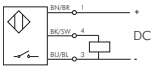
Type	Operating voltage	Protection class	Switching	Max. switching current	Overrun speed
ZSE 33	10-30V DC	IP67	NO contact (PNP)	200 mA	Max. 10 m/s



☞ **Order example:** ZSES **

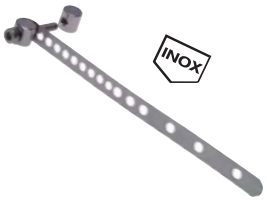
Standard type

Designation for the options:
2-wire NAMUR switch
acc. to ATEX* II 2G EEx ia IIC T4 ... T6 . . . **-NAMUR**



* for use in EX areas, the NAMUR switch must be connected to an approved switch isolator.
Please ask us!

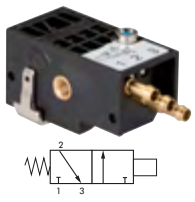
Tension bands for electronic cylinder switch type ZSE 33



Type AISI 304 (INOX)	Used for cylinder Ø ISO 6432 (small cylinder)	Used for cylinder Ø ISO 15552 (VDMA)	Used for cylinder Ø ISO 6431 (standard)
ZSE1 8/25	8 - 25	---	---
ZSE1 32/80	---	32 - 80	32 - 80
ZSE1 80/125	---	80 - 125	80 - 125

Pneumatic cylinder switches for round cylinders

Material: Plastic
Temperature range: -15°C to max. +60°C
Media: Unoiled, filtered compressed air
Application: The cylinder switch is a 3/2-way valve controlled via the magnetic piston of a cylinder. It can be used to control pneumatic circuits, where it is very difficult to design and fit a limit switch. **In contrast to a pneumatic sensor fitting (Page 431), similar to an electric cylinder switch, a pneumatic cylinder switch allows querying the exact position of the piston and need not be positioned in the end position.**



Type	Operating pressure	Nominal width	Hose connection	Type tension band to Ø 100 mm
ZS PNEU	2-6 bar	2 mm	Push in nipple for hose Ø 3 mm (interior)	ZS PNEU SP

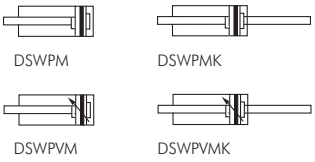
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Round cylinders Ø 32-63

single acting

ESWP (max. 50 mm stroke)

double acting



DSWPM DSWPMK DSWPVM DSWPVMK

Round cylinders Ø 32 - 63

Materials: Head and foot: Aluminium anodised, cylinder tube: AISI 304, piston rod: Steel hard chrome-plated, seal: NBR/PUR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 10 bar

Piston Ø 32 mm	Piston Ø 40 mm	Piston Ø 50 mm	Piston Ø 63 mm	Desired stroke/ standard stroke
DSWPM 32/**	DSWPM 40/**	DSWPM 50/**	DSWPM 63/**	1 to 1000
DSWPM 32/10	DSWPM 40/10	DSWPM 50/10	DSWPM 63/10	10
DSWPM 32/25	DSWPM 40/25	DSWPM 50/25	DSWPM 63/25	25
DSWPM 32/40	DSWPM 40/40	DSWPM 50/40	DSWPM 63/40	40
DSWPM 32/50	DSWPM 40/50	DSWPM 50/50	DSWPM 63/50	50
DSWPM 32/80	DSWPM 40/80	DSWPM 50/80	DSWPM 63/80	80
DSWPM 32/100	DSWPM 40/100	DSWPM 50/100	DSWPM 63/100	100
DSWPM 32/125	DSWPM 40/125	DSWPM 50/125	DSWPM 63/125	125
DSWPM 32/160	DSWPM 40/160	DSWPM 50/160	DSWPM 63/160	160
DSWPM 32/200	DSWPM 40/200	DSWPM 50/200	DSWPM 63/200	200
DSWPM 32/250	DSWPM 40/250	DSWPM 50/250	DSWPM 63/250	250
DSWPM 32/320	DSWPM 40/320	DSWPM 50/320	DSWPM 63/320	320
DSWPM 32/400	DSWPM 40/400	DSWPM 50/400	DSWPM 63/400	400
DSWPM 32/500	DSWPM 40/500	DSWPM 50/500	DSWPM 63/500	500

Enter your required stroke here on your order! (taking into account the buckling load)

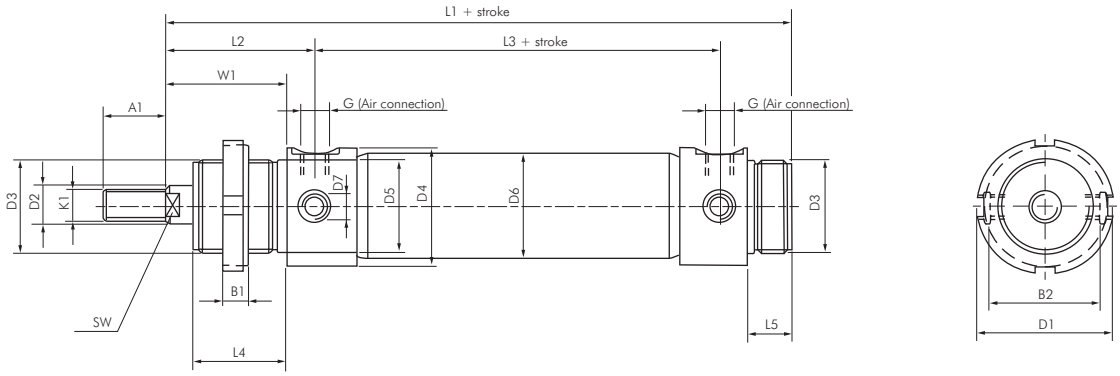
Order example: DSWP M 32/ **
Standard type — Piston Ø/stroke

Order numbers suffixes:
Adjustable end position damping . . . **-V**
Magnetic piston (standard, without magnetic piston = discontinued type) **-M**
Continuous piston rod . . . . . **-K**

TIP *We produce your desired stroke!*

Pressure-force tables can be found on page 3

Main dimensions - for round cylinders Ø 32 - 63



Piston Ø	A_1	B_1	B_2	D_1	D_2	D_3	D_4	D_5	D_6	D_7	E_1	K_1	L_1	L_2
32 mm	20	7	35	45	12	M 30 x 1.5	38	30	33.6	M 8 x 1	G 1/8"	M 10	148	47
40 mm	24	8	42	50	16	M 38 x 1.5	46	38	41.6	M 10 x 1	G 1/4"	M 12	172	57
50 mm	32	9	53	58	20	M 45 x 1.5	57	45	52.4	M 12 x 1.5	G 1/4"	M 16	188	62
63 mm	32	9	64	58	20	M 45 x 1.5	70	45	65.4	M 14 x 1.5	G 3/8"	M 16	192	63

Piston Ø	L_3	L_4	L_8	SW	W_1
32 mm	78	30	14	10	38
40 mm	87	35	16	12	45
50 mm	96	38	18	16	50
63 mm	98	38	18	16	50

One-way control valves from page 440

PU, PA, PTFE and PE hoses from page 192

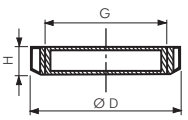
FESTO You will find grippers in our Online Shop

FESTO Festo cylinders can be found in our Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Slotted nuts — for round cylinders Ø 32 - 63

Type zinc-plated steel	G	D	H	For cylinder Ø
NM 3015	M 30 x 1.5	45	7	32
NM 3815	M 38 x 1.5	50	8	40
NM 4515	M 45 x 1.5	58	9	50 and 63



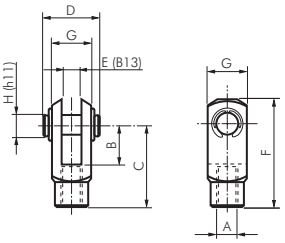
Piston rod nuts — for round cylinders Ø 32 - 63

Type zinc-plated steel	Thread	SW	For cylinder Ø
GM 1015 ST	M 10	17	32
GM 12175 ST	M 12	19	40
GM 162 ST	M 16	24	50 and 63

Yokes with bolts — for round cylinders Ø 32 - 63

Type zinc-plated steel	Type AISI 303* (INOX)	A	B	C	D	E	F	G	H	For cylinder Ø
GAK M10	GAK M10 ES	M 10	20	40	28	10	52	20	10	32
GAK M12	GAK M12 ES	M 12	24	48	33	12	62	24	12	40
GAK M16	GAK M16 ES	M 16	32	64	43	16	83	32	16	50 and 63

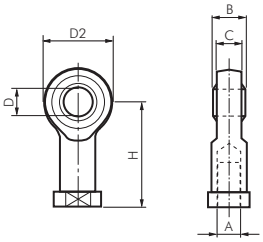
* type stainless steel can optically differ from the drawing



Swivel heads — for round cylinders Ø 32 - 63

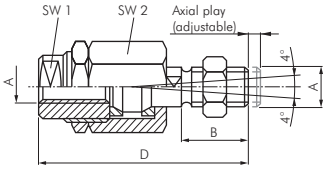
Materials: Type zinc-plated steel: Housing: Zinc-plated steel, bearing: Brass/PTFE, inside ring: 100Cr6
Type stainless steel: Housing: AISI 304, bearing: AISI 304/PTFE, inside ring: AISI 420

Type zinc-plated steel	Type stainless steel (INOX)	A	B	C	D	D2	L	H	For cylinder Ø
SGS M10	SGS M10 ES	M 10	14	10.5	10	28	20	43	32
SGS M12	SGS M12 ES	M 12	16	12	12	32	22	50	40
SGS M16	SGS M16 ES	M 16	21	15	16	42	28	64	50 and 63



Flexo couplings — for round cylinders Ø 32 - 63

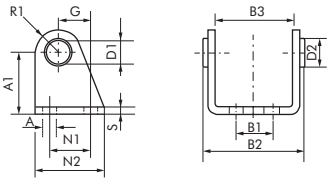
Type zinc-plated steel	A	B	D	SW 1	SW 2	Radial play	For cylinder Ø
FK M10	M 10	20	71.5	19	30	2	32
FK M12	M 12	24	75.5	19	30	2	40
FK M16	M 16	32	104.0	27	41	2	50 and 63



Swivel fastenings — for round cylinders Ø 32 - 63

Supply volume: 1 pc. swivel fastening with 2 pieces threaded bolts

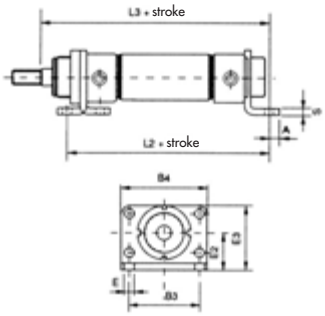
Type zinc-plated steel	D1	D2	A	A1	G	N1	N2	R1	S	B1	B2	B3	For cylinder Ø
RC 32	10	15	7	35	20	24	40	12	4	20	50.1	38.1	32
RC 40	12	20	9	40	27	30	50	13	5	28	60.1	46.1	40
RC 50	14	23	9	45	30	34	54	14	6	36	74.1	57.1	50
RC 63	16	23	9	50	40	35	65	16	6	42	88.1	70.1	63



Foot fastenings — for round cylinders Ø 32 - 63

Supply volume: 1 pc. foot mounting

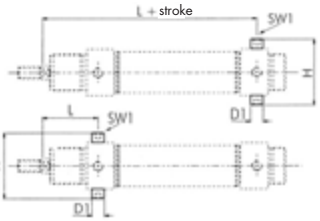
Type zinc-plated steel	E	E2	E3	L2	L3	B3	B4	S	A	For cylinder Ø
RA 32	7	28	49	124	148	52	66	4	7	32
RA 40	9	33	58	153	178	60	80	5	10	40
RA 50	9	40	70	160	190	70	90	6	10	50
RA 63	9	45	80	164	195	76	96	6	10	63



Threaded bolt — for round cylinders Ø 32 - 63

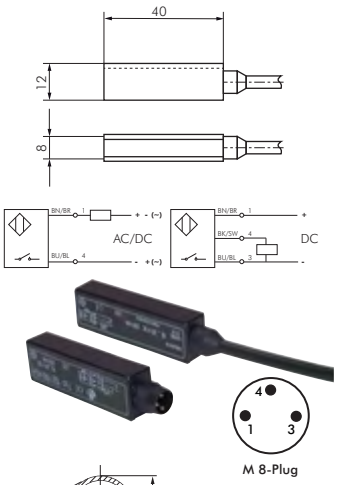
Supply volume: 2 pc. threaded bolts

Type zinc-plated steel	D1	H	L	L1	SW1
RG 32	10	51	125	47	5
RG 40	12	61	144	57	6
RG 50	14	75	158	62	6
RG 63	16	90	161	63	8



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Round cylinders Ø 32-63 - accessories



Cylinder switches for round cylinders and Mickey-Mouse profiles (TM/TME)

Especially good value!

Material: PEI smoke
Connecting line: PVC cable
Protection class: IP 67
Temperature range: -25°C to max. +75°C
Note: The proximity switch with light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. The mounting is done by fixing clamps or tension bands, which must be ordered as accessories (see below).
Suitable: For ISO-15552 cylinder model series TM/TME (mounting using fixing clamps), round cylinders model series ZDM/ZDPM (Ø 8 - 25 mm), DSWPVM (Ø 32 - 63 mm) (mounting using tension bands) and other tie rod cylinders (mounting using fixing clamps or tension bands)

Type	Operating voltage	Switching	Max. switching current/performance	Electrical connection
2-wire reed sensor, red LED				
ZSC 12	10-250V AC/DC	NO contact	500 mA/20W	3 m, 2 x 0.25 mm²
ZSC 12-M8	10-60V AC/10-75V DC	NO contact	500 mA/20W	Cable plug M 8
Fully electronic sensor (reverse polarity protection/short circuit proof), yellow LED				
ZSC 33	10-30V DC	NO contact (PNP)	200 mA	3 m, 3 x 0.25 mm²
ZSC 33-M8	10-30V DC	NO contact (PNP)	200 mA	Cable plug M 8

Tension bands for cylinder switch type ZSC 33 /ZSC 12

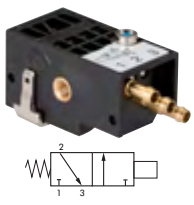
Materials: Tape: AISI 304, clamping block: Aluminium
Suitable: For mounting cylinder switches type ZSC 33 and ZSC 12 on round cylinders.

Type	Suitable for cylinder Ø	Clamping range (D)
ZSC1 8/25	8 - 25 mm	10 - 30 mm
ZSC1 32/63	32 - 63 mm	30 - 70 mm
ZSC1 80/100	80 - 100 mm	70 - 110 mm
ZSC1 125/200	125 - 200 mm	110 - 230 mm

Connection lines — M 8 (3 pin)

Description: Pre-fabricated connection lines with 3-pin M8 socket (M8 x1 female thread acc. to DIN EN 61076-2-104) on one side and 3 loose cable ends on the other side.
Temperature range: -25°C to max. +90°C
Voltage: max. 60V AC/DC, max. 4 A
Protection class: IP 67
Cable: PUR cable, 3 x 0,34 mm²
Cable layout: PIN 1 - brown, PIN 3 - blue, PIN 4 - black
Suitable: These cables are used preferentially for the connection of cylinder switches, inductive proximity switches or solenoid valves. Warning! They are not compatible with the (e.g. used frequently for light barriers) 4-pin M8 cable connectors.

Type **straight**	Type **angled**	Cable length
KAB M8 1 G	KAB M8 1 W	1 mtr.
KAB M8 3 G	KAB M8 3 W	3 mtr.
KAB M8 5 G	KAB M8 5 W	5 mtr.
KAB M8 10 G	KAB M8 10 W	10 mtr.



Pneumatic cylinder switches for round cylinders

Material: Plastic
Temperature range: -15°C to max. +60°C
Media: Unoiled, filtered compressed air
Application: The cylinder switch is a 3/2-way valve controlled via the magnetic piston of a cylinder. It can be used to control pneumatic circuits, where it is very difficult to design and fit a limit switch. **In contrast to a pneumatic sensor fitting (Page 431), similar to an electric cylinder switch, a pneumatic cylinder switch allows querying the exact position of the piston and need not be positioned in the end position.**

Type	Operating pressure	Nominal width	Hose connection
ZS PNEU	2-6 bar	2 mm	Push in nipple for hose Ø 3 mm (interior)

Type **tension band to Ø 100 mm**
ZS PNEU SP

Solenoid testers with clips for magnetic coils

Suitable: For functional tests of magnetic coils on valves without putting the machine out of operation. You carry out the test in the centre of the magnetic coil and by lighting the control lamps, the tester shows whether the magnetic coil is working. Also suitable for non-visible permanent magnets (e.g. magnetic pistons). If you fit the magnetic ring on the test tip, the magnetic tester works as a torch. The battery can be replaceable without any problems. The solenoid tester can be used, regardless of the coil voltage.

Type	Length
MAGNETTESTER	165 mm

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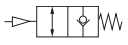
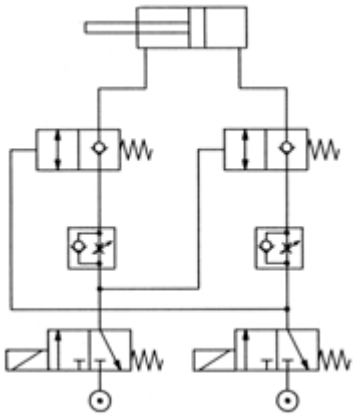
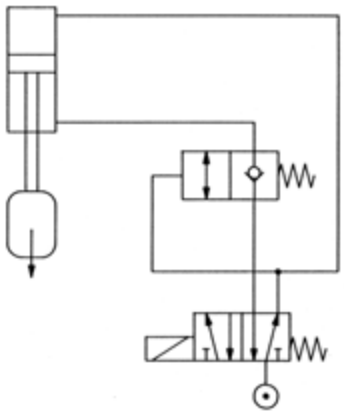
Pilot operated check valves — MSV



Materials: Body and sleeve: Brass nickel-plated, seals: NBR, holding claws: Stainless steel (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: 0.5 - 10 bar
Media: Oiled and unoiled compressed air, neutral and non-hazardous gasses
Function: The check valve function can be used for a brief intermediate stop of an actuator. If a control signal is applied to the actuating connection, the flow between banjo and male threads is possible in both directions. If there is no control signal, the valve locks the flow from the male thread to the banjo (venting the actuator), thus causing it to stop briefly. The flow from the banjo to the male threads (towards the actuator) is unaffected by the control signal.

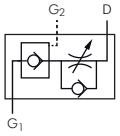
Type **without manual emergency activation**	G_2 actuation (FT)	Type **with manual emergency activation**	D_2 actuation (push-in fitting)	G_1 Screw-in thread	D Banjo connection
Banjo with female threads					
STOP 18 MSV	M 5	STOP 18 HN MSV	4	G 1/8"	G 1/8"
STOP 14 MSV	G 1/8"	STOP 14 HN MSV	4	G 1/4"	G 1/4"
Banjo with push-in fitting					
STOP 184 MSV	M 5	STOP 184 HN MSV	4	G 1/8"	4
STOP 186 NSV	M 5	STOP 186 HN NSV	4	G 1/8"	6
STOP 188 MSV	M 5	STOP 188 HN MSV	4	G 1/8"	8
STOP 146 MSV	G 1/8"	STOP 146 HN MSV	4	G 1/4"	6
STOP 148 MSV	G 1/8"	STOP 148 HN MSV	4	G 1/4"	8
STOP 1410 MSV	G 1/8"	STOP 1410 HN MSV	4	G 1/4"	10
STOP 1412 MSV	G 1/8"	STOP 1412 HN MSV	4	G 1/4"	12





One-way control valves with pilot operated check valves — Standard

Materials: Body: Brass nickel-plated/PA 66, sleeve: PA 66, seal: NBR, holding claws: Stainless steel, cartridge: ZnDC zinc-plated (only silicone-free seals and lubricants are used during assembly)
Temperature range: -20°C to max. +80°C
Operating pressure: 0 - 10 bar
Function: This functional combination combines the function of a one-way control valve used to regulate exhaust air flow with that of a check valve that can be unlocked pneumatically. The check valve function can be used for a brief intermediate stop. If a control signal is applied to the female thread, the exhaust air flow is controlled from the male thread to the hose. If there is no control signal on the female thread, the valve locks the flow from the male thread to the hose (venting the actuator), thus causing it to stop briefly. The flow from the hose to the male thread (towards the actuator) is not regulated by the valve and is always possible (regardless of whether or not there is a signal).



Advantages:
- Compact design
- Can be easily adjusted without tools
- Hose and thread connector can be positioned freely, thus allowing for maximum flexibility when installing the tubes

Type	G_1	G_2	D
GRAIQS 186 G STOP	G 1/8"	M 5	6
GRAIQS 188 G STOP	G 1/8"	M 5	8
GRAIQS 146 G STOP	G 1/4"	G 1/8"	6

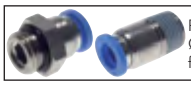
Type	G_1	G_2	D
GRAIQS 148 G STOP	G 1/4"	G 1/8"	8
GRAIQS 3810 G STOP	G 3/8"	G 1/8"	10
GRAIQS 1212 G STOP	G 1/2"	G 1/4"	12

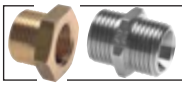
ACE
Shock absorber
from page 502

FESTO
You will find grippers
in our Online Shop

FESTO
Festo cylinders can be
found in our Online Shop

FESTO
Mini-carriages are found
in our Online Shop


Push-in fittings
Ø 3 - 32 mm
from page 24


Threaded fittings
from page 102

Multiple couplings
from page 41

PU, PA, PTFE and
PE hoses
from page 192

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Cylinders ISO 15552

Pressure-force tables
can be found on page 3

Cylinders ISO 15552 with magnet and adjustable end position damping - Eco-Line — Type XLE/TM

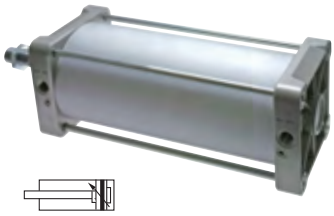
Materials: Head and foot: Aluminium painted, cylinder tube: Aluminium profile tube anodised, piston rod: Steel hard chrome-plated, piston: Aluminium, seal: NBR/PUR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 10 bar

Especially good value!

T-groove profile

type XLE

Piston Ø 32 mm	Piston Ø 40 mm	Piston Ø 50 mm	Piston Ø 63 mm	Piston Ø 80 mm	Piston Ø 100 mm	Stroke
XLE 32/25	XLE 40/25	XLE 50/25	XLE 63/25	XLE 80/25	XLE 100/25	25
XLE 32/40	XLE 40/40	XLE 50/40	XLE 63/40	XLE 80/40	XLE 100/40	40
XLE 32/50	XLE 40/50	XLE 50/50	XLE 63/50	XLE 80/50	XLE 100/50	50
XLE 32/80	XLE 40/80	XLE 50/80	XLE 63/80	XLE 80/80	XLE 100/80	80
XLE 32/100	XLE 40/100	XLE 50/100	XLE 63/100	XLE 80/100	XLE 100/100	100
XLE 32/125	XLE 40/125	XLE 50/125	XLE 63/125	XLE 80/125	XLE 100/125	125
XLE 32/150	XLE 40/150	XLE 50/150	XLE 63/150	XLE 80/150	XLE 100/150	150**
XLE 32/160	XLE 40/160	XLE 50/160	XLE 63/160	XLE 80/160	XLE 100/160	160
XLE 32/200	XLE 40/200	XLE 50/200	XLE 63/200	XLE 80/200	XLE 100/200	200
XLE 32/250	XLE 40/250	XLE 50/250	XLE 63/250	XLE 80/250	XLE 100/250	250
XLE 32/300	XLE 40/300	XLE 50/300	XLE 63/300	XLE 80/300	XLE 100/300	300**
XLE 32/320	XLE 40/320	XLE 50/320	XLE 63/320	XLE 80/320	XLE 100/320	320
XLE 32/400	XLE 40/400	XLE 50/400	XLE 63/400	XLE 80/400	XLE 100/400	400
XLE 32/500	XLE 40/500	XLE 50/500	XLE 63/500	XLE 80/500	XLE 100/500	500
Repair sets						
XLE 32 REP	XLE 40 REP	XLE 50 REP	XLE 63 REP	XLE 80 REP	XLE 100 REP	

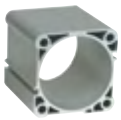


XLE/TM — type TM

Piston Ø 125 mm	Piston Ø 160 mm	Piston Ø 200 mm	Piston Ø 250 mm	Piston Ø 320 mm	Stroke
TM 125/25	TM 160/25	TM 200/25	TM 250/25	TM 320/25	25
TM 125/50	TM 160/50	TM 200/50	TM 250/50	TM 320/50	50
TM 125/80	TM 160/80	TM 200/80	TM 250/80	TM 320/80	80
TM 125/100	TM 160/100	TM 200/100	TM 250/100	TM 320/100	100
TM 125/125	TM 160/125	TM 200/125	TM 250/125	TM 320/125	125
TM 125/150	TM 160/150	TM 200/150	TM 250/150	TM 320/150	150**
TM 125/160	TM 160/160	TM 200/160	TM 250/160	TM 320/160	160
TM 125/200	TM 160/200	TM 200/200	TM 250/200	TM 320/200	200
TM 125/250	TM 160/250	TM 200/250	TM 250/250	TM 320/250	250
TM 125/300	TM 160/300	TM 200/300	TM 250/300	TM 320/300	300**
TM 125/320	TM 160/320	TM 200/320	TM 250/320	TM 320/320	320
TM 125/400	TM 160/400	TM 200/400	TM 250/400	TM 320/400	400
TM 125/500	TM 160/500	TM 200/500	TM 250/500	TM 320/500	500
Repair sets					
TM 125 REP	TM 160 REP	TM 200 REP	TM 250 REP	TM 320 REP	

** no standard stroke

Cylinders ISO 15552 with magnet and adjustable end position damping — Type XL



T-groove profile

Materials: Head and foot: Stove-enamelled die-cast aluminium, cylinder tube: Aluminium profile tube anodised, piston rod: Steel hard chrome-plated, piston: Complete piston (ST/NBR), seal: NBR/PUR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 10 bar
☞ **Optional:** Custom stroke (5 - 2000 mm), FKM seal (temperature range -10°C to max. +150°C, no magnet piston possible) **-V**, stainless steel piston rod **-EK**, ATEX approval ⟨Ex⟩ II 2GD c T5 T100° -20°C≤Ta≤80°C **-X***

XL — XLK

XLD (Ø 32 - 63)

Piston Ø 32 mm	Piston Ø 40 mm	Piston Ø 50 mm	Piston Ø 63 mm	Piston Ø 80 mm	Piston Ø 100 mm	Piston Ø 125 mm	Stroke
XL 32/25	XL 40/25	XL 50/25	XL 63/25	XL 80/25	XL 100/25	XL 125/25	25
XL 32/50	XL 40/50	XL 50/50	XL 63/50	XL 80/50	XL 100/50	XL 125/50	50
XL 32/80	XL 40/80	XL 50/80	XL 63/80	XL 80/80	XL 100/80	XL 125/80	80
XL 32/100	XL 40/100	XL 50/100	XL 63/100	XL 80/100	XL 100/100	XL 125/100	100
XL 32/125	XL 40/125	XL 50/125	XL 63/125	XL 80/125	XL 100/125	XL 125/125	125
XL 32/150	XL 40/150	XL 50/150	XL 63/150	XL 80/150	XL 100/150	XL 125/150	150**
XL 32/160	XL 40/160	XL 50/160	XL 63/160	XL 80/160	XL 100/160	XL 125/160	160
XL 32/200	XL 40/200	XL 50/200	XL 63/200	XL 80/200	XL 100/200	XL 125/200	200
XL 32/250	XL 40/250	XL 50/250	XL 63/250	XL 80/250	XL 100/250	XL 125/250	250
XL 32/300	XL 40/300	XL 50/300	XL 63/300	XL 80/300	XL 100/300	XL 125/300	300**
XL 32/320	XL 40/320	XL 50/320	XL 63/320	XL 80/320	XL 100/320	XL 125/320	320
XL 32/400	XL 40/400	XL 50/400	XL 63/400	XL 80/400	XL 100/400	XL 125/400	400
XL 32/500	XL 40/500	XL 50/500	XL 63/500	XL 80/500	XL 100/500	XL 125/500	500
Repair sets							
XL 32 REP	XL 40 REP	XL 50 REP	XL 63 REP	XL 80 REP	XL 100 REP	XL 125 REP	

* T_{Medium}: -20°C to max. +50°C, T_{amb}: -20°C to max. +60°C (see the operating instructions for full details), ** no standard stroke

TIP *We produce your desired stroke!*

Enter your required stroke here on your order! (taking into account the buckling load)

☞ **Order example:** XL * 32/ ** **

- XL: Standard type
- 32: Piston Ø
- **: Stroke (mm)

Designation for the options:
FKM seals (no magnetic piston possible) . . . . . **-V**
Stainless steel piston rod . . . . . **-EK**
ATEX approval ⟨Ex⟩ II 2GD c T5 T100° -20°C≤Ta≤80°C . . . **-X***

Order numbers suffixes:
Continuous piston rod . . . . . **-K**
Extended piston rod by x mm . . . . . **-Lx**
Non-rotating via double piston rod . . . . . **-D**

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Stainless steel cylinders ISO 15552 with magnet and adjustable end position damping

Materials: Head, foot, cylinder tube: AISI 304, piston rod: AISI 316, seal: NBR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 10 bar

Piston Ø 32 mm INOX	Piston Ø 40 mm INOX	Piston Ø 50 mm INOX	Piston Ø 63 mm INOX	Stroke
TM 32/25 ES	TM 40/25 ES	TM 50/25 ES	TM 63/25 ES	25
TM 32/50 ES	TM 40/50 ES	TM 50/50 ES	TM 63/50 ES	50
TM 32/80 ES	TM 40/80 ES	TM 50/80 ES	TM 63/80 ES	80
TM 32/100 ES	TM 40/100 ES	TM 50/100 ES	TM 63/100 ES	100
TM 32/125 ES	TM 40/125 ES	TM 50/125 ES	TM 63/125 ES	125
TM 32/160 ES	TM 40/160 ES	TM 50/160 ES	TM 63/160 ES	160
TM 32/200 ES	TM 40/200 ES	TM 50/200 ES	TM 63/200 ES	200
TM 32/250 ES	TM 40/250 ES	TM 50/250 ES	TM 63/250 ES	250
TM 32/320 ES	TM 40/320 ES	TM 50/320 ES	TM 63/320 ES	320
TM 32/400 ES	TM 40/400 ES	TM 50/400 ES	TM 63/400 ES	400
TM 32/500 ES	TM 40/500 ES	TM 50/500 ES	TM 63/500 ES	500

Piston Ø 80 mm INOX	Piston Ø 100 mm INOX	Piston Ø 125 mm INOX	Stroke
TM 80/25 ES	TM 100/25 ES	TM 125/25 ES	25
TM 80/50 ES	TM 100/50 ES	TM 125/50 ES	50
TM 80/80 ES	TM 100/80 ES	TM 125/80 ES	80
TM 80/100 ES	TM 100/100 ES	TM 125/100 ES	100
TM 80/125 ES	TM 100/125 ES	TM 125/125 ES	125
TM 80/160 ES	TM 100/160 ES	TM 125/160 ES	160
TM 80/200 ES	TM 100/200 ES	TM 125/200 ES	200
TM 80/250 ES	TM 100/250 ES	TM 125/250 ES	250
TM 80/320 ES	TM 100/320 ES	TM 125/320 ES	320
TM 80/400 ES	TM 100/400 ES	TM 125/400 ES	400
TM 80/500 ES	TM 100/500 ES	TM 125/500 ES	500

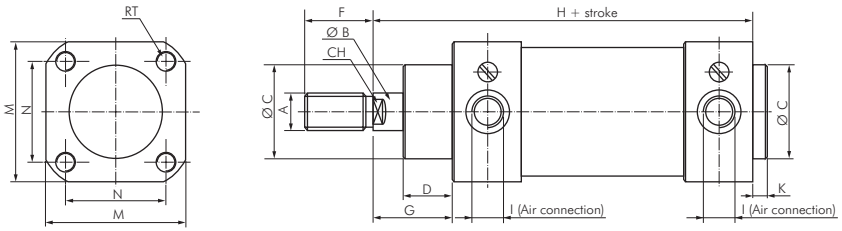
TM

TIP *We produce your desired stroke!*

Enter your required stroke here on your order! (taking into account the buckling load)

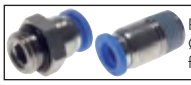
Order example: TM 32/ ** ES
Standard type | Stroke (mm) | Piston Ø

Main dimensions - cylinders ISO 15552



Piston Ø	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm	125 mm	160 mm	200 mm	250 mm	320 mm
A	M 10 x 1.25	M 12 x 1.25	M 16 x 1.5	M 16 x 1.5	M 20 x 1.5	M 20 x 1.5	M 27 x 2	M 36 x 2	M 36 x 2	M 42 x 2	M 48 x 2
B	12	16	20	20	25	25	32	40	40	50	63
C	30	35	40	45	45	55	60	65	75	90	110
DXLE/TM	18	22	28	29	35	38	40	50	65	75	90
DXL/TM ... ES	18	22	25.5	25	35	38	46	---	---	---	---
F	22	24	32	32	40	40	54	72	72	84	96
G	26	30	37	37	46	51	65	80	95	105	120
H	120	135	143	158	174	189	225	260	275	305	340
I	G 1/8"	G 1/4"	G 1/4"	G 3/8"	G 3/8"	G 1/2"	G 1/2"	G 3/4"	G 3/4"	G 1"	G 1"
K	4	4	4	4	4	4	5 (6[1])	6	6	8	10
M	47 (50[1])	54 (55[1])	65	75	94 (95[1])	111 (110[1])	140	180	220	270	350
N	32.5	38	46.5	56.5	72	89	110	140	175	220	270
CH	10	13	17	17	22	22	27	36	36	46	55
RT	M 6	M 6	M 8	M 8	M 10	M 10	M 12	M 16	M 16	M 20	M 24

[1] TM ... ES


Push-in fittings Ø 3 - 32 mm from page 24

One-way control valves from page 440

Valves from page 404

PU, PA, PTFE and PE hoses from page 192

FESTO Mini-carriages are found in our Online Shop

FESTO Festo cylinders can be found in our Online Shop

FESTO You will find grippers in our Online Shop

FESTO You will find Festo stop cylinders in our Online Shop

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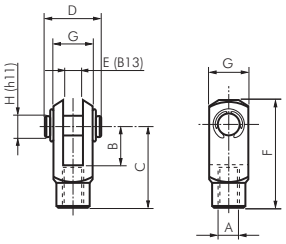
Cylinders ISO 15552 - accessories

Piston rod nuts — for cylinder ISO 15552

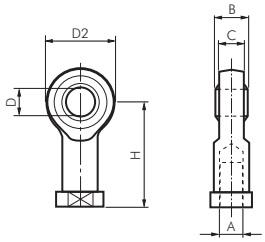
Type zinc-plated steel	Type V4A (stainless steel)	Thread	SW	For cylinder Ø
GM 10125 ST	GM 10125 ES	M 10 x 1.25	17	25 and 32
GM 12125 ST	GM 12125 ES	M 12 x 1.25	19	40
GM 1615 ST	GM 1615 ES	M 16 x 1.5	24	50 and 63
GM 2015 ST	GM 2015 ES	M 20 x 1.5	30	80 and 100
GM 272 ST	GM 272 ES	M 27 x 2	41	125
GM 362 ST	GM 362 ES	M 36 x 2	55	160 and 200



Yokes with bolts — for cylinder ISO 15552

Type zinc-plated steel	Type AISI 303**	A	B	C	D	E	F	G	H	For cylinder Ø
GAK 25/32	GAK 25/32 ES	M 10 x 1.25	20	40	27	10	52	20	10	25 and 32
GAK 40	GAK 40 ES	M 12 x 1.25	24	48	33	12	62	24	12	40
GAK 50/63	GAK 50/63 ES	M 16 x 1.5	32	64	43	16	83	32	16	50 and 63
GAK 80/100	GAK 80/100 ES*	M 20 x 1.5	40	80	51	20	105	40	20	80 and 100
GAK 125	GAK 125 ES*	M 27 x 2	55	110	72	30	148	55	30	125
GAK 160/200	---	M 36 x 2	72	144	84	35	188	70	35	160 and 200

* following DIN/ISO, ** type stainless steel can optically differ from the drawing

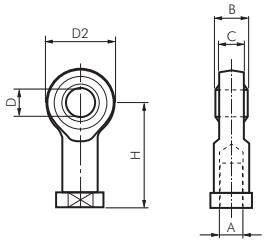


Swivel heads — for cylinder ISO 15552

Materials: Type zinc-plated steel: Housing: Zinc-plated steel, bearing: Brass/PTFE, inside ring: 100Cr6
Type stainless steel: Housing: AISI 304, bearing: AISI 304/PTFE, inside ring: AISI 420

Type zinc-plated steel	Type stainless steel	A	B	C	D	D2	L	H	For cylinder Ø
SGS 25/32	SGS 25/32 ES	M 10 x 1.25	14	10.5	10	28	20	43	32
SGS 40	SGS 40 ES	M 12 x 1.25	16	12.0	12	32	22	50	40
SGS 50/63	SGS 50/63 ES	M 16 x 1.5	21	15.0	16	42	28	64	50 and 63
SGS 80/100	SGS 80/100 ES	M 20 x 1.5	25	18.0	20	50	33	77	80 and 100
SGS 125	SGS 125 ES	M 27 x 2	37	25.0	30	70	51	110	125
SGS 160/200	SGS 160/200 ES	M 36 x 2	43*	28.0	35	80	56	125	160 and 200

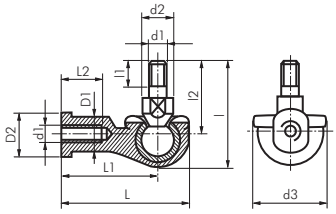
* standard deviation



Swivel heads made of plastic — for cylinder ISO 15552

Material: High performance polymer, self lubricating
Temperature range: -40°C to max. +80°C
Operating range: Wet environments, weak acids and alkalis, water, extreme dirt

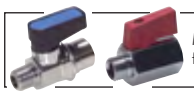
Type	A	B	C	D	D2	L	H	For cylinder Ø
SGS 25/32 KU	M 10 x 1.25	14	10.5	10	30	20	43	32
SGS 40 KU	M 12 x 1.25	16	12	12	34	24	50	40
SGS 50/63 KU	M 16 x 1.5	21	15	16	42	31	64	50 and 63
SGS 80/100 KU	M 20 x 1.5	25	18	20	50	33	77	80 and 100



Swivel heads 90° — for cylinder ISO 15552

Material: Body: Die-cast aluminium, spigot and ball: Zinc-plated steel

Type	d1	d2	d3	L	l	L1	l1	L2	l2	D1	D2	For cylinder Ø
SGS 25/32-90	M 10 x 1.25	14	30	58	51.5	43	15	21	37	15.0	19	32
SGS 40-90	M 12 x 1.25	19	32	66	57.5	50	17	25	42	17.5	22	40
SGS 50/63-90	M 16 x 1.5	22	44	84	79.5	64	23	32	60	22.0	27	50 and 63
SGS 80/100-90	M 20 x 1.5	29	50	99	90.0	77	25	35	68	27.5	34	80 and 100


Mini ball valves
from page 288

Ball valves
with actuator
from page 304

Service units
FUTURA series
from page 330

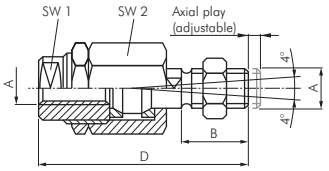
Valves
from page 414

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Flexo couplings — for cylinder ISO 15552

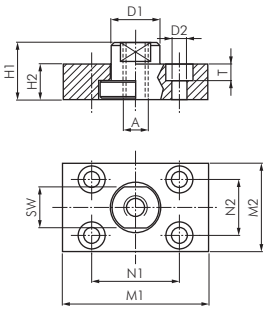
Type zinc-plated steel	Type AISI 303/304 (INOX)	A	B*	D*	SW 1*	SW 2*	Radial play*	For cylinder Ø
FK 25/32	FK 25/32 ES	M 10 x 1.25	20	71.5	19	30	2	32
FK 40	FK 40 ES	M 12 x 1.25	24	75.0	19	32	2	40
FK 50/63	FK 50/63 ES	M 16 x 1.5	32	104.0	27	41	2	50 and 63
FK 80/100	FK 80/100 ES	M 20 x 1.5	40	119.0	27	41	2	80 and 100
FK 125	FK 125 ES	M 27 x 2	54	147.0	54	65	2	125
FK 160/200	FK 160/200 ES	M 36 x 2	72	190.0	54	70	2	160 and 200

* dimensions for stainless steel may vary



Flexo couplings with mounting plates — for cylinder ISO 15552

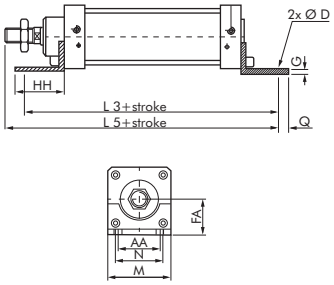
Type zinc-plated steel	Type AISI 304 (INOX)	A	D1	D2	H1	H2	M1	M2	N1	N2	SW	T	For cylinder Ø
FKB 25/32	FKB 25/32 ES	M 10 x 1.25	20	6.6	24	15	60	37	36	23	17	7	32
FKB 40	FKB 40 ES	M 12 x 1.25	25	9.0	30	20	60	56	42	38	19	9	40
FKB 50/63	FKB 50/63 ES	M 16 x 1.5	30	11.0	32	20	80	80	58	58	24	11	50 and 63
FKB 80/100	FKB 80/100 ES	M 20 x 1.5	40	14.0	35	20	90	90	65	65	36	13	80 and 100
FKB 125	FKB 125 ES	M 27 x 2	40	14.0	35	20	90	90	65	65	36	13	125
FKB 160/200	FKB 160/200 ES	M 36 x 2	60	18.0	55	30	125	125	90	90	50	17	160 and 200



Foot fastenings — for cylinder ISO 15552

Supply volume: 1 mounting bracket, incl. 2 fastening screws

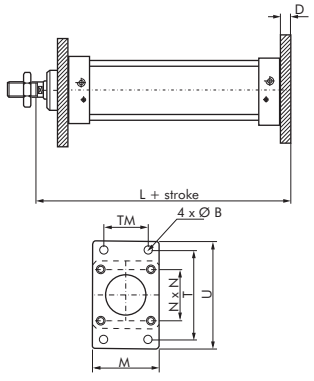
Type zinc-plated steel	Type AISI 316 (INOX)	AA	D	FA	G	HH	L 3	L 5	M	N	Q	For cylinder Ø
TA 32	TA 32 ES	32	7	32	4	35	142	166	45	32.5	11	32
TA 40	TA 40 ES	36	9	36	4	36	161	187	52	38.0	8	40
TA 50	TA 50 ES	45	9	45	5	47	170	207	65	46.5	15	50
TA 63	TA 63 ES	50	9	50	5	45	185	222	75	56.5	13	63
TA 80	TA 80 ES	63	12	63	6	55	210	255	95	72.0	14	80
TA 100	TA 100 ES	75	14	71	6	57	220	270	115	89.0	16	100
TA 125	---	90	16	90	8	70	250	324	140	110.0	25	125
TA 160	---	115	18	115	9	75	300	392	180	140.0	15	160
TA 200	---	135	22	135	12	100	320	417	220	175.0	30	200
TA 250	---	165	26	165	14	100	350	464	270	220.0	25	250



Flange fastenings at the front or rear — for cylinder ISO 15552

Supply volume: 1 flange plate, incl. 4 fastening screws

Type zinc-plated steel	Type AISI 316 (INOX)	Ø B	D	L	M	N	T	TM	U	For cylinder Ø
TB 32	TB 32 ES	7	10	130	45	32.5	64	32	80	32
TB 40	TB 40 ES	9	10	145	52	38.0	72	36	90	40
TB 50	TB 50 ES	9	12	155	65	46.5	90	45	110	50
TB 63	TB 63 ES	9	12	170	75	56.5	100	50	120	63
TB 80	TB 80 ES	12	16	190	95	72.0	126	63	150	80
TB 100	TB 100 ES	14	16	205	115	89.0	150	75	170	100
TB 125	---	16	20	245	140	110.0	180	90	205	125
TB 160	---	18	20	280	180	140.0	230	115	260	160
TB 200	---	22	25	300	220	175.0	270	135	300	200
TB 250	---	26	25	330	285	220.0	330	165	400	250



Cylinder switches
of other manufacturers can be found in our **Online Shop!** Simply look for the original item number!

Cylinders
of other manufacturers can be found in our **Online Shop!** Simply look for the original item number!

Cylinder accessories
of other manufacturers can be found in our **Online Shop!** Simply look for the original item number!

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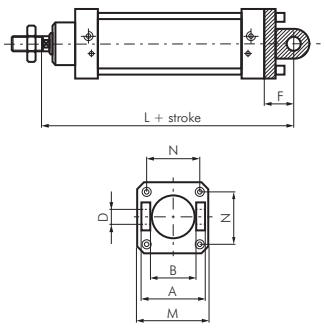
Cylinders ISO 15552 - accessories

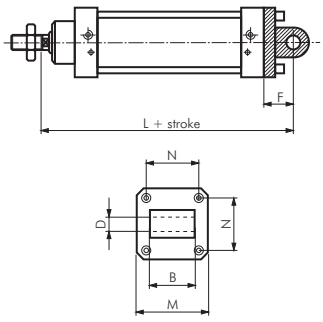


Swivel fastening forks — for cylinder ISO 15552

Supply volume: 1 swivel fastening, incl. 4 fastening screws

Type aluminium with bushing	Type AISI 316 (INOX)	A	B	Ø D	L	F	M	N	For cylinder Ø
TC 32	TC 32 ES	45	26	10	142	22	45	32.5	32
TC 40	TC 40 ES	52	28	12	160	25	52*	38.0	40
TC 50	TC 50 ES	60	32	12	170	27	65	46.5	50
TC 63	TC 63 ES	70	40	16	190	32	75	56.5	63
TC 80	TC 80 ES	90	50	16	210	36	95	72.0	80
TC 100	TC 100 ES	110	60	20	230	41	115	89.0	100
TC 125	TC 125 ES	130	70	25	275	50	140	110.0	125
TC 160	---	170	90	30	315	55	180	140.0	160
TC 200	---	170	90	30	335	60	220	175.0	200
TC 250	---	200	110	40	375	70	270	220.0	250

* type stainless steel: 55 mm

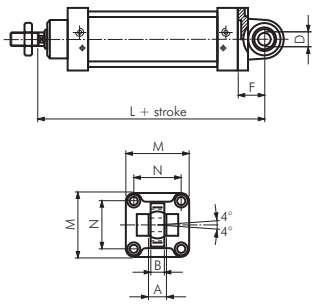


Swivel fastenings clips — for cylinder ISO 15552

Supply volume: 1 swivel fastening, incl. 4 fastening screws

Type aluminium	Type AISI 316 (INOX)	B	Ø D	F	L	M	N	For cylinder Ø
TG 32	TG 32 ES	26	10	22	142	45	32.5	32
TG 40	TG 40 ES	28	12	25	160	52*	38.0	40
TG 50	TG 50 ES	32	12	27	170	65	46.5	50
TG 63	TG 63 ES	40	16	32	190	75	56.5	63
TG 80	TG 80 ES	50	16	36	210	95	72.0	80
TG 100	TG 100 ES	60	20	41	230	115	89.0	100
TG 125	TG 125 ES	70	25	50	275	140	110.0	125
TG 160	---	90	30	55	315	180	140.0	160
TG 200	---	90	30	60	335	220	175.0	200
TG 250	---	110	40	70	375	270	220.0	250

* type stainless steel: 55 mm

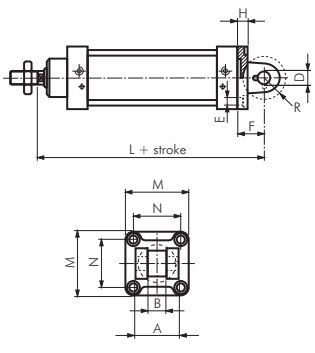


Swivel fastenings spherical clips — for cylinder ISO 15552

Supply volume: 1 swivel fastening, incl. 4 fastening screws

⚠ Warning: Only use FFQ bolts to connect to TQ types!

Type steel burnished	Type aluminium	Type AISI 316 (INOX)	A	B	Ø D	F	L	M	N	For cylinder Ø
TE 32	TE 32 ALU	TE 32 ES	14	10.5	10	22	142	45	32.5	32
TE 40	TE 40 ALU	TE 40 ES	16	12.0	12	25	160	55	38.0	40
TE 50	TE 50 ALU	TE 50 ES	21	15.0	16	27	170	65	46.5	50
TE 63	TE 63 ALU	TE 63 ES	21	15.0	16	32	190	75	56.5	63
TE 80	TE 80 ALU	TE 80 ES	25	18.0	20	36	210	95	72.0	80
TE 100	TE 100 ALU	TE 100 ES	25	18.0	20	41	230	115	89.0	100
TE 125	TE 125 ALU	TE 125 ES	37	25.0	30	50	275	140	110.0	125
---	TE 160 ALU	---	43	28.0	35	55	315	180	140.0	160
---	TE 200 ALU	---	43	28.0	35	60	335	220	175.0	200
---	TE 250 ALU	---	49	33.0	40	70	375	270	220.0	250



Swivel fastening forks for spherical clips — for cylinder ISO 15552

Supply volume: 1 swivel fastening, incl. 4 fastening screws

⚠ Warning: Only use type FFQ bolts to connect to TE and TF types!

Type aluminium	Type AISI 316 (INOX)	A	B	Ø D	E	F	H	L	M	N	R	For cylinder Ø
TQ 32	TQ 32 ES	34	14	10	6.6	22	9	142	45	32.5	17	32
TQ 40	TQ 40 ES	40	16	12	6.6	25	9	160	52	38.0	20	40
TQ 50	TQ 50 ES	45	21	16	9.0	27	11	170	65	46.5	22	50
TQ 63	TQ 63 ES	51	21	16	9.0	32	11	190	75	56.5	25	63
TQ 80	TQ 80 ES	65	25	20	11.0	36	14	210	95	72.0	30	80
TQ 100	TQ 100 ES	75	25	20	11.0	41	14	230	115	89.0	32	100
TQ 125	TQ 125 ES	97	37	30	14.0	50	20	275	140	110.0	42	125
TQ 160	---	122	43	35	18.0	55	20	315	180	140.0	46	160
TQ 200	---	122	43	35	18.0	60	25	335	220	175.0	49	200
TQ 250	---	125	49	40	22.0	70	25	375	270	220.0	55	250

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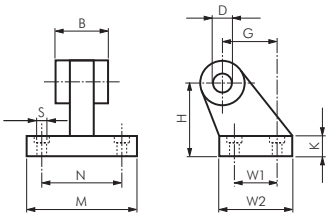
Swivel fastening 90° clips — for cylinder ISO 15552

Type aluminium	Type AISI 316 (INOX)	B	Ø D	G	H	K	M	N	Ø S	W 1	W 2	For cylinder Ø
TD 32	TD 32 ES	26	10	21	32	8	51	38	6.6	18	31	32
TD 40	TD 40 ES	28	12	24	36	10	54	41	6.6	22	35	40
TD 50	TD 50 ES	32	12	33	45	12	65	50	9.0	30	45	50
TD 63	TD 63 ES	40	16	37	50	14 (12)*	67	52	9.0	35	50	63
TD 80	TD 80 ES	50	16	47	63	14	86	66	11.0	40	60	80
TD 100	TD 100 ES	60	20	55	71	17 (15)*	96	76	11.0	50	70	100
TD 125	TD 125 ES	70	25	70	90	20	124	94	14.0	60	90	125
TD 160	---	90	30	97	115	25	156	118	14.0	88	126	160
TD 200	---	90	30	105	135	30	162	122	18.0	90	130	200

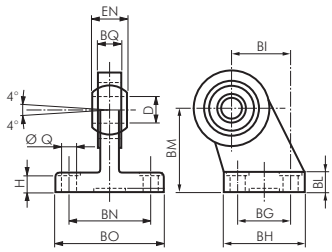
* TD ... ES



Swivel fastening 90° spherical clips — for cylinder ISO 15552

Warning: Only use FFQ bolts to connect to TQ types!

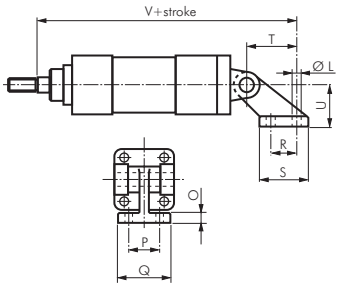
Type steel/ GGG	Type AISI 316 (INOX)	Ø Q	BG	BH	BI	BL	BM	BN	BO	EN	BQ	Ø D	H	For cylinder Ø
TF 32	TF 32 ES	6.6	18	31	21	10	32	38	51	14	10.5	10	8.5	32
TF 40	TF 40 ES	6.6	22	35	24	10	36	41	54	16	12.0	12	8.5	40
TF 50	TF 50 ES	9.0	30	45	33	12	45	50	65	21	15.0	16	10.5	50
TF 63	TF 63 ES	9.0	35	50	37	12	50	52	67	21	15.0	16	10.5	63
TF 80	TF 80 ES	11.0	40	60	47	14	63	66	86	25	18.0	20	11.5	80
TF 100	TF 100 ES	11.0	50	70	55	15	71	76	96	25	18.0	20	12.5	100
TF 125	TF 125 ES	13.5	60	90	70	20	90	94	124	37	25.0	30	17.0	125



Swivel fastening 90° clips — for cylinder ISO 15552

Supply volume: 1 swivel fastening (includes fork and bolts), incl. 4 fastening screws

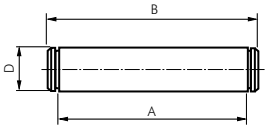
Type aluminium	Ø L	O	P	Q	R	S	T	U	V	For cylinder Ø
TH 32	7	8	25	41	20	37	38	32	180	32
TH 40	9	10	32	52	32	54	57	45	217	40
TH 50	9	10	32	52	32	54	57	45	227	50
TH 63	11	12	40	63	50	75	82	63	272	63
TH 80	11	12	40	63	50	75	82	63	292	80
TH 100	14	17	50	80	70	103	110	90	340	100
TH 125	14	17	50	80	70	103	110	90	385	125
TH 160	18	20	63	110	110	154	160	140	475	160
TH 200	18	20	63	110	110	154	160	140	495	200



Bolts for swivel fastenings — for cylinder ISO 15552

Supply volume: Bolts complete with compression ring and cotter pins

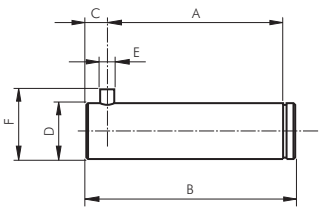
Type zinc-plated steel	Type AISI 316 (INOX)	A	B	D	For cylinder Ø
FF 32	FF 32 ES	46.0	53	10	32
FF 40	FF 40 ES	53.0	60	12	40
FF 50	FF 50 ES	61.0	68	12	50
FF 63	FF 63 ES	71.0	78	16	63
FF 80	FF 80 ES	91.0	98	16	80
FF 100	FF 100 ES	111.0	118	20	100
FF 125	FF 125 ES	132.0	139	25	125
FF 160/200	---	171.5	178	30	160 and 200
FF 250	---	202.0	211	40	250



Bolts for spherical clips — for cylinder ISO 15552

Supply volume: Bolts complete with compression rings

Type zinc-plated steel	Type AISI 316 (INOX)	A	B	C	Ø D	E	F	For cylinder Ø
FFQ 32	FFQ 32 ES	32.5	41	4.5	10	3	14	32
FFQ 40	FFQ 40 ES	38.0	48	6.0	12	4	16	40
FFQ 50	FFQ 50 ES	43.0	54	6.0	16	4	20	50
FFQ 63	FFQ 63 ES	49.0	60	6.0	16	4	20	63
FFQ 80	FFQ 80 ES	63.0	75	6.0	20	4	24	80
FFQ 100	FFQ 100 ES	73.0	85	6.0	20	4	24	100
FFQ 125	FFQ 125 ES	94.0	110	9.0	30	6	36	125
FFQ 160/200	---	119.0	135	9.0	35	6	41	160 and 200
FFQ 250	---	121.0	140	12.0	40	8	48	250



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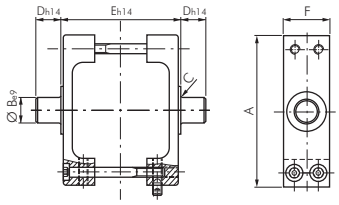
Cylinders ISO 15552 - accessories

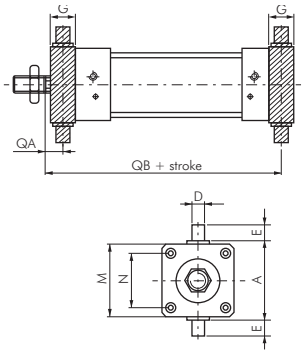
Centre swivel fastenings — for cylinder ISO 15552 (XL)



Used for XL model series
Supply volume: 1 pc. centre swivel fastening

Type **zinc-plated steel**	A	B	C	D	E	F	For cylinder Ø
TJX 32	65	12	1.0	12	50	25	32
TJX 40	75	16	1.5	16	63	25	40
TJX 50	95	16	1.6	16	75	30	50
TJX 63	105	20	1.6	20	90	30	63
TJX 80	130	20	1.6	20	110	30	80
TJX 100	145	25	2.0	25	132	40	100
TJX 125	176	25	2.0	25	160	40	125

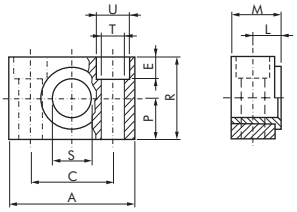
Flange swivel fastenings — for cylinder ISO 15552



Used for all ISO 15552 cylinder
Supply volume: 1 pc. swivel fastening including fastening screws

Type **zinc-plated steel**	G	QA	QB	M	Type **AISI 316Ti** INOX	G	QA	QB	A	Ø D	E	M	N	For cylinder Ø
TJF 32	14	19.0	127.0	46	TJF 32 ES	16	18	128	50	12	12	50	32.5	32
TJF 40	19	20.5	144.5	59	TJF 40 ES	20	20	145	63	16	16	55	38.0	40
TJF 50	19	27.5	152.5	69	TJF 50 ES	24	25	155	75	16	16	65	46.5	50
TJF 63	24	25.0	170.0	84	TJF 63 ES	24	25	170	90	20	20	75	56.5	63
TJF 80	24	34.0	186.0	102	TJF 80 ES	28	32	188	110	20	20	100	72.0	80
TJF 100	29	36.5	203.5	125	TJF 100 ES	38	32	208	132	25	25	120	89.0	100

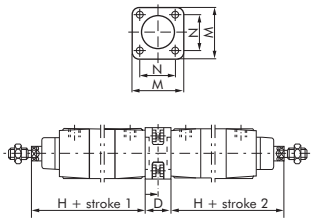
Bearing blocks for centre swivel fastenings — for cylinder ISO 15552



Materials: Bearing sleeve: sintered bronze (type AISI 316: PTFE)
Supply volume: 2 bearing blocks

Type **zinc-plated steel**	Type **AISI 316** INOX	A	M	R	P	C	S	L	U	T	E	For cylinder Ø
TL 32	TL 32 ES	46	18.0	30	15	32	12	10.5	11	6.6	7	32
TL 40/50	TL 40/50 ES	55	21.0	36	18	36	16	12.0	15	9.0	9	40 and 50
TL 63/80	TL 63/80 ES	65	23.0	40	20	42	20	13.0	18	11.0	11	63 and 80
TL 100	TL 100 ES	75	28.5	50	25	50	25	16.0	20	14.0	13	100 and 125
TL 160/200	---	92	40.0	60	30	60	32	22.5	26	18.0	17	160 and 200

Connecting pieces for creating a multi-position cylinder (3 or 4)



Supply volume: 1 connecting piece including the necessary screws

Type **aluminium**	D	H	M	N	For cylinder Ø
TN 32	55	120	45	32.5	32
TN 40	55	135	52	38.0	40
TN 50	68	143	65	46.5	50
TN 63	68	158	75	56.5	63
TN 80	38	174	93	72.0	80
TN 100	38	189	110	89.0	100
TN 125	120	225	140	110.0	125

Cylinder switches
of other manufacturers can be found in our **Online Shop!** Simply look for the original item number!

Cylinders
of other manufacturers can be found in our **Online Shop!** Simply look for the original item number!

Cylinder accessories
of other manufacturers can be found in our **Online Shop!** Simply look for the original item number!

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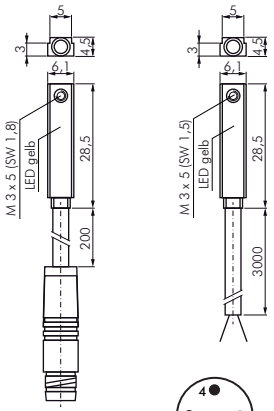
Cylinder switches for cylinders with continuous T-groove

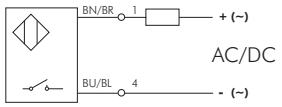
Materials: Body: Plastic, threaded part: Brass, screw: Stainless steel
Connecting line: PUR cable
Protection class: IP 67
Temperature range: -20°C to max. +70°C
Note: The proximity switch with light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. It is mounted by pushing it in the T-groove of the cylinder and locking it using the threaded rod.
Suitable: For cylinder ISO 15552: XL/XLE, compact cylinder: NXE/NXD compact cylinder ISO 21287: NAE/NAD/SFS, rodless cylinder: LZ (Ø 18 mm only with clamp ZSAB2 5), guide cylinder: ZDFM and other cylinders with **continuous** T-groove

type ZSA 12

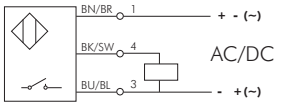
Advantages: • No mounting material required.
• Only one switch for many cylinders

Type	Operating voltage	Switching	Max. switching current/performance	PUR connection line
2-wire reed sensor				
ZSA 12	10-230V AC 10-170V DC	NO contact	150 mA/10 W	3 m, 2 x 0.14 mm²
ZSA 12-M8	10-60V AC 10-75V DC	NO contact	150 mA/10 W	0.2 m, 2 x 0.14 mm² With cable plug M 8
3-wire reed sensor				
ZSA 13	10-30V AC/DC	NO contact (PNP)	500 mA/10 W	3 m, 3 x 0.14 mm²
ZSA 13-M8	10-30V AC/DC	NO contact (PNP)	500 mA/10 W	0.2 m, 3 x 0.14 mm² With cable plug M 8
fully electronic sensor (reverse polarity protection)				
ZSA 33	10-30V DC	NO contact (PNP)	130 mA/4 W	3 m, 3 x 0.14 mm²
ZSA 33-M8	10-30V DC	NO contact (PNP)	130 mA/4 W	0.2 m, 3 x 0.14 mm² With cable plug M 8

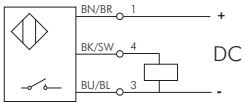




ZSA 12/ZSA 12-M8



ZSA 13/ZSA 13-M8

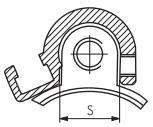


ZSA 33/ZSA 33-M8

Fixing clamps for cylinder switches (T-groove) for Mickey-Mouse profile (TM/TME)

Material: Aluminium anodised
Suitable: For mounting cylinder switches type ZSA 12, 12-M8, 13, 13-M8, 33, 33-M8 on profile tube cylinders.

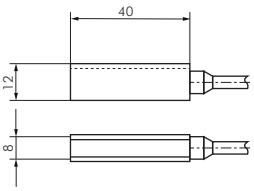
Type	For cylinder Ø	For profile thickness S
ZSAB1 32/40	(32 - 40 mm)	8 - 10 mm
ZSAB1 50/63	(50 - 63 mm)	11 - 13 mm
ZSAB1 80/100	(80 - 100 mm)	14 - 16 mm



Cylinder switches for round cylinders and Mickey-Mouse profiles (TM/TME)

Material: PEI smoke
Connecting line: PVC cable
Protection class: IP 67
Temperature range: -25°C to max. +75°C
Note: The proximity switch with light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. The mounting is done by fixing clamps or tension bands, which must be ordered as accessories (see below).
Suitable: For ISO-15552 cylinder model series TM/TME (mounting using fixing clamps), round cylinders model series ZDM/ZDPM (Ø 8 - 25 mm), DSWPVM (Ø 32 - 63 mm) (mounting using tension bands) and other tie rod cylinders (mounting using fixing clamps or tension bands)

Especially good value!

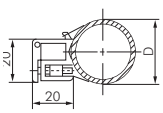


Type	Operating voltage	Switching	Max. switching current/performance	Electrical connection
2-wire reed sensor, red LED				
ZSC 12	10-250V AC/DC	NO contact	500 mA/20W	3 m, 2 x 0.25 mm²
ZSC 12-M8	10-60V AC/10-75V DC	NO contact	500 mA/20W	Cable plug M 8
Fully electronic sensor (reverse polarity protection/short circuit proof), yellow LED				
ZSC 33	10-30V DC	NO contact (PNP)	200 mA	3 m, 3 x 0.25 mm²
ZSC 33-M8	10-30V DC	NO contact (PNP)	200 mA	Cable plug M 8

Tension bands for cylinder switch type ZSC 33/ZSC 12

Materials: Tape: AISI 304, clamping block: Aluminium
Suitable: For mounting cylinder switches type ZSC 33 and ZSC 12 on round cylinders.

Type	Suitable for cylinder Ø	Clamping range (D)
ZSC1 8/25	8 - 25 mm	10 - 30 mm
ZSC1 32/63	32 - 63 mm	30 - 70 mm
ZSC1 80/100	80 - 100 mm	70 - 110 mm
ZSC1 125/200	125 - 200 mm	110 - 230 mm



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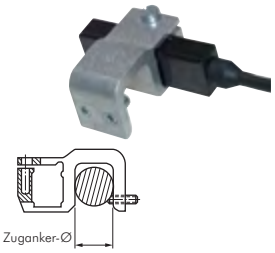
Cylinders ISO 15552- accessories



Fixing clamps for cylinder switch type ZSC 33/ZSC 12

Material: Aluminium anodised
Suitable: For mounting cylinder switches type ZSC 33 and ZSC 12 on profile tube or tension anchor cylinders.

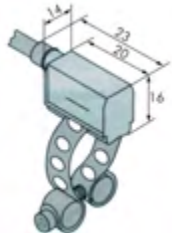
Type	For cylinder Ø	For profile thickness
ZSC2 32/63	32 - 63 mm	4 - 8 mm
ZSC2 80/125	80 - 125 mm	8 - 12 mm
ZSC2 160/200	160 - 200 mm	12 -15 mm

M 8 - Socket

Connection lines — M 8 (3 pin)

Description: Pre-fabricated connection lines with 3-pin M8 socket (M8 x1 female thread acc. to DIN EN 61076-2-104) on one side and 3 loose cable ends on the other side.
Temperature range: -25°C to max. +90°C
Voltage: max. 60V AC/DC, max. 4 A
Protection class: IP 67
Cable: PUR cable, 3 x 0,34 mm²
Cable layout: PIN 1 - brown, PIN 3 - blue, PIN 4 - black
Suitable: These cables are used preferentially for the connection of cylinder switches, inductive proximity switches or solenoid valves. Warning! They are not compatible with the (e.g. used frequently for light barriers) 4-pin M8 cable connectors.

Type **straight**	Type **angled**	Cable length
KAB M8 1 G	KAB M8 1 W	1 mtr.
KAB M8 3 G	KAB M8 3 W	3 mtr.
KAB M8 5 G	KAB M8 5 W	5 mtr.
KAB M8 10 G	KAB M8 10 W	10 mtr.



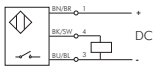
Electronic cylinder switches for stainless steel cylinders

Materials: PA12 + 30% GF (corrosion and acid resistant)
Connecting line: 2 m PUR/PVC cable, cross section: 3 x 0.25 mm²
Temperature range: -25°C to max. +70°C
☞ **Optional:** Design as 2-wire NAMUR switch (for use in EX areas)* **-NAMUR**
Note: The electronic proximity switch with integrated protection circuit and light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. It is equipped with cycling short-circuit protection and a reverse polarity protection. The mounting is done using ES tension bands, which must be ordered as accessories (see below).
Suitable: For all stainless steel cylinders

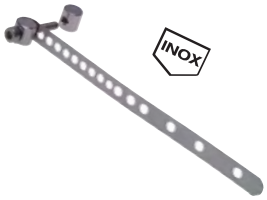
Type	Operating voltage	Protection class	Switching	Max. switching current	Overrun speed
ZSE 33	10-30V DC	IP67	NO contact (PNP)	200 mA	Max. 10 m/s

☞ **Order example:** ZSES ** — Standard type

Designation for the options:
2-wire NAMUR switch
Acc. to ATEX* Ex II 2G EEx ia IIC T4 ... T6 . . .**-NAMUR**

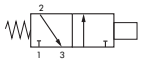


* for use in EX areas, the NAMUR switch must be connected to an approved switch isolator.
Please ask us!



Tension bands for electronic cylinder switch type ZSE 33

Type **AISI 304** (INOX)	Used for cylinder Ø ISO 6432 (small cylinder)	Used for cylinder Ø ISO 15552 (VDMA)	Used for cylinder Ø ISO 6431 (standard)
ZSE1 8/25	8 - 25	---	---
ZSE1 32/80	---	32 - 80	32 - 80
ZSE1 80/125	---	80 - 125	80 - 125



Pneumatic cylinder switches for round cylinders

Material: Plastic
Temperature range: -15°C to max. +60°C
Media: Unoiled, filtered compressed air
Application: The cylinder switch is a 3/2-way valve controlled via the magnetic piston of a cylinder. It can be used to control pneumatic circuits, where it is very difficult to design and fit a limit switch. **In contrast to a pneumatic sensor fitting (Page 431), similar to an electric cylinder switch, a pneumatic cylinder switch allows querying the exact position of the piston and need not be positioned in the end position.**

Type	Operating pressure	Nominal width	Hose connection
ZS PNEU	2-6 bar	2 mm	Push in nipple for hose Ø 3 mm (interior)

Type **tension band to Ø 100 mm**
ZS PNEU SP

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Guide units for cylinders ISO 6432/ISO 15552

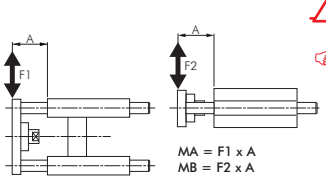
Materials: Body: Aluminium anodised, guide rods: Steel hard chrome-plated, wiper: NBR, bearing: Steel or sintered bronze
Temperature range: -30°C to max. +100°C
Version: Design H with ball guide **-HK**, design H with sliding guide **-HG**, design C with sliding guide **-CG**

Type **H with ball guide**	MA/MB (Nm)*	Type **H with sliding guide**	MA/MB (Nm)*	Type **C with sliding guide**	MA/MB (Nm)*	Max. stroke	Suitable for cylinder Ø
for cylinder ISO 6432 (see starting page 460)							
LE 16/** HK	9/8	LE 16/** HG	6/5	LE 16/** CG	6/5	250 mm	12 and 16
LE 25/** HK	11/10	LE 25/** HG	19/17	LE 25/** CG	13/12	320 mm	20 and 25
for cylinder ISO 15552 (see starting page 470)							
LE 32/** HK	16/14	LE 32/** HG	20/18	LE 32/** CG	13/12	500 mm	32
LE 40/** HK	29/16	LE 40/** HG	35/32	LE 40/** CG	21/19	500 mm	40
LE 50/** HK	42/38	LE 50/** HG	50/45	LE 50/** CG	21/19	500 mm	50
LE 63/** HK	48/43	LE 63/** HG	60/54	LE 63/** CG	26/23	500 mm	63
LE 80/** HK	60/54	LE 80/** HG	72/65	---	---	500 mm	80
LE 100/** HK	60/54	LE 100/** HG	80/72	---	---	500 mm	100

* the given moment corresponds to the max. permitted dynamic load. For static loading this moment can be multiplied by a factor of 2.
** please specify the required stroke.

application examples type H

application examples type C

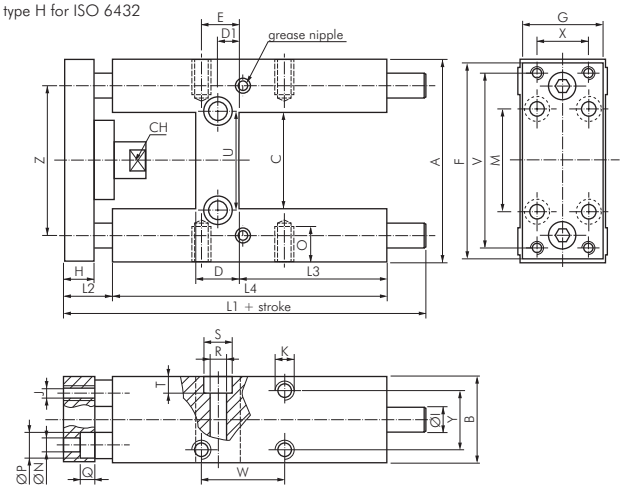


Enter your required stroke here on your order! (taking into account the buckling load)

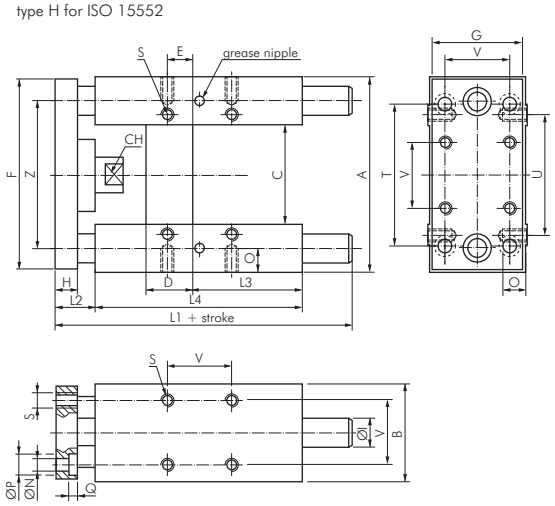
Order example: LE 16/ ** **

- Standard type
- Piston Ø/stroke
- **Version:**
  - Design H with ball guide ..... **-HK**
  - Design H with sliding guide ..... **-HG**
  - Design C with sliding guide ..... **-CG**

type H for ISO 6432



type H for ISO 15552



Type H - for cylinder ISO 6432

Type	A	B	C	D	D1	E	F	G	H	Ø I	J	K	L1	L2	L3
LE-16	69	30	30	12	6.0	8	66	29	10	10*	M 4	M 4	124	13	46
LE-25	79	34	37	17	8.5	15	78	32	12	12*	M 5	M 6	166	15	58
Type	**L4**	**M**	**Ø N**	**O**	**Ø P**	**Q**	**Ø R**	**Ø S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**CH**
LE-16	68	32	4.5	6	8	4.5	5.5	9	5.5	24	58	18.0	18	22	49.5	8
LE-25	108	38	5.5	9	10	7.5	6.5	11	6.5	38	68	32.5	20	23	58.0	12

* guide rods type LE 16/... HK: Ø 8 mm, LE 25/... HK: Ø 10 mm

Dimensions for design C can be found in our Online Shop!

Type H - for cylinder ISO 15552

Type	A	B	C	D	E	F	G	H	Ø I	L1	L2	L3	L4	N	O
LE-32	97	49	51	24	4.3	93	45	12	12	187	15	75	125	6.6	12
LE-40	115	58	58.2	28	11.0	112	55	12	16	207	15	80	140	6.6	12
LE-50	137	70	70.2	34	18.8	134	65	15	20	223	18	78	148	9.0	16
LE-63	152	85	85.2	34	15.3	147	80	15	20	243	18	106	178	9.0	16
LE-80	189	105	105.5	50	25.0	180	100	20	25	267	23	111	195	11.0	20
LE-100	213	130	130.5	55	30.0	206	120	20	25	290	23	128	218	11.0	20
Type	**P**	**Q**	**S**	**T**	**U**	**V**	**Z**	**CH**							
LE-32	11	6.5	M 6	78	61	32.5	74	15							
LE-40	11	6.5	M 6	84	69	38.0	87	15							
LE-50	15	8.5	M 8	100	85	46.5	104	20							
LE-63	15	9.0	M 8	105	100	56.5	119	20							
LE-80	18	11.0	M 10	130	130	72.0	148	26							
LE-100	18	11.0	M 10	150	150	89.0	173	26							

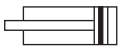
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Compact cylinders - SQ

Double acting compact cylinders with magnetic pistons — SQ (Eco-Line)

Materials: Body: Aluminium anodised, piston rod: Steel hard chrome-plated, seal: NBR
Temperature range: -10°C to max. +60°C, **Operating pressure:** Max. 10 bar

Especially good value!



Ø 16 - 25 mm

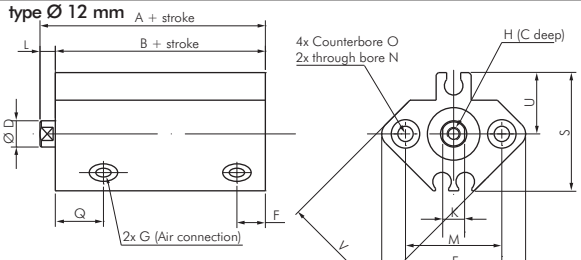
Piston Ø 12 mm	Piston Ø 16 mm	Piston Ø 20 mm	Piston Ø 25 mm	Piston Ø 32 mm	Piston Ø 40 mm	Stroke
SQ 12/5 SZ	SQ 16/5 SZ	SQ 20/5 SZ	SQ 25/5 SZ	SQ 32/5 SZ	SQ 40/5 SZ	5
SQ 12/10 SZ	SQ 16/10 SZ	SQ 20/10 SZ	SQ 25/10 SZ	SQ 32/10 SZ	SQ 40/10 SZ	10
SQ 12/15 SZ	SQ 16/15 SZ	SQ 20/15 SZ	SQ 25/15 SZ	SQ 32/15 SZ	SQ 40/15 SZ	15
SQ 12/20 SZ	SQ 16/20 SZ	SQ 20/20 SZ	SQ 25/20 SZ	SQ 32/20 SZ	SQ 40/20 SZ	20
SQ 12/25 SZ	SQ 16/25 SZ	SQ 20/25 SZ	SQ 25/25 SZ	SQ 32/25 SZ	SQ 40/25 SZ	25
SQ 12/30 SZ	SQ 16/30 SZ	SQ 20/30 SZ	SQ 25/30 SZ	SQ 32/30 SZ	SQ 40/30 SZ	30
---	---	SQ 20/35 SZ	SQ 25/35 SZ	SQ 32/35 SZ	SQ 40/35 SZ	35
---	---	SQ 20/40 SZ	SQ 25/40 SZ	SQ 32/40 SZ	SQ 40/40 SZ	40
---	---	SQ 20/45 SZ	SQ 25/45 SZ	SQ 32/45 SZ	SQ 40/45 SZ	45
---	---	SQ 20/50 SZ	SQ 25/50 SZ	SQ 32/50 SZ	SQ 40/50 SZ	50
---	---	---	---	SQ 32/60 SZ	SQ 40/60 SZ	60
---	---	---	---	SQ 32/70 SZ	SQ 40/70 SZ	70
---	---	---	---	SQ 32/75 SZ	SQ 40/75 SZ	75
---	---	---	---	SQ 32/80 SZ	SQ 40/80 SZ	80
---	---	---	---	SQ 32/90 SZ	SQ 40/90 SZ	90
---	---	---	---	SQ 32/100 SZ	SQ 40/100 SZ	100
Repair sets						
SQ 12 REP	SQ 16 REP	SQ 20 REP	SQ 25 REP	SQ 32 REP	SQ 40 REP	

Ø 32 - 100 mm

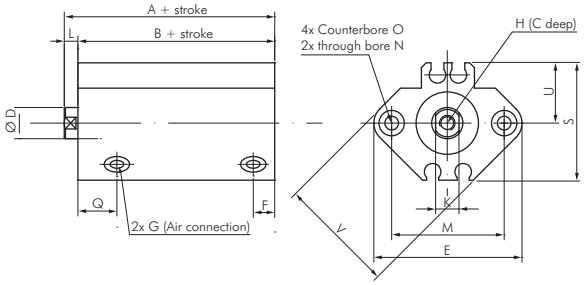
Piston Ø 50 mm	Piston Ø 63 mm	Piston Ø 80 mm	Piston Ø 100 mm	Stroke
SQ 50/5 SZ	SQ 63/5 SZ	SQ 80/5 SZ	SQ 100/5 SZ	5
SQ 50/10 SZ	SQ 63/10 SZ	SQ 80/10 SZ	SQ 100/10 SZ	10
SQ 50/15 SZ	SQ 63/15 SZ	SQ 80/15 SZ	SQ 100/15 SZ	15
SQ 50/20 SZ	SQ 63/20 SZ	SQ 80/20 SZ	SQ 100/20 SZ	20
SQ 50/25 SZ	SQ 63/25 SZ	SQ 80/25 SZ	SQ 100/25 SZ	25
SQ 50/30 SZ	SQ 63/30 SZ	SQ 80/30 SZ	SQ 100/30 SZ	30
SQ 50/35 SZ	SQ 63/35 SZ	SQ 80/35 SZ	SQ 100/35 SZ	35
SQ 50/40 SZ	SQ 63/40 SZ	SQ 80/40 SZ	SQ 100/40 SZ	40
SQ 50/45 SZ	SQ 63/45 SZ	SQ 80/45 SZ	SQ 100/45 SZ	45
SQ 50/50 SZ	SQ 63/50 SZ	SQ 80/50 SZ	SQ 100/50 SZ	50
SQ 50/60 SZ	SQ 63/60 SZ	SQ 80/60 SZ	SQ 100/60 SZ	60
SQ 50/70 SZ	SQ 63/70 SZ	SQ 80/70 SZ	SQ 100/70 SZ	70
SQ 50/75 SZ	SQ 63/75 SZ	SQ 80/75 SZ	SQ 100/75 SZ	75
SQ 50/80 SZ	SQ 63/80 SZ	SQ 80/80 SZ	SQ 100/80 SZ	80
SQ 50/90 SZ	SQ 63/90 SZ	SQ 80/90 SZ	SQ 100/90 SZ	90
SQ 50/100 SZ	SQ 63/100 SZ	SQ 80/100 SZ	SQ 100/100 SZ	100
Repair sets				
SQ 50 REP	SQ 63 REP	SQ 80 REP	SQ 100 REP	

Main dimensions - compact cylinders SQ

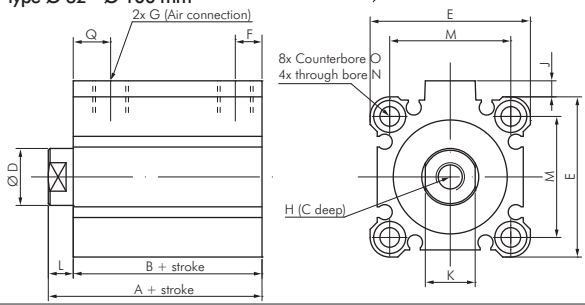
type Ø 12 mm



type Ø 16 - Ø 25 mm



type Ø 32 - Ø 100 mm



Piston Ø	A	B	C	D	E	F	H	J	K	L	M	N	O	P	Q	S	U	V
12 mm	31.5	28.0	6	6	33	6.5	M 3	---	5	3.5	22	3.5	6.5 (3.5 deep)	M 5	11.0	27.5	14	25
16 mm	34.0	30.5	8	8	38	5.5	M 4	---	6	3.5	28	3.5	6.5 (3.5 deep)	M 5	10.0	29.5	15	29
20 mm	36.0	31.5	7	10	47	5.5	M 5	---	8	4.5	36	5.5	9 (7 deep)	M 5	10.5	35.5	18	36
25 mm	37.5	32.5	12	12	52	5.5	M 6	---	10	5.0	40	5.5	9 (7 deep)	M 5	11.0	40.5	21	40
32 mm	40.0	33.0	13	16	45	7.5	M 8	4.5	14	7.0	34	5.5	9 (7 deep)	G 1/8"	10.5	---	---	---
40 mm	46.5	39.5	13	16	52	8.0	M 8	5.0	14	7.0	40	5.5	9 (7 deep)	G 1/8"	11.0	---	---	---
50 mm	48.5	40.5	15	20	64	10.5	M 10	7.0	17	8.0	50	6.6	11 (8 deep)	G 1/4"	10.5	---	---	---
63 mm	54.0	46.0	15	20	77	10.5	M 10	7.0	17	8.0	60	9.0	14 (10.5 deep)	G 1/4"	15.0	---	---	---
80 mm	63.5	53.5	21	25	98	12.5	M 16	6.0	22	10.0	77	11.0	17.5 (13.5 deep)	G 3/8"	16.0	---	---	---
100 mm	75.0	63.0	27	30	117	13.0	M 20	6.5	27	12.0	94	11.0	17.5 (13.5 deep)	G 3/8"	23.0	---	---	---

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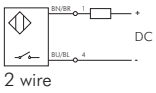
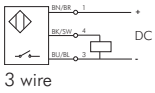
Cylinder switches — for compact cylinder - SQ

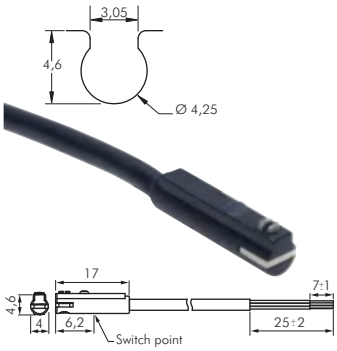
Materials: Body: Plastic, screw: Metal
Connecting line: 3 m PVC cable, cross section: 2 or 3 x 0.2 mm²
Protection class: IP 67
Temperature range: -10°C to max. +70°C
Switch type: Electronic
Note: The proximity switch with light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. It is mounted by pushing it in the groove of the cylinder and locking it using the threaded rod.
Suitable: For short stroke cylinder - SQ



2 wire



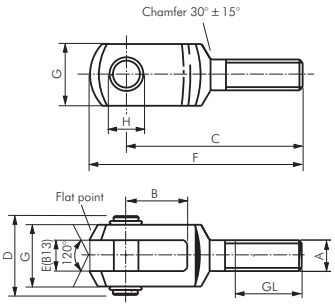
3 wire



Type	Operating voltage	Switching	Max. switching current/performance
2-wire solid-state sensor			
ZSD 33	10 - 28 V DC	NO contact	50 mA/1.4 W
3-wire fully electronic sensor (PNP)			
ZSD 22	5 - 30 V DC	NO contact	200 mA/6.0 W

Yokes (male threads) with bolts — for compact cylinder - SQ

Type zinc-plated steel	A	B	C	D	E	F	G	H	GL	For cylinder Ø
GAKA M6	M 6	12	37	17	6	44	12	6	15	25
GAKA M8	M 8	16	47	22	8	57	16	8	20	32 and 40
GAKA M10	M 10	20	57	27	10	69	20	10	25	50 and 63
GAKA M16	M 16	32	89	42	16	108	32	16	40	80
GAKA M20	M 20	40	109	50	20	134	40	20	50	100

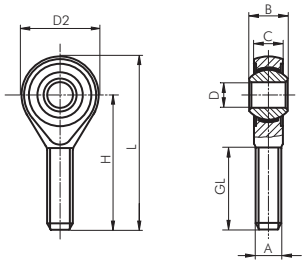


Swivel heads (male threads) — for compact cylinder - SQ

Materials: Type zinc-plated steel: Housing: Zinc-plated steel, bearing: Brass/PTFE, inside ring: 100Cr6
Type stainless steel: Housing: AISI 304, bearing: AISI 304/PTFE, inside ring: AISI 420

Type zinc-plated steel	Type stainless steel (INOX)	A	B	C	D	D2	H	L	GL	For cylinder Ø
SGSA M3*	---	M 3	6	4.5	3	14	26	33	15	12
SGSA M4	---	M 4	7	5.25	4	14	30	37	19	16
SGSA M5	SGSA M5 ES	M 5	8	6.0	5	18	33	42	19	20
SGSA M6	SGSA M6 ES	M 6	9	6.75	6	20	36	46	21	25
SGSA M8	SGSA M8 ES	M 8	12	9.0	8	24	42	54	25	32 and 40
SGSA M10	SGSA M10 ES	M 10	14	10.5	10	28	48	62	28	50 and 63
SGSA M16	SGSA M16 ES	M 16	21	15,0	16	42	66	87	37	80
SGSA M20	SGSA M20 ES	M 20	25	19,0	20	50	78	103	45	100

* storage: bronze, re-lubricate using the grease nipple



Valves
Of ther manufacturers can be found in our Online Shop.

Simply look for the original item number!

Cylinders
Of other manufacturers can be found in our Online Shop

Simply look for the original item number!

PU, PA, PTFE and PE hoses from page 192

One-way control valves from page 440

Valves from page 404

8

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

type NXD

type NXD ... -AG

type NXDA

NXD (standard)

NXDK (with continuous piston rod)

NXDA (with non-rotating piston rod)

type NXE

type NXE ... -AG

NXE (standard)

NXEE (extended in idle position)

Double acting compact cylinders with magnetic pistons

Materials: Head and foot: Aluminium anodised, cylinder tube: Aluminium anodised, piston rod: AISI 303, seal: Polyurethane
Temperature range: -30°C to max. +80°C, **Operating pressure:** Max. 10 bar
☞ **Optional:** Piston rod with male thread **-AG**

Piston Ø 12 mm	Piston Ø 16 mm	Piston Ø 20 mm	Piston Ø 25 mm	Piston Ø 32 mm	Piston Ø 40 mm	Desired stroke/ standard stroke
NXD 12/**	NXD 16/**	NXD 20/**	NXD 25/**	NXD 32/**	NXD 40/**	1 to 200
NXD 12/5	NXD 16/5	NXD 20/5	NXD 25/5	NXD 32/5	NXD 40/5	5
NXD 12/10	NXD 16/10	NXD 20/10	NXD 25/10	NXD 32/10	NXD 40/10	10
NXD 12/15	NXD 16/15	NXD 20/15	NXD 25/15	NXD 32/15	NXD 40/15	15
NXD 12/20	NXD 16/20	NXD 20/20	NXD 25/20	NXD 32/20	NXD 40/20	20
NXD 12/25	NXD 16/25	NXD 20/25	NXD 25/25	NXD 32/25	NXD 40/25	25
NXD 12/30	NXD 16/30	NXD 20/30	NXD 25/30	NXD 32/30	NXD 40/30	30
NXD 12/40	NXD 16/40	NXD 20/40	NXD 25/40	NXD 32/40	NXD 40/40	40
NXD 12/50	NXD 16/50	NXD 20/50	NXD 25/50	NXD 32/50	NXD 40/50	50
NXD 12/60	NXD 16/60	NXD 20/60	NXD 25/60	NXD 32/60	NXD 40/60	60
NXD 12/70	NXD 16/70	NXD 20/70	NXD 25/70	NXD 32/70	NXD 40/70	70
NXD 12/80	NXD 16/80	NXD 20/80	NXD 25/80	NXD 32/80	NXD 40/80	80
NXD 12/90	NXD 16/90	NXD 20/90	NXD 25/90	NXD 32/90	NXD 40/90	90
NXD 12/100	NXD 16/100	NXD 20/100	NXD 25/100	NXD 32/100	NXD 40/100	100
---	NXD 16/125	NXD 20/125	NXD 25/125	NXD 32/125	NXD 40/125	125
---	---	NXD 20/160	NXD 25/160	NXD 32/160	NXD 40/160	160
---	---	---	---	NXD 32/200	NXD 40/200	200
Repair sets						
NXD 12 REP	NXD 16 REP	NXD 20 REP	NXD 25 REP	NXD 32 REP	NXD 40 REP	

Piston Ø 50 mm	Piston Ø 63 mm	Piston Ø 80 mm	Piston Ø 100 mm	Desired stroke/ standard stroke
NXD 50/**	NXD 63/**	NXD 80/**	NXD 100/**	1 to 250
NXD 50/5	NXD 63/5	NXD 80/5	NXD 100/5	5
NXD 50/10	NXD 63/10	NXD 80/10	NXD 100/10	10
NXD 50/15	NXD 63/15	NXD 80/15	NXD 100/15	15
NXD 50/20	NXD 63/20	NXD 80/20	NXD 100/20	20
NXD 50/25	NXD 63/25	NXD 80/25	NXD 100/25	25
NXD 50/30	NXD 63/30	NXD 80/30	NXD 100/30	30
NXD 50/40	NXD 63/40	NXD 80/40	NXD 100/40	40
NXD 50/50	NXD 63/50	NXD 80/50	NXD 100/50	50
NXD 50/60	NXD 63/60	NXD 80/60	NXD 100/60	60
NXD 50/70	NXD 63/70	NXD 80/70	NXD 100/70	70
NXD 50/80	NXD 63/80	NXD 80/80	NXD 100/80	80
NXD 50/90	NXD 63/90	NXD 80/90	NXD 100/90	90
NXD 50/100	NXD 63/100	NXD 80/100	NXD 100/100	100
NXD 50/125	NXD 63/125	NXD 80/125	NXD 100/125	125
NXD 50/160	NXD 63/160	NXD 80/160	NXD 100/160	160
NXD 50/200	NXD 63/200	NXD 80/200	NXD 100/200	200
NXD 50/250	NXD 63/250	NXD 80/250	NXD 100/250	250
Repair sets				
NXD 50 REP	NXD 63 REP	NXD 80 REP	NXD 100 REP	

Simple acting compact cylinders with magnetic pistons

Materials: Head and foot: Aluminium anodised, cylinder tube: Aluminium anodised, piston rod: AISI 303, seal: Polyurethane
Temperature range: -30°C to max. +80°C, **Operating pressure:** Max. 10 bar
☞ **Optional:** Piston rod with male thread **-AG**

Piston Ø 12 mm	Piston Ø 16 mm	Piston Ø 20 mm	Piston Ø 25 mm	Piston Ø 32 mm	Piston Ø 40 mm	Standard stroke
NXE 12/5	NXE 16/5	NXE 20/5	NXE 25/5	NXE 32/5	NXE 40/5	5
NXE 12/10	NXE 16/10	NXE 20/10	NXE 25/10	NXE 32/10	NXE 40/10	10
NXE 12/15	NXE 16/15	NXE 20/15	NXE 25/15	NXE 32/15	NXE 40/15	15
NXE 12/20	NXE 16/20	NXE 20/20	NXE 25/20	NXE 32/20	NXE 40/20	20
NXE 12/25	NXE 16/25	NXE 20/25	NXE 25/25	NXE 32/25	NXE 40/25	25
Repair sets						
NXE 12 REP	NXE 16 REP	NXE 20 REP	NXE 25 REP	NXE 32 REP	NXE 40 REP	

Piston Ø 50 mm	Piston Ø 63 mm	Piston Ø 80 mm	Piston Ø 100 mm	Standard stroke
NXE 50/5	NXE 63/5	NXE 80/5	NXE 100/5	5
NXE 50/10	NXE 63/10	NXE 80/10	NXE 100/10	10
NXE 50/15	NXE 63/15	NXE 80/15	NXE 100/15	15
NXE 50/20	NXE 63/20	NXE 80/20	NXE 100/20	20
NXE 50/25	NXE 63/25	NXE 80/25	NXE 100/25	25
Repair sets				
NXE 50 REP	NXE 63 REP	NXE 80 REP	NXE 100 REP	

☞ **Order example:** NXD * 16/ ** **
Standard type
Piston Ø/stroke

Designation for the options:
Piston rod with male thread . . . . . **-AG**

Order numbers suffixes:
Continuous piston rod . . . . . **-K**
With non-rotating piston rod . . . . **-A***
Extended in idle position . . . . . **-E**

ACE
Shock absorber
from page 502

FESTO
Festo shock absorbers can be found in our Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pre... data refer, if not otherwise indicated, to liquids of Group II at +20°C.

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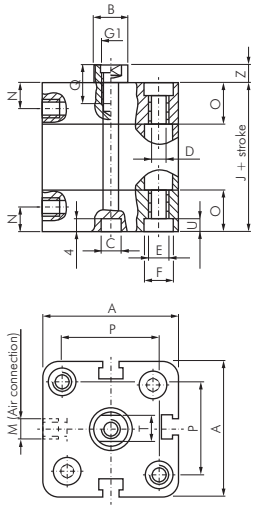
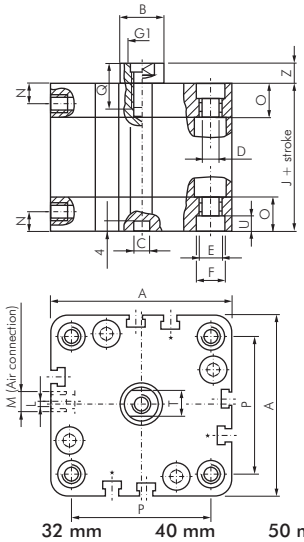
Main dimensions - compact cylinders NXD/NXE

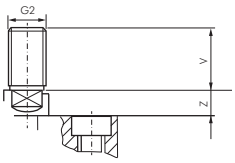
Ø 12 - 25



Ø 32 - 100



option -AG



Piston Ø	12 mm	16 mm	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm
A	29	29	36	40	50	58	67	80	100	124
Ø B	6	8	10	10	12	12	16	16	20	25
Ø C	6	6	6	6	6	6	6	8	8	8
Ø D	3.3	3.3	4.2	4.2	5.2	5.2	6.7	8.5	8.5	8.5
E	M 4	M 4	M 5	M 5	M 6	M 6	M 8	M 10	M 10	M 10
Ø F	6	6	7.5	7.5	9	9	10.5	13.5	13.5	13.5
G1	M 3	M 4	M 5	M 5	M 6	M 6	M 8	M 8	M 10	M 12
G2	M 6	M 8	M10 x 1.25	M10 x 1.25	M10 x 1.25	M10 x 1.25	M12 x 1.25	M12 x 1.25	M16 x 1.5	M20 x 1.5
J[1]	38	38	38	39.5	44.5	45.5	45.5	50	56	66.5
L	0	0	0	0	4	3	0	0	0	0
M	M 5	M 5	M 5	M 5	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/4"
N	8	8	8	8	8	8	8	8	8.5	10.5
O	12.25	12.25	12.25	12.75	14.5	14.75	14.75	14.25	16	19.25
P	18	18	22	26	32	42	50	62	82	103
Q	6	8	10	10	12	12	12	14	15	20
T	5	6	8	8	10	10	13	13	17	22
U	3.5	3.5	4.5	4.5	5.5	5.5	6.5	8.5	8.5	8.5
V	16	20	22	22	22	22	24	24	32	40
Z	4.5	4.5	4.5	5.5	6	6.5	7.5	7.5	8	10

[1] for NXE with stroke > 25 mm, please contact us.

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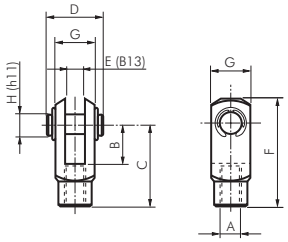
Compact cylinders - NXD/NXE - accessories

Piston rod nuts — for compact cylinders

Type zinc-plated steel	Type V4A (stainless steel)	Thread	SW	For cylinder Ø
GM 6 ST	GM 6 ES	M 6	10	12
GM 8 ST	GM 8 ES	M 8	13	16
GM 10125 ST	GM 10125 ES	M 10 X 1.25	17	20 to 40
GM 12125 ST	GM 12125 ES	M 12 x 1.25	19	50 and 63
GM 1615 ST	GM 1615 ES	M 16 x 1.5	24	80
GM 2015 ST	GM 2015 ES	M 20 x 1.5	30	100

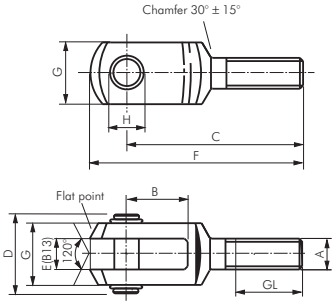


Yokes with bolts — for compact cylinders

☞ **Optional:** Material AISI 316Ti **-ES 4A**

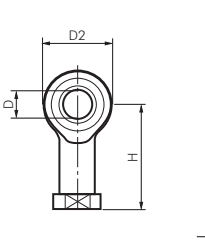
Type zinc-plated steel	Type AISI 303*	A	B	C	D	E	F	G	H	For cylinder Ø
GAK 12/16	GAK 12/16 ES	M 6	12	24	16	6	31	12	6	12
GAK 20	GAK 20 ES	M 8	16	32	23	8	42	16	8	16
GAK 25/32	GAK 25/32 ES	M 10 x 1.25	20	40	27	10	52	20	10	20 to 40
GAK 40	GAK 40 ES	M 12 x 1.25	24	48	33	12	62	24	12	50 and 63
GAK 50/63	GAK 50/63 ES	M 16 x 1.5	32	64	43	16	83	32	16	80
GAK 80/100	GAK 80/100 ES	M 20 x 1.5	40	80	51	20	105	40	20	100

* type stainless steel can optically differ from the drawing



Yokes (male threads) with bolts — for compact cylinders

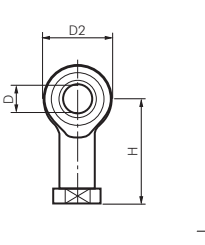
Type zinc-plated steel	A	B	C	D	E	F	G	H	GL	For cylinder Ø
GAKA M6	M 6	12	37	17	6	44	12	6	15	32 and 40
GAKA M8	M 8	16	47	22	8	57	16	8	20	50 and 63
GAKA M10	M 10	20	57	27	10	69	20	10	25	80
GAKA M12	M 12	24	68	33	12	82	24	12	30	100



Swivel heads — for compact cylinders

Materials: Type zinc-plated steel: Housing: Zinc-plated steel, bearing: Brass/PTFE, inside ring: 100Cr6
Type stainless steel: Housing: AISI 304, bearing: AISI 304/PTFE, inside ring: AISI 420

Type zinc-plated steel	Type stainless steel	A	B	C	D	D2	L	H	For cylinder Ø
SGS 12/16	SGS 12/16 ES	M 6	9	6.75	6	20	12	30	12
SGS 20	SGS 20 ES	M 8	12	9.0	8	24	16	36	16
SGS 25/32	SGS 25/32 ES	M 10 x 1.25	14	10.5	10	28	20	43	20 to 40
SGS 40	SGS 40 ES	M 12 x 1.25	16	12.0	12	32	22	50	50 and 63
SGS 50/63	SGS 50/63 ES	M 16 x 1.5	21	15.0	16	42	28	64	80
SGS 80/100	SGS 80/100 ES	M 20 x 1.5	25	18.0	20	50	33	77	100



Swivel heads made of plastic — for compact cylinders

Material: High performance polymer, self lubricating
Temperature range: -40°C to max. +80°C
Operating range: Wet environments, weak acids and alkalis, water, extreme dirt

Type	A	B	C	D	D2	L	H	For cylinder Ø
SGS 12/16 KU	M 6	9	7.0	6	20	12	30	12
SGS 20 KU	M 8	12	9.0	8	24	16	36	16
SGS 25/32 KU	M 10 x 1.25	14	10.5	10	28	20	43	20 to 40
SGS 40 KU	M 12 x 1.25	16	12.0	12	34	24	50	50 and 63
SGS 50/63 KU	M 16 x 1.5	21	15.0	16	42	31	64	80
SGS 80/100 KU	M 20 x 1.5	25	18.0	20	50	33	77	100

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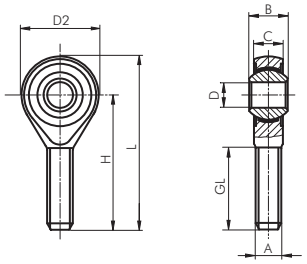
Swivel heads (male threads) — for compact cylinders

Materials: Type zinc-plated steel: Housing: Zinc-plated steel, bearing: Brass/PTFE, inside ring: 100Cr6
Type stainless steel: Housing: AISI 304, bearing: AISI 304/PTFE, inside ring: AISI 420

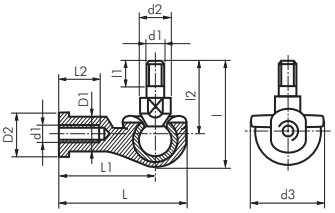
Type **zinc-plated steel**	Type **stainless steel** (INOX)	A	B	C	D	D2	H	L	GL	For cylinder Ø
SGSA M4	---	M 4	7	5.25	4	14	30	37	19	16
SGSA M5	SGSA M5 ES	M 5	8	6.0	5	18	33	42	19	20 and 25
SGSA M6	SGSA M6 ES	M 6	9	6.75	6	20	36	46	21	32 and 40
SGSA M8	SGSA M8 ES	M 8	12	9.0	8	24	42	54	25	50 and 63
SGSA M10	SGSA M10 ES	M 10	14	10.5	10	28	48	62	28	80
SGSA M12	SGSA M12 ES	M 12	16	12.0	12	32	54	70	32	100



Swivel heads 90° — for compact cylinders

Material: Body: Die-cast aluminium, spigot and ball: Zinc-plated steel

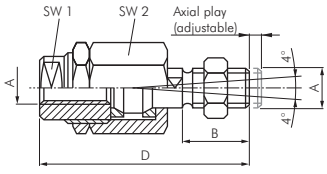
Type	d1	d2	d3	L	l	L1	l1	L2	l2	D1	D2	For cylinder Ø
SGS 12/16-90	M 6	10	20	40.5	36.0	30	11	14	26	10.0	13	12
SGS 20-90	M 8	12	24	49.0	43.5	36	12	17	31	12.5	16	16
SGS 25/32-90	M 10 x 1.25	14	30	58	51.5	43	15	21	37	15.0	19	20 to 40
SGS 40-90	M 12 x 1.25	19	32	66	57.5	50	17	25	42	17.5	22	50 and 63
SGS 50/63-90	M 16 x 1.5	22	44	84	79.5	64	23	32	60	22.0	27	80
SGS 80/100-90	M 20 x 1.5	29	50	99	90.0	77	25	35	68	27.5	34	100



Flexo couplings — for compact cylinders

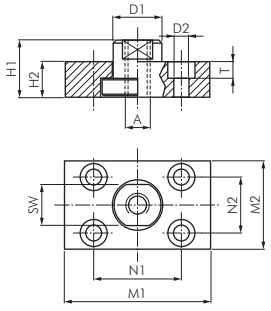
Type **zinc-plated steel**	Type **AISI 303/304** (INOX)	A	B*	D*	SW 1*	SW 2	Radial play*	For cylinder Ø
FK 12/16	FK 12/16 ES	M 6	10	35.0	7	15	2	12
FK 20	FK 20 ES	M 8	20	57.0	11	19	2	16
FK 25/32	FK 25/32 ES	M 10 x 1.25	20	71.5	19	30	2	20 to 40
FK 40	FK 40 ES	M 12 x 1.25	24	75.0	19	32	2	50 and 63
FK 50/63	FK 50/63 ES	M 16 x 1.5	32	104.0	27	41	2	80
FK 80/100	FK 80/100 ES	M 20 x 1.5	40	119.0	27	41	2	100

* dimensions for stainless steel may vary



Flexo couplings with mounting plates — for compact cylinders

Type **zinc-plated steel**	Type **AISI 304** (INOX)	A	D1	D2	H1	H2	M1	M2	N1	N2	SW	T	For cylinder Ø
FKB 25/32	FKB 25/32 ES	M 10 x 1.25	20	6.6	24	15	60	37	36	23	17	7	20 to 40
FKB 40	FKB 40 ES	M 12 x 1.25	25	9.0	30	20	60	56	42	38	19	9	50 and 63
FKB 50/63	FKB 50/63 ES	M 16 x 1.5	30	11.0	32	20	80	80	58	58	24	11	80
FKB 80/100	FKB 80/100 ES	M 20 x 1.5	40	14.0	35	20	90	90	65	65	36	13	100

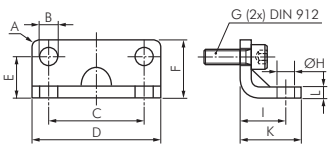


Foot fastenings — for compact cylinders

Supply volume: 1 pc. mounting bracket, incl. 2 fastening screws

Type **zinc-plated steel**	A	B	C	D	E	F	G	H	I	K	L	For cylinder Ø
NXA 12/16	2	4.4	18	30	13.0	17.5	M 4 x 16	5.5	13	17.5	3	12 and 16*
NXA 20	2	5.4	22	36	16.0	22.0	M 5 x 20	6.6	16	22.0	4	20*
NXA 25	2	5.4	26	40	17.0	23.0	M 5 x 20	6.6	17	22.0	4	25*
NXA 32	2	6.6	32	50	16.0	24.0	M 6 x 20	6.6	18	26.0	5	32
NXA 40	5	6.6	42	60	21.5	29.5	M 6 x 20	9.0	20	28.0	5	40
NXA 50	5	9.0	50	68	22.0	30.0	M 8 x 25	9.0	24	32.0	6	50
NXA 63	5	11.0	62	84	28.5	39.0	M 10 x 25	11.0	27	39.0	6	63
NXA 80	5	11.0	82	102	24.5	36.5	M 10 x 25	11.0	30	42.0	8	80
NXA 100	5	11.0	103	123	26.5	38.5	M 10 x 30	13.5	33	45.0	8	100

* cylinders NXD & NXE Ø 12 to 25 only have one mounting hole. Therefore we do not recommend use of these foot fastenings for these dimensions.



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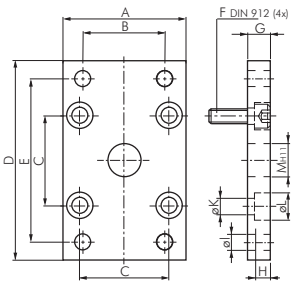
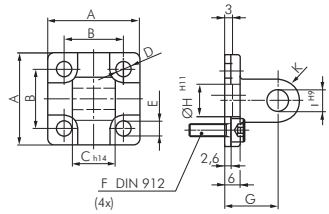
Compact cylinders - NXD/NXE - accessories



Flange fastenings at the front or rear — for compact cylinders

Supply volume: 1 pc. flange plate, incl. 4 fastening screws

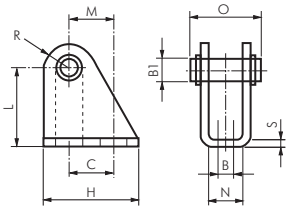
Type zinc-plated steel	A	B	C	D	E	F	G	H	I	K	L	M	For cylinder Ø
NXB 12/16	29	---	18	55	43	M 4 x 16	10	5.4	5.5	4.5	9	10	12 and 16
NXB 20	36	---	22	70	55	M 5 x 20	10	5.4	6.6	5.5	10	12	20
NXB 25	40	---	26	76	60	M 5 x 20	10	5.4	6.6	5.5	10	12	25
NXB 32	50	32	32	80	65	M 6 x 20	10	6.4	7.0	6.6	11	14	32
NXB 40	60	36	42	102	82	M 6 x 20	10	6.4	9.0	6.6	11	14	40
NXB 50	68	45	50	110	90	M 8 x 25	12	8.6	9.0	9.0	15	18	50
NXB 63	87	50	62	130	110	M 10 x 25	15	10.6	9.0	11.0	18	18	63
NXB 80	107	63	82	160	135	M 10 x 25	15	10.6	12.0	11.0	18	23	80
NXB 100	128	75	103	190	163	M 10 x 30	15	10.6	14.0	11.0	18	28	100



Swivel fastenings clips — for compact cylinders

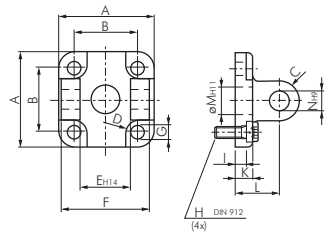
Supply volume: 1 swivel fastening, incl. 4 fastening screws

Type aluminium	A	B	C	E	F	G	H	I	K	For cylinder Ø
NXG 12/16	27	18	12	4.5	M 4 x 16	16	10	6	6	12 and 16
NXG 20	34	22	16	5.5	M 5 x 20	20	12	8	8	20
NXG 25	38	26	16	5.5	M 5 x 20	20	12	8	8	25



Bearing blocks with bolts — for compact cylinders

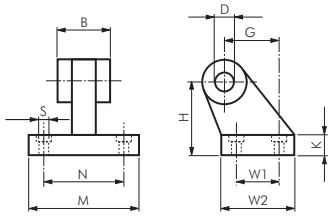
Type zinc-plated steel	Type AISI 304* (INOX)	B	B1	C	H	L	N	O	R	S	M	For cylinder Ø
BG 12/16	BG 12/16 ES	5.5	6	15	25	27	12.1	23.0	7	3	13	12 and 16
BG 20/25	BG 20/25 ES	6.6	8	20	32	30	16.1	29.5	10	4	16	20 and 25



Swivel fastening forks — for compact cylinders

Supply volume: 1 pc. swivel fastening, incl. 4 fastening screws

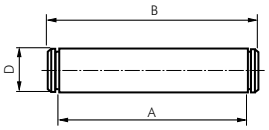
Type aluminium	A	B	C	E	F	G	H	I	K	L	M	N	For cylinder Ø
NXC 32	48	32	10.0	26	45	6.6	M 6 x 20	5.5	9	22	14	10	32
NXC 40	58	42	12.5	28	52	6.6	M 6 x 20	5.5	9	25	14	12	40
NXC 50	66	50	12.5	32	60	9.0	M 8 x 20	6.5	11	27	18	12	50
NXC 63	83	62	15.0	40	70	11.0	M 10 x 25	6.5	11	32	18	16	63
NXC 80	102	82	15.0	50	90	11.0	M 10 x 30	10.0	13	36	23	16	80
NXC 100	123	103	20.0	60	110	11.0	M 10 x 30	10.0	15	41	28	20	100



Swivel fastening 90° clips — for compact cylinders

Type aluminium	Type AISI 316 (INOX)	B	Ø D	G	H	K	M	N	Ø S	W 1	W 2	For cylinder Ø
TD 32	TD 32 ES	26	10	21	32	8	51	38	6.6	18	31	32
TD 40	TD 40 ES	28	12	24	36	10	54	41	6.6	22	35	40
TD 50	TD 50 ES	32	12	33	45	12	65	50	9.0	30	45	50
TD 63	TD 63 ES	40	16	37	50	14 (12)*	67	52	9.0	35	50	63
TD 80	TD 80 ES	50	16	47	63	14	86	66	11.0	40	60	80
TD 100	TD 100 ES	60	20	55	71	17 (15)*	96	76	11.0	50	70	100

* TD ... ES



Bolts for swivel fastenings — for compact cylinders

Supply volume: Bolts complete with compression ring and cotter pins

Type zinc-plated steel	Type AISI 316 (INOX)	A	B	D	For cylinder Ø
FF 32	FF 32 ES	46.0	53	10	32
FF 40	FF 40 ES	53.0	60	12	40
FF 50	FF 50 ES	61.0	68	12	50
FF 63	FF 63 ES	71.0	78	16	63
FF 80	FF 80 ES	91.0	98	16	80
FF 100	FF 100 ES	111.0	118	20	100

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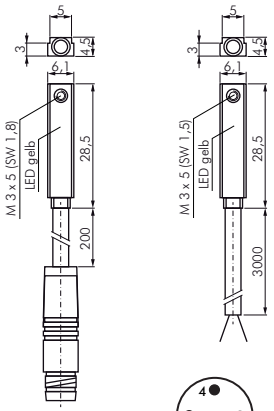
Cylinder switches for cylinders with continuous T-groove

Materials: Body: Plastic, threaded part: Brass, screw: Stainless steel
Connecting line: PUR cable
Protection class: IP 67
Temperature range: -20°C to max. +70°C
Note: The proximity switch with light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. It is mounted by pushing it in the T-groove of the cylinder and locking it using the threaded rod.
Suitable: For cylinder ISO 15552: XL/XLE, compact cylinder: NXE/NXD compact cylinder ISO 21287: NAE/NAD/SFS, rodless cylinder: LZ (Ø 18 mm only with clamp ZSAB2 5), guide cylinder: ZDFM and other cylinders with **continuous** T-groove

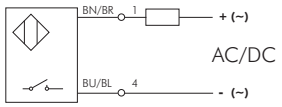
type ZSA 12

Advantages:
- No mounting material required.
- Only one switch for many cylinders

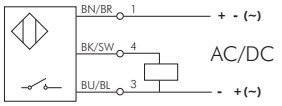
Type	Operating voltage	Switching	Max. switching current/performance	PUR connection line
2-wire reed sensor				
ZSA 12	10-230V AC 10-170V DC	NO contact	150 mA/10 W	3 m, 2 x 0.14 mm²
ZSA 12-M8	10-60V AC 10-75V DC	NO contact	150 mA/10 W	0.2 m, 2 x 0.14 mm² With cable plug M 8
3-wire reed sensor				
ZSA 13	10-30V AC/DC	NO contact (PNP)	500 mA/10 W	3 m, 3 x 0.14 mm²
ZSA 13-M8	10-30V AC/DC	NO contact (PNP)	500 mA/10 W	0.2 m, 3 x 0.14 mm² With cable plug M 8
fully electronic sensor (reverse polarity protection)				
ZSA 33	10-30V DC	NO contact (PNP)	130 mA/4 W	3 m, 3 x 0.14 mm²
ZSA 33-M8	10-30V DC	NO contact (PNP)	130 mA/4 W	0.2 m, 3 x 0.14 mm² With cable plug M 8



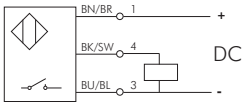
M 8-Plug



ZSA 12/ZSA 12-M8



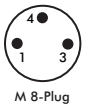
ZSA 13/ZSA 13-M8



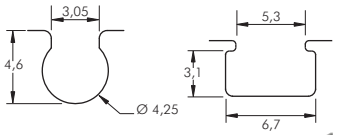
ZSA 33/ZSA 33-M8

Universal cylinder switch - C-groove, T-groove (5 mm) & round cylinder — Type D

Materials: Body: plastic, screw: metal
Connecting line: PVC cable
Protection class: IP 67
Temperature range: -10°C to max. +70°C
Note: The proximity switch with light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. It is mounted by pushing it in the groove of the cylinder and locking it using the threaded rod.
Suitable: Universal use for cylinders with continuous C groove, continuous and non-continuous T groove (5 mm) and with optional tension tape also round cylinder Ø 8 - 63 mm.

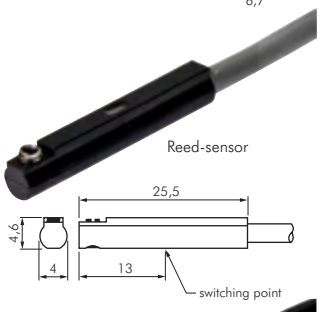


M 8-Plug

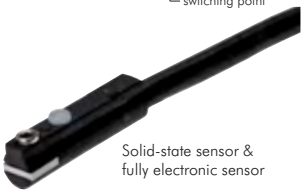


Advantages:
- no mounting material required for cylinder with C-groove & T-groove (5mm).
- a switch that fits many products of most Asian brands (e.g. SMC).
- with included adapter fits many products of most European brands (e.g. Festo).
- can be used with optional tension tape for round cylinders.

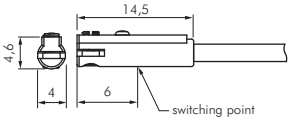
Type	Operating-voltage	Switching	max. Switching current / performance	Connecting line
2-wire reed sensor, red LED				
ZSD 12	5-120V AC/DC	NO contact	100 mA/10 W	3 m, 2 x 0,18 mm²
2-wire solid-state sensor, red LED				
ZSD 22	10-28V DC	NO contact	50 mA/1,4 W	3 m, 2 x 0,18 mm²
ZSD 22-M8	10-28V DC	NO contact	50 mA/1,4 W	0,15 m, 2 x 0,18 mm² mit M 8-Stecker (3-polig)
Fully electronic sensor (reverse polarity protection), green LED				
ZSD 33	5-30V DC	NO contact (PNP)	200 mA/6 W	3 m, 3 x 0,18 mm²
ZSD 33-M8	5-30V DC	NO contact (PNP)	200 mA/6 W	0,15 m, 3 x 0,18 mm² mit M 8-Stecker (3-polig)

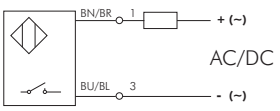


Reed-sensor

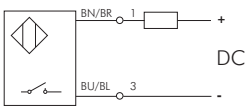


Solid-state sensor & fully electronic sensor

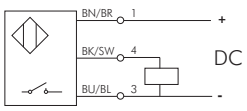




2-wire reed sensor



2-wire solid-state sensor



fully electronic sensor

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Compact cylinders ISO 21287

Pressure-force tables
can be found on page 3

Double acting compact cylinders with magnetic pistons — Eco-Line/ISO 21287

Materials: Head and foot: Aluminium, cylinder tube: Aluminium anodised, piston rod: Stainless steel (Ø 32 - 100: steel hard chrome-plated), seal: NBR/PUR
Temperature range: -20°C to max. +80°C
Operating pressure: 1 - 10 bar
☞ **Optional:** Piston rod with male thread **-B**

Especially good value!

type SFS

type SFS ... -B

Piston Ø 20 mm	Piston Ø 25 mm	Piston Ø 32 mm	Piston Ø 40 mm	Piston Ø 50 mm	Piston Ø 63 mm	Stroke
SFS 20/5	SFS 25/5	SFS 32/5	SFS 40/5	SFS 50/5	SFS 63/5	5
SFS 20/10	SFS 25/10	SFS 32/10	SFS 40/10	SFS 50/10	SFS 63/10	10
SFS 20/15	SFS 25/15	SFS 32/15	SFS 40/15	SFS 50/15	SFS 63/15	15
SFS 20/20	SFS 25/20	SFS 32/20	SFS 40/20	SFS 50/20	SFS 63/20	20
SFS 20/25	SFS 25/25	SFS 32/25	SFS 40/25	SFS 50/25	SFS 63/25	25
SFS 20/30	SFS 25/30	SFS 32/30	SFS 40/30	SFS 50/30	SFS 63/30	30
SFS 20/40	SFS 25/40	SFS 32/40	SFS 40/40	SFS 50/40	SFS 63/40	40
SFS 20/50	SFS 25/50	SFS 32/50	SFS 40/50	SFS 50/50	SFS 63/50	50
SFS 20/60	SFS 25/60	SFS 32/60	SFS 40/60	SFS 50/60	SFS 63/60	60
SFS 20/80	SFS 25/80	SFS 32/80	SFS 40/80	SFS 50/80	SFS 63/80	80
SFS 20/100	SFS 25/100	SFS 32/100	SFS 40/100	SFS 50/100	SFS 63/100	100
SFS 20/125	SFS 25/125	SFS 32/125	SFS 40/125	SFS 50/125	SFS 63/125	125
SFS 20/150	SFS 25/150	SFS 32/150	SFS 40/150	SFS 50/150	SFS 63/150	150
---	---	SFS 32/200	SFS 40/200	SFS 50/200	SFS 63/200	200
Repair sets						
SFS 20 REP	SFS 25 REP	SFS 32 REP	SFS 40 REP	SFS 50 REP	SFS 63 REP	

Piston Ø 80 mm	Piston Ø 100 mm	Stroke
SFS 80/10	SFS 100/10	10
SFS 80/15	SFS 100/15	15
SFS 80/20	SFS 100/20	20
SFS 80/25	SFS 100/25	25
SFS 80/30	SFS 100/30	30
SFS 80/40	SFS 100/40	40
SFS 80/50	SFS 100/50	50
SFS 80/60	SFS 100/60	60
SFS 80/80	SFS 100/80	80
SFS 80/100	SFS 100/100	100
SFS 80/125	SFS 100/125	125
SFS 80/150	SFS 100/150	150
SFS 80/200	SFS 100/200	200
Repair sets		
SFS 80 REP	SFS 100 REP	

☞ **Order example:** SFS 20/5 **

Standard type

Designation for the options:
Piston rod with male thread . . . . . **-B**

Pressure-force tables
can be found on page 3

Simple acting compact cylinders with magnetic pistons — Eco-Line/ISO 21287

Materials: Head and foot: Aluminium, cylinder tube: Aluminium anodised, piston rod: Stainless steel (Ø 32 - 63: Steel hard chrome-plated), seal: NBR/PUR
Temperature range: -20°C to max. +80°C
Operating pressure: 2 - 10 bar
☞ **Optional:** Piston rod with male thread **-B**

Especially good value!

type SFSBS

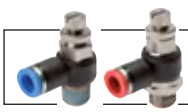
type SFSBS ... -B

Piston Ø 20 mm	Piston Ø 25 mm	Piston Ø 32 mm	Piston Ø 40 mm	Piston Ø 50 mm	Piston Ø 63 mm	Stroke
SFSBS 20/5	SFSBS 25/5	SFSBS 32/5	SFSBS 40/5	SFSBS 50/5	SFSBS 63/5	5
SFSBS 20/10	SFSBS 25/10	SFSBS 32/10	SFSBS 40/10	SFSBS 50/10	SFSBS 63/10	10
SFSBS 20/15	SFSBS 25/15	SFSBS 32/15	SFSBS 40/15	SFSBS 50/15	SFSBS 63/15	15
SFSBS 20/20	SFSBS 25/20	SFSBS 32/20	SFSBS 40/20	SFSBS 50/20	SFSBS 63/20	20
SFSBS 20/25	SFSBS 25/25	SFSBS 32/25	SFSBS 40/25	SFSBS 50/25	SFSBS 63/25	25
Repair sets						
SFS 20 REP	SFS 25 REP	SFS 32 REP	SFS 40 REP	SFS 50 REP	SFS 63 REP	

☞ **Order example:** SFSBS 20/5 **

Standard type

Designation for the options:
Piston rod with male thread . . . . . **-B**



One-way
control valves
from page 440

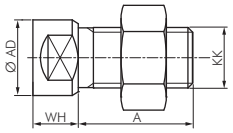
PU, PA, PTFE and
PE hoses
from page 192

Solenoid valve
from page 414

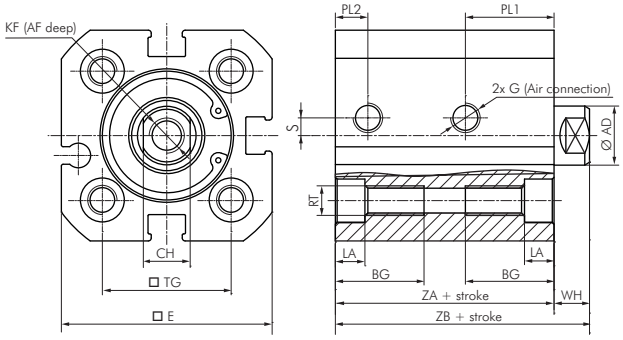
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Main dimensions - compact cylinders SFS — Eco-Line/ISO 21287

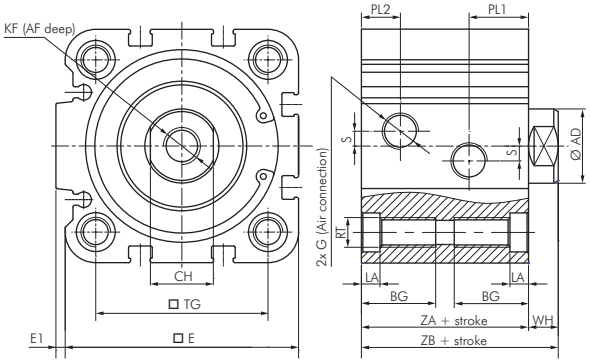
option - B



type Ø 20



type Ø 25 - Ø 100



Piston Ø	A	AD	AF	BG	CH	E	E1	EE	KF	KK	LA	PL1	PL2	RT	S	TG	WH	ZA	ZB
20 mm	16	10	10	15	8	36.0	0	M 5	M 6	M 8	5	15.5	5.5	M 5	3	22.0	6	37	43
25 mm	16	12	10	15	10	40.0	0	M 5	M 6	M 8	5	17.5	5.5	M 5	0	26.0	6	39	45
32 mm	19	16	12	16	14	45.5	2.5	G 1/8"	M 8	M 10 x 1.25	5	15.5	8.0	M 6	0	32.5	7	44	51
40 mm	19	16	12	16	14	53.0	2.5	G 1/8"	M 8	M 10 x 1.25	5	16.5	9.5	M 6	0	38.0	7	45	52
50 mm	22	20	16	20	17	63.0	2.5	G 1/8"	M 10	M 12 x 1.25	5	16.0	10.5	M 8	4	46.5	8	45	53
63 mm	22	20	16	20	17	74.0	3.5	G 1/8"	M 10	M 12 x 1.25	5	17.0	11.5	M 8	5	56.5	8	49	57
80 mm	28	25	21	25	22	92.0	3.5	G 1/8"	M 12	M 16 x 1.5	5	17.0	15.0	M 10	10	72.0	10	54	64
100 mm	28	32	21	25	27	109.0	4.5	G 1/8"	M 12	M 16 x 1.5	5	24.5	19.0	M 10	14	89.0	10	67	77

Piston rod nuts — for compact cylinder ISO 21287

Type zinc-plated steel	Type V4A (stainless steel)	Thread	SW	For cylinder Ø
GM 6 ST	GM 6 ES	M 6	10	16
GM 8 ST	GM 8 ES	M 8	13	20 and 25
GM 10125 ST	GM 10125 ES	M 10 X 1.25	17	32 and 40
GM 12125 ST	GM 12125 ES	M 12 x 1.25	19	50 and 63
GM 1615 ST	GM 1615 ES	M 16 x 1.5	24	80 and 100

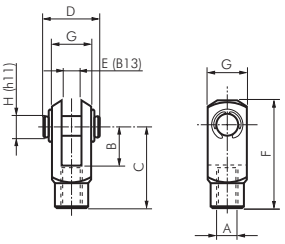
INOX

Yokes with bolts — for compact cylinder ISO 21287

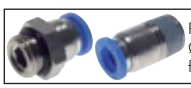
☞ **Optional:** Material AISI 316Ti **-ES 4A**

Type zinc-plated steel	Type AISI 303*	A	B	C	D	E	F	G	H	For cylinder Ø
GAK 12/16	GAK 12/16 ES	M 6	12	24	16	6	31	12	6	16
GAK 20	GAK 20 ES	M 8	16	32	23	8	42	16	8	20 and 25
GAK 25/32	GAK 25/32 ES	M 10 x 1.25	20	40	27	10	52	20	10	32 and 40
GAK 40	GAK 40 ES	M 12 x 1.25	24	48	33	12	62	24	12	50 and 63
GAK 50/63	GAK 50/63 ES	M 16 x 1.5	32	64	43	16	83	32	16	80 and 100

* type stainless steel can optically differ from the drawing



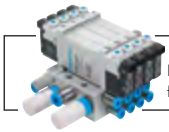
8



Push-in fittings
Ø 3 - 32 mm
from page 24

PU, PA, PTFE and
PE hoses
from page 192

Valves
from page 404



FESTO
Festo valves can be
found in our Online Shop

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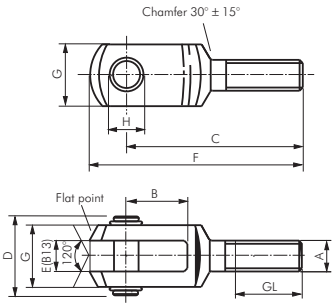
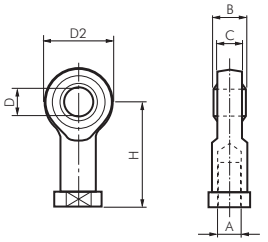
Compact cylinders ISO 21287 - accessories



Yokes (male threads) with bolts — for compact cylinder ISO 21287

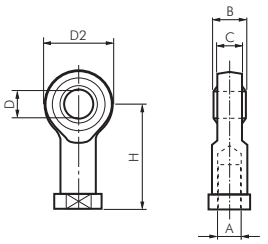
Type zinc-plated steel	A	B	C	D	E	F	G	H	GL	For cylinder Ø
GAKA M6	M 6	12	37	17	6	44	12	6	15	20 and 25
GAKA M8	M 8	16	47	22	8	57	16	8	20	32 and 40
GAKA M10	M 10	20	57	27	10	69	20	10	25	50 and 63
GAKA M12	M 12	24	68	33	12	82	24	12	30	80 and 100



Swivel heads — for compact cylinder ISO 21287

Materials: Type zinc-plated steel: Housing: Zinc-plated steel, bearing: Brass/PTFE, inside ring: 100Cr6
Type stainless steel: Housing: AISI 304, bearing: AISI 304/PTFE, inside ring: AISI 420

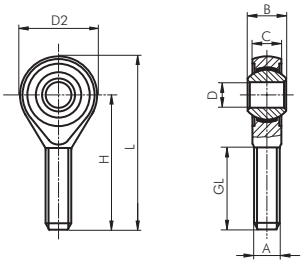
Type zinc-plated steel	Type stainless steel	A	B	C	D	D2	L	H	For cylinder Ø
SGS 12/16	SGS 12/16 ES	M 6	9	6.75	6	20	12	30	16
SGS 20	SGS 20 ES	M 8	12	9.0	8	24	16	36	20 and 25
SGS 25/32	SGS 25/32 ES	M 10 x 1.25	14	10.5	10	28	20	43	32 and 40
SGS 40	SGS 40 ES	M 12 x 1.25	16	12.0	12	32	22	50	50 and 63
SGS 50/63	SGS 50/63 ES	M 16 x 1.5	21	15.0	16	42	28	64	80 and 100



Swivel heads made of plastic — for compact cylinder ISO 21287

Material: High performance polymer, self lubricating
Temperature range: -40°C to max. +80°C
Operating range: Wet environments, weak acids and alkalis, water, extreme dirt

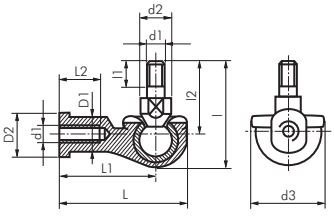
Type	A	B	C	D	D2	L	H	For cylinder Ø
SGS 12/16 KU	M 6	9	7.0	6	20	12	30	16
SGS 20 KU	M 8	12	9.0	8	24	16	36	20 and 25
SGS 25/32 KU	M 10 x 1.25	14	10.5	10	30	20	43	32 and 40
SGS 40 KU	M 12 x 1.25	16	12.0	12	34	24	50	50 and 63
SGS 50/63 KU	M 16 x 1.5	21	15.0	16	42	31	64	80 and 100



Swivel heads (male threads) — for compact cylinder ISO 21287

Materials: Type zinc-plated steel: Housing: Zinc-plated steel, bearing: Brass/PTFE, inside ring: 100Cr6
Type stainless steel: Housing: AISI 304, bearing: AISI 304/PTFE, inside ring: AISI 420

Type zinc-plated steel	Type stainless steel	A	B	C	D	D2	H	L	GL	For cylinder Ø
SGSA M6	SGSA M6 ES	M 6	9	6.75	6	20	36	46	21	20 and 25
SGSA M8	SGSA M8 ES	M 8	12	9.0	8	24	42	54	25	32 and 40
SGSA M10	SGSA M10 ES	M 10	14	10.5	10	28	48	62	28	50 and 63
SGSA M12	SGSA M12 ES	M 12	16	12.0	12	32	54	70	32	80 and 100



Swivel heads 90° — for compact cylinder ISO 21287

Material: Body: Die-cast aluminium, spigot and ball: Zinc-plated steel

Type	d1	d2	d3	L	l	L1	l1	L2	l2	D1	D2	For cylinder Ø
SGS 12/16-90	M 6	10	20	40.5	36.0	30	11	14	26	10.0	13	16
SGS 20-90	M 8	12	24	49.0	43.5	36	12	17	31	12.5	16	20 and 25
SGS 25/32-90	M 10 x 1.25	14	30	58.0	51.5	43	15	21	37	15.0	19	32 and 40
SGS 40-90	M 12 x 1.25	19	32	66.0	57.5	50	17	25	42	17.5	22	50 and 63
SGS 50/63-90	M 16 x 1.5	22	44	84.0	79.5	64	23	32	60	22.0	27	80 and 100

FESTO
Bellows cylinders can be found in our Online Shop

FESTO
Festo rotary actuators can be found in our Online Shop

FESTO
Festo shock absorbers can be found in our Online Shop

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You will find Festo stop cylinders in our Online Shop

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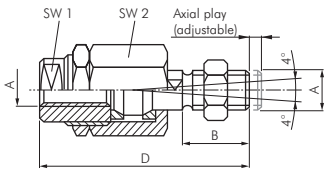
Flexo couplings — for compact cylinder ISO 21287

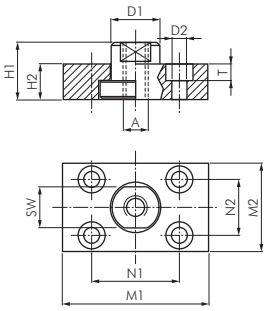
Type zinc-plated steel	Type AISI 303/304 (INOX)	A	B*	D*	SW 1*	SW 2	Radial play*	For cylinder Ø
FK 12/16	FK 12/16 ES	M 6	10	35	7	15	2	16
FK 20	FK 20 ES	M 8	20	57	11	19	2	20 and 25
FK 25/32	FK 25/32 ES	M 10 x 1.25	20	71.5	19	30	2	32 and 40
FK 40	FK 40 ES	M 12 x 1.25	24	75	19	32	2	50 and 63
FK 50/63	FK 50/63 ES	M 16 x 1.5	32	104	27	41	2	80 and 100

* dimensions for stainless steel may vary



Flexo couplings with mounting plates — for compact cylinder ISO 21287

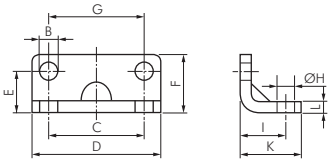
Type zinc-plated steel	Type AISI 304 (INOX)	A	D1	D2	H1	H2	M1	M2	N1	N2	SW	T	For cylinder Ø
FKB 25/32	FKB 25/32 ES	M 10 x 1.25	20	6.6	24	15	60	37	36	23	17	7	32 and 40
FKB 40	FKB 40 ES	M 12 x 1.25	25	9.0	30	20	60	56	42	38	19	9	50 and 63
FKB 50/63	FKB 50/63 ES	M 16 x 1.5	30	11.0	32	20	80	80	58	58	24	11	80 and 100



Foot fastenings — for compact cylinder ISO 21287

Supply volume: 1 pc. mounting bracket, incl. 2 fastening screws

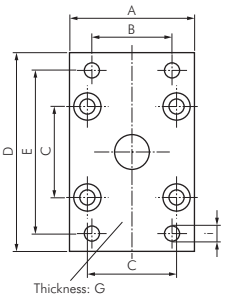
Type zinc-plated steel	B	C	D	E	F	G	H	I	K	L	For cylinder Ø
NXA 12/16	4.4	18	30	13.0	17.5	18.0	5.5	13	17.5	3	16
NXA 20	5.4	22	36	16.0	22.0	22.0	6.6	16	22.0	4	20
NXA 25	5.4	26	40	17.0	23.0	26.0	6.6	17	22.0	4	25
TA 32	7.0	32	45	15.75	30.0	32.5	7.0	24	35.0	4	32
TA 40	7.0	36	52	17.0	30.0	38.0	9.0	28	36.0	4	40
TA 50	9.0	45	65	21.75	36.0	46.5	9.0	32	47.0	5	50
TA 63	9.0	50	75	21.75	35.0	56.5	9.0	32	45.0	5	63
TA 80	11.0	63	95	27.0	47.0	72.0	12.0	41	55.0	6	80
TA 100	11.0	75	115	26.5	53.0	89.0	14.0	41	57.0	6	100



Flange fastenings at the front or rear — for compact cylinder ISO 21287

Supply volume: 1 pc. flange plate, incl. 4 fastening screws

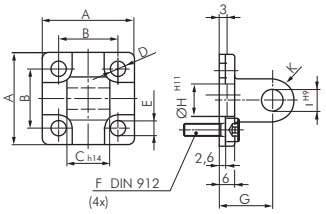
Type zinc-plated steel	A	B	C	D	E	G	I	For cylinder Ø
NXB 12/16	29	---	18.0	55	43	10	5.5	16
NXB 20	36	---	22.0	70	55	10	6.6	20
NXB 25	40	---	26.0	76	60	10	6.6	25
TB 32	45	32	32.5	80	64	10	7.0	32
TB 40	52	36	38.0	90	72	10	9.0	40
TB 50	65	45	46.5	110	90	12	9.0	50
TB 63	75	50	56.5	120	100	12	9.0	63
TB 80	95	63	72.0	150	126	16	12.0	80
TB 100	115	75	89.0	170	150	16	14.0	100



Swivel fastening clips — for compact cylinder ISO 21287

Supply volume: 1 swivel fastening, incl. 4 fastening screws

Type aluminium	A	B	C	E	F	G	H	I	K	For cylinder Ø
NXG 12/16	27	18	12	4.5	M 4 x 16	16	10	6	6	16
NXG 20	34	22	16	5.5	M 5 x 20	20	12	8	8	20
NXG 25	38	26	16	5.5	M 5 x 20	20	12	8	8	25



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ACE
Shock absorber from page 502

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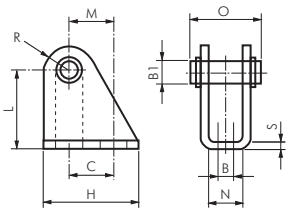
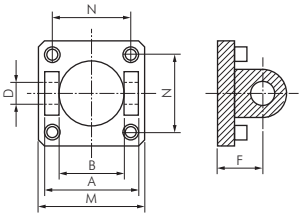
Compact cylinders ISO 21287 - accessories



Bearing blocks with bolts — for compact cylinder ISO 21287

Type zinc-plated steel	Type AISI 304 (INOX)	B	B1	C	H	L	N	O	R	S	M	For cylinder Ø
BG 12/16	BG 12/16 ES	5.5	6	15	25	27	12.1	23.0	7	3	13	16
BG 20/25	BG 20/25 ES	6.6	8	20	32	30	16.1	29.5	10	4	16	20 and 25

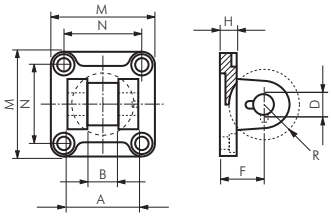


Swivel fastening forks — for compact cylinder ISO 21287

Supply volume: 1 swivel fastening, incl. 4 fastening screws

Type aluminium with bushing	Type AISI 316 (INOX)	A	B	Ø D	F	M	N	For cylinder Ø
TC 32	TC 32 ES	45	26	10	22	45	32.5	32
TC 40	TC 40 ES	52	28	12	25	52*	38.0	40
TC 50	TC 50 ES	60	32	12	27	65	46.5	50
TC 63	TC 63 ES	70	40	16	32	75	56.5	63
TC 80	TC 80 ES	90	50	16	36	95	72.0	80
TC 100	TC 100 ES	110	60	20	41	115	89.0	100

* type stainless steel: 55 mm

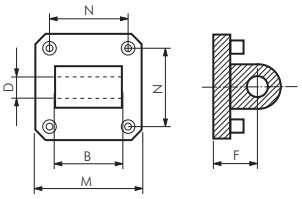


Swivel fastening forks for spherical clips — for compact cylinder ISO 21287

Supply volume: 1 swivel fastening, incl. 4 fastening screws

⚠ Warning: Only use type FFQ bolts to connect to TE and TF types!

Type aluminium	Type AISI 316 (INOX)	A	B	Ø D	F	H	M	N	R	For cylinder Ø
TQ 32	TQ 32 ES	34	14	10	22	9	45	32.5	17	32
TQ 40	TQ 40 ES	40	16	12	25	9	52	38.0	20	40
TQ 50	TQ 50 ES	45	21	16	27	11	65	46.5	22	50
TQ 63	TQ 63 ES	51	21	16	32	11	75	56.5	25	63
TQ 80	TQ 80 ES	65	25	20	36	14	95	72.0	30	80
TQ 100	TQ 100 ES	75	25	20	41	14	115	89.0	32	100

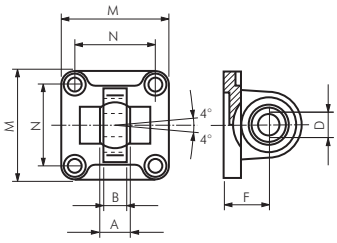


Swivel fastenings clips — for compact cylinder ISO 21287

Supply volume: 1 swivel fastening, incl. 4 fastening screws

Type aluminium	Type AISI 316 (INOX)	B	Ø D	F	M	N	For cylinder Ø
TG 32	TG 32 ES	26	10	22	45	32.5	32
TG 40	TG 40 ES	28	12	25	52*	38.0	40
TG 50	TG 50 ES	32	12	27	65	46.5	50
TG 63	TG 63 ES	40	16	32	75	56.5	63
TG 80	TG 80 ES	50	16	36	95	72.0	80
TG 100	TG 100 ES	60	20	41	115	89.0	100

* type stainless steel: 55 mm

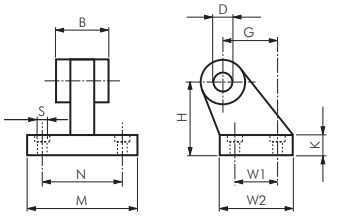


Swivel fastenings spherical clips — for compact cylinder ISO 21287

Supply volume: 1 swivel fastening, incl. 4 fastening screws

⚠ Warning: Only use FFQ bolts to connect to TQ types!

Type steel burnished	Type aluminium	Type AISI 316 (INOX)	A	B	Ø D	F	M	N	For cylinder Ø
TE 32	TE 32 ALU	TE 32 ES	14	10.5	10	22	45	32.5	32
TE 40	TE 40 ALU	TE 40 ES	16	12.0	12	25	55	38.0	40
TE 50	TE 50 ALU	TE 50 ES	21	15.0	16	27	65	46.5	50
TE 63	TE 63 ALU	TE 63 ES	21	15.0	16	32	75	56.5	63
TE 80	TE 80 ALU	TE 80 ES	25	18.0	20	36	95	72.0	80
TE 100	TE 100 ALU	TE 100 ES	25	18.0	20	41	115	89.0	100



Swivel fastening 90° clips — for compact cylinder ISO 21287

Type aluminium	Type AISI 316 (INOX)	B	Ø D	G	H	K	M	N	Ø S	W 1	W 2	For cylinder Ø
TD 32	TD 32 ES	26	10	21	32	8	51	38	6.6	18	31	32
TD 40	TD 40 ES	28	12	24	36	10	54	41	6.6	22	35	40
TD 50	TD 50 ES	32	12	33	45	12	65	50	9.0	30	45	50
TD 63	TD 63 ES	40	16	37	50	14 (12)*	67	52	9.0	35	50	63
TD 80	TD 80 ES	50	16	47	63	14	86	66	11.0	40	60	80
TD 100	TD 100 ES	60	20	55	71	17 (15)*	96	76	11.0	50	70	100

* TD...ES

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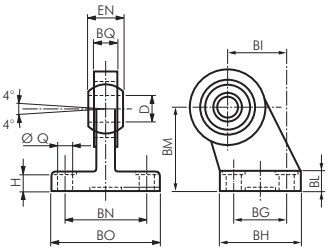
Swivel fastening 90° spherical clips — for compact cylinder ISO 21287

Warning: Only use FFQ bolts to connect to TQ types!

Type steel/ GGG	Type AISI 316 (INOX)	Ø Q	BG	BH	BI	BL	BM	BN	BO	EN	BQ	Ø D	H	For cylinder Ø
TF 32	TF 32 ES	6.6	18	31	21	10	32	38	51	14	10.5	10	8.5	32
TF 40	TF 40 ES	6.6	22	35	24	10	36	41	54	16	12.0	12	8.5	40
TF 50	TF 50 ES	9.0	30	45	33	12	45	50	65	21	15.0	16	10.5	50
TF 63	TF 63 ES	9.0	35	50	37	12	50	52	67	21	15.0	16	10.5	63
TF 80	TF 80 ES	11.0	40	60	47	14	63	66	86	25	18.0	20	11.5	80
TF 100	TF 100 ES	11.0	50	70	55	15	71	76	96	25	18.0	20	12.5	100



Bolts for swivel fastenings — for compact cylinder ISO 21287

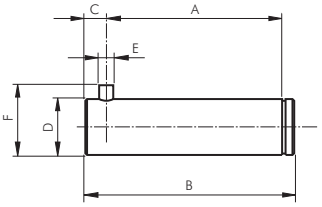
Supply volume: Bolts complete with compression ring and cotter pins

Type zinc-plated steel	Type AISI 316 (INOX)	A	B	D	For cylinder Ø
FF 32	FF 32 ES	46.0	53	10	32
FF 40	FF 40 ES	53.0	60	12	40
FF 50	FF 50 ES	61.0	68	12	50
FF 63	FF 63 ES	71.0	78	16	63
FF 80	FF 80 ES	91.0	98	16	80
FF 100	FF 100 ES	111.0	118	20	100

Bolts for spherical clips — for compact cylinder ISO 21287

Supply volume: Bolts complete with compression rings

Type zinc-plated steel	Type AISI 316 (INOX)	A	B	C	Ø D	E	F	For cylinder Ø
FFQ 32	FFQ 32 ES	32.5	41	4.5	10	3	14	32
FFQ 40	FFQ 40 ES	38.0	48	6.0	12	4	16	40
FFQ 50	FFQ 50 ES	43.0	54	6.0	16	4	20	50
FFQ 63	FFQ 63 ES	49.0	60	6.0	16	4	20	63
FFQ 80	FFQ 80 ES	63.0	75	6.0	20	4	24	80
FFQ 100	FFQ 100 ES	73.0	85	6.0	20	4	24	100



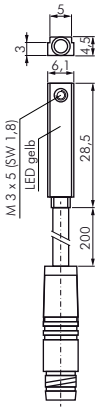
Cylinder switches for cylinders with continuous T-groove

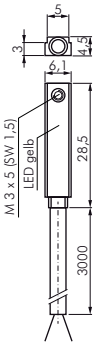
Materials: Body: Plastic, threaded part: Brass, screw: Stainless steel
Connecting line: PUR cable
Protection class: IP 67
Temperature range: -20°C to max. +70°C
Note: The proximity switch with light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. It is mounted by pushing it in the T-groove of the cylinder and locking it using the threaded rod.
Suitable: For cylinder ISO 15552: XL/XLE, compact cylinder: NXE/NXD compact cylinder ISO 21287: NAE/NAD/SFS, rodless cylinder: LZ (Ø 18 mm only with clamp ZSAB2 5), guide cylinder: ZDFM and other cylinders with **continuous** T-groove

type ZSA 12

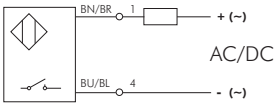
Advantages: • No mounting material required.
• Only one switch for many cylinders

Type	Operating voltage	Switching	Max. switching current/performance	PUR connection line
2-wire reed sensor				
ZSA 12	10-230V AC 10-170V DC	NO contact	150 mA/10 W	3 m, 2 x 0.14 mm²
ZSA 12-M8	10-60V AC 10-75V DC	NO contact	150 mA/10 W	0.2 m, 2 x 0.14 mm² With cable plug M 8
3-wire reed sensor				
ZSA 13	10-30V AC/DC	NO contact (PNP)	500 mA/10 W	3 m, 3 x 0.14 mm²
ZSA 13-M8	10-30V AC/DC	NO contact (PNP)	500 mA/10 W	0.2 m, 3 x 0.14 mm² With cable plug M 8
fully electronic sensor (reverse polarity protection)				
ZSA 33	10-30V DC	NO contact (PNP)	130 mA/4 W	3 m, 3 x 0.14 mm²
ZSA 33-M8	10-30V DC	NO contact (PNP)	130 mA/4 W	0.2 m, 3 x 0.14 mm² With cable plug M 8

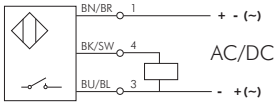




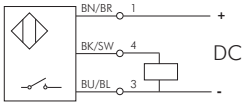
M 8-Plug



ZSA 12/ZSA 12-M8



ZSA 13/ZSA 13-M8



ZSA 33/ZSA 33-M8

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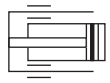
Pressure-force tables
can be found on page 3



Guide cylinders for accepting lateral forces

Materials: Body and plate: Aluminium anodised, guide rods: Steel hard chrome-plated, piston rod: Steel hard chrome-plated, piston: Aluminium with magnet insertion, seal: NBR/PUR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 10 bar

Guide through self-lubricating slide bearings

Piston Ø **16 mm**	Piston Ø **20 mm**	Piston Ø **25 mm**	Piston Ø **32 mm**	Piston Ø **40 mm**	Stroke
ZDFM 16/10 G	---	---	---	---	10
ZDFM 16/20 G	ZDFM 20/20 G	ZDFM 25/20 G	---	---	20
---	---	ZDFM 25/25 G	ZDFM 32/25 G	ZDFM 40/25 G	25
ZDFM 16/30 G	ZDFM 20/30 G	ZDFM 25/30 G	---	---	30
ZDFM 16/40 G	ZDFM 20/40 G	ZDFM 25/40 G	---	---	40
ZDFM 16/50 G	ZDFM 20/50 G	ZDFM 25/50 G	ZDFM 32/50 G	ZDFM 40/50 G	50
ZDFM 16/75 G	ZDFM 20/75 G	ZDFM 25/75 G	ZDFM 32/75 G	ZDFM 40/75 G	75
---	ZDFM 20/100 G	ZDFM 25/100 G	ZDFM 32/100 G	ZDFM 40/100 G	100
---	ZDFM 20/150 G	ZDFM 25/150 G	ZDFM 32/150 G	ZDFM 40/150 G	150
---	ZDFM 20/200 G	ZDFM 25/200 G	ZDFM 32/200 G	ZDFM 40/200 G	200

Piston Ø **50 mm**	Piston Ø **63 mm**	Piston Ø **80 mm**	Piston Ø **100 mm**	Stroke
ZDFM 50/25 G	ZDFM 63/25 G	ZDFM 80/25 G	ZDFM 100/25 G	25
ZDFM 50/50 G	ZDFM 63/50 G	ZDFM 80/50 G	ZDFM 100/50 G	50
ZDFM 50/75 G	ZDFM 63/75 G	ZDFM 80/75 G	ZDFM 100/75 G	75
ZDFM 50/100 G	ZDFM 63/100 G	ZDFM 80/100 G	ZDFM 100/100 G	100
ZDFM 50/150 G	ZDFM 63/150 G	ZDFM 80/150 G	ZDFM 100/150 G	150
ZDFM 50/200 G	ZDFM 63/200 G	ZDFM 80/200 G	ZDFM 100/200 G	200

Guide via ball bushings

Piston Ø **16 mm**	Piston Ø **20 mm**	Piston Ø **25 mm**	Piston Ø **32 mm**	Piston Ø **40 mm**	Stroke
ZDFM 16/10 K	---	---	---	---	10
ZDFM 16/20 K	ZDFM 20/20 K	ZDFM 25/20 K	---	---	20
---	---	ZDFM 25/25 K	ZDFM 32/25 K	ZDFM 40/25 K	25
ZDFM 16/30 K	ZDFM 20/30 K	ZDFM 25/30 K	---	---	30
ZDFM 16/40 K	ZDFM 20/40 K	ZDFM 25/40 K	---	---	40
ZDFM 16/50 K	ZDFM 20/50 K	ZDFM 25/50 K	ZDFM 32/50 K	ZDFM 40/50 K	50
---	ZDFM 20/75 K	ZDFM 25/75 K	ZDFM 32/75 K	ZDFM 40/75 K	75
---	ZDFM 20/100 K	ZDFM 25/100 K	ZDFM 32/100 K	ZDFM 40/100 K	100
---	ZDFM 20/150 K	ZDFM 25/150 K	ZDFM 32/150 K	ZDFM 40/150 K	150
---	ZDFM 20/200 K	ZDFM 25/200 K	ZDFM 32/200 K	ZDFM 40/200 K	200

Piston Ø **50 mm**	Piston Ø **63 mm**	Piston Ø **80 mm**	Piston Ø **100 mm**	Stroke
ZDFM 50/25 K	ZDFM 63/25 K	ZDFM 80/25 K	ZDFM 100/25 K	25
ZDFM 50/50 K	ZDFM 63/50 K	ZDFM 80/50 K	ZDFM 100/50 K	50
ZDFM 50/75 K	ZDFM 63/75 K	ZDFM 80/75 K	ZDFM 100/75 K	75
ZDFM 50/100 K	ZDFM 63/100 K	ZDFM 80/100 K	ZDFM 100/100 K	100
ZDFM 50/150 K	ZDFM 63/150 K	ZDFM 80/150 K	ZDFM 100/150 K	150
ZDFM 50/200 K	ZDFM 63/200 K	ZDFM 80/200 K	ZDFM 100/200 K	200

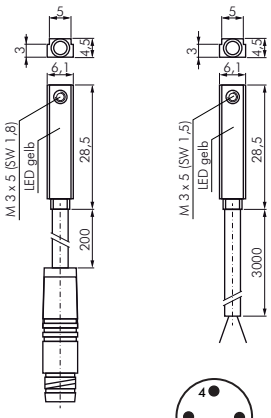
Cylinder switches for cylinders with continuous T-groove

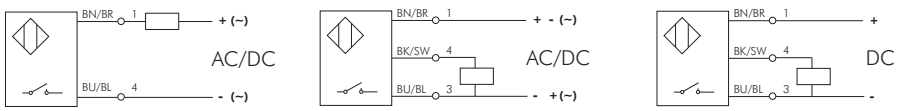
type ZSA 12

Materials: Body: Plastic, threaded part: Brass, screw: Stainless steel.
Connecting line: PUR cable
Protection class: IP 67
Temperature range: -20°C to max. +70°C
Note: The proximity switch with light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. It is mounted by pushing it in the T-groove of the cylinder and locking it using the threaded rod.
Suitable: For cylinder ISO 15552: XL/XLE, compact cylinder: NXE/NXD compact cylinder ISO 21287: NAE/NAD/SFS, rodless cylinder: LZ (Ø 18 mm only with clamp ZSAB2 5), guide cylinder: ZDFM and other cylinders with **continuous** T-groove

Advantages: • No mounting material required.
• Only one switch for many cylinders

Type	Operating voltage	Switching	Max. switching current/performance	PUR connection line
2-wire reed sensor				
ZSA 12	10-230V AC 10-170V DC	NO contact	150 mA/10 W	3 m, 2 x 0.14 mm²
ZSA 12-M8	10-60V AC 10-75V DC	NO contact	150 mA/10 W	0.2 m, 2 x 0.14 mm² With cable plug M 8
3-wire reed sensor				
ZSA 13	10-30V AC/DC	NO contact (PNP)	500 mA/10 W	3 m, 3 x 0.14 mm²
ZSA 13-M8	10-30V AC/DC	NO contact (PNP)	500 mA/10 W	0.2 m, 3 x 0.14 mm² With cable plug M 8
fully electronic sensor (reverse polarity protection)				
ZSA 33	10-30V DC	NO contact (PNP)	130 mA/4 W	3 m, 3 x 0.14 mm²
ZSA 33-M8	10-30V DC	NO contact (PNP)	130 mA/4 W	0.2 m, 3 x 0.14 mm² With cable plug M 8





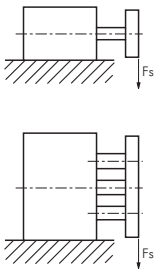
ZSA 12/ZSA 12-M8 ZSA 13/ZSA 13-M8 ZSA 33/ZSA 33-M8

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

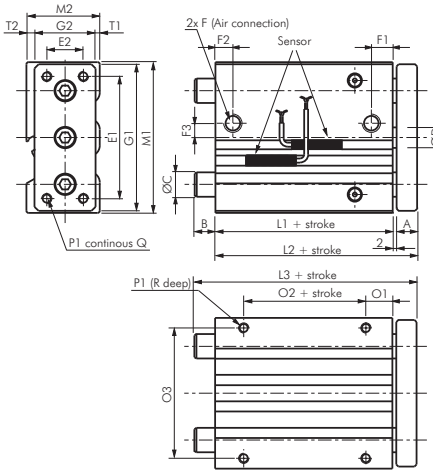
Technical data guide cylinders ZDFM

Maximum lateral force (Fs)

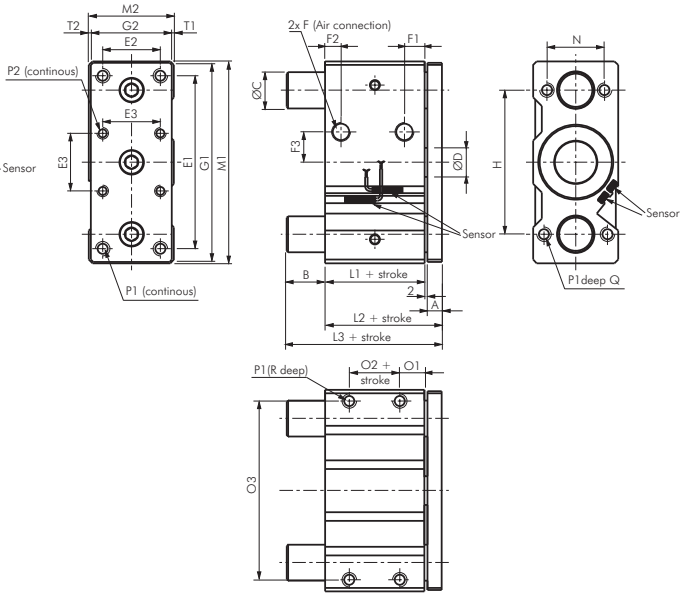
Piston Ø	Guide	Stroke 10 mm	20 mm	25 mm	30 mm	40 mm	50 mm	75 mm	100 mm	150 mm	200 mm
16 mm	Sliding guide	35 N	29 N	---	26 N	23 N	20 N	16 N	---	---	---
	Ball bushings	29 N	31 N	---	25 N	38 N	34 N	---	---	---	---
20 mm	Sliding guide	---	52 N	---	45 N	39 N	35 N	58 N	49 N	38 N	31 N
	Ball bushings	---	56 N	---	48 N	74 N	70 N	54 N	50 N	27 N	32 N
25 mm	Sliding guide	---	71 N	67 N	62 N	58 N	48 N	78 N	66 N	50 N	41 N
	Ball bushings	---	72 N	68 N	61 N	77 N	73 N	60 N	52 N	37 N	30 N
32 mm	Sliding guide	---	---	197 N	---	---	168 N	138 N	109 N	78 N	65 N
	Ball bushings	---	---	89 N	---	---	60 N	276 N	217 N	138 N	110 N
40 mm	Sliding guide	---	---	197 N	---	---	168 N	138 N	109 N	78 N	65 N
	Ball bushings	---	---	89 N	---	---	60 N	276 N	217 N	138 N	110 N
50 mm	Sliding guide	---	---	295 N	---	---	256 N	216 N	177 N	125 N	103 N
	Ball bushings	---	---	138 N	---	---	89 N	393 N	314 N	184 N	148 N
63 mm	Sliding guide	---	---	295 N	---	---	256 N	216 N	177 N	125 N	103 N
	Ball bushings	---	---	138 N	---	---	89 N	393 N	314 N	184 N	148 N
80 mm	Sliding guide	---	---	354 N	---	---	305 N	256 N	207 N	153 N	128 N
	Ball bushings	---	---	236 N	---	---	158 N	864 N	687 N	413 N	335 N
100 mm	Sliding guide	---	---	540 N	---	---	471 N	413 N	344 N	254 N	213 N
	Ball bushings	---	---	471 N	---	---	314 N	1374 N	1074 N	629 N	511 N



types ZDFM 16 to ZDFM 25



types ZDFM 32 to ZDFM 100



Piston Ø	A	B*	B**	C	D	E1	E2	F	F1	F2	F3	G1	G2	H	H1	L1
16	10	0	26.5	10	8	52	16	M 5	11.0	8.0	6	62	25	42	40	33.0
20	10	0	27.5	12	10	60	18	G 1/8"	10.5	8.5	7	72	29	52	46	37.0
25	10	0	30.0	16	12	70	26	G 1/8"	11.5	9.0	8	86	38	62	56	37.5

Piston Ø	L2	L3*	L3**	M1	M2	N	N1	N2	O1	O2	O3	P1	Q	R	S	T1	T2
16	45.0	45.0	71.5	64	33	22	15	18	13	7	54	M 5	13	8	2	2.5	5.5
20	49.0	49.0	76.5	74	36	26	17	19	13	10	64	M 5	13	8	2	2.0	4
25	49.5	49.5	79.5	88	42	32	21	21	14	10	76	M 6	15	9	2	2.0	2

* (stroke<50), ** (stroke>50)

Piston Ø	A	B	C	D	E1	E2	E3	F	F1	F2	F3	G1	G2	H	L1	L2
32	10	24.0	20	16	96	30	32.5	G 1/8"	12.5	9.0	15	112	48	80	37.5	49.5
40	10	17.5	20	16	106	30	38.0	G 1/8"	14.0	10.0	21	122	48	90	44.0	56.0
50	12	25.0	25	20	120	40	46.5	G 1/4"	14.0	11.0	27	138	56	100	44.0	58.0
63	12	20.0	25	20	130	50	56.5	G 1/4"	16.5	13.5	33	148	69	110	49.0	63.0
80	16	18.5	28	25	160	60	72.0	G 3/8"	19.0	15.5	37	185	88	140	56.5	74.5
100	16	21.0	36	30	190	80	89.0	G 3/8"	23.0	19.0	40	221	108	170	66.0	84.0

Piston Ø	L3	M1	M2	N	O1	O2	O3	P1	P2	Q	R	S
32	73.5	114	51	38	16	5	100	M 8	M 6	20	11.0	2
40	73.5	124	51	38	17	10	110	M 8	M 6	20	11.0	2
50	83.0	139	59	44	17	10	124	M 10	M 8	25	12.5	2
63	83.0	150	72	44	19	10	132	M 10	M 8	25	15.0	2
80	93.0	188	92	56	21	15	166	M 12	M 10	30	18.0	2
100	105.0	224	112	62	25	15	200	M 14	M 10	35	21.0	2

PU, PA, PTFE and PE hoses from page 192

One-way control valves from page 440

Push-in fittings Ø 3 - 32 mm from page 24

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Measurements
can be found on page 500

Standard cylinders, standard cylinders with guides

Construction type: Rodless cylinder with direct force reduction through the pipe-slit on the yoke, both sides with adjustable end position damping, can be swapped with many other manufacturers
Materials: Cylinder tubes, cylinder heads and drive rollers: Aluminium anodised, seals: NBR, PUR, PA, TPU, masking tape: Stainless steel
Temperature range: -20°C to max.+80°C
Operating pressure: 2 to 8 bar
Media: Filtered and slightly oiled or unoiled compressed air
Stroke: Arbitrarily up to 6,000 mm, above that upon request
Installation position: Arbitrarily, however, preferably yoke downward to avoid soiling.
Compressed air connection: Both sides (anytime by removing closing plugs on one side or below, or combinations thereof can be reconstructed)

type LZ

type LZF

type LZFF

Piston Ø 18 mm	Piston Ø 25 mm	Piston Ø 32 mm	Piston Ø 40 mm	Piston Ø 50 mm	Piston Ø 63 mm	Desired str./ standard str.
Model series standard						
LZ 18/**	LZ 25/**	LZ 32/**	LZ 40/**	LZ 50/**	LZ 63/**	1 to 6,000
LZ 18/100	LZ 25/100	LZ 32/100	LZ 40/100	LZ 50/100	LZ 63/100	100
LZ 18/200	LZ 25/200	LZ 32/200	LZ 40/200	LZ 50/200	LZ 63/200	200
LZ 18/300	LZ 25/300	LZ 32/300	LZ 40/300	LZ 50/300	LZ 63/300	300
LZ 18/400	LZ 25/400	LZ 32/400	LZ 40/400	LZ 50/400	LZ 63/400	400
LZ 18/500	LZ 25/500	LZ 32/500	LZ 40/500	LZ 50/500	LZ 63/500	500
LZ 18/600	LZ 25/600	LZ 32/600	LZ 40/600	LZ 50/600	LZ 63/600	600
LZ 18/700	LZ 25/700	LZ 32/700	LZ 40/700	LZ 50/700	LZ 63/700	700
LZ 18/800	LZ 25/800	LZ 32/800	LZ 40/800	LZ 50/800	LZ 63/800	800
LZ 18/900	LZ 25/900	LZ 32/900	LZ 40/900	LZ 50/900	LZ 63/900	900
LZ 18/1000	LZ 25/1000	LZ 32/1000	LZ 40/1000	LZ 50/1000	LZ 63/1000	1000
LZ 18/1200	LZ 25/1200	LZ 32/1200	LZ 40/1200	LZ 50/1200	LZ 63/1200	1200
LZ 18/1400	LZ 25/1400	LZ 32/1400	LZ 40/1400	LZ 50/1400	LZ 63/1400	1400
LZ 18/1600	LZ 25/1600	LZ 32/1600	LZ 40/1600	LZ 50/1600	LZ 63/1600	1600
LZ 18/1800	LZ 25/1800	LZ 32/1800	LZ 40/1800	LZ 50/1800	LZ 63/1800	1800
LZ 18/2000	LZ 25/2000	LZ 32/2000	LZ 40/2000	LZ 50/2000	LZ 63/2000	2000
Model series standard with sliding guide (LZF)						
LZF 18/**	LZF 25/**	LZF 32/**	LZF 40/**	LZF 50/**	LZF 63/**	1 to 6,000
LZF 18/100	LZF 25/100	LZF 32/100	LZF 40/100	LZF 50/100	LZF 63/100	100
LZF 18/200	LZF 25/200	LZF 32/200	LZF 40/200	LZF 50/200	LZF 63/200	200
LZF 18/300	LZF 25/300	LZF 32/300	LZF 40/300	LZF 50/300	LZF 63/300	300
LZF 18/400	LZF 25/400	LZF 32/400	LZF 40/400	LZF 50/400	LZF 63/400	400
LZF 18/500	LZF 25/500	LZF 32/500	LZF 40/500	LZF 50/500	LZF 63/500	500
LZF 18/600	LZF 25/600	LZF 32/600	LZF 40/600	LZF 50/600	LZF 63/600	600
LZF 18/700	LZF 25/700	LZF 32/700	LZF 40/700	LZF 50/700	LZF 63/700	700
LZF 18/800	LZF 25/800	LZF 32/800	LZF 40/800	LZF 50/800	LZF 63/800	800
LZF 18/900	LZF 25/900	LZF 32/900	LZF 40/900	LZF 50/900	LZF 63/900	900
LZF 18/1000	LZF 25/1000	LZF 32/1000	LZF 40/1000	LZF 50/1000	LZF 63/1000	1000
LZF 18/1200	LZF 25/1200	LZF 32/1200	LZF 40/1200	LZF 50/1200	LZF 63/1200	1200
LZF 18/1400	LZF 25/1400	LZF 32/1400	LZF 40/1400	LZF 50/1400	LZF 63/1400	1400
LZF 18/1600	LZF 25/1600	LZF 32/1600	LZF 40/1600	LZF 50/1600	LZF 63/1600	1600
LZF 18/1800	LZF 25/1800	LZF 32/1800	LZF 40/1800	LZF 50/1800	LZF 63/1800	1800
LZF 18/2000	LZF 25/2000	LZF 32/2000	LZF 40/2000	LZF 50/2000	LZF 63/2000	2000
Model series standard with double sliding guide for large loads (LZFF)						
LZFF 18/**	LZFF 25/**	LZFF 32/**	LZFF 40/**	LZFF 50/**	LZFF 63/**	1 to 6,000
LZFF 18/100	LZFF 25/100	LZFF 32/100	LZFF 40/100	LZFF 50/100	LZFF 63/100	100
LZFF 18/200	LZFF 25/200	LZFF 32/200	LZFF 40/200	LZFF 50/200	LZFF 63/200	200
LZFF 18/300	LZFF 25/300	LZFF 32/300	LZFF 40/300	LZFF 50/300	LZFF 63/300	300
LZFF 18/400	LZFF 25/400	LZFF 32/400	LZFF 40/400	LZFF 50/400	LZFF 63/400	400
LZFF 18/500	LZFF 25/500	LZFF 32/500	LZFF 40/500	LZFF 50/500	LZFF 63/500	500
LZFF 18/600	LZFF 25/600	LZFF 32/600	LZFF 40/600	LZFF 50/600	LZFF 63/600	600
LZFF 18/700	LZFF 25/700	LZFF 32/700	LZFF 40/700	LZFF 50/700	LZFF 63/700	700
LZFF 18/800	LZFF 25/800	LZFF 32/800	LZFF 40/800	LZFF 50/800	LZFF 63/800	800
LZFF 18/900	LZFF 25/900	LZFF 32/900	LZFF 40/900	LZFF 50/900	LZFF 63/900	900
LZFF 18/1000	LZFF 25/1000	LZFF 32/1000	LZFF 40/1000	LZFF 50/1000	LZFF 63/1000	1000
LZFF 18/1200	LZFF 25/1200	LZFF 32/1200	LZFF 40/1200	LZFF 50/1200	LZFF 63/1200	1200
LZFF 18/1400	LZFF 25/1400	LZFF 32/1400	LZFF 40/1400	LZFF 50/1400	LZFF 63/1400	1400
LZFF 18/1600	LZFF 25/1600	LZFF 32/1600	LZFF 40/1600	LZFF 50/1600	LZFF 63/1600	1600
LZFF 18/1800	LZFF 25/1800	LZFF 32/1800	LZFF 40/1800	LZFF 50/1800	LZFF 63/1800	1800
LZFF 18/2000	LZFF 25/2000	LZFF 32/2000	LZFF 40/2000	LZFF 50/2000	LZFF 63/2000	2000
Repair sets (includes all the wear parts)						
LZ 18/2500 REP	LZ 25/2500 REP	LZ 32/2500 REP	LZ 40/2500 REP	LZ 50/2500 REP	LZ 63/2500 REP	up to str. 2500
LZ 18/5500 REP	LZ 25/5500 REP	LZ 32/5500 REP	LZ 40/5500 REP	LZ 50/5500 REP	LZ 63/5500 REP	up to str. 5500

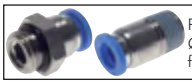
** please indicate your desired stroke

Enter your required stroke here on your order!

Order example: LZ 18/*
Standard type — Piston Ø/stroke

TIP *Find performance data in our Online Shop*

PU, PA, PTFE and
PE hoses
from page 192



Push-in fittings
Ø 3 - 32 mm
from page 24

Valves
from page 404

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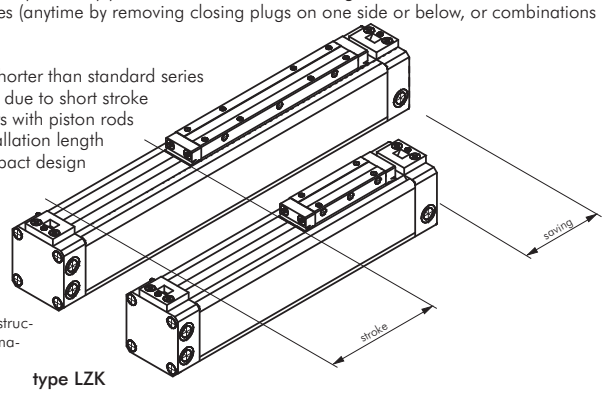
Short cylinders, short cylinders with guides

Measurements
can be found on page 500

Construction type: Rodless cylinder with direct force reduction through the pipe-slit on the yoke, both sides with adjustable end position damping, extremely compact design
Materials: Cylinder tubes, cylinder heads and drive rollers: Aluminium anodised, seals: NBR, PUR, PA, TPU, masking tape: Stainless steel
Temperature range: -20°C to max.+80°C
Operating pressure: 2 to 8 bar
Media: Filtered and slightly oiled or unoiled compressed air
Stroke: Arbitrarily up to 6,000mm, above that upon request
Installation position: Arbitrarily, however, preferably yoke downward to avoid soiling.
Compressed air connection: Both sides (anytime by removing closing plugs on one side or below, or combinations thereof can be reconstructed)

Advantages:
- Built up to 42% shorter than standard series
- Saves space also due to short stroke standard cylinders with piston rods
- Shorter total installation length
- Economical compact design



type LZ
(standard construction of many manufacturers)

type LZK

Piston Ø 18 mm	Piston Ø 25 mm	Piston Ø 32 mm	Piston Ø 40 mm	Piston Ø 50 mm	Piston Ø 63 mm	Desired str./ standard str.
Model series short cylinder (LZK)						
LZK 18/**	LZK 25/**	LZK 32/**	LZK 40/**	LZK 50/**	LZK 63/**	1 to 6,000
LZK 18/100	LZK 25/100	LZK 32/100	LZK 40/100	LZK 50/100	LZK 63/100	100
LZK 18/200	LZK 25/200	LZK 32/200	LZK 40/200	LZK 50/200	LZK 63/200	200
LZK 18/300	LZK 25/300	LZK 32/300	LZK 40/300	LZK 50/300	LZK 63/300	300
LZK 18/400	LZK 25/400	LZK 32/400	LZK 40/400	LZK 50/400	LZK 63/400	400
LZK 18/500	LKZ 25/500	LZK 32/500	LZK 40/500	LZK 50/500	LZK 63/500	500
LZK 18/600	LKZ 25/600	LZK 32/600	LZK 40/600	LZK 50/600	LZK 63/600	600
LZK 18/700	LZK 25/700	LZK 32/700	LZK 40/700	LZK 50/700	LZK 63/700	700
LZK 18/800	LZK 25/800	LZK 32/800	LZK 40/800	LZK 50/800	LZK 63/800	800
LZK 18/900	LZK 25/900	LZK 32/900	LZK 40/900	LZK 50/900	LZK 63/900	900
LZK 18/1000	LZK 25/1000	LZK 32/1000	LZK 40/1000	LZK 50/1000	LZK 63/1000	1000
LZK 18/1200	LZK 25/1200	LZK 32/1200	LZK 40/1200	LZK 50/1200	LZK 63/1200	1200
LZK 18/1400	LZK 25/1400	LZK 32/1400	LZK 40/1400	LZK 50/1400	LZK 63/1400	1400
LZK 18/1600	LZK 25/1600	LZK 32/1600	LZK 40/1600	LZK 50/1600	LZK 63/1600	1600
LZK 18/1800	LZK 25/1800	LZK 32/1800	LZK 40/1800	LZK 50/1800	LZK 63/1800	1800
LZK 18/2000	LZK 25/2000	LZK 32/2000	LZK 40/2000	LZK 50/2000	LZK 63/2000	2000
Model series short cylinder with sliding guide (LZKF)						
LZKF 18/**	LZKF 25/**	LZKF 32/**	LZKF 40/**	LZKF 50/**	LZKF 63/**	1 to 6,000
LZKF 18/100	LZKF 25/100	LZKF 32/100	LZKF 40/100	LZKF 50/100	LZKF 63/100	100
LZKF 18/200	LZKF 25/200	LZKF 32/200	LZKF 40/200	LZKF 50/200	LZKF 63/200	200
LZKF 18/300	LZKF 25/300	LZKF 32/300	LZKF 40/300	LZKF 50/300	LZKF 63/300	300
LZKF 18/400	LZKF 25/400	LZKF 32/400	LZKF 40/400	LZKF 50/400	LZKF 63/400	400
LZKF 18/500	LZKF 25/500	LZKF 32/500	LZKF 40/500	LZKF 50/500	LZKF 63/500	500
LZKF 18/600	LZKF 25/600	LZKF 32/600	LZKF 40/600	LZKF 50/600	LZKF 63/600	600
LZKF 18/700	LZKF 25/700	LZKF 32/700	LZKF 40/700	LZKF 50/700	LZKF 63/700	700
LZKF 18/800	LZKF 25/800	LZKF 32/800	LZKF 40/800	LZKF 50/800	LZKF 63/800	800
LZKF 18/900	LZKF 25/900	LZKF 32/900	LZKF 40/900	LZKF 50/900	LZKF 63/900	900
LZKF 18/1000	LZKF 25/1000	LZKF 32/1000	LZKF 40/1000	LZKF 50/1000	LZKF 63/1000	1000
LZKF 18/1200	LZKF 25/1200	LZKF 32/1200	LZKF 40/1200	LZKF 50/1200	LZKF 63/1200	1200
LZKF 18/1400	LZKF 25/1400	LZKF 32/1400	LZKF 40/1400	LZKF 50/1400	LZKF 63/1400	1400
LZKF 18/1600	LZKF 25/1600	LZKF 32/1600	LZKF 40/1600	LZKF 50/1600	LZKF 63/1600	1600
LZKF 18/1800	LZKF 25/1800	LZKF 32/1800	LZKF 40/1800	LZKF 50/1800	LZKF 63/1800	1800
LZKF 18/2000	LZKF 25/2000	LZKF 32/2000	LZKF 40/2000	LZKF 50/2000	LZKF 63/2000	2000
Repair sets (includes all the wear parts)						
LZ 18/2500 REP	LZ 25/2500 REP	LZ 32/2500 REP	LZ 40/2500 REP	LZ 50/2500 REP	LZ 63/2500 REP	up to str. 2500
LZ 18/5500 REP	LZ 25/5500 REP	LZ 32/5500 REP	LZ 40/5500 REP	LZ 50/5500 REP	LZ 63/5500 REP	up to str. 5500

** please indicate your desired stroke

type LZK

type LZKF

TIP *Find performance data in our Online Shop*

Enter your required stroke here on your order!

Order example: LZK 18/*
Standard type — Piston Ø/stroke

FESTO
Mini-carriages are found in our Online Shop

FESTO
Festo cylinders can be found in our Online Shop

FESTO
You will find grippers in our Online Shop

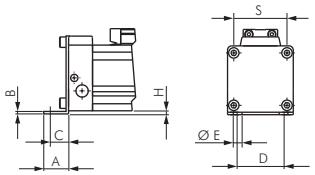
FESTO
You will find Festo stop cylinders in our Online Shop

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Rodless cylinders - accessories

Foot fastenings for rodless cylinders

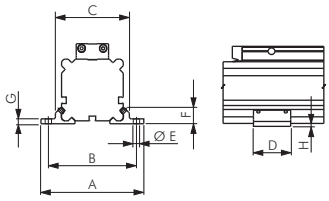
Supply volume: 2 pc. mounting brackets including screws



Type	A	B	C	D	E	H	For cylinder Ø
LZ 18 FB	15	2.0	10.0	20	6	2.0	18
LZ 25 FB	18	2.0	12.5	30	6	2.0	25
LZ 32 FB	20	2.5	13.5	40	7	3.0	32
LZ 40 FB	30	3.0	17.5	50	9	3.5	40
LZ 50 FB	28	3.0	20.0	60	9	3.0	50
LZ 63 FB	30	3.0	21.0	75	11	4.5	63

Centre fastenings for rodless cylinders

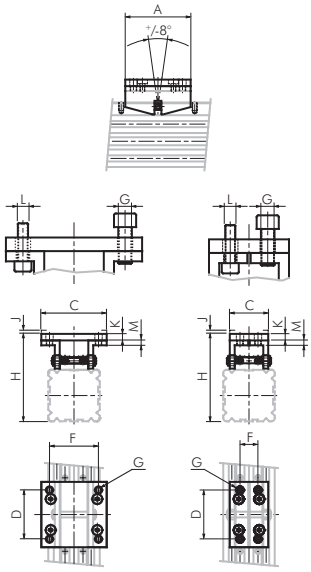
Supply volume: 2 pc. centre fastening including screws



Type	A	B	C	D	E	F	G	H	For cylinder Ø
LZ 18 MB	56	46	36.5	23	3.3	8.3	2.5	2.0	18
LZ 25 MB	70	60	50.0	28	4.4	11.0	3.5	2.0	25
LZ 32 MB	85	73	61.5	33	5.3	13.8	4.0	3.0	32
LZ 40 MB	105	90	75.0	38	5.3	16.5	4.5	3.0	40
LZ 50 MB	122	106	91.0	43	8.5	19.0	5.0	3.0	50
LZ 63 MB	144	125	107.0	48	8.5	22.0	6.0	4.5	63

Pendular bridges for rodless cylinders

Application: The pendular bridge is used where the rodless cylinder is used in connection with an external guide. The alignment inaccuracies (flexo-coupling) of a pendular bridge lead to twisting.



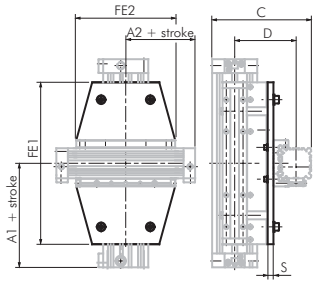
pendular bridge, wide

pendular bridge, narrow

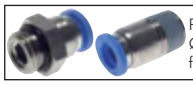
Type	A	C	D	F	G	H	J	K	M	L	For cylinder Ø
Narrow pendular bridge											
LZ 18 PBS	50	25.5	30	9	M 5	54.0	2.5	4	4	M 4	18
LZ 25 PBS	60	30.0	40	14	M 5	70.0	3.0	4	4	M 4	25
LZ 32 PBS	70	37.0	50	16	M 6	86.0	3.5	6	6	M 5	32
LZ 40 PBS	80	47.0	60	22	M 8	107.0	4.5	8	8	M 6	40
LZ 50 PBS	90	56.0	70	30	M 8	123.0	4.5	8	8	M 6	50
LZ 63 PBS	100	73.0	80	40	M 10	145.5	5.0	8	8	M 8	63
Width pendular bridge											
LZ 18 PBB	50	41.5	30	34	M 5	54.0	2.5	4	4	M 4	18
LZ 25 PBB	60	50.0	40	38	M 5	70.0	3.0	4	4	M 4	25
LZ 32 PBB	70	60.0	50	48	M 6	86.0	3.5	6	6	M 5	32
LZ 40 PBB	80	80.0	60	60	M 8	107.0	4.5	8	8	M 6	40
LZ 50 PBB	90	95.0	70	70	M 8	123.0	4.5	8	8	M 6	50
LZ 63 PBB	100	120.0	80	80	M 10	145.5	5.0	8	8	M 8	63

Connecting plates for rodless cylinders

Application: The connecting plate is used to link 2 guide cylinders to a 2-axis-system. The guide cylinder must be ordered separately.



Type	A1	A2	C	D	FE1	FE2	S	Cylinder Ø1	Cylinder Ø2
LZ 18/18 KT	80	80	84.0	54.0	103	103	6	18	18
LZ 25/18 KT	100	80	100.0	64.0	131	103	8	25	18
LZ 25/25 KT	100	100	114.0	72.0	131	131	8	25	25
LZ 32/18 KT	120	80	112.0	71.0	171	103	8	32	18
LZ 32/25 KT	120	100	128.0	81.0	171	131	10	32	25
LZ 32/32 KT	120	120	140.0	88.0	171	171	10	32	32
LZ 40/25 KT	150	100	142.0	89.5	220	131	10	40	25
LZ 40/32 KT	150	120	154.0	96.5	220	171	10	40	32
LZ 40/40 KT	150	150	168.0	105.0	220	220	10	40	40
LZ 50/32 KT	180	120	171.0	106.0	280	171	10	50	32
LZ 50/40 KT	180	150	187.0	116.5	280	220	12	50	40
LZ 50/50 KT	180	180	204.0	126.0	280	280	12	50	50
LZ 63/40 KT	215	150	204.5	126.5	333	220	12	63	40
LZ 63/50 KT	215	180	221.5	136.0	333	280	12	63	50
LZ 63/63 KT	215	215	239.0	146.0	333	333	12	63	63


Push-in fittings Ø 3 - 32 mm from page 24

PU, PA, PTFE and PE hoses from page 192

Valves from page 404

One-way control valves from page 440

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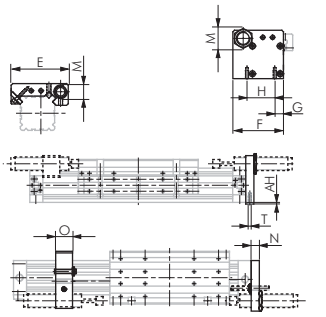
Stoppers for rodless guide cylinders

Application: Depending on the applications, you can choose between a fixed or an adjustable stop. The adjustable stop can be moved freely in the cylinder tube. Each stop has a limit-stop screw as well as a female thread to receive a shock absorber (see below on this side). Stops can only be used with a guide cylinder LZF, LZKF.

Type **fixed stop**	Type **adjustable stop**	AH	E	F	G	H	M	N	O	T x deep	For cylinder Ø
LZ 18 AS[2]	LZ 18 ASV[1]	2.0	57	43.5	8.0	23.5	M 14 x 1.5*	8	15	M 3 x 10	18
LZ 25 AS[2]	LZ 25 ASV[2]	2.0	72	57.0	12.5	33.0	M 14 x 1.5	10	20	M 4 x 10	25
LZ 32 AS[2]	LZ 32 ASV[2]	3.0	84	70.0	14.5	41.0	M 14 x 1.5	12	20	M 5 x 12	32
LZ 40 AS[3]	LZ 40 ASV[3]	3.0	105	93.0	16.0	51.0	M 25 x 1.5	15	30	M 6 x 15	40
LZ 50 AS[3]	LZ 50 ASV[3]	3.0	126	102.0	22.5	63.0	M 25 x 1.5	15	30	M 8 x 20	50
LZ 63 AS[3]	LZ 63 ASV[3]	4.5	140	118.5	20.0	78.0	M 25 x 1.5	15	40	M 8 x 20	63

matching shock absorber: [1] MA 50 EUM, [2] MA 150 EUM, [3] MA 600 EUM, * type LZ 18 ASV: thread M 10 x 1



type LZ ... ASV type LZ ... AS

Adjustable shock absorbers for rodless cylinders

Materials: Shock absorber body and accessory: Steel burnished, piston rod: Hardened, stainless steel.
Temperature range: 0 to +66°C
Stroke speed: 0.3 to 3.6 m/s
Fixed limit stop: Integrated

Type **shock absorber**	Max. energy consumption Per stroke (W3)	Per hour (W4)	Effective mass (me) adjustable	Spring force	To use with cylinders Ø
MA 50 EUM	5.5 Nm	5,100 Nm	4.5 - 20 kg	3 - 6 N	18*
MA 150 EUM	22 Nm	35,000 Nm	1 - 109 kg	3 - 5 N	18 - 32
MA 600 EUM	68 Nm	68,000 Nm	9.0 - 1,350 kg	10 - 30 N	40 - 63

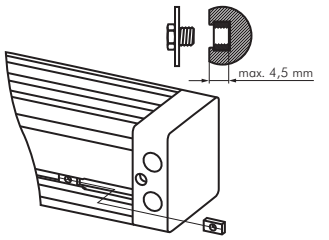
* sliding connection only

Exceeding W4 (max. energy consumed per hour expressed in Nm/h) is possible in the case of temporary switched off, or when the shock absorber is cooled with the cylinder exhaust air.

Assembly nuts for assemblies on cylinders with T-groove

Application: The assembly nut is inserted in the T-groove of the cylinder and is such that an M5 screw can be positioned wherever desired. The nut is suitable for mounting assemblies directly on the cylinders. When using this, it is not possible to mount the cylinder itself.

Type	Thread	Nut height	Length x width	For cylinder Ø
LZ GM	M 5	3.5 mm	12 x 6.5	25 - 63



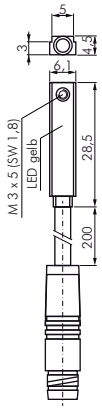
Cylinder switches for cylinders with continuous T-groove

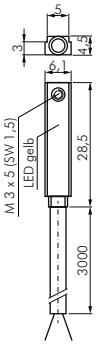
Materials: Body: Plastic, threaded part: Brass, screw: Stainless steel
Connecting line: PUR cable
Protection class: IP 67
Temperature range: -20°C to max. +70°C
Note: The proximity switch with light emitting diode is used for the contactless position indicator of cylinders with magnetic pistons. It is mounted by pushing it in the T-groove of the cylinder and locking it using the threaded rod.
Suitable: For cylinder ISO 15552: XL/XLE, compact cylinder: NXE/NXD compact cylinder ISO 21287: NAE/NAD/SFS, rodless cylinder: LZ (Ø 18 mm only with clamp ZSAB2 5), guide cylinder: ZDFM and other cylinders with **continuous** T-groove

type ZSA 12

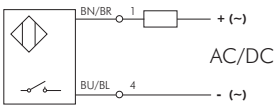
Advantages: • No mounting material required.
• Only one switch for many cylinders

Type	Operating voltage	Switching	Max. switching current/performance	PUR connection line
2-wire reed sensor				
ZSA 12	10-230V AC 10-170V DC	NO contact	150 mA/10 W	3 m, 2 x 0.14 mm²
ZSA 12-M8	10-60V AC 10-75V DC	NO contact	150 mA/10 W	0.2 m, 2 x 0.14 mm² With cable plug M 8
3-wire reed sensor				
ZSA 13	10-30V AC/DC	NO contact (PNP)	500 mA/10 W	3 m, 3 x 0.14 mm²
ZSA 13-M8	10-30V AC/DC	NO contact (PNP)	500 mA/10 W	0.2 m, 3 x 0.14 mm² With cable plug M 8
fully electronic sensor (reverse polarity protection)				
ZSA 33	10-30V DC	NO contact (PNP)	130 mA/4 W	3 m, 3 x 0.14 mm²
ZSA 33-M8	10-30V DC	NO contact (PNP)	130 mA/4 W	0.2 m, 3 x 0.14 mm² With cable plug M 8

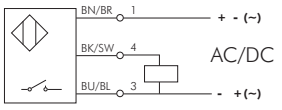




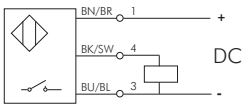
M 8-Plug



ZSA 12/ZSA 12-M8



ZSA 13/ZSA 13-M8

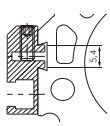


ZSA 33/ZSA 33-M8

Fixing clamps for cylinder switches (T-groove) *for cylinder with dovetail groove*

Material: Aluminium anodised
Suitable: For mounting cylinder switches type ZSA 12, 12-M8, 13, 13-M8, 33, 33-M8 on cylinders with dovetail groove (e.g.. LZ...).

Type	Dovetail slot width S
ZSAB2 5	5.4



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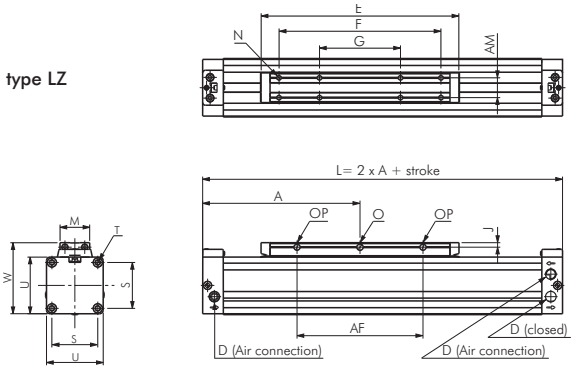
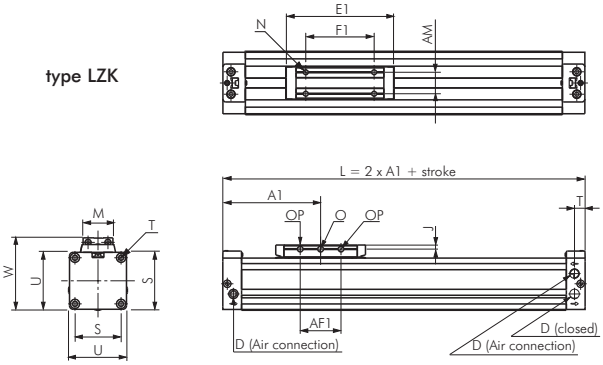
8

Main dimensions - rodless cylinders

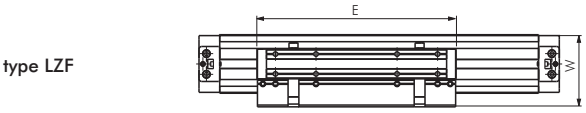
type LZ



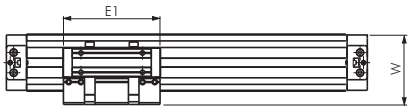
type LZK

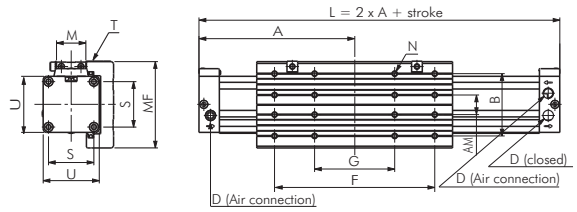


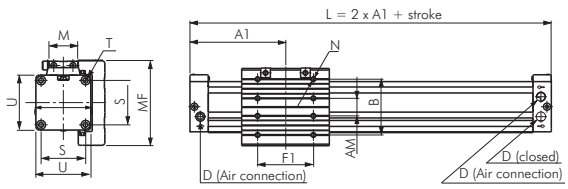
type LZF



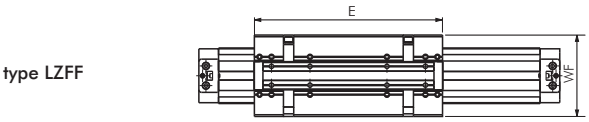
type LZKF

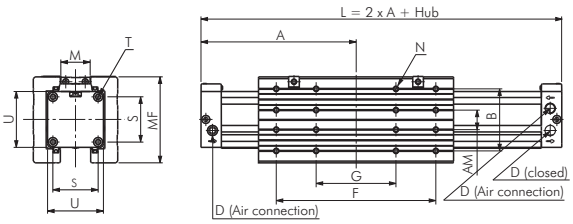






type LZFF





Piston Ø	18 mm	25 mm	32 mm	40 mm	50 mm	63 mm
A	80	100	120	150	180	215
A1	57.5	67.5	77.5	95	105	125
AF	50	70	100	140	180	230
AF1	15	19	35	50	46	70
AM	10	13	16	22	29	40
B	35	45	55	70	85	105
D x deep	M 5 x 6	G 1/8" x 8*	G 1/8" x 8	G 1/4" x 12	G 1/4" x 12	G 3/8" x 12
E	103	131	171	220	280	333
E1	58	66	86	110	130	153
F	75	100	140	180	220	280
F1	30	35	55	70	70	100
G	---	50	70	90	110	140
J	3	3.5	4.5	5	6.5	8
M	15.5	20	25	33	42	54
MF	50	66	80	97	116	136
N x deep	M 3 x 7**	M 4 x 7	M 5 x 9	M 6 x 10	M 8 x 12.5	M 8 x 15
O	3.5	4.5	5.5	7	7	9
OP	3.4	4.4	5.3	6.8	6.8	8.8
□S	23.5	33	41	51	63	78
T x deep	M 3 x 7	M 4 x 9	M 5 x 10	M 6 x 12	M 8 x 12	M 8 x 12
□U	30	42	52	63	78	93
W	39	53	65	79	96	113.5
WF	48	64	78	95	114	134
Damper length	15	18	24	34	40	49

* option **-2**: M 6, ** option **-4**: M 4

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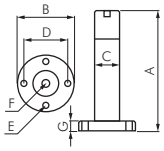
Piston vibrators (linear) — 6 bar

Materials: Housing: Aluminium anodised, piston: Brass
Temperature range: Up to max. +70°C
Media: Unoiled compressed air (20 µm)
Installation position: Arbitrary
Application: Linear vibration

Advantages:
- Low-noise (45 - 60 dB(A))
- Low air consumption
- Quick start-up, no running on
- Maintenance-free due to low wear



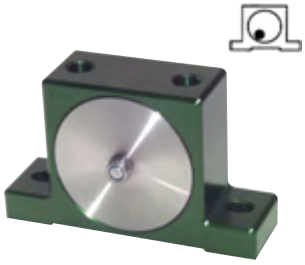
Type	Force*	Frequency*	Air consumption*	Weight	G	F	E	D	C	B	A
VP 1A	65 N	7,600 rpm	11 l/min.	0.13 kg	7	G 1/8"	5.5	34	20	45	95
VP 1B	150 N	5,550 rpm	12 l/min.	0.17 kg	7	G 1/8"	5.5	34	20	45	115
VP 1C	210 N	4,100 rpm	11 l/min.	0.21 kg	7	G 1/8"	5.5	34	20	45	135
VP 2A	490 N	6,600 rpm	33 l/min.	0.38 kg	8	G 1/8"	6.5	48	30	60	125
VP 2B	650 N	4,700 rpm	35 l/min.	0.49 kg	8	G 1/8"	6.5	48	30	60	155
VP 2C	730 N	3,800 rpm	32 l/min.	0.60 kg	8	G 1/8"	6.5	48	30	60	185
VP 3A	1,475 N	6,200 rpm	61 l/min.	0.78 kg	10	G 1/4"	6.5	65	45	80	130
VP 3B	1,540 N	3,200 rpm	64 l/min.	1.11 kg	10	G 1/4"	6.5	65	45	80	170
VP 3C	1,680 N	2,500 rpm	58 l/min.	1.40 kg	10	G 1/4"	6.5	65	45	80	210

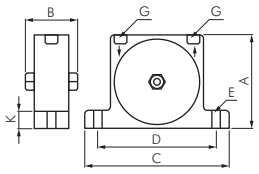
* at 6 bar

Ball vibrators (rotating) — 6 bar

Materials: Housing: Aluminium anodised, ball and path: Steel hardened, cover: Stainless steel AISI 303
Temperature range: Up to max. +80°C
Media: Oiled and unoiled compressed air
Installation position: Standing (not lying on the covers)
Application: Higher frequencies and small vibration factors

Advantages:
- Quick start-up
- Maintenance-free due to low wear
- Simple construction
- Low requirements for compressed air quality
- Common exhaust air ducting
- ATEX-compliant ⟨Ex⟩ II 3D 85° (T6)X (up to max. +40°C)





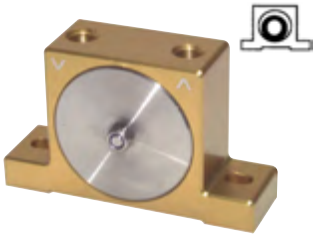
Type	Force*	Frequency*	Air consumption*	Weight	G	K	E	D	C	B	A
VK 1A	440 N	35,000 rpm	175 l/min.	0.19 kg	G 1/8"	12	7	68	90	36	55
VK 1B	960 N	25,000 rpm	200 l/min.	0.22 kg	G 1/8"	12	7	73	90	36	55
VK 2A	1,260 N	20,500 rpm	225 l/min.	0.50 kg	G 1/4"	16	9	104	128	49	80
VK 2B	2,160 N	15,500 rpm	278 l/min.	0.55 kg	G 1/4"	16	9	104	128	49	80
VK 3A	4,370 N	14,200 rpm	380 l/min.	1.31 kg	G 3/8"	20	11	130	170	63	110
VK 3B	5,250 N	13,000 rpm	500 l/min.	1.35 kg	G 3/8"	20	11	140	170	63	110

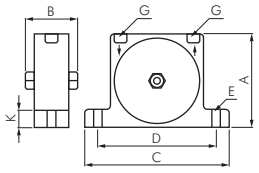
* at 6 bar

Roller vibrators (rotating) — 6 bar

Materials: Housing: Aluminium anodised, roller and path: Steel hardened, cover: Stainless steel AISI 303
Temperature range: Up to max. +80°C
Media: Oiled compressed air
Installation position: Standing (not lying on the covers)
Application: Large forces with greater amplitudes

Advantages:
- No run-on
- Maintenance-free due to low wear
- Simple construction
- Low requirements for compress. air quality
- Common exhaust air ducting
- ATEX-compliant ⟨Ex⟩ II 3D 85° (T6)X (up to max. +40°C)





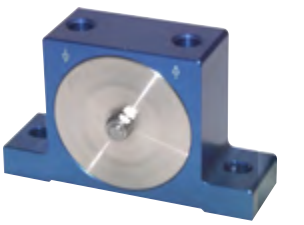
Type	Force*	Frequency*	Air consumption*	Weight	G	K	E	D	C	B	A
VR 1A	1,690 N	40,000 rpm	200 l/min.	0.36 kg	G 1/8"	12	7	68	90	36	55
VR 1B	2,910 N	38,000 rpm	250 l/min.	0.41 kg	G 1/8"	12	7	73	90	36	56
VR 2A	4,740 N	29,000 rpm	325 l/min.	0.85 kg	G 1/4"	16	9	104	128	49	80
VR 2B	7,850 N	26,000 rpm	550 l/min.	0.90 kg	G 1/4"	16	9	104	128	49	80
VR 3A	9,730 N	18,000 rpm	850 l/min.	2.43 kg	G 3/8"	20	11	140	170	63	110

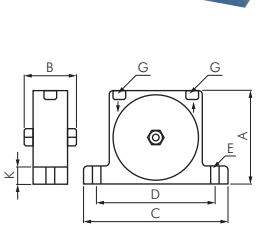
* 6 bar

Turbine vibrators (rotating) — 6 bar

Materials: Housing: Aluminium anodised, turbine: Aluminium, cover: Stainless steel AISI 303
Temperature range: Up to max. +70°C
Media: Unoiled compressed air (20 µm)
Installation position: Arbitrary
Application: Wide spectrum of vibrations (adjustable via pressure and volume flow rate)
☞ **Optional:** ATEX certified **-X** ⟨Ex⟩ II 3 D T5 (to max. +100°C)

Advantages:
- Low-noise (70 dB(A))
- Maintenance-free due to very low wear
- Common exhaust air ducting





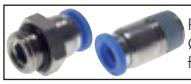
Type	Force*	Frequency*	Air consumption*	Weight	G	K	E	D	C	B	A
VT 1A	1,440 N	42,000 rpm	85 l/min.	0.31 kg	G 1/8"	12	7	68-73	90	37	55
VT 1B	1,650 N	40,000 rpm	105 l/min.	0.31 kg	G 1/8"	12	7	68-73	90	37	55
VT 2A	3,630 N	24,000 rpm	180 l/min.	0.75 kg	G 1/4"	16	9	104	128	49	80
VT 2B	4,180 N	18,500 rpm	225 l/min.	0.77 kg	G 1/4"	16	9	104	128	49	80
VT 3A	8,610 N	8,000 rpm	350 l/min.	2.00 kg	G 3/8"	20	11	130-140	170	63	110
VT 3B	10,000 N	7,000 rpm	500 l/min.	2.10 kg	G 3/8"**	24	11	170	200	80	140

* at 6 bar, ** output G 1/2"

☞ **Order example:** VT 1A **

Standard type

Designation for the options:
ATEX certified . . . . . **-X**



Push-in fittings
Ø 3 - 32 mm
from page 24

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Industrial shock absorbers

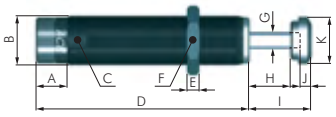
Adjustable shock absorbers — Type MA

Materials: Shock absorber body and accessory: Steel burnished, piston rod: Hardened, stainless steel
Temperature range: 0°C to max. +66°C
Stroke speed: 0.3 to 3.6 m/s
Fixed limit stop: Integrated

Type	Max. energy consumption Per stroke (W3)	Per hour (W4)	Effective mass (me) adjustable	Spring force	Thread	Max. axial deviation*
MA 30 EUM	3.5 Nm	5,650 Nm	0.23 to 15 kg	1 to 5 N	M 8 x 1	2°
MA 50 EUM	5.5 Nm	13,550 Nm	4.5 to 20 kg	3 to 6 N	M 10 x 1	2°
MA 35 EUM	4.0 Nm	6,000 Nm	5.9 to 57 kg	5 to 11 N	M 12 x 1	2°
MA 150 EUM	22.0 Nm	35,000 Nm	1.0 to 109 kg	3 to 5 N	M 14 x 1.5	5°
MA 225 EUM	25.0 Nm	45,000 Nm	2.3 to 226 kg	5 to 10 N	M 20 x 1.5	2°
MA 600 EUM	68.0 Nm	68,000 Nm	9.0 to 1,360 kg	10 to 30 N	M 25 x 1.5	2°
MA 900 EUM	100.0 Nm	90,000 Nm	14 to 2,040 kg	10 to 35 N	M 25 x 1.5	1°

* at higher axial deviation use side load adapters (type BV) (see page 505)

Main dimensions - adjustable shock absorbers — Type MA



Type	A	B	C	D	E	F	Ø G	H/stroke	I	J	Ø K
MA 30 EUM	4.1	M 8 x 1	---	48.0	3	SW 10	2.5	8.0	13.1	2.1	6.4
MA 50 EUM	5.1	M 10 x 1	---	50.0	4	SW 12	3.2	7.0	14.9	3	7.7
MA 35 EUM	5.0	M 12 x 1	---	66.0	5	SW 14	3.2	10.0	18.0	3	7.7
MA 150 EUM	7.5	M 14 x 1.5	SW 12	70.0	6	SW 17	4.8	12.5	22.5	4.7	12.0
MA 225 EUM	13.5	M 20 x 1.5	SW 18	88.0	8	SW 23	4.8	19.0	30.0	4.6	17.0
MA 600 EUM	16.5	M 25 x 1.5	SW 23	106.6	10	SW 30	6.3	25.4	36.4	4.6	23.0
MA 900 EUM	16.5	M 25 x 1.5	SW 23	138.0	10	SW 30	6.3	40.0	51.0	4.6	23.0

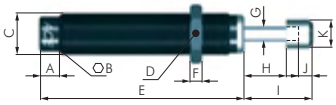
Self-adjusting shock absorbers — Type MC (5-75)

Materials: Shock absorber body and accessory: Steel burnished, piston rod hardened, stainless steel
Temperature range: 0°C to max. +65°C
Stroke speed: 0.15 to 5 m/s (0.15 to 1.8 m/s to MC 9 ...)
Fixed limit stop: Integrated

Type	Max. energy consumption Per stroke (W3)	Per hour (W4)	Effective mass (me)	Spring force	Thread	Max. axial deviation*
MC 5 EUM1B	0.68 Nm	2,040 Nm	0.5 to 4.4 kg	1 to 5 N	M 5 x 0.5	2°
MC 5 EUM2B	0.68 Nm	2,040 Nm	3.8 to 10.8 kg	1 to 5 N	M 5 x 0.5	2°
MC 5 EUM3B	0.68 Nm	2,040 Nm	9.7 to 18.7 kg	1 to 5 N	M 5 x 0.5	2°
MC 9 EUM1B	1.0 Nm	2,000 Nm	0.6 to 3.2 kg	1.38 to 3.78 N	M 6 x 0.5	2°
MC 9 EUM2B	1.0 Nm	2,000 Nm	0.8 to 4.1 kg	1.38 to 3.78 N	M 6 x 0.5	2°
MC 30 EUM1	3.5 Nm	5,600 Nm	0.4 to 1.9 kg	0.9 to 4.45 N	M 8 x 1	2°
MC 30 EUM2	3.5 Nm	5,600 Nm	1.8 to 5.4 kg	0.9 to 4.45 N	M 8 x 1	2°
MC 30 EUM3	3.5 Nm	5,600 Nm	5.0 to 15 kg	0.9 to 4.45 N	M 8 x 1	2°
MC 25 EUML	2.8 Nm	22,500 Nm	0.7 to 2.2 kg	3 to 6 N	M 10 x 1	2°
MC 25 EUM	2.8 Nm	22,500 Nm	1.8 to 5.4 kg	3 to 6 N	M 10 x 1	2°
MC 25 EUMH	2.8 Nm	22,500 Nm	4.6 to 13.6 kg	3 to 6 N	M 10 x 1	2°
MC 75 EUM1	9.0 Nm	28,200 Nm	0.3 to 1.1 kg	4 to 9 N	M 12 x 1	2°
MC 75 EUM2	9.0 Nm	28,200 Nm	0.9 to 4.8 kg	4 to 9 N	M 12 x 1	2°
MC 75 EUM3	9.0 Nm	28,200 Nm	2.7 to 36.2 kg	4 to 9 N	M 12 x 1	2°

* at higher axial deviation use side load adapters (BV) (see page 505)

Main dimensions - small shock absorbers — Type MC (5-75)



Type	A	B	C	D	E	F	Ø G	H/stroke	I	J	Ø K
MC 5 EUM	2.5		M 5 x 0.5	SW 8	26.0	2.5	1.5	4.1	8.1	1	3.3
MC 9 EUM	2.5	---	M 6 x 0.5	SW 8	26.0	2.5	2.0	5.0	10.0	2	4.8
MC 30 EUM	4.1	---	M 8 x 1	SW 10	40.9	3.0	2.5	8.0	13.1	2	6.4
MC 25 EUM	5.0	SW 5	M 10 x 1	SW 12	43.0	4.0	3.2	6.6	14.6	3	7.6
MC 75 EUM	5.0	---	M 12 x 1	SW 14	52.0	5.0	3.2	10.0	18.0	3	7.6

TIP *Through roller type diaphragm up to 25 million strokes possible!*

Self-adjusting shock absorbers — Type MC (150-600)

Materials: Shock absorber body and accessory: Steel burnished, piston rod hardened, stainless steel, roller type diaphragm: Ethylene-propylene
Temperature range: 0°C to max. +65°C
Stroke speed: 0.08 to 6 m/s
Fixed limit stop: Integrated

Type	Max. energy consumption Per stroke (W3)	Per hour (W4)	Effective mass (me)	Spring force	Thread	Max. axial deviation*
MC 150 EUM	20 Nm	34,000 Nm	0.9 to 10 kg	3 to 5 N	M 14 x 1.5	4°
MC 150 EUMH	20 Nm	34,000 Nm	8.6 to 86 kg	3 to 5 N	M 14 x 1.5	4°
MC 150 EUMH2	20 Nm	34,000 Nm	70.0 to 200 kg	3 to 5 N	M 14 x 1.5	4°
MC 225 EUM	41 Nm	45,000 Nm	2.3 to 25 kg	4 to 6 N	M 20 x 1.5	4°
MC 225 EUMH	41 Nm	45,000 Nm	23.0 to 230 kg	4 to 6 N	M 20 x 1.5	4°
MC 225 EUMH2	41 Nm	45,000 Nm	180.0 to 910 kg	4 to 6 N	M 20 x 1.5	4°
MC 600 EUM	136 Nm	68,000 Nm	9.0 to 136 kg	5 to 9 N	M 25 x 1.5	2°
MC 600 EUMH	136 Nm	68,000 Nm	113.0 to 1,130 kg	5 to 9 N	M 25 x 1.5	2°
MC 600 EUMH2	136 Nm	68,000 Nm	400.0 to 2,300 kg	5 to 9 N	M 25 x 1.5	2°

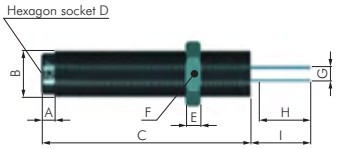
* at higher axial deviation use side load adapters (BV) (see page 505)

Exceeding W4: (max. energy absorbed per hour expressed in Nm/h) is possible when switched off temporarily or the shock absorber is cooled with the cylinder exhaust air (take note of the approved heating).

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Main dimensions - self-adjusting shock absorbers — Type MC (150-600)

Type	A	B	C	D	E	F	Ø G	H/stroke	I
MC 150 EUM	7.2	M 14 x 1.5	69.1	SW 6	6	SW 17	4.8	12.5	17.5
MC 225 EUM	7.2	M 20 x 1.5	79.2	SW 8	8	SW 23	6.3	12.5	17.5
MC 600 EUM	7.3	M 25 x 1.5	110.3	SW 10	10	SW 30	8.0	25.4	31.6



Shock absorbers (Magnum) — Type MA/MC

Materials: Shock absorber body and accessory: Steel burnished, piston rod: Steel hard chrome-plated, head: Steel hardened and burnished, compression spring: Zinc-plated or plastic-coated
Temperature range: -12°C to max. +70°C (option HT: -20°C to max. +150°C, option LT: -50°C to max. +66°C)
Stroke speed: 0.15 to 5 m/s (upon request, up to 20 m/s)
Fixed limit stop: Integrated
☞ **Optional:** High temperature seal kit (-20°C to max. +150°C) **-HT**, low temperature seal kit (-50°C to max. +66°C) **-LT**

Type	Max. energy consumption Per stroke (W3)	Per hour (W4)	Effective mass (me)	Spring force	Thread	Max. axial deviation*
Adjustable						
MA 3325 EUM	170 Nm	75,000 Nm	9 to 1,700 kg	45 to 90 N	M 33 x 1.5	4°
MA 3350 EUM	340 Nm	85,000 Nm	13 to 2,500 kg	45 to 135 N	M 33 x 1.5	3°
MA 4525 EUM	390 Nm	107,000 Nm	40 to 10,000 kg	70 to 100 N	M 45 x 1.5	4°
MA 4550 EUM	780 Nm	112,000 Nm	70 to 14,500 kg	70 to 145 N	M 45 x 1.5	3°
MA 4575 EUM	1,170 Nm	146,000 Nm	70 to 15,000 kg	50 to 180 N	M 45 x 1.5	2°
MA 6450 EUM	2,040 Nm	146,000 Nm	220 to 50,000 kg	90 to 155 N	M 64 x 2.0	4°
MA 64100 EUM	4,080 Nm	192,000 Nm	270 to 52,000 kg	105 to 270 N	M 64 x 2.0	3°
MA 64150 EUM	6,120 Nm	248,000 Nm	330 to 80,000 kg	75 to 365 N	M 64 x 2.0	2°
Self-adjusting						
MC 3325 EUM0	155 Nm	75,000 Nm	3 to 11 kg	45 to 90 N	M 33 x 1.5	4°
MC 3325 EUM1	155 Nm	75,000 Nm	9 to 40 kg	45 to 90 N	M 33 x 1.5	4°
MC 3325 EUM2	155 Nm	75,000 Nm	30 to 120 kg	45 to 90 N	M 33 x 1.5	4°
MC 3325 EUM3	155 Nm	75,000 Nm	100 to 420 kg	45 to 90 N	M 33 x 1.5	4°
MC 3325 EUM4	155 Nm	75,000 Nm	350 to 1,420 kg	45 to 90 N	M 33 x 1.5	4°
MC 3350 EUM0	310 Nm	85,000 Nm	5 to 22 kg	45 to 135 N	M 33 x 1.5	3°
MC 3350 EUM1	310 Nm	85,000 Nm	18 to 70 kg	45 to 135 N	M 33 x 1.5	3°
MC 3350 EUM2	310 Nm	85,000 Nm	60 to 250 kg	45 to 135 N	M 33 x 1.5	3°
MC 3350 EUM3	310 Nm	85,000 Nm	210 to 840 kg	45 to 135 N	M 33 x 1.5	3°
MC 3350 EUM4	310 Nm	85,000 Nm	710 to 2,830 kg	45 to 135 N	M 33 x 1.5	3°
MC 4525 EUM0	340 Nm	107,000 Nm	7 to 27 kg	70 to 100 N	M 45 x 1.5	4°
MC 4525 EUM1	340 Nm	107,000 Nm	20 to 90 kg	70 to 100 N	M 45 x 1.5	4°
MC 4525 EUM2	340 Nm	107,000 Nm	80 to 310 kg	70 to 100 N	M 45 x 1.5	4°
MC 4525 EUM3	340 Nm	107,000 Nm	260 to 1,050 kg	70 to 100 N	M 45 x 1.5	4°
MC 4525 EUM4	340 Nm	107,000 Nm	890 to 3,540 kg	70 to 100 N	M 45 x 1.5	4°
MC 4550 EUM0	680 Nm	112,000 Nm	13 to 54 kg	70 to 145 N	M 45 x 1.5	3°
MC 4550 EUM1	680 Nm	112,000 Nm	45 to 180 kg	70 to 145 N	M 45 x 1.5	3°
MC 4550 EUM2	680 Nm	112,000 Nm	150 to 620 kg	70 to 145 N	M 45 x 1.5	3°
MC 4550 EUM3	680 Nm	112,000 Nm	520 to 2,090 kg	70 to 145 N	M 45 x 1.5	3°
MC 4550 EUM4	680 Nm	112,000 Nm	1,800 to 7,100 kg	70 to 145 N	M 45 x 1.5	3°
MC 4575 EUM0	1,020 Nm	146,000 Nm	20 to 80 kg	50 to 180 N	M 45 x 1.5	2°
MC 4575 EUM1	1,020 Nm	146,000 Nm	70 to 270 kg	50 to 180 N	M 45 x 1.5	2°
MC 4575 EUM2	1,020 Nm	146,000 Nm	230 to 930 kg	50 to 180 N	M 45 x 1.5	2°
MC 4575 EUM3	1,020 Nm	146,000 Nm	790 to 3,140 kg	50 to 180 N	M 45 x 1.5	2°
MC 4575 EUM4	1,020 Nm	146,000 Nm	2,650 to 10,600 kg	50 to 180 N	M 45 x 1.5	2°
MC 6450 EUM0	1,700 Nm	146,000 Nm	35 to 140 kg	90 to 155 N	M 64 x 2	4°
MC 6450 EUM1	1,700 Nm	146,000 Nm	140 to 540 kg	90 to 155 N	M 64 x 2	4°
MC 6450 EUM2	1,700 Nm	146,000 Nm	460 to 1,850 kg	90 to 155 N	M 64 x 2	4°
MC 6450 EUM3	1,700 Nm	146,000 Nm	1,600 to 6,300 kg	90 to 155 N	M 64 x 2	4°
MC 6450 EUM4	1,700 Nm	146,000 Nm	5.300 to 21,200 kg	90 to 155 N	M 64 x 2	4°
MC 64100 EUM0	3,400 Nm	192,000 Nm	70 to 280 kg	105 to 270 N	M 64 x 2	3°
MC 64100 EUM1	3,400 Nm	192,000 Nm	270 to 1,100 kg	105 to 270 N	M 64 x 2	3°
MC 64100 EUM2	3,400 Nm	192,000 Nm	930 to 3,700 kg	105 to 270 N	M 64 x 2	3°
MC 64100 EUM3	3,400 Nm	192,000 Nm	3,150 to 12,600 kg	105 to 270 N	M 64 x 2	3°
MC 64100 EUM4	3,400 Nm	192,000 Nm	10,600 to 42,500 kg	105 to 270 N	M 64 x 2	3°
MC 64150 EUM0	5,100 Nm	248,000 Nm	100 to 460 kg	75 to 365 N	M 64 x 2	2°
MC 64150 EUM1	5,100 Nm	248,000 Nm	410 to 1,640 kg	75 to 365 N	M 64 x 2	2°
MC 64150 EUM2	5,100 Nm	248,000 Nm	1,390 to 5,600 kg	75 to 365 N	M 64 x 2	2°
MC 64150 EUM3	5,100 Nm	248,000 Nm	4,700 to 18,800 kg	75 to 365 N	M 64 x 2	2°
MC 64150 EUM4	5,100 Nm	248,000 Nm	16,000 to 63,700 kg	75 to 365 N	M 64 x 2	2°

* at higher axial deviation use side load adapters (type BV) (see page 505)

FESTO
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FESTO
Festo shock absorbers can be found in our Online Shop

FESTO
Mini-carriages are found in our Online Shop

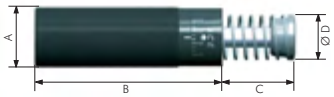
☞ **Order example:** MA 3325 EUM **

Standard type

Designation for the options:
High temperature seal kit
(-20°C to max. +150 °C) . . . . . **-HT**
Temperature seal kit
(-50°C bis max. +66°C) . . . . . **-LT**

Main dimensions - shock absorbers (Magnum) — Type MA/MC

Type	A	B	C	Ø D	Stroke
MA/MC 3325 EUM	M 33 x 1.5	115.0	23.0	25.0	25.0
MA/MC 3350 EUM	M 33 x 1.5	140.5	48.5	25.0	50.0
MA/MC 4525 EUM	M 45 x 1.5	122.0	23.0	35.0	25.0
MA/MC 4550 EUM	M 45 x 1.5	146.5	48.5	35.0	50.0
MA/MC 4575 EUM	M 45 x 1.5	172.0	74.0	35.0	75.0
MA/MC 6450 EUM	M 64 x 2	176.5	48.5	48.0	50.0
MA/MC 64100 EUM	M 64 x 2	226.5	99.5	48.0	100.0
MA/MC 64150 EUM	M 64 x 2	300.0	150.0	48.0	150.0



Exceeding W4: (max. energy absorbed per hour expressed in Nm/h) is possible when switched off temporarily or the shock absorber is cooled with the cylinder exhaust air (take note of the approved heating).

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Industrial shock absorbers

ACE

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Self-adjusting shock absorbers with progressive damping — Type SC/SC²

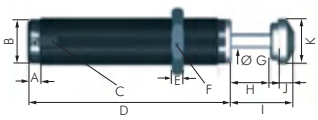
Materials: Shock absorber body and accessory: Steel nitrocarburised, piston rod: Hardened, stainless steel (type SC 45...: steel hard chrome-plated)
Temperature range: 0°C to max. +66°C (SC45...: -12°C to max. +70°C)
Stroke speed: 0.15 to 3.7 m/s (type SC²: 0.09 up to 5.7 m/s, type SC 45...: 0.15 up to 5 m/s)
Fixed limit stop: Integrated

Type	Max. energy consumption Per stroke (W3)	Per hour (W4)	Effective mass (me)	Spring force	Thread	Max. axial deviation*
SC 25 EUM5**	10 Nm	16,000 Nm	1 to 5 kg	4.5 to 14 N	M 10 x 1	2°
SC 25 EUM6**	10 Nm	16,000 Nm	4 to 44 kg	4.5 to 14 N	M 10 x 1	2°
SC 25 EUM7**	10 Nm	16,000 Nm	42 to 500 kg	4.5 to 14 N	M 10 x 1	2°
SC 75 EUM5**	16 Nm	30,000 Nm	1 to 8 kg	6 to 19 N	M 12 x 1	2°
SC 75 EUM6**	16 Nm	30,000 Nm	7 to 78 kg	6 to 19 N	M 12 x 1	2°
SC 75 EUM7**	16 Nm	30,000 Nm	75 to 800 kg	6 to 19 N	M 12 x 1	2°
SC 190 EUM0	25 Nm	34,000 Nm	0.7 to 4 kg	4 to 9 N	M 14 x 1.5	5°
SC 190 EUM1	25 Nm	34,000 Nm	1.4 to 7 kg	4 to 9 N	M 14 x 1.5	5°
SC 190 EUM2	25 Nm	34,000 Nm	3.6 to 18 kg	4 to 9 N	M 14 x 1.5	5°
SC 190 EUM3	25 Nm	34,000 Nm	9 to 45 kg	4 to 9 N	M 14 x 1.5	5°
SC 190 EUM4	25 Nm	34,000 Nm	23 to 102 kg	4 to 9 N	M 14 x 1.5	5°
SC 190 EUM5**	31 Nm	50,000 Nm	2 to 16 kg	6 to 19 N	M 14 x 1.5	2°
SC 190 EUM6**	31 Nm	50,000 Nm	13 to 140 kg	6 to 19 N	M 14 x 1.5	2°
SC 190 EUM7**	31 Nm	50,000 Nm	136 to 1,550 kg	6 to 19 N	M 14 x 1.5	2°
SC 300 EUM0	33 Nm	45,000 Nm	0.7 to 4 kg	5 to 10 N	M 20 x 1.5	5°
SC 300 EUM1	33 Nm	45,000 Nm	1.4 to 8 kg	5 to 10 N	M 20 x 1.5	5°
SC 300 EUM2	33 Nm	45,000 Nm	4.5 to 27 kg	5 to 10 N	M 20 x 1.5	5°
SC 300 EUM3	33 Nm	45,000 Nm	14 to 82 kg	5 to 10 N	M 20 x 1.5	5°
SC 300 EUM4	33 Nm	45,000 Nm	32 to 204 kg	5 to 10 N	M 20 x 1.5	5°
SC 300 EUM5**	73 Nm	45,000 Nm	11 to 45 kg	8 to 18 N	M 20 x 1.5	5°
SC 300 EUM6**	73 Nm	45,000 Nm	34 to 136 kg	8 to 18 N	M 20 x 1.5	5°
SC 300 EUM7**	73 Nm	45,000 Nm	91 to 181 kg	8 to 18 N	M 20 x 1.5	5°
SC 300 EUM8**	73 Nm	45,000 Nm	135 to 680 kg	8 to 18 N	M 20 x 1.5	5°
SC 300 EUM9**	73 Nm	45,000 Nm	320 to 1,950 kg	8 to 18 N	M 20 x 1.5	5°
SC 650 EUM0	73 Nm	68,000 Nm	2.3 to 14 kg	11 to 32 N	M 25 x 1.5	5°
SC 650 EUM1	73 Nm	68,000 Nm	8 to 45 kg	11 to 32 N	M 25 x 1.5	5°
SC 650 EUM2	73 Nm	68,000 Nm	23 to 136 kg	11 to 32 N	M 25 x 1.5	5°
SC 650 EUM3	73 Nm	68,000 Nm	68 to 408 kg	11 to 32 N	M 25 x 1.5	5°
SC 650 EUM4	73 Nm	68,000 Nm	204 to 1,180 kg	11 to 32 N	M 25 x 1.5	5°
SC 650 EUM5**	210 Nm	68,000 Nm	23 to 113 kg	11 to 33 N	M 25 x 1.5	5°
SC 650 EUM6**	210 Nm	68,000 Nm	90 to 360 kg	11 to 33 N	M 25 x 1.5	5°
SC 650 EUM7**	210 Nm	68,000 Nm	320 to 1,090 kg	11 to 33 N	M 25 x 1.5	5°
SC 650 EUM8**	210 Nm	68,000 Nm	770 to 2,630 kg	11 to 33 N	M 25 x 1.5	5°
SC 650 EUM9**	210 Nm	68,000 Nm	1,800 to 6,350 kg	11 to 33 N	M 25 x 1.5	5°
SC 925 EUM0	110 Nm	90,000 Nm	4.5 to 29 kg	11 to 32 N	M 25 x 1.5	5°
SC 925 EUM1	110 Nm	90,000 Nm	14 to 90 kg	11 to 32 N	M 25 x 1.5	5°
SC 925 EUM2	110 Nm	90,000 Nm	40 to 272 kg	11 to 32 N	M 25 x 1.5	5°
SC 925 EUM3	110 Nm	90,000 Nm	113 to 726 kg	11 to 32 N	M 25 x 1.5	5°
SC 925 EUM4	110 Nm	90,000 Nm	340 to 2,088 kg	11 to 32 N	M 25 x 1.5	5°
SC 4525 EUM5	340 Nm	107,000 Nm	3,400 to 6,800 kg	67 to 104 N	M 45 x 1.5	5°
SC 4525 EUM6	340 Nm	107,000 Nm	6,350 to 13,600 kg	67 to 104 N	M 45 x 1.5	5°
SC 4525 EUM7	340 Nm	107,000 Nm	12,700 to 22,600 kg	67 to 104 N	M 45 x 1.5	5°
SC 4525 EUM8	340 Nm	107,000 Nm	20,400 to 39,000 kg	67 to 104 N	M 45 x 1.5	5°
SC 4550 EUM5	680 Nm	112,000 Nm	6,800 to 12,200 kg	47 to 242 N	M 45 x 1.5	5°
SC 4550 EUM6	680 Nm	112,000 Nm	11,800 to 27,000 kg	47 to 242 N	M 45 x 1.5	5°
SC 4550 EUM7	680 Nm	112,000 Nm	25,800 to 44,200 kg	47 to 242 N	M 45 x 1.5	5°

Exceeding W4: (max. energy absorbed per hour expressed in Nm/h) is possible when switched off temporarily or the shock absorber is cooled with the cylinder exhaust air (take note of the approved heating).

* at higher axial deviation use side load adapters (BV) (see page 505)
** construction type SC², types SC 25 EUM, SC 190 EUM supplied without impact head

Main dimensions - self-adjusting shock absorbers — Type SC/SC²



Type	A	B	C	D	E	F	Ø G	H/stroke	I	J	Ø K
SC 25 EUM	5	M 10 x 1	---	72.0	4	SW 12	3.2	8	11.0	---	---
SC 75 EUM	4	M 12 x 1	---	78.0	5	SW 14	4.0	10	14.0	---	---
SC 190 EUM0-4	7	M 14 x 1.5	SW 12	87.7	6	SW 17	4.0	16	27.0	4.6	12
SC 190 EUM5-7	5	M 14 x 1.5	---	78.0	6	SW 17	4.8	12	17.0	---	---
SC 300 EUM0-4	7	M 20 x 1.5	SW 18	87.4	8	SW 23	4.8	19	30.0	4.6	17
SC 300 EUM5-9	7	M 20 x 1.5	SW 18	79.5	8	SW 23	6.4	15	26.0	4.6	17
SC 650 EUM0-4	7	M 25 x 1.5	SW 23	106.6	10	SW 30	6.3	25	36.4	4.6	23
SC 650 EUM5-9	7	M 25 x 1.5	SW 23	106.0	10	SW 30	9.6	23	34.0	4.6	23
SC 925 EUM	7	M 25 x 1.5	SW 23	138.0	10	SW 30	6.3	40	51.0	4.6	23
SC 4525 EUM	---	M 45 x 1.5	---	164.0	9.5	---*	12.6	25	25.0	19.4	42
SC 4550 EUM	---	M 45 x 1.5	---	215.0	9.5	---*	12.6	50	50.0	19.4	42

* slotted nut

Impact heads for shock absorbers

type PP 600

type PP 33

Type	Usable for shock absorbers
PP 150	MC 150 EUM
PP 225	MC 225 EUM
PP 600	MC 600 EUM
PP 33	MA 33..., MC 33...
PP 45	MA 45..., MC 45..., SC 45...
PP 64	MA 64..., MC 64...

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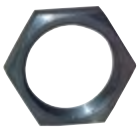
Locking nuts for shock absorbers

Type	Usable for shock absorbers	Thread
KM 5	MC 5...	M 5 x 0.5
KM 6	MC 9...	M 6 x 0.5
KM 8	MA 30 EUM, MC 30..., MC 10...	M 8 x 1
KM 10	MA 50 EUM, MC 25..., SC 25...	M 10 x 1
KM 12	MA 35 EUM, MC 75..., SC 75...	M 12 x 1
KM 14	MA 150 EUM, MC 150..., SC 190...	M 14 x 1.5
KM 20	MA 225 EUM, MC 225..., SC 300...	M 20 x 1.5
KM 25	MA 600 EUM, MA 900 EUM, MC 600..., SC 650..., SC 925...	M 25 x 1.5
NM 33	MA 33..., MC 33...	M 33 x 1.5
NM 45	MA 45..., MC 45..., SC 45...	M 45 x 1.5
NM 64	MA 64..., MC 64...	M 64 x 2

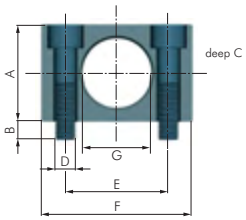


Clamping flanges for shock absorbers

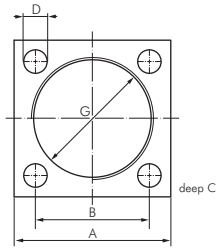
Note: The clamping flanges ...SC2 must be countered with the nuts on the shock absorbers, all other flanges are clamped with screws.

Type	Usable for shock absorbers	A	B	C	D	E	F	G
Side mounting								
MB 5 SC2	MC 5...	10	3.0	8	M 3	12	20	M 5 x 0.5
MB 6 SC2	MC 9...	10	3.0	8	M 3	12	20	M 6 x 0.5
MB 8 SC2	MA 30 EUM, MC 10..., MC 30...	12	3.5	10	M 4	16	25	M 8 x 1
MB 10 SC2	MA 50 EUM, MC 25..., SC 25...	14	3.5	10	M 4	16	25	M 10 x 1
MB 12	MA 35 EUM, MC 75...	16	4.5	12	M 5	20	32	M 12 x 1
MB 12 SC2	SC 75...	16	4.5	12	M 5	20	32	M 12 x 1
MB 14	MA 150 EUM, MC 150..., SC 190 EUM0-4	20	4.5	12	M 5	20	32	M 14 x 1.5
MB 14 SC2	SC 190 EUM5-7	20	4.5	12	M 5	20	32	M 14 x 1.5
MB 20	MA 225 EUM, MC 225..., SC 300 EUM0-4	25	6.0	20	M 6	28	40	M 20 x 1.5
MB 20 SC2	SC 300 EUM5-9	25	18.0	20	M 8	34	50	M 20 x 1.5
MB 25	MA 600 EUM, MA 900 EUM, MC 600..., SC 650 EUM0-4, SC 925...	32	6.0	25	M 6	34	46	M 25 x 1.5
MB 25 SC2	SC 650 EUM5-9	32	11.0	25	M 8	36	52	M 25 x 1.5
S33	MA 33..., MC 33...	40	8.0	20	M 6	42	56	M 33 x 1.5
S45	MA 45..., MC 45..., SC 45...	56	10.0	25	M 8	60	80	M 45 x 1.5
S64	MA 64..., MC 64...	80	12.0	25	M 10	78	100	M 64 x 2
Axial mounting								
QF 33	MA 33..., MC 33...	44	32.0	10	6.6	---	---	M 33 x 1.5
QF 45	MA 45..., MC 45...SC 45...	56	42.0	12	9.0	---	---	M 45 x 1.5
QF 64	MA 64..., MC 64...	80	58.0	16	11.0	---	---	M 64 x 2

* it consists of 2 flanges



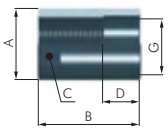
side mounting



axial mounting

Stop sleeves for shock absorbers

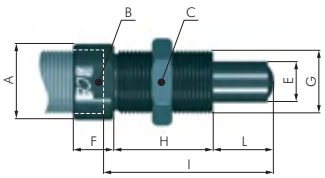
Type	Usable for shock absorbers	Ø A	B	C	D	G
AH 5	MC 5...	7.0	10	---	5	M 5 x 0.5
AH 6	MC 9...	8.0	12	---	6	M 6 x 0.5
AH 8	MA 30 EUM, MC 10..., MC 30...	10.0	12	---	6	M 8 x 1
AH 10	MA 50 EUM, MC 25..., SC 25...	12.5	20	---	10	M 10 x 1
AH 12	MA 35 EUM, MC 75..., SC 75...	15.0	20	---	10	M 12 x 1
AH 14	MA 150 EUM, MC 150..., SC 190...	17.0	20	SW 15	12	M 14 x 1.5
AH 20	MA 225 EUM, MC 225..., SC 300...	25.0	25	SW 22	12	M 20 x 1.5
AH 25	MA 600 EUM, MA 900 EUM, MC 600..., SC 650..., SC 925...	30.0	32	SW 27	16	M 25 x 1.5



Side load adapters for shock absorbers

Type	Usable for shock absorbers	Ø A	B	C	Ø E	F	G	H	I	L
BV 8	MA 30 EUM, MC 30...	11	SW 9	SW 10	4	15	M 8 x 1	10	18.0	8.0
BV 8 A	MC 10...	11	SW 9	SW 10	4	10	M 8 x 1	10	17.0	5.0
BV 10	MA 50 EUM, MC 25...	13	SW 11	SW 12	6	11	M 10 x 1	12	21.5	6.5
BV 10 SC	SC 25...	13	SW 11	SW 12	6	11	M 10 x 1	12	23.0	8.0
BV 12	MA 35 EUM, MC 75...	15	SW 13	SW 14	7	12	M 12 x 1	18	32.0	10.0
BV 12 SC	SC 75...	15	SW 13	SW 14	7	12	M 12 x 1	18	32.0	10.0
BV 14	MA 150 EUM, MC 150..., SC 190 EUM5-7	18	SW 16	SW 17	9	12	M 14 x 1.5	20	36.5	12.5
BV 14 SC	SC 190 EUM0-4	18	SW 16	SW 17	9	14	M 14 x 1.5	26	46.0	16.0
BV 20	MC 225...	24	SW 22	SW 23	12	14	M 20 x 1.5	20	36.5	12.5
BV 20 SC	MA 225 EUM, SC 300...	24	SW 22	SW 23	12	14	M 20 x 1.5	32	54.0	19.0
BV 25	MC 600...	30	SW 27	SW 30	16	16	M 25 x 1.5	38	69.0	25.0
BV 25 SC	MA 600 EUM, SC 650...	30	SW 27	SW 30	16	16	M 25 x 1.5	38	69.0	25.0
BV 3325	MA 3325 EUM, MC 3325...	M 45 x 1.5	---	---	30	---	M 33 x 1.5	100	129.0	29.0
BV 3350	MA 3350 EUM, MC 3350...	M 45 x 1.5	---	---	30	---	M 33 x 1.5	128	181.5	53.5
BV 4525	MA 4525 EUM, MC 4525..., SC 4525 EUM	M 64 x 2	---	---	40	---	M 45 x 1.5	100	129.0	29.0
BV 4550	MA 4550 EUM, MC 4550..., SC 4550 EUM	M 64 x 2	---	---	40	---	M 45 x 1.5	130	184.5	54.5
BV 6450	MA 6450 EUM, MC 6450...	M 90 x 2	---	---	56	---	M 64 x 2	170	225.0	55.0

Note: The side load adapter can only be fitted to shock absorbers without impact heads. This must if nec. be removed.



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8

Vacuum ejectors

Ejectors up to 10 l/min, max. 80 % vacuum — Type VG 18

Materials: Housing: Brass nickel-plated, nozzle: Brass
Temperature range: -40°C to max. +120°C
Operating pressure: 6 bar

Advantages:
- Extremely small design, therefore can be fitted directly to consumer item
- Very economical
- Maintenance free

Type	Dimensions (L x W x H)	Thread supply air	Thread vacuum	Thread exhaust air	Air consumption*	Max. flow	Accessories silencers	Accessories vacuum meter
VG 18	54x14x14	G 1/8"	G 1/8"	G 1/8"	13 l/min	10 l/min	FFSD 18	---

* at 6 bar

Inline ejectors with push-in fittings

Materials: Body: Plastic, seals: NBR, internal parts: Brass, stainless steel, plastic
Temperature range: -10°C to max. +80°C
Working pressure: Max. 7 bar

Advantages:
- High suction performance with low power consumption
- Low weight
- Fast and easy installation directly in the hose line

Type	Hose connection	Operating pressure	Air consumption	Max. flow	Evacuation time 1l -> 50% vacuum	Max. vacuum
"SMALL" design, Ø 14.5 x 70 mm						
VSILS S6	6	6 bar	7.2 l/min	16.8 l/min	4.9 s	75 %
VSILS T6	6	4/6 bar	16.2/22.2 l/min	19.2/18.6 l/min	3.1/2.6 s	84/75 %
VSILS X6	6	5 bar	7.8 l/min	14.4 l/min	7.3 s	92 %
"MEDIUM" design, Ø 19.5 x 96 mm						
VSILM S6	6	6 bar	26.4 l/min	41.4 l/min	1.4 s	75 %
VSILM S8	8	6 bar	26.4 l/min	41.4 l/min	1.4 s	75 %
VSILM P6	6	3.1 bar	26.4 l/min	34.2 l/min	1.8 s	90 %
VSILM P8	8	3.1 bar	26.4 l/min	34.2 l/min	1.8 s	90 %
VSILM X6	6	5 bar	27.6 l/min	37.2 l/min	1.6 s	94 %
VSILM X8	8	5 bar	27.6 l/min	37.2 l/min	1.6 s	94 %

Multi stage injectors up to 110 l/min, max. 87 % vacuum — Type VSP

Materials: Housing: Aluminium anodised, nozzles: Brass, seals: Neoprene
Temperature range: -20°C to max. +100°C
Operating pressure: 4 bar (max. 7 bar)
Work noise (loaded/unloaded): 50/65 dB(A)

Advantages:
- Extremely small design, therefore can be fitted directly to consumer item
- Economical
- Maintenance free

For technical data check our **Online Shop!**

Type	Dimensions (L x W x H)	Thread supply air	Thread vacuum	Thread exhaust air	Air consumption*	Max. flow	Accessories silencers	Accessories vacuum meter
VSP 3	69x35x20.5	G 1/8"	G 1/8"	G 1/8"	16 l/min	28 l/min	FFSD 18	---
VSP 6	69x35x31.5	G 1/8"	G 1/8"	G 1/8"	32 l/min	56 l/min	FFSD 18	---
VSP 9	69x42x31.5	G 1/8"	G 1/8"	G 1/8"	48 l/min	84 l/min	FFSD 18	---
VSP 12	69x42x31.5	G 1/8"	G 1/8"	G 1/8"	60 l/min	110 l/min	FFSD 18	---

* at 4 bar

Multi stage injectors up to 160 l/min, max. 64 % vacuum — Type VLPS

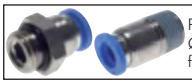
Materials: Housing: Aluminium anodised, nozzles: Brass, seals: Neoprene
Temperature range: -20°C to max. +100°C
Operating pressure: 4 - 6 bar (max. 7 bar)
Work noise (loaded/unloaded): 60/65 dB(A)

Advantages:
- Extremely small design, therefore can be fitted directly to consumer item
- Economical
- Maintenance free
- Strong suction with a small design

For technical data check our **Online Shop!**

Type	Dimensions (L x W x H)	Thread supply air	Thread vacuum	Thread exhaust air	Air consumption*	Max. flow	Accessories silencers	Accessories vacuum meter
VLPS 3	66.5x30.5x25	G 1/8"	G 3/8"	G 3/8"	18 l/min	48 l/min	FFSD 38	---
VLPS 6	66.5x30.5x25	G 1/8"	G 3/8"	G 3/8"	36 l/min	108 l/min	FFSD 38	---
VLPS 12	66.5x30.5x29	G 1/8"	G 3/8"	G 3/8"	72 l/min	220 l/min	FFSD 38	---

* at 6 bar


Push-in fittings Ø 3 - 32 mm from page 24

PU, PA, PTFE and PE hoses from page 192

Pressure gauge from page 366

Silencers from page 436

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Multi stage injectors up to 200 l/min, max. 90 % vacuum — Type VIPS

Materials: Housing: Aluminium anodised, nozzles: Brass, seals: Neoprene
Temperature range: -20°C to max. +100°C
Operating pressure: 4 bar (max. 7 bar)
Work noise (loaded/unloaded): 50/65 dB(A)

Advantages:
- Extremely small design, therefore can be fitted directly to consumer item
- Economical
- Maintenance free
- High vacuum, small design

Type	Dimensions (L x W x H)	Thread supply air	Thread vacuum	Thread exhaust air	Air consumption*	Max. flow	Accessories silencers	Accessories vacuum meter
VIPS 4	81x58x31.5	G 1/4"	G 1/4"	G 1/4"	63 l/min	100 l/min	FFSD 14	---
VIPS 8	81x67x31.5	G 1/4"	G 1/4"	G 1/4"	126 l/min	200 l/min	FFSD 14	---

* at 4 bar

For technical data check our **Online Shop!**

Multi stage injectors up to 9600 l/min, max. 70 % vacuum — Type VLP

High volumes!

Materials: Housing: Aluminium anodised, nozzles: Brass, seals: Neoprene
Temperature range: -10°C to max. +100°C (VLP 96 and VLP 128: -20°C to max. +80°C)
Operating pressure: 4 - 6 bar (max. 7 bar)
Work noise (loaded/unloaded): 55/76 dB(A)

type VLP 8

type VLP 16

Advantages:
- High flow
- Economical
- Maintenance free
- High suction performance, ideal for porous materials or to evacuate large volumes

Type	Dimensions (L x W x H)	Thread supply	Thread vacuum	Thread exhaust air	Air consumption*	Max. flow	Accessories silencers	Accessories vacuum meter
VLP 4	182x67x47	G 1/4"	G 3/4"	G 3/4"	64-85 l/min	300 l/min	FFSD 34	MW -163
VLP 8	182x67x47	G 1/4"	G 3/4"	G 3/4"	120-170 l/min	500 l/min	FFSD 34	MW -163
VLP 10	182x67x67	G 3/8"	G 3/4"	G 3/4"	192-255 l/min	650 l/min	FFSD 34	MW -163
VLP 12	182x67x67	G 3/8"	G 3/4"	G 3/4"	240-340 l/min	750 l/min	FFSD 34	MW -163
VLP 16	250x97x47	G 3/8"	G 1 1/2"	G 1 1/2"	250-350 l/min	1050 l/min	FFSD 112	MW -163
VLP 32	250x97x65	G 3/8"	G 1 1/2"	G 1 1/2"	500-700 l/min	2100 l/min	FFSD 112	MW -163
VLP 64	250x195x74	G 3/8"	G 2"	2x G 1 1/2"	1000-1400 l/min	4200 l/min	2xFFSD 112	MW -163
VLP 96	250x196x95	G 1/2"	G 2"	2x G 1 1/2"	1900 l/min	6400 l/min	2xFFSD 112	MW -163
VLP 128	250x295x95	G 1/2"	G 2"	3x G 1 1/2"	2880 l/min	9600 l/min	3xFFSD 112	MW -163

* at 6 bar

For technical data check our **Online Shop!**

Multi stage injectors up to 5700 l/min, max. 90 % vacuum — Type VIP

High vacuum!

Materials: Housing: Aluminium anodised, nozzles: Brass, seals: Neoprene
Temperature range: -20°C to max. +100°C
Operating pressure: 4 bar (max. 7 bar)
Work noise (loaded/unloaded): 50/65 dB(A), from VIP 16: 55/75 dB(A)

type VIP 16

Advantages:
- High vacuum
- Economical
- Maintenance free
- High vacuum, ideal for vacuum packaging or large forces with small suction caps

Type	Dimensions (L x W x H)	Thread supply air	Thread vacuum	Thread exhaust air	Air consumption*	Max. flow	Accessories silencers	Accessories vacuum meter
VIP 4	182x67x33.5	G 1/4"	G 1/2"	G 1/2"	63 l/min	165 l/min	FFSD 12	MW -163
VIP 8	182x67x33.5	G 1/4"	G 1/2"	G 1/2"	126 l/min	320 l/min	FFSD 12	MW -163
VIP 10	182x67x51.5	G 1/4"	G 1/2"	G 1/2"	193 l/min	440 l/min	FFSD 12	MW -163
VIP 12	182x67x51.5	G 1/4"	G 1/2"	G 1/2"	240 l/min	590 l/min	FFSD 12	MW -163
VIP 16	250x97x47	G 3/8"	G 1"	G 1"	240 l/min	700 l/min	FFSD 10	MW -163
VIP 32	250x97x65	G 3/8"	G 1 1/2"	G 1 1/2"	500 l/min	1400 l/min	FFSD 112	MW -163
VIP 64	250x195x74	G 3/8"	G 2"	2x G 1 1/2"	1000 l/min	2500 l/min	2xFFSD 112	MW -163
VIP 96	250x196x95	G 1/2"	G 2"	2x G 1 1/2"	1500 l/min	3800 l/min	2xFFSD 112	MW -163
VIP 128	250x295x95	G 1/2"	G 2"	3x G 1 1/2"	2250 l/min	5700 l/min	3xFFSD 112	MW -163

* at 4 bar

For technical data check our **Online Shop!**

Screw connections with union nuts from page 53

Vacuum regulators from page 350

Compressed air reservoir from page 514

Check valves from page 449

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Vacuum ejectors

Multi stage injectors up to 9600 l/min, max. 90 % vacuum — Type VILP

High volumes! High vacuum!

type VILP 8

Materials: Housing: Aluminium anodised, nozzles: Brass, seals: Neoprene
Temperature range: -20°C to max. +80°C
Operating pressure: 4 - 6 bar (max. 7 bar)
Work noise (loaded/unloaded): 50/75 dB(A)

Advantages:
- High vacuum
- High flow
- Economical
- Maintenance free
- High vacuum, ideal for vacuum packaging or large forces with small suction caps with a simultaneous high vacuum flow

type VILP 16

Type	Dimensions (L x W x H)	Thread supply air	Thread vacuum	Thread exhaust air	Air consumption*	Max. flow
VILP 4	182x67x47	G 1/4"	G 3/4"	G 3/4"	95 l/min	300 l/min
VILP 8	182x67x47	G 1/4"	G 3/4"	G 3/4"	190 l/min	500 l/min
VILP 12	182x67x67	G 3/8"	G 3/4"	G 3/4"	380 l/min	900 l/min
VILP 16	250x97x47	G 3/8"	G 1 1/2"	G 1 1/2"	350 l/min	1050 l/min
VILP 32	250x97x65	G 3/8"	G 1 1/2"	G 1 1/2"	700 l/min	2100 l/min
VILP 48	250x97x86	G 1/2"	G 1 1/2"	G 1 1/2"	950 l/min	3200 l/min
VILP 64	250x195x74	G 3/8"	G 2"	2x G 1 1/2"	1400 l/min	4200 l/min
VILP 96	250x196x95	G 1/2"	G 2"	2x G 1 1/2"	1900 l/min	6400 l/min
VILP 128	250x295x95	G 1/2"	G 2"	3x G 1 1/2"	2880 l/min	9600 l/min

Accessories silencers	Accessories vacuum meter
FFSD 34	MW -163
FFSD 34	MW -163
FFSD 34	MW -163
FFSD 112	MW -163
FFSD 112	MW -163
FFSD 112	MW -163
2xFFSD 112	MW -163
2xFFSD 112	MW -163
3xFFSD 112	MW -163

* at 6 bar

For technical data check our **Online Shop!**

Multi stage injectors up to 320 l/min, max. 98.9 % vacuum — Type VHP

Extremely high vacuum!

Materials: Housing: Aluminium anodised, nozzles: Brass, seals: Neoprene
Temperature range: -10°C to max. +100°C
Operating pressure: 5 bar (max. 7 bar)
Work noise (loaded/unloaded): 50/65 dB(A)

Advantages:
- Extremely high vacuum
- For laboratory use
- Maintenance free

Type	Dimensions (L x W x H)	Thread supply air	Thread vacuum	Thread exhaust air	Air consumption*	Max. flow
VHP 5	182x67x32	G 1/4"	G 1/2"	G 1/2"	120 l/min	160 l/min
VHP 10	182x67x52	G 1/4"	G 1/2"	G 1/2"	240 l/min	320 l/min

Accessories silencers	Accessories vacuum meter
FFSD 12	MW -163
FFSD 12	MW -163

* at 5 bar

For technical data check our **Online Shop!**

Free-Flow silencers for ejectors

type FFSD

type KU (with granulate filling)

Materials (only type FFSD): Housing: Aluminium anodised, insert: PUR foam
Temperature range (only type FFSD): -10°C to max. +80°C

Advantages:
- Very good sound damping
- Absolute free flow, no clogging
- Low flow resistance

Type	Dimensions (D x L)	Thread
FFSD 18	19 x 46	G 1/8"
FFSD 14	19 x 46	G 1/4"
FFSD 38	24 x 70	G 3/8"
FFSD 12	38 x 75	G 1/2"
FFSD 34	38 x 75	G 3/4"
FFSD 10	57 x 138	G 1"
FFSD 112	57 x 138	G 1 1/2"

Economical alternative!

Type	Dimensions (D x L)	Thread
KU 18*	16 x 26	G 1/8"
KU 14*	20 x 35	G 1/4"
KU 38*	24 x 47	G 3/8"
KU 12*	24 x 47	G 1/2"
KU 34*	49 x 97	G 3/4"
KU 10*	49 x 97	G 1"

* operating pressure: Max. 6 bar

Vacuum components
Of other manufacturers can be found in our Online Shop. Simply look for the original item number!

FESTO
You will find grippers in our Online Shop

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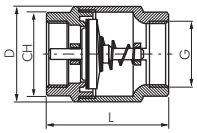
Check valves for vacuums — up to 25 bar

Materials: Housing: Brass, spring: Stainless steel, seal: NBR
Temperature range: -20°C to max. +100°C
Operating range: Water (no steam), neutral, gaseous and non-aggressive, liquid media, mineral oils, compressed air, low vacuum

For vacuum



Type	G	L	D	CH	PN	Open. pressure (approx.)
RUCK 38 VU	G 3/8"	55.0	34.5	SW 23	25 bar	0.02 bar
RUCK 12 VU	G 1/2"	58.5	34.5	SW 27	25 bar	0.02 bar
RUCK 34 VU	G 3/4"	65.0	41.5	SW 33	25 bar	0.02 bar
RUCK 10 VU	G 1"	74.5	48.0	SW 40	25 bar	0.02 bar
RUCK 114 VU	G 1 1/4"	83.0	60.5	SW 50	18 bar	0.02 bar
RUCK 112 VU	G 1 1/2"	93.0	71.0	SW 55	18 bar	0.02 bar
RUCK 20 VU	G 2"	101.0	87.0	SW 70	18 bar	0.02 bar
RUCK 212 VU	G 2 1/2"	122.0	120.0	SW 87	12 bar	0.02 bar
RUCK 30 VU	G 3"	141.5	140.0	SW 101	12 bar	0.01 bar
RUCK 40 VU	G 4"	158.5	172.5	SW 128	12 bar	0.01 bar

TIP *The optimum protection of your vacuum generator from soiling!*

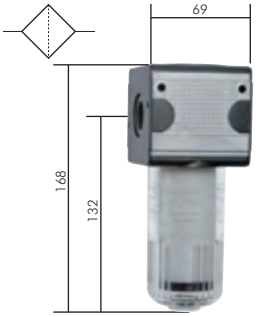
Vacuum filters — Suction performance 10 to 680 m³/h

Suitable: These vacuum filters are used particularly in vacuum generators (pumps and blowers) with design-dependent sensitivity.
Materials: Housing: Steel sheet painted black, filter insert: Special paper in a double housing made from steel sheet (may be blown out in event of dried dirt)
Pore width: 5 - -7 µm - An extremely high separation efficiency is realised due to the large surface of the filter paper!

Type	Thread	Suction performance (m³/h)	H	Ø D	Type filter elements
F 38 VU	G 3/8"	10	88	72	F 38 VU E
F 12 VU	G 1/2"	20	93	96	F 12 VU E
F 34 VU	G 3/4"	50	93	96	F 34 VU E
F 10 VU	G 1"	70	96	120	F 10 VU E
F 114 VU	G 1 1/4"	150	160	162	F 114 VU E
F 112 VU	G 1 1/2"	200	197	160	F 112 VU E
F 20 VU	G 2"	300	258	185	F 20 VU E
F 30 VU	G 3"	680	270	185	F 30 VU E

Vacuum filters Multifix model series 2

Input pressure: -0.965 to 0 bar
Condensate draining: None
Pore width in the filter: 3 µm
ATEX: Operating material without its own potential source of ignition in accordance with Directive 2014/34/EU
☞ **Optional:** Version with protective cage **-S**, version with metal bowl and inspection tube **-M**



Type	Thread	Mounting brackets	Coupling kit	Replace. filter
FVK 33	G 1/2"	W 2	KP 2	V 38/100

Vacuum filters for pipe installations

Suitable: This filter is inserted directly in the hose behind the consumer.
Materials: Housing: Plastic, filter element: Paper
Temperature range: -10°C to max. +80°C
Pore width: 10 µm
Supply volume: The filter is delivered fully along with the fixing clamp.

type FIQS

type FVU 6

Type	Hose Ø	Type replace. filter	Type fixing clamps
With push-in fittings			
FIQS 4	4 (external)	FIQS FILTER 1	FIQSK 1
FIQS 6	6 (external)	FIQS FILTER 1	FIQSK 1
FIQS 8	8 (external)	FIQS FILTER 2	FIQSK 2
FIQS 10	10 (external)	FIQS FILTER 2	FIQSK 2
One-way filters without clips			
FVU 6	6 (internal)	---	---

Vacuum regulators with external leakage — 4 - 70 m³/h

Suitable: With a preset vacuum level this valve breathes the atmospheric air and prevents the vacuum level from exceeding beyond the desired vacuum value. It is used to adjust a vacuum system with the same operating vacuum. The setting is done using a fine thread of the valve and the mechanical opening due to the spring load.

These valves are generally delivered with coils and plugs!

Type brass nickel-plated	Thread	Pressure regulator range	Suction performance (m³/h)	L	SW
R 18 VU B	G 1/8"	-1 to -0.33 bar	4	45	12
R 12 VU B	G 1/2"	-1 to -0.33 bar	20	57	24
R 34 VU B	G 3/4"	-1 to -0.33 bar	40	60	30
R 10 VU B	G 1"	-1 to -0.33 bar	70	65	35

The vacuum can also be controlled when there is a permanent leakage in the vacuum system. This can be achieved by one of our needle valves (see page 294).

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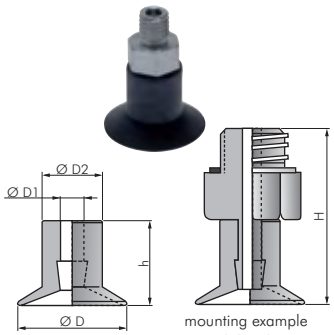
Material overview (only reference values, does not replace technical advise)

Material	Description	Temperature range	Wear strength*	Oil resistance*	Weather and ozone resistance*	Petrol resistance*	Advantage	Recommended for
CR	Chloroprene	-40°C to max. +110°C	3	2	2	x	Weather resistant	Universal use
NBR	Nitrile rubber	-30°C to max. +90°C	3	1	x	3	Oil-resistant, water-resistant up to max. 70°C	Universal use
SI	Silicone rubber	-40°C to max. +200°C	x	x	1	x	Temperature resistant, very flexible	Food, electronics
PUR	Polyurethane	-20°C to max. +80°C	2	1	3	2	Long service life	Harsh opera. conditions, automobile
NR	Natural rubber	-40°C to max. +80°C	2	x	x	x	Flexible, abrasion resistant	Wood, uneven surfaces
NRE	Natural rubber	-40°C to max. +80°C	2	x	x	x	Very flexible, abrasion resistant	Wood, uneven surfaces
SBR	Styrene-butadiene rubber	-30°C to max. +80°C	1	x	3	x	Non-marking, flexible, very wear-resistant	Wood, uneven surfaces

All materials 45 - 55 Shore A (unless otherwise specified)
* 1 = Very good, 2 = Good, 3 = Fair, x = Not recommended



mounting example with bracket

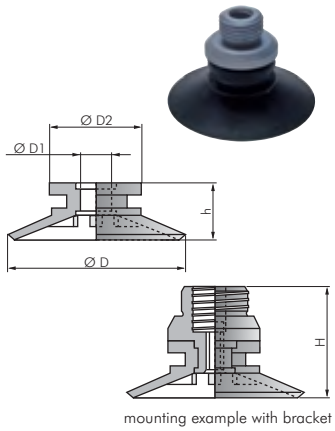
Flat suction cups — P series (Ø 5 - 16 mm)

Type **CR (black)**	Type **silicone (transparent)**	D	Stroke	Connection MT	D1	D2	h	H	Bracket type
VSP 5 F CR	VSP 5 F Si	5.0	0.5	M5	2.0	4.5	6.0	13.5	**A**
VSP 7 F CR	VSP 7 F Si	7.0	1.0	M5	2.0	5.0	6.5	14.0	**A**
VSP 9 F CR	VSP 9 F Si	9.0	1.5	M5	2.0	5.0	7.0	14.5	**A**
VSP 11 F CR	VSP 11 F Si	11.0	1.0	M5	3.8	9.0	10.5	19.5	**B**
VSP 16-0.5 F CR*	VSP 16-0.5 F Si*	16.5	0.5	M5	3.8	8.0	11.5	20.5	**B**
VSP 16 F CR	VSP 16 F Si	16.5	2.0	M5	3.8	9.0	11.5	20.5	**B**

Suitable bracket (must be ordered separately)

Type **brass nickel-plated**	Thread connector	DN	Bracket type
VSPH A50	M5 MT	1.3	**A**
VSPH B50	M5 MT	2.8	**B**

* with support rib



mounting example with bracket

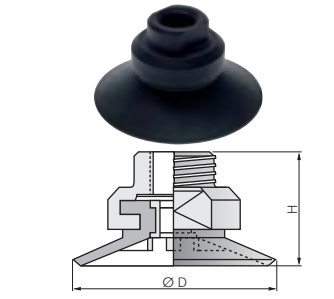
Flat suction cups with supports — P series (Ø 20 - 50 mm)

Type **CR (black)**	Type **silicone (transparent)**	D	Stroke	Connection FT/MT	D1	D2	h	H	Bracket type
VSP 20 F CR	VSP 20 F Si	22	0.5	M5/G1/8"	5.5	14.5	8.0	17.5	**C**
VSP 20-2.5 F CR*	VSP 20-2.5 F Si*	22	2.5	M5/G1/8"	5.5	14.5	8.0	17.5	**C**
VSP 25 F CR	VSP 25 F Si	28	1.0	M5/G1/8"	5.5	14.5	9.0	18.5	**C**
VSP 30 F CR	VSP 30 F Si	32	2.5	M5/G1/8"	5.5	14.5	10.0	19.5	**C**
VSP 40 F CR	VSP 40 F Si	42	2.0	G1/8"/-	6.5	20.0	13.0	21.0	**D**
VSP 50 F CR	VSP 50 F Si	53	2.5	G1/8"/-	10.5	27.0	17.5	26.5	**E**

Suitable bracket (must be ordered separately)

Type **aluminium**	Type **retaining ring (optional)**	Thread connector	DN	Bracket type
VSPH C18	VSPH C18 HR	M5 FT/G 1/8" MT	3.1	**C**
VSPH D18 i	VSPH D18 i HR	G 1/8" FT	5.2	**D**
VSPH E18 i	VSPH E18 i HR	G 1/8" FT	6.3	**E**

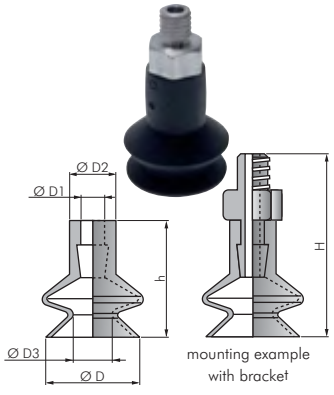
* without support ribs



Flat suction cups with support ribs complete with brackets — P series (Ø 20 - 50 mm)

Supply volume: 1 pc. suction cup with assembled bracket and installed suction strainer

Type **CR (black)**	Type **silicone (transparent)**	D	Stroke	Connection FT/MT	DN	H
VSP 20 FK CR	VSP 20 FK Si	22	0.5	M5/G1/8"	4.3	16
VSP 25 FK CR	VSP 25 FK Si	28	1.0	M5/G1/8"	4.3	17
VSP 30 FK CR	VSP 30 FK Si	32	2.5	M5/G1/8"	4.3	18
VSP 40 FK CR	VSP 40 FK Si	42	2.0	G1/8"/-	6.0	21
VSP 50 FK CR	VSP 50 FK Si	53	2.5	G1/8"/-	8.8	26



mounting example with bracket

Bellows suction pads, 1.5 times — P series (Ø 6 - 16 mm)

Type **CR (black)**	Type **silicone (transparent)**	D	Stroke	Connection MT	D1	D2	D3	h	H	Bracket type
VSP 6 B1 CR	VSP 6 B1 Si*	6	2.0	M5	2	4.5	2.2	9	16.5	**A**
VSP 9 B1 CR	VSP 9 B1 Si*	9	3.5	M5	2	5.5	3.8	12	19.5	**A**
VSP 11 B1 CR	VSP 11 B1 Si	11	5.0	M5	4	9.0	6.0	17	26.5	**B**
VSP 16 B1 CR	VSP 16 B1 Si	16	7.0	M5	4	9.0	8.0	19	28.5	**B**

Suitable bracket (must be ordered separately)

Type **brass nickel-plated**	Thread connector	DN	Bracket type
VSPH A50	M5 MT	1.3	**A**
VSPH B50	M5 MT	2.8	**B**

* red

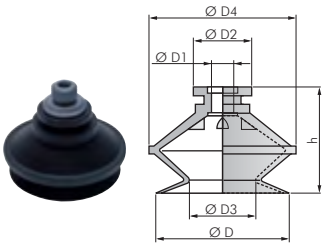
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

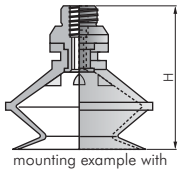
Bellows suction pads, 1.5 times — P series (Ø 20 - 50 mm)

Type CR (black)	Type silicone (transparent)	D	Stroke	Connection FT/MT	D1	D2	D3	D4	h	H	Bracket type
VSP 20 B1 CR	VSP 20 B1 Si	20	9	M5/G1/8"	5.5	14.5	11	24	20	29.5	C
VSP 30 B1 CR	VSP 30 B1 Si	32	9	M5/G1/8"	5.5	14.5	17	36	26	35.6	C
VSP 40 B1 CR	VSP 40 B1 Si	42	9	G1/8"/-	6.5	20.0	24	46	28	36.0	D
VSP 50 B1 CR	VSP 50 B1 Si	52	12	G1/8"/-	10.5	27.0	31	58	35	44.0	E

Suitable bracket (must be ordered separately)

Type aluminium	Type retaining ring (optional)	Thread connector	DN	Bracket type
VSPH C18	VSPH C18 HR	M5 FT/G 1/8" MT	3.1	C
VSPH D18 i	VSPH D18 i HR	G 1/8" FT	5.2	D
VSPH E18 i	VSPH E18 i HR	G 1/8" FT	6.3	E





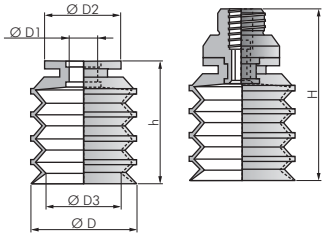
mounting example with bracket

Bellows suction pads, 4.5 times — P series (Ø 20 - 50 mm)

Type CR (black)	Type silicone (transparent)	D	Stroke	Connection FT/MT	D1	D2	D3	h	H	Bracket type
VSP 20 B4 CR	VSP 20 B4 Si	20	16	M5/G1/8"	5.0	14.5	14	23	32.5	C
VSP 30 B4 CR	VSP 30 B4 Si	30	21	G1/8"/-	6.5	20.0	21	32	41.0	D
VSP 40 B4 CR	VSP 40 B4 Si	40	20	G1/8"/-	6.5	20.0	28	42	50.0	D
VSP 50 B4 CR	VSP 50 B4 Si	50	30	G1/8"/-	10.5	27.0	35	51	60.0	E

Suitable bracket (must be ordered separately)

Type aluminium	Type TPU retaining ring (optional)	Thread connector	DN	Bracket type
VSPH C18	VSPH C18 HR	M5 FT/G 1/8" MT	3.1	C
VSPH D18 i	VSPH D18 i HR	G 1/8" FT	5.2	D
VSPH E18 i	VSPH E18 i HR	G 1/8" FT	6.3	E

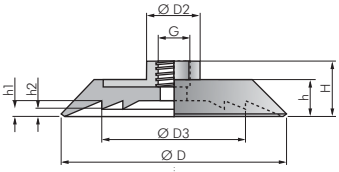


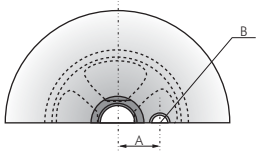
Flat suction cups with standard lips and vulcanised brackets — Ø 30 - 225 mm

Application: Universal suction cup, double safety lip prevents separation when leakage of the external lip

Type CR (60A) (black)	Type silicone (60A) (red)	D	Stroke	G (FT)	D2	D3	h	H	h1	h2	A	B	DN
VS 30 FK CR*	VS 30 FK Si	30	2.5	M 5	10	18	10	17	3.5	2.5	---	---	3.2
VS 50 FK CR*	VS 50 FK Si	50	4.0	G 1/8"	18	33	11	18	5.5	4.5	---	---	8.8
VS 75 FK CR	VS 75 FK Si	75	5.5	G 1/4"	22	50	15	23	7.0	5.5	---	---	11.8
VS 100 FK NBR[1]**	VS 100 FK Si[2]**	100	10.0	G 3/8"	30	68	20	30	15.5	9.5	---	---	15.2
VS 150 FK CR[3]	VS 150 FK Si[3]	150	10.0	G 1/2"	35	100	26	42	12.0	9.0	30	G 1/8"	19.0
VS 225 FK CR[3]	VS 225 FK Si[3]	225	8.0	G 3/4"	50	150	34	54	14.0	11.0	50	G 1/8"	24.5

[1] material: NBR black, [2] transparent, [3] grey, * Shore hardness: 55A, ** Shore hardness: 50A

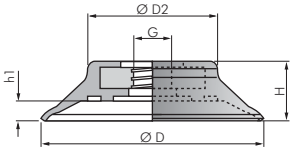




Flat suction cups with robust lips and vulcanised brackets — Ø 60 - 95 mm

Application: Smooth, levelled surfaces

Type NBR (black)	Type silicone (transparent)	D	Stroke	G (FT)	D2	H	h1	DN
VS 60 FSK NBR	VS 60 FSK Si	60	5	G 1/4"	38.5	16	5	11.8
VS 80 FSK NBR	VS 80 FSK Si	80	6	G 1/4"	53.0	18	6	11.8
VS 95 FSK NBR	VS 95 FSK Si	95	6	G 1/4"	68.0	19	6	11.8



Flat suction cups with very fine lips — Ø 40 - 200 mm

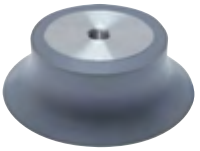
Application: Uneven, structured and highly roughened surfaces, e.g. corrugated plate

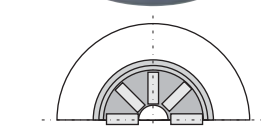
Type	D	Stroke	Connection FT	D2	D4	h	H (incl. bracket)	h3	h4	Materials	Available bracket type
VS 40 FF **	40	3	G 1/8"	26	17.0	12.5	12.5	6	3	○ ●	L
VS 70 FF **	70	6	G 1/4"	50	32.5	30.0	32.0	18	4	● ○ ○ ● [2]	M
VS 100 FF **	100	5	G 1/4"	70	50.5	32.0	33.0	19	5	● ○ ○ [3]	N
VS 200 FF NRE	200	5	G 1/2"	170	148.0	32.0	34.0	18	5	Natural rubber white[3]	P

Suitable bracket (must be ordered separately)

Type aluminium	D	D1	h3	h5	G (FT)	DN	Bracket type
VSH L18 i	20	17.5	6	3.0	G 1/8"	8.5	L
VSH M14 i	43	32.0	20	14.3	G 1/4"	11.8	M
VSH N14 i	60	50.0	20	14.0	G 1/4"	11.8	N
VSH P12 i	160	150.0	20	14.0	G 1/2"	19.0	P

[1] 45 Shore A, [2] 40 Shore A, [3] 35 Shore A

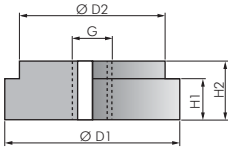




Order example: VS 40 FF **

Standard type

Order suffix for the material:
- Buna reddish brown . . .-SBR
- NBR grey . . . . . .-NBR
- Silicone transparent . . . .-SI
- Natural rubber beige . . .-NR
- Natural rubber brown . .-NRE



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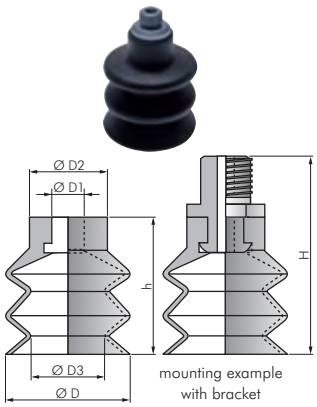


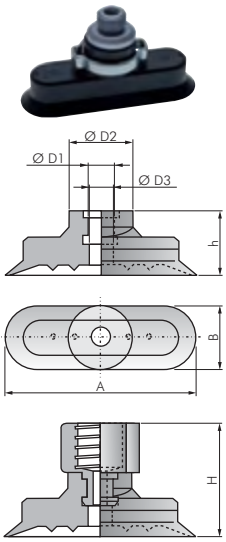
mounting example with bracket

Bellows suction pads, 2.5 times — Ø 10 - 40 mm

Type NBR (55A) (black)	Type silicone (60A) (red)	Type polyurethane (55A) (blue)	Connection D	Stroke	FT/MT	D1	D2	D3	h	H	Bracket type
VS 10 B2 NBR	VS 10 B2 Si	---	9.3	3	G 1/8"	5	10	5	15.5	27	F
VS 14 B2 NBR	VS 14 B2 Si	VS 14 B2 PUR	14.0	10	G 1/8"	5	12	6	23.0	35	F
VS 18 B2 NBR	VS 18 B2 Si	VS 18 B2 PUR	18.0	8	G 1/8"	5	12	7	22.0	34	F
VS 30 B2 NBR	VS 30 B2 Si	VS 30 B2 PUR	30.0	13	G 1/4"	8	19	12	33.0	48	G
VS 40 B2 NBR	VS 40 B2 Si	VS 40 B2 PUR	40.0	20	G 1/4"	8	19	18	45.0	60	G

Suitable bracket (must be ordered separately)

Type aluminium	Thread connector	Type aluminium	Thread connector	DN	Bracket type
VSH F18 i	G 1/8" FT	VSH F18	G 1/8" MT	4	F
VSH G14 i	G 1/4" FT	VSH G14	G 1/4" MT	4	G



mounting example with bracket

Oval suction — 15 - 100 mm

Supply volume: 1 pc. suction cup with ear clamp for attachment on bracket

Type NBR (60A) (grey)	Type silicone (60A) (transparent)	Type polyurethane (65A) (blue)	A x B	Stroke	h	H**	D1	D2	D3	Bracket type
VS 15x5 O NBR	VS 15x5 O Si	---	15 x 5	1	12	22	5	9	2.0	H
VS 18x6 O NBR	VS 18x6 O Si	VS 18x6 O PUR	18 x 6	1	12	22	5	9	2.0	H
VS 24x8 O NBR	VS 24x8 O Si	VS 24x8 O PUR	24 x 8	1	12	22	5	12	3.0	H
VS 30x10 O NBR	VS 30x10 O Si	VS 30x10 O PUR	30 x 10	2	12	22	5	12	3.5	H
VS 36x12 O NBR	VS 36x12 O Si	VS 36x12 O PUR	36 x 12	2	12	22	5	12	4.5	H
VS 45x15 O NBR	VS 45x15 O Si	VS 45x15 O PUR	45 x 15	3	21	33	12	17	4.0	K
VS 60x20 O NBR	VS 60x20 O Si	VS 60x20 O PUR[3]	60 x 20	3	21	33	12	17	4.0	K
VS 75x25 O NBR[1]	VS 75x25 O Si[2]	---	75 x 25	3	22	34	12	18	4.0	K
VS 100x35 O NBR*[1]	---	---	100 x 35	3	22	34	12	18	7.5	K

Suitable bracket (must be ordered separately)

Type aluminium	Thread connector	Type aluminium	Thread connector	Type aluminium	Thread connector	DN	Bracket type
VSH H18 i	G 1/8" FT	VSH H18	G 1/8" MT	VSH H50	M 5 MT	3/2.4	H
VSH K14 i	G 1/4" FT	VSH K14	G 1/4" MT	---		6.5	K

* delivered with aluminium reinforcement ** male thread G 1/8" and G 1/4" plus 4 mm
[1] black, [2] red, [3] beige/brown

Oval suction pads, 2.5 times — 25 - 75 mm

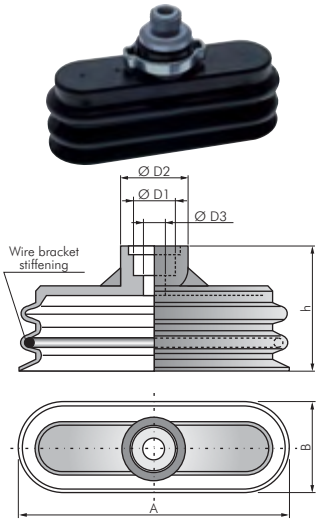
Supply volume: 1 pc. suction cup with ear clamp for attachment on bracket

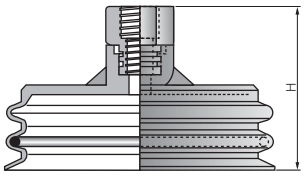
Type NBR (60A) (grey)	Type silicone (60A) (transparent)	A x B	Stroke	h	H*	D1	D2	D3	Bracket type
VS 25x8 O2 NBR	VS 25x8 O2 Si	25 x 8	6.0	18.5	28.5	5	10.0	2.5	H
VS 45x15 O2 NBR	VS 45x15 O2 Si	45 x 15	8.5	28.5	40.5	12	17.5	5.0	K
VS 75x25 O2 NBR	VS 75x25 O2 Si	75 x 25	10.5	34.5	46.5	12	17.5	6.0	K

Suitable bracket (must be ordered separately)

Type aluminium	Thread connector	Type aluminium	Thread connector	Type aluminium	Thread connector	DN	Bracket type
VSH H18 i	G 1/8" FT	VSH H18	G 1/8" MT	VSH H50	M 5 MT	3/2.4	H
VSH K14 i	G 1/4" FT	VSH K14	G 1/4" MT	---		6.5	K

* male thread G 1/8" and G 1/4" plus 4 mm





mounting example with bracket

FESTO
Suction cups can be found in our Online Shop

FESTO
You will find grippers in our Online Shop

Solenoid valves for vacuum from page 409

PU, PA, PTFE and PE hoses from page 192

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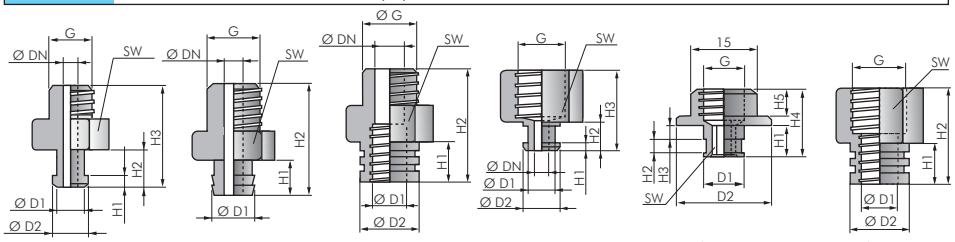
Suction cup fixations

Type	Material	Shape	SW	G	DN	D1	D2	H1	H2	H3	H4	H5	Bracket type
VSPH A50	Brass nickel-pl.	1	7	M 5 (MT)	1.5	2.3	3.1	2.3	5.7	13.2	-	-	A
VSPH B50	Aluminium	1	8	M 5 (MT)	2.8	4.2	5.2	6.0	8.0	17.0	-	-	B
VSPH C18	Aluminium	5	3	M 5 (FT)/G 1/8" (MT)	3.1	7.5	16.0	5.0	3.0	1.5	14.5	3.5	C
VSPH D18 i	Aluminium	5	5	G 1/8" (FT)	5.2	10.0	21.0	7.0	3.5	3.0	15.0	6.0	D
VSPH E18 i	Aluminium	5	6	G 1/8" (FT)	6.3	15.0	28.0	9.0	4.5	3.5	18.0	6.0	E
VSH F18 i	Aluminium	4	14	G 1/8" (FT)	3.3	5.7	7.7	3.0	7.5	19.5	-	-	F
VSH F18	Aluminium	2	14	G 1/8" (MT)	4.0	7.5	-	6.4	18.8	-	-	-	F
VSH G14 i	Aluminium	4	17	G 1/4" (FT)	4.0	8.6	13.0	2.3	12.0	27.0	-	-	G
VSH G14	Aluminium	1	17	G 1/4" (MT)	4.0	8.6	13.0	2.3	12.0	27.0	-	-	G
VSH H50	Aluminium	1	8	M 5 (MT)	2.4	5.5	7.3	2.5	5.5	15.5	-	-	H
VSH H18	Aluminium	1	14	G 1/8" (MT)	3.0	5.5	7.3	2.5	5.5	19.5	-	-	H
VSH H18 i	Aluminium	4	14	G 1/8" (FT)	3.0	5.5	7.3	2.5	5.5	15.5	-	-	H
VSH K14	Aluminium	3	17	G 1/4" (MT)	6.5	M 8	13.0	9.0	25.0	-	-	-	K
VSH K14 i	Aluminium	6	17	G 1/4" (FT)	6.5	M 8	13.0	9.0	21.0	-	-	-	K

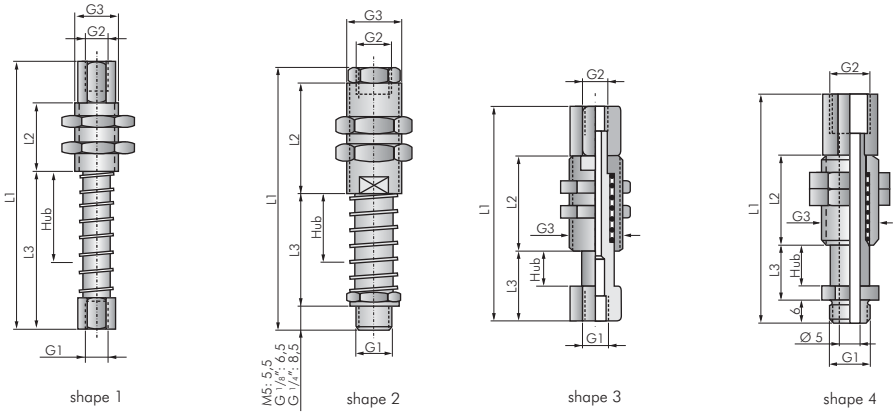


Spring plungers

Materials: Zinc-plated steel/brass

Type standard	Type non-rotating	G1	G2 (FT)	Stroke	G3	L1	L2	L3	Shape
VSFS 50/50-05	---	M 5 FT	M 5	5	G 1/8"	42.0	15	16.7	1
VSPFS 50/50-07	---	M 5 FT	M 5	7	G 1/8"	43.0	19	14.0	3
VSFS 50/50-10	VSFS 50/50-10V	M 5 FT	M 5	10	G 1/8"	47.0	15	22.5	1
VSFS 50/50-20	VSFS 50/50-20V	M 5 FT	M 5	20	G 1/8"	59.0	15	34.5	1
VSFS 50A/50-10	---	M 5 MT	M 5	10	M 12x1*	52.5	19	21.0	2
VSFS 50A/50-20	---	M 5 MT	M 5	20	M 12x1*	62.5	19	31.0	2
VSPFS 18A/18-08	---	G 1/8" MT	G 1/8"	8	M 14x1.5	54.0	22	11.0	4
VSPFS 18A/18-20	---	G 1/8" MT	G 1/8"	20	M 16x1	79.0	35	23.0	4
VSFS 18A/18-25	---	G 1/8" MT	G 1/8"	25	M 16x1	93.0	30	42.5	2
VSFS 18A/18-50	---	G 1/8" MT	G 1/8"	50	M 16x1	124.0	30	73.5	2
VSFS 14A/18-25	---	G 1/4" MT	G 1/8"	25	M 20x1.5	95.0	40	41.0	2
VSFS 14A/18-75	---	G 1/4" MT	G 1/8"	75	M 20x1.5	154.0	40	100.0	2

* with a fixed nut



Vacuum components
Of other manufacturers can be found in our **Online Shop!**
Simply look for the original item number!

Grippers
Can be found in our **Online Shop!**
Simply look for the original item number!

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Reservoirs for compressed air and vacuums

with 4 connections

with 2 connections

mounting bracket

Compressed air reservoirs for stationary uses — 11 bar

Material: Steel, powder-coated
Temperature range: -10°C to max. +60°C

Type **2 connections**	Type **4 connections**	Contents litre	Operating pressure	Ø	Length	Connections (FT)
BHL 1/11 P2	BHL 1/11 P4	1.0	0 - 11 bar	86	230	G 1/2"
BHL 2.5/11 P2	BHL 2.5/11 P4	2.5	0 - 11 bar	160	175	G 1/2"
BHL 5/11 P2	BHL 5/11 P4	4.8	0 - 11 bar	210	195	G 1/2"
BHL 7/11 P2	BHL 7/11 P4	7.0	0 - 11 bar	210	260	G 1/2"
BHL 12/11 P2	BHL 12/11 P4	11.8	0 - 11 bar	229	365	G 1/2"

1 pc. mounting bracket made of zinc-plated steel (incl. thread extension G 1/2")

Type	For container
BHLFP	All types BHL ... P2 and BHL ... P4

Compressed air reservoirs for stationary or mobile uses — up to 15 bar

Note: Calculation according to code AD 2000 (wall with increased corrosion allowance)
☞ **Optional:** Painted blue (RAL 5015) **-5015**, painted green (RAL 6011) **-6011**

Type **painted red (RAL 3009, 2-K)**	Contents litre	Operating pressure	Ø	Length	Connections (FT)
BHL 1/11 G	1.0	0 - 11 bar	105	171	2 x G 1/2"
BHL 3/10 G*	3.0	0 - 10 bar	125	314	1 x G 3/4", 2 x G 1"
BHL 3.2/11 G	3.2	0 - 11 bar	102	480	2 x G 1/2", 2 x G 1"
BHL 5/10 G	5.0	0 - 10 bar	154	332	2 x G 1/2", 2 x G 1"
BHL 10/11 G	10.0	0 - 11 bar	206	355	2 x G 1/2", 2 x G 1"
BHL 20/10 G	20.0	0 - 10 bar	246	500	2 x G 1/2", 2 x G 1"
BHL 30/15 G**	30.0	0 - 15 bar	246	720	4 x M 22 x 1.5
BHL 40/11 G	40.0	0 - 11 bar	276	790	3 x G 1/2", 2 x G 1"
BHL 60/11 G	60.0	0 - 11 bar	276	1140	4 x G 1/2", 2 x G 1"

1 pc. reservoir fastening strap (we recommend the use of 2 pieces.)

Type **powder coated in black (RAL 9005)**	Ø for mounting	For reservoir
BHLF 10	206 mm	BHL 10/11
BHLF 20/30	246 mm	BHL 20/10 (G), BHL 30/15 G
BHLF 40/60	276 mm	BHL 40/11 (G), BHL 60/11 G

* only for rail vehicles, beige-red (RAL 3012), ** only for motor vehicles, black (RAL 9005),

☞ **Order example:** BHL 1/11 G **

Standard type

Designation for the options:
Painted blue (RAL 5015) . . . . . **-5015**
Painted green (RAL 6011) . . . . . **-6011**

Compressed air reservoirs with feet — Eco-Line/11 bar

Type **painted blue RAL 5015**	Type **zinc-plated steel**	Contents litre	Operating pressure	Ø	Length	Connections (FT)
BHL 5/11 FE	BHL 5/11 FE-V	5	0 - 11 bar	150	370	2 x Rp 1/2"*, 1 x Rp 1/4"
BHL 10/11 FE	BHL 10/11 FE-V	10	0 - 11 bar	169	506	2 x Rp 1/2"*, 2 x Rp 3/8"
BHL 24/11 FE	BHL 24/11 FE-V	24	0 - 11 bar	240	592	2 x Rp 1/2"*, 2 x Rp 3/8"
BHL 50/11 FE	BHL 50/11 FE-V	50	0 - 11 bar	305	784	4 x Rp 1/2"*, 1 x Rp 3/8"

* type zinc-plated steel 2 x Rp 1" on the side

painted blue

zinc-plated steel

Compressed air reservoirs with feet — up to 16 bar

Note: Calculation according to code AD 2000 (wall with increased corrosion allowance)
☞ **Optional:** Painted blue (RAL 5015) **-5015**, painted green (RAL 6011) **-6011**

Type **painted red (RAL 3009, 2-K)**	Con-tents litre	Operating pressure	Ø	Length	Connections (FT)
BHL 10/11 GF	10	-0.9 to 11 bar	206	355	2 x G 1/2", 2 x G 1"
BHL 10/16 GF-5015*	10	0 - 16 bar	166	558	1 x G 3/8", 2 x G 1"
BHL 20/11 GF	20	-0.9 to 11 bar	246	516	2 x G 1/4", 1 x G 3/8", 2 x G 1/2", 2 x G 1 1/4"
BHL 40/11 GF	40	-0.9 to 11 bar	276	790	2 x G 1/4", 1 x G 3/8", 2 x G 1/2", 2 x G 1"
BHL 50/11 GF	50	-0.6 to 11 bar	276	940	2 x G 1/4", 3 x G 1/2", 2 x G 1"
BHL 50/16 GF**	50	0 - 16 bar	276	940	2 x G 1/4", 3 x G 1/2", 2 x G 1"
BHL 90/11 GF	90	0 - 11 bar	350	1026	3 x G 1/2", 2 x G 2"
BHL 90/16 GF**	90	-1.0 to 16 bar	360	1016	4 x G 1/2", 2 x G 2"
BHL 250/11 GF**	250	0 - 11 bar	500	1480	3 x G 1/2", 2 x G 1 1/2"

* only available in blue, **primed

☞ **Order example:** BHL 10/11 GF **

Standard type

Designation for the options:
Painted blue (RAL 5015) . . . . . **-5015**
Painted green (RAL 6011) . . . . . **-6011**

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Reservoirs for compressed air and vacuums

Stainless steel - compressed air reservoirs, small — 16 bar

Note: Calculation according to code AD 2000 (wall with increased corrosion allowance)
Supply volume: Reservoir incl. 2 fixing clamps

Type AISI 304		Contents litre	Operating pressure	Ø	Length	Connections (FT)
BHL 0.1/16 ES		0.1	-0.95 to16 bar	40	132	2 x G 1/8"
BHL 0.4/16 ES		0.4	-0.95 to16 bar	52	240	2 x G 1/4"
BHL 0.75/16 ES		0.75	-0.95 to16 bar	70	248	2 x G 1/4"

Stainless steel - compressed air reservoirs — 11 bar

Temperature range: -40°C to max. +50°C

Type AISI 304		Contents litre	Operating pressure	Ø	Length	Connections (FT)
BHL 5/10 ES		5	0 - 11 bar	168	320	4 x G 1/2"
BHL 12/10 ES		12	0 - 11 bar	220	382	4 x G 1/2"
BHL 24/10 ES	(with feet)	24	0 - 11 bar	273	493	4 x G 1/2"

Standing compressed air reservoirs zinc-plated — up to 16 bar

Note: Calculation according to code AD 2000 (wall with increased corrosion allowance)

Type zinc-plated steel	Contents litre	Ø	Height	Connections (FT)
11 bar				
BHS 50/11 G*	50	276	1000	2 x Rp 3/4", 3 x Rp 1"
BHS 50/11 V	50	276	1000	2 x Rp 3/4", 3 x Rp 1"
BHS 90/11 V	90	360	1160	1 x Rp 1/4", 2 x Rp 3/8", 2 x Rp 1/2", 2 x Rp 2"
BHS 150/11 V	150	450	1165	2 x Rp 1/2", 1 x Rp 1", 4 x Rp 1 1/4", 2 x Rp 1 1/2"
BHS 250/11 G*	250	500	1565	2 x Rp 1/2", 1 x Rp 1", 4 x Rp 1 1/4", 2 x Rp 1 1/2"
BHS 270/11 V	270	500	1795	3 x Rp 1/2", 6 x Rp 1"
BHS 350/11 V	350	550	1785	2 x Rp 1/2", 1 x Rp 1", 4 x Rp 1 1/4", 2 x Rp 1 1/2"
BHS 500/11 V	500	600	1935	2 x Rp 1/2", 1 x Rp 1", 4 x Rp 1 1/4", 2 x Rp 1 1/2"
BHS 750/11 V	750	750	2005	2 x Rp 1/2", 1 x Rp 1", 4 x Rp 1 1/4", 2 x Rp 1 1/2"
BHS 1000/11 V	1000	800	2340	3 x Rp 1/2", 1 x Rp 1", 1 x Rp 1 1/2", 4 x Rp 2"
BHS 1500/11 V	1500	1000	2200	3 x Rp 1/2", 6 x Rp 2"
BHS 2000/11 V	2000	1100	2470	3 x Rp 1/2", 2 x Rp 2", 4 x Rp 2 1/2"
BHS 3000/11 V	3000	1250	2760	3 x Rp 1/2", 6 x Rp 2", 4 x Rp 2 1/2"
BHS 5000/11 V	5000	1400	3680	3 x Rp 1/2", 6 x Rp 2", 4 x Rp 2 1/2"
16 bar				
BHS 250/16 V	250	600	1140	2 x Rp 1/2", 1 x Rp 1", 4 x Rp 1 1/4", 2 x Rp 1 1/2"
BHS 350/16 V	350	550	1785	2 x Rp 1/2", 1 x Rp 1", 4 x Rp 1 1/4", 2 x Rp 1 1/2"
BHS 500/16 V	500	600	1935	4 x Rp 1/2", 1 x Rp 1", 4 x Rp 1 1/2"
BHS 750/16 V	750	750	2005	2 x Rp 1/2", 1 x Rp 1", 4 x Rp 1 1/4", 2 x Rp 1 1/2"
BHS 1000/16 V	1000	800	2340	3 x Rp 1/2", 1 x Rp 1", 1 x Rp 1 1/2", 4 x Rp 2"
BHS 1500/16 V	1500	1000	2250	2 x Rp 1/2", 6 x Rp 2"
BHS 2000/16 V	2000	1100	2390	3 x Rp 1/2", 2 x Rp 2", 4 x Rp 2 1/2"
BHS 3000/16 V	3000	1250	2690	3 x Rp 1/2", 6 x Rp 2", 4 x Rp 2 1/2"
BHS 5000/16 V	5000	1400	3680	3 x Rp 1/2", 6 x Rp 2", 4 x Rp 2 1/2"

* primed

Oil-water separators for compressed air compressor condensates

Application: By using the oil-water separator you are able to easily separate condensate from the oil. Only the separated oil or filter must be disposed.
Temperature range: +3°C to +60°C
Operating pressure: 16 bar

Type	Installable compressor power* kW	m³/h	W	H	D	Connections Inlet condensate	Water drain
OWAT 90	11	90	280	450	210	3 x Rp 1/2"	Rp 1"
OWAT 150	15	150	280	550	210	3 x Rp 1/2"	Rp 1"
OWAT 210	22	210	285	610	285	3 x Rp 1/2"	Rp 1"
OWAT 360	37	360	437	908	325	4 x Rp 1/2"	Rp 1"

Type replacement filters input	Type replacement filters exhaust
OWAT 90 WL**	---
OWAT 150 WL**	---
OWAT 210 W	OWAT 210 L
OWAT 360 W	OWAT 360 L

* performance data for screw/rotary vane compressors in connection with non-emulsified compressor oils (mineral or synthetic); higher compressor power available on request, ** filter set OWAT 90 WL, and OWAT 150 WL include replacement filter for exhaust air.

Oil test paper for oil-water separators

Application: The change in colour of the oil-test paper correctly indicates the residual oil content in the condensate to be tested and also tells us about the maintenance procedures or filter change that need to be undertaken.

Type	Description
OWAT TP	Test paper (100 pcs.)
OWAT TG	Graduated cylinder for collecting samples

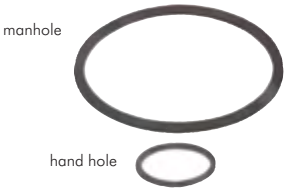
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Accessories for Reservoirs

Fittings holders for reservoirs 200 ltr. and up

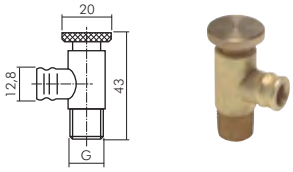
Supply volume: incl. safety valve, control flange and pressure gauge

Type standing holder	Type lying holder	Connection thread	Blow-off capacity at max. pressure	Operating pressure
ARM TR 11 S	ARM TR 11 L	G 1/2" MT	485 m³/h	0 - 11 bar
ARM TR 16 S	ARM TR 16 L	G 1/2" MT	404 m³/h	0 - 16 bar



Seals for maintenance holes on compressed air reservoirs

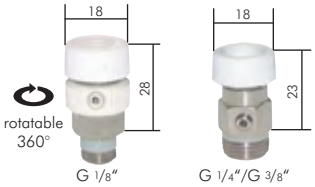
Type	Size internal	Used for
DR MANN	320 x 420	Manhole
DR HAND	100 x 150	hand hole



Drain and venting valves with nozzles — PN 25

Materials: Body: Brass, seal: NBR
Temperature range: 0°C to max. +90°C

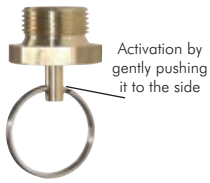
Type	G	DN
AB 18	G 1/8"	5
AB 14	G 1/4"	5



Drain and venting valves without nozzles — PN 10

Materials: Body: Brass chrome-plated, thread: With PTFE coating, hand wheel: Plastic
Temperature range: 0°C to max. +90°C

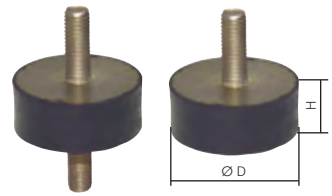
Type	Version	G
AB 18 B	With rotatable drainage nozzle	G 1/8"
AB 14 B	With fixed drainage nozzle	G 1/4"
AB 38 B	With fixed drainage nozzle	G 3/8"



Drainage valves with rings for compressed air reservoirs on vehicles — PN 20

Materials: Body and valve: Brass, ring: Brass nickel-plated, cone pressure spring: Stainless steel, seal: NBR
Temperature range: -40°C to +80°C

Type	Thread	SW
EWV 12 MS	G 1/2"	27
EWV 2215 MS	M 22 x 1.5	27



Rubber-metal buffers

Suitable: For sound absorption and vibration isolation
Materials: NR 55° shore with steel plate (zinc-plated).

Type both sides	Type one side	Ø D	H	Thread
With threaded rod				
GPA 4020	GPD 4020	40	20	M 8 x 23
GPA 4030	GPD 4030	40	30	M 8 x 23
GPA 5020	GPD 5020	50	20	M 10 x 28
GPA 5030	GPD 5030	50	30	M 10 x 28
GPA 7525	GPD 7525	75	25	M 12 x 37
GPA 7550	GPD 7550	75	50	M 12 x 37
With female thread				
---	GPE 4020	40	20	M 8 (7 deep)
GPC 4025	---	40	25	M 8 (7 deep)
GPC 4030	GPE 4030	40	30	M 8 (7 deep)
---	GPE 5020	50	20	M 10 (8 deep)
GPC 5025	---	50	25	M 10 (8 deep)
GPC 5030	GPE 5030	50	30	M 10 (8 deep)
GPC 7525	GPE 7525	75	25	M 12 (10 deep)
GPC 7550	GPE 7550	75	50	M 12 (10 deep)

Rubber-metal buffers, parabolic

Suitable: For sound absorption, vibration isolation and stop damper
Materials: NR 55° shore with steel screw and steel plate (zinc-plated)

Type	Ø D	H	Thread
GPP 2024	20	24	M 6 x 18
GPP 3036	30	36	M 8 x 23
GPP 5058	50	58	M 10 x 28
GPP 7589	75	89	M 12 x 37
GPP 115136	115	136	M 16 x 42

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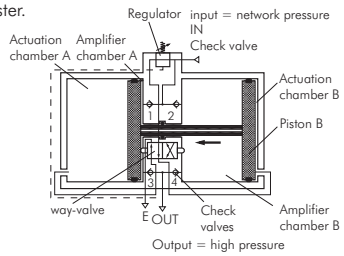
Pressure boosters pneumatic — up to 20 bar

Application: The pressure booster increases the input pressure to the value set on the control valve. The output pressure can measure max. four or 2 two times the input pressure, but can never exceed the max. output pressure. Should an individual consumer (clamping cylinder etc.) be operated with a pressure higher than the standard network pressure, the pressure booster can accordingly increase the supply pressure for this single consumer. An installed pressure regulator maintains a constant working pressure (with less pulsation).

Advantages: High energy saving and no electrical energy necessary directly on consumer. For a further consumer, it is not necessary to pretension the entire compressed air network to a higher level.
Installation recommendation: In order to reduce the pressure pulsation on the secondary side, we recommend creating an additional volume in the form of a container. If the volume of the downstream air line is not sufficient, then the following containers should be integrated behind the pressure booster.

Pressure booster	Container volume
DUE 60 A	1.3 to 3 litres
DUE 230 A	10 to 12 litres
DUE 1000 A	20 to 25 litres
DUE 1600-16 A	30 to 50 litres
DUE 1900 A	50 to 100 litres

Media: Filtered, unoiled compressed air
Installation position: Horizontal
Temperature range: +5°C to max. +50°C



Type	Gear ration max.	Output pressure	Flow capacity*	Connection thread	Press. gauge connection	Pressure gauge order separately
DUE 60 A	4 : 1	2 - 20 bar	60 l/min	G 1/4"	R 1/8"	MW 2527
DUE 230 A	2 : 1	2 - 20 bar	230 l/min	G 1/4"	R 1/8"	MW 2527
DUE 1000 A	2 : 1	2 - 10 bar	1000 l/min	G 3/8"	R 1/8"	MW 1640
DUE 1600 A	2 : 1	2 - 16 bar	1600 l/min	G 1/2"	R 1/8"	MW 2540
DUE 1900 A	2 : 1	2 - 10 bar	1900 l/min	G 1/2"	R 1/8"	MW 1640

Completely plumbed with compressed air reservoir and pressure gauge (connection via quick coupling plug NW 7.2)

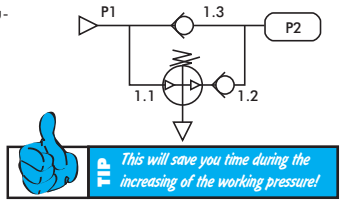
Type	Gear ration max.	Output pressure	Flow capacity*	Container contents
DUE 60 B5	4 : 1	2 - 20 bar	60 l/min	5 l
DUE 230 B5	2 : 1	2 - 20 bar	230 l/min	5 l
DUE 1000 B10	2 : 1	2 - 10 bar	1000 l/min	10 l
DUE 1000 B20	2 : 1	2 - 10 bar	1000 l/min	20 l
DUE 1600 B20	2 : 1	2 - 16 bar	1600 l/min	20 l
DUE 1600 B40	2 : 1	2 - 16 bar	1600 l/min	40 l
DUE 1900 B20	2 : 1	2 - 10 bar	1900 l/min	20 l
DUE 1900 B40	2 : 1	2 - 10 bar	1900 l/min	40 l

Order accessories at the same time!
Silencer and pressure gauge
Please order separately!

* measured at 5 bar input and output pressure. Please note: The greater the pressure increase of P1 to secondary P2 set at the regulator, the lower the available volume flow rate, such as the DUE 230 A, which achieves a 100 litre per second supply amount at 8 bar output pressure if the input pressure is 5 bar. We would be happy to provide you with the flow-rate characteristics if needed.

If your network pressure on P1 is partially higher than the pressure in accumulator P2 (while the pressure booster builds up the pressure), we recommend the system structure as shown in the circuit diagram on the right.

P1 = Network before the DUE ...
P2 = Accumulator behind the DUE ...
1.1 = DUE ...
1.2. and 1.3 = Check valve (see starting page 447)



TIP This will save you time during the increasing of the working pressure!

Pressure limiting valves

Application: Manually adjustable relief valve to protect pneumatic devices from damage caused by overpressure.
Version: Spring-loaded diaphragm valve with adjustable opening pressure
Materials: Body: Zinc die-casting Z410, diaphragms and seals: NBR
Temperature range: -10°C to max. +60°C
Media: Oiled and unoiled compressed air, non-toxic and non-flammable gases
Pressure gauge connection: G 1/4" (mini design: G 1/8")
Switch panel thread: Mini: M 30 x 1.5, standard: M 20 x 1.5

Warning: Although it is similar in function, this valve does not replace the safety valve and cannot be used as a regulator!

Type	Thread	Reaction pressure	Overpressure at max. flow	Pressure gauge display	Mounting bracket
Mini (flow up to 300 l/min), pressure gauge Ø 40*					
DVU 01-2	G 1/4"	0.1 - 2 bar	1 - 1.3 bar	0 - 4 bar	WHM 30 + SM 1
DVU 01-3	G 1/4"	0.1 - 3 bar	1.9 - 2.1 bar	0 - 6 bar	WHM 30 + SM 1
DVU 01-7	G 1/4"	0.15 - 7 bar	2.3 - 3.1 bar	0 - 16 bar	WHM 30 + SM 1
DVU 01-10	G 1/4"	0.5 - 10 bar	1.8 - 2.0 bar	0 - 16 bar	WHM 30 + SM 1
Standard (flow up to 2,000 l/min), pressure gauge Ø 50*					
DVU 33-3	G 1/2"	0.1 - 3 bar	Approx. 1 bar	0 - 6 bar	BW 30
DVU 33-5.5	G 1/2"	0.2 - 5.5 bar	Approx. 1 bar	0 - 10 bar	BW 30
DVU 33-10	G 1/2"	0.5 - 10 bar	Approx. 1 bar	0 - 16 bar	BW 30
Wear part sets					
DVU 01 REP	Repair set for mini design				
DVU 33 REP	Repair set for standard design				

* pressure gauge is included and can be fitted if required.

When configuring the pressure limiter, please note that only the reaction pressure of the pressure limiting valve can be adjusted. Depending on the flow performance, the actual pressure at the pressure input side can be higher by the value specified for overpressure.

Sizes are found in the item details in our Online Shop

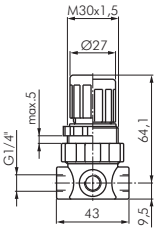
Problem solver!
Double your operating pressure.

type DUE 230 A

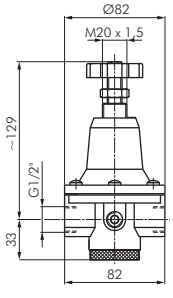
type DUE 1000 A

type DUE 60 B5

Mini



Standard



Pressure limiting valve for piping construction from page 455

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Safety valves

Mini-safety valves adjustable, not component tested (0.5 - 60 bar)

Materials: Body: Brass or AISI 303, spring: AISI 301, seal: FKM
Temperature range: -10°C to max. +180°C
Media: Compressed air and other non-toxic non-inflammable gases, blown-off freely

Type brass	Type AISI 303 (INOX)	Thread	Reaction pressure	Blow-off capacity
SVM 18-1	SVM 18-1 ES	G 1/8"	0.5 - 1 bar	up to 50 l/min
SVM 18-4	SVM 18-4 ES	G 1/8"	1 - 4 bar	up to 200 l/min
SVM 18-7	SVM 18-7 ES	G 1/8"	3 - 7 bar	up to 350 l/min
SVM 18-12	SVM 18-12 ES	G 1/8"	6 - 12 bar	up to 650 l/min
SVM 18-18	SVM 18-18 ES	G 1/8"	10 - 18 bar	up to 870 l/min
SVM 18-32	SVM 18-32 ES	G 1/8"	16 - 32 bar	up to 1600 l/min
SVM 18-60	SVM 18-60 ES	G 1/8"	30 - 60 bar	up to 3000 l/min
SVM 14-1	SVM 14-1 ES	G 1/4"	0.5 - 1 bar	up to 50 l/min
SVM 14-4	SVM 14-4 ES	G 1/4"	1 - 4 bar	up to 200 l/min
SVM 14-7	SVM 14-7 ES	G 1/4"	3 - 7 bar	up to 350 l/min
SVM 14-12	SVM 14-12 ES	G 1/4"	6 - 12 bar	up to 650 l/min
SVM 14-18	SVM 14-18 ES	G 1/4"	10 - 18 bar	up to 870 l/min
SVM 14-32	SVM 14-32 ES	G 1/4"	16 - 32 bar	up to 1600 l/min
SVM 14-60	SVM 14-60 ES	G 1/4"	30 - 60 bar	up to 3000 l/min

Safety valves adjustable, not component tested (1 - 16 bar)

Materials: Body: Brass, seal: NBR (type SV 14-...: FKM)
Temperature range: -10°C to max. +100°C (type SV 14-...: -20°C to max. +200°C)
Media: Compressed air and other non-toxic non-inflammable gases, blown-off freely

G 1/4" G 3/8" & G 1/2"

Type	DN	Thread	Reaction pressure	Blow-off capacity
SV 14-6	5	G 1/4"	1 - 6.5 bar	1.3 - 4.9 m³/h
SV 14-10	5	G 1/4"	6.5 - 10 bar	4.9 - 7.2 m³/h
SV 14-13	5	G 1/4"	10 - 13 bar	7.2 - 9.2 m³/h
SV 38-6	10	G 3/8"	1 - 6 bar	76 - 248 m³/h
SV 38-8	10	G 3/8"	4 - 8 bar	176 - 320 m³/h
SV 38-12	10	G 3/8"	8 - 12 bar	320 - 464 m³/h
SV 38-16	10	G 3/8"	12 - 16 bar	464 - 609 m³/h
SV 12-6	10	G 1/2"	1 - 6 bar	76 - 248 m³/h
SV 12-12	10	G 1/2"	4 - 12 bar	196 - 464 m³/h
SV 12-16	10	G 1/2"	12 - 16 bar	464 - 609 m³/h

TÜV safety valves permanently set and sealed DN 8 (0.2 - 50 bar)

Materials: Body: Brass, AISI 316Ti or AISI 316, seal: FKM
Temperature range: -25°C to max. +180°C
Media: Compressed air and other non-toxic non-inflammable gases, blown-off freely
Note: These valves have been type approved and can only be supplied non-adjustable.
☞ **Optional:** NPT thread **-NPT**, fixed pressure between 0.2 and 50 bar, TÜV adjustment certificate

Type brass	Type brass nickel-plated	Type AISI 316Ti (INOX)	Type AISI 316 (INOX, Outstanding value!)	Thread	Blow-off capacity*
Reaction pressure 6 bar					
SV 14 8-6 MS	SV 14 8-6 MSV	SV 14 8-6 ES	SV 14 8-6 ES2A	G 1/4"	165 m³/h
SV 38 8-6 MS	SV 38 8-6 MSV	SV 38 8-6 ES	SV 38 8-6 ES2A	G 3/8"	165 m³/h
SV 12 8-6 MS	SV 12 8-6 MSV	SV 12 8-6 ES	SV 12 8-6 ES2A	G 1/2"	165 m³/h
Reaction pressure 8 bar					
SV 14 8-8 MS	SV 14 8-8 MSV	SV 14 8-8 ES	SV 14 8-8 ES2A	G 1/4"	212 m³/h
SV 38 8-8 MS	SV 38 8-8 MSV	SV 38 8-8 ES	SV 38 8-8 ES2A	G 3/8"	212 m³/h
SV 12 8-8 MS	SV 12 8-8 MSV	SV 12 8-8 ES	SV 12 8-8 ES2A	G 1/2"	212 m³/h
Reaction pressure 11 bar					
SV 14 8-11 MS	SV 14 8-11 MSV	SV 14 8-11 ES	SV 14 8-11 ES2A	G 1/4"	284 m³/h
SV 38 8-11 MS	SV 38 8-11 MSV	SV 38 8-11 ES	SV 38 8-11 ES2A	G 3/8"	284 m³/h
SV 12 8-11 MS	SV 12 8-11 MSV	SV 12 8-11 ES	SV 12 8-11 ES2A	G 1/2"	284 m³/h
Reaction pressure 16 bar					
SV 14 8-16 MS	SV 14 8-16 MSV	SV 14 8-16 ES	SV 14 8-16 ES2A	G 1/4"	404 m³/h
SV 38 8-16 MS	SV 38 8-16 MSV	SV 38 8-16 ES	SV 38 8-16 ES2A	G 3/8"	404 m³/h
SV 12 8-16 MS	SV 12 8-16 MSV	SV 12 8-16 ES	SV 12 8-16 ES2A	G 1/2"	404 m³/h

* at 0°C/760 torr

Enter the reaction pressure:
Available 0.2 to 50 bar from inventory stock!

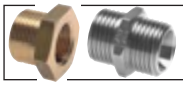
☞ **Order example:** SV 14 8 - ** MS **

Standard type

Required reaction pressure (between 0.2 and 50 bar)

Designation for the options:
NPT thread .....-NPT

PU, PA, PTFE and PE hoses from page 192


Threaded fittings from page 102

Ball valves from page 280

LOCTITE Liquid seals, gaskets & tapes from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

TÜV safety valves permanently set and sealed — DN 10 (0.2 - 50 bar)

Materials: Body: Brass, AISI 316Ti or AISI 316, seal: FKM
Temperature range: -25°C to max. +180°C
Media: Compressed air and other non-toxic non-inflammable gases, blown-off freely
Note: These valves have been type approved and can only be supplied non-adjustable.
☞ **Optional:** NPT thread **-NPT**, fixed pressure between 0.2 and 50 bar, TÜV adjustment certificate

Type brass	Type brass nickel-plated	Type AISI 316Ti (INOX)	Type AISI 316 (INOX, Outstanding value!)	Thread	Blow-off capacity*
Reaction pressure 6 bar					
SV 38 10-6 MS	SV 38 10-6 MSV	SV 38 10-6 ES	SV 38 10-6 ES2A	G 3/8"	281 m³/h
SV 12 10-6 MS	SV 12 10-6 MSV	SV 12 10-6 ES	SV 12 10-6 ES2A	G 1/2"	281 m³/h
SV 34 10-6 MS	SV 34 10-6 MSV	SV 34 10-6 ES	SV 34 10-6 ES2A	G 3/4"	281 m³/h
Reaction pressure 8 bar					
SV 38 10-8 MS	SV 38 10-8 MSV	SV 38 10-8 ES	SV 38 10-8 ES2A	G 3/8"	363 m³/h
SV 12 10-8 MS	SV 12 10-8 MSV	SV 12 10-8 ES	SV 12 10-8 ES2A	G 1/2"	363 m³/h
SV 34 10-8 MS	SV 34 10-8 MSV	SV 34 10-8 ES	SV 34 10-8 ES2A	G 3/4"	363 m³/h
Reaction pressure 11 bar					
SV 38 10-11 MS	SV 38 10-11 MSV	SV 38 10-11 ES	SV 38 10-11 ES2A	G 3/8"	485 m³/h
SV 12 10-11 MS	SV 12 10-11 MSV	SV 12 10-11 ES	SV 12 10-11 ES2A	G 1/2"	485 m³/h
SV 34 10-11 MS	SV 34 10-11 MSV	SV 34 10-11 ES	SV 34 10-11 ES2A	G 3/4"	485 m³/h
Reaction pressure 16 bar					
SV 38 10-16 MS	SV 38 10-16 MSV	SV 38 10-16 ES	SV 38 10-16 ES2A	G 3/8"	690 m³/h
SV 12 10-16 MS	SV 12 10-16 MSV	SV 12 10-16 ES	SV 12 10-16 ES2A	G 1/2"	690 m³/h
SV 34 10-16 MS	SV 34 10-16 MSV	SV 34 10-16 ES	SV 34 10-16 ES2A	G 3/4"	690 m³/h

* at 0°C/760 Torr

Enter the reaction pressure
Available 0.2 to 50 bar from inventory stock!

☞ **Order example:** SV 38 10 - ** MS **

- Standard type
- Required reaction pressure (between 0.2 and 50 bar)
- **Designation for the options:** NPT thread . . . . . **-NPT**

TÜV safety valves made of brass and stainless steel

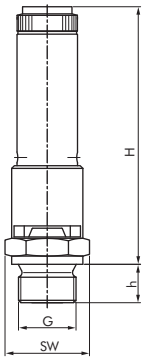
DN 8

G	Pressure range bar	H*	h	SW*
G 1/4"	0.2 - 20	55 (63)	10	17 (22)
G 1/4"	20.1 - 39.9	75	10	20 (22)
G 1/4"	40.0 - 50	82	10	20 (22)
G 3/8"	0.2 - 14.2	63	12	20 (22)
G 3/8"	14.3 - 39.9	75	12	20 (22)
G 3/8"	40.0 - 50	82	12	20 (22)
G 1/2"	0.2 - 14.2	63	14	24
G 1/2"	14.3 - 39.9	75	14	24
G 1/2"	40.0 - 50	82	14	24

DN 10

G	Pressure range bar	H	h	SW
G 3/8"	0.2 - 8.5	75	12	27
G 3/8"	8.6 - 40	95	12	27
G 3/8"	40.1 - 50	120	12	27
G 1/2"	0.2 - 8.5	75	14	27
G 1/2"	8.6 - 40	95	14	27
G 1/2"	40.1 - 50	120	14	27
G 3/4"	0.2 - 8.5	75	16	32
G 3/4"	8.6 - 40	95	16	32
G 3/4"	40.1 - 50	120	16	32

* values in brackets apply to type stainless steel



TÜV safety valves permanently set and sealed for low pressures (0.04-10 bar)

Reaction pressure starting at 0.04 bar!

Materials: Body: AISI 316Ti, spring: AISI 301, seal: FKM
Temperature range: -20°C to max. +130°C
Media: Compressed air and other non-toxic non-inflammable gases
Note: These valves have been type approved and can only be supplied non-adjustable.
☞ **Optional:** EPDM seal (-40°C to max. +130°C) **-EP**

Type (INOX)	DN	Thread	Reaction pressure	Blow-off capacity
SV 12 13-** ES	13	G 1/2"	0.05 - 10 bar	38 - 762 m³/h
SV 34 19-** ES	19	G 3/4"	0.05 - 6 bar	40 - 589 m³/h
SV 10 22-** ES	22	G 1"	0.04 - 10 bar	34 - 935 m³/h
SV 114 23-** ES	23	G 1 1/4"	0.08 - 10 bar	78 - 2560 m³/h
SV 112 30-** ES	30	G 1 1/2"	0.08 - 10 bar	129 - 4200 m³/h
SV 20 35-** ES	35	G 2"	0.05 - 10 bar	152 - 4850 m³/h

** please enter the reaction pressure

Dimensions can be found in the item details in our Online Shop

☞ **Order example:** SV 12 13 - ** ES **

- Standard type
- Required reaction pressure (see table)
- **Designation for the options:** Seal made of EPDM . . . **-EP**

manual tools are found in Online Shop

Coupling sockets NW7 from page 150

Compressed air reservoir from page 514

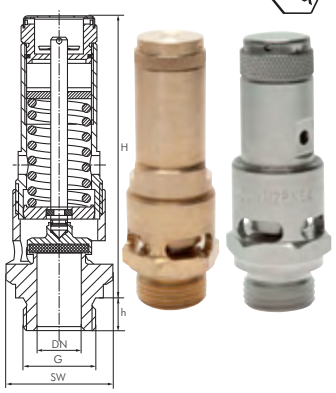
Pressure regulator made from stainless steel and brass from page 355

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Especially good value!

TÜV/ASME** high performance safety valves permanently set and sealed — DN 11-48

Materials: Body: Brass or AISI 316L, seals: FKM (≥25 bar: PTFE)
Temperature range: -20°C to max. +200°C (≥25 bar: -60°C to max. +225°C), pressure dependent
Media: Compressed air and other non-toxic non-inflammable gases, blown-off freely
Note: These valves have been type approved and can only be supplied non-adjustable.



Type brass	Type AISI 316L (INOX)	DN	Thread	Reaction pressure	Blow-off capacity (m³/h) at 6 bar	8 bar	11 bar	16 bar
HSV 12-**	HSV 12-** ES	11	G 1/2"	0.2 - 50 bar	393	507	678	962
HSV 34-**	HSV 34-** ES	16	G 3/4"	0.2 - 50 bar	821	1059	1416	2010
HSV 10-**	HSV 10-** ES	20	G 1"	0.2 - 50 bar	1251	1613	2156	3062
HSV 114-**	---	32	G 1 1/4"	0.2 - 30 bar	3123	4027	5382	7642
HSV 112-**	---	32	G 1 1/2"	0.2 - 30 bar	3123	4027	5382	7642
HSV 20-**	---	48	G 2"	0.2 - 30 bar	5802	6034	8065	11451

Order example: HSV 12 - **
Standard type
Required reaction pressure (between 0.2 and 50 bar)

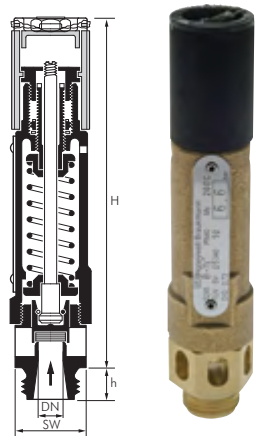
Thread size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
h	12	12	14	23	23	26
H*	66 (79)	94 (104)	111	215	215	282
SW	27	34	41	55	55	80

* values in brackets valid for setting pressures > 9 bar, ** acc. to ASME: component tested 1 to 48 bar

TÜV/ASME* high performance safety valves permanently set and sealed — DN 10-40

Materials: Body: Brass, spring hood: Brass (from 1 1/4" cast iron), lifting cap: High quality plastic, seals: FKM
Temperature range: 0°C to max. +260°C, pressure dependent
Media: Compressed air and other non-toxic neutral, non-inflammable gases, blown-off freely
Note: These valves have been type approved and can only be supplied non-adjustable.

Advantage: Robust, vibration proof version



Type	DN	Thread	Reaction pressure (pressure range)	Blow-off capacity (m³/h) at 6 bar	8 bar	11 bar	16 bar
HSVH 12-**	10	G 1/2"	0.5 - 30 bar	298	384	513	728
HSVH 34-**	15	G 3/4"	0.5 - 30 bar	670	864	1154	1638
HSVH 10-**	20	G 1"	0.5 - 30 bar	1191	1536	2052	2913
HSVH 114-**	25	G 1 1/4"	0.5 - 30 bar	1862	2400	3206	4551
HSVH 112-**	32	G 1 1/2"	0.5 - 30 bar	3050	3931	5254	7457
HSVH 20-**	40	G 2"	0.5 - 30 bar	4766	6143	8209	11652

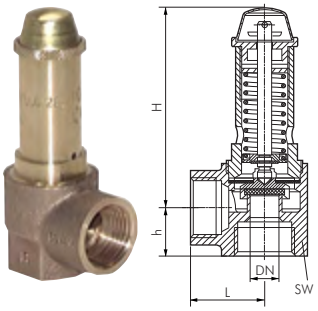
* acc. to ASME: component tested 2.8 to 30 bar, +180°C max.

Order example: HSVH 12 - **
Standard type
Required reaction pressure (between 0.5 and 30 bar), in 0.1 bar increments possible

Thread size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
h	12	15	16	18	20	22
H	138	153	185	231	293	367
SW	27	36	41	50	60	80

TÜV corner safety valves (also for saturated steam) — DN 10-25 (1-16 bar)

Materials: Body: Red bronze, spring: Spring steel, seal: FKM (steam valve: EPDM)
Temperature range: -20°C to max. +200°C (steam valve: -40°C to max. +150°C)
Media: Compressed air and other non-toxic non-inflammable gases (steam valve: also steam)
Note: These valves have been type approved and can only be supplied non-adjustable.



Type	DN	Thread female	Reaction pressure	Blow-off capacity
For compressed air and other non-toxic non-inflammable gases				
SVGI 12 10-**	10	G 1/2"	1 - 16 bar	31 - 278 m³/h
SVGI 34 13-**	13	G 3/4"	1 - 16 bar	53 - 470 m³/h
SVGI 10 16-**	16	G 1"	1 - 16 bar	80 - 713 m³/h
SVGI 114 18-**	18	G 1 1/4"	1 - 16 bar	102 - 902 m³/h
SVGI 112 22-**	22	G 1 1/2"	1 - 16 bar	152 - 1347 m³/h
SVGI 20 25-**	25	G 2"	1 - 16 bar	196 - 1740 m³/h
For saturated steam/steam boiler conforming to TRD Group 1 and compressed air				
SVGI 12 10-** EP	10	G 1/2"	1 - 3 bar (1 - 16 bar*)	25 - 50 kg/h
SVGI 34 13-** EP	13	G 3/4"	1 - 3 bar (1 - 16 bar*)	42 - 85 kg/h
SVGI 10 16-** EP	16	G 1"	1 - 3 bar (1 - 16 bar*)	64 - 129 kg/h
SVGI 114 18-** EP	18	G 1 1/4"	1 - 3 bar (1 - 16 bar*)	81 - 163 kg/h
SVGI 112 22-** EP	22	G 1 1/2"	1 - 3 bar (1 - 16 bar*)	121 - 243 kg/h
SVGI 20 25-** EP	25	G 2"	1 - 3 bar (1 - 16 bar*)	157 - 314 kg/h

Order example: SVGI 12 10 - **
Standard type
Required reaction pressure (see table)

* applies to compressed air and other non-toxic gases. The blow-off capacity corresponds to the standard design. ** please enter the required reaction pressure

Thread size	G 1/2"	G 3/4"	G 1"	G 1 1/4"	G 1 1/2"	G 2"
h	17	18	22	25	28	34
H	70	70	80	100	140	155
SW	27	32	40	49	56	68
L	26	31	35	40	46	54

LOCTITE Liquid seals, gaskets & tapes from page 549

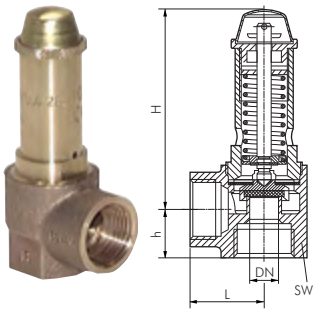
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

TÜV corner safety valves for liquids — DN 10-25 (1-16 bar)

Materials: Body: Red bronze, spring: Spring steel, seal: NBR (special type out of EPDM for cooling circuits)
Temperature range: -10°C to max. +130°C (liquids may not evaporate during blow-off)
Media: Water and neutral, non-toxic liquids, coolants containing up to 30% glycol (special type for cooling circuits up to 100% glycol)
Note: These valves have been type approved and can only be supplied non-adjustable.

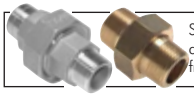
Type standard	Type for cooling circuits up to 100% glycol	DN	Thread female	Reaction pressure	Blow-off capacity (water)
SVGW 12 10-**	SVGW 12 10-** GL	10	G 1/2"	1 - 16 bar	1.51 - 3.36 m³/h
SVGW 34 13-**	SVGW 34 13-** GL	13	G 3/4"	1 - 16 bar	2.55 - 8.22 m³/h
SVGW 10 16-**	SVGW 10 16-** GL	16	G 1"	1 - 16 bar	3.87 - 15.46 m³/h
SVGW 114 18-**	---	18	G 1 1/4"	1 - 16 bar	4.89 - 17.39 m³/h
SVGW 112 22-**	---	22	G 1 1/2"	1 - 16 bar	7.31 - 28.42 m³/h
SVGW 20 25-**	---	25	G 2"	1 - 16 bar	9.44 - 37.75 m³/h

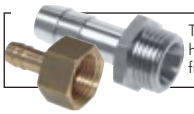
** please enter the reaction pressure

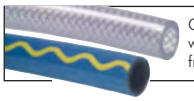


Order example: SVGW 12 10 - **
Standard type
Required reaction pressure (see table)

Thread size	G 1/2"	G 3/4"	G 1"	G 1 1/4"	G 1 1/2"	G 2"
Dimensions						
h	17	18	22	25	28	34
H	70	70	80	100	140	155
SW	27	32	40	49	56	68
L	26	31	35	40	46	54
Blow-off capacity at 10% excessive pressure in m³/h (water)						
Blow-off capacity at 1 bar	1.51	2.55	3.87	4.89	7.31	9.44
Blow-off capacity at 2 bar	2.14	3.61	5.47	6.92	10.33	13.35
Blow-off capacity at 3 bar	2.62	4.42	6.69	8.47	12.66	16.34
Blow-off capacity at 4 bar	3.02	5.10	7.73	9.78	14.62	18.87
Blow-off capacity at 5 bar	3.38	5.71	8.64	10.94	16.34	21.10
Blow-off capacity at 6 bar	3.70	6.25	9.47	11.98	17.90	23.11
Blow-off capacity at 7 bar	3.99	6.75	10.23	12.94	19.33	24.97
Blow-off capacity at 8 bar	4.27	7.22	10.93	13.84	20.67	26.69
Blow-off capacity at 9 bar	4.53	7.65	11.60	14.68	21.92	28.31
Blow-off capacity at 10 bar	4.77	8.07	12.22	15.47	23.11	29.84
Blow-off capacity at 11 bar	2.78	6.82	12.82	14.42	23.56	31.30
Blow-off capacity at 12 bar	2.91	7.12	13.39	15.06	24.61	32.69
Blow-off capacity at 13 bar	3.02	7.41	13.94	15.68	25.62	34.02
Blow-off capacity at 14 bar	3.14	7.69	14.46	16.27	26.58	35.31
Blow-off capacity at 15 bar	3.25	7.96	14.97	16.84	27.52	36.55
Blow-off capacity at 16 bar	3.36	8.22	15.46	17.39	28.42	37.75


Separable double nipple from page 109


Threaded nozzles & hose nozzles from page 64


Compressed air and water hoses from page 208

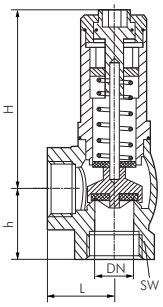
Relief valves

Advantages:
- Compact design
- Self-contained gas-tight design
- Optimised with high Kv values
- Can be adjusted externally without disassembly and without special tools
- Larger pressure range with a valve
- Can be used for gaseous and liquid media

Dimensions can be found in our Online Shop

Application: Relief valves are used in closed circuits to protect pumps from overload. When the adjustable reaction pressure is exceeded, the valve opens **in proportion** to the overpressure and thus **slowly** releases pressure. The relief valve is designed to be open for an extended time. As a matter of principle, one must assume that the pressure in the system can exceed the reaction pressure set on the relief valve. Safety valves have a completely different response characteristic. In the event that the reaction pressure is exceeded by more than 10%, they open almost instantaneously and release all pressure at once. When the pressure comes down to 10-20% below the set reaction pressure, the valve closes again. Although this function does ensure that the set pressure will not be exceeded by more than 10%, the system will be heavily stressed by the non-proportional opening behaviour.
Version: Using an Allen key, the relief valves can be adjusted under operating conditions, and without releasing any medium into the surroundings. You are not compensated against back pressure.
Materials: Body: Red bronze/brass, spring: Stainless steel, seal: FKM (12 to 20 bar: PTFE)
Temperature range: -20°C to max. +200°C
Media: Compressed air and other non-aggressive, non-flammable gases, water and other neutral, non-toxic fluids, mineral oils
Optional: Body made of stainless steel AISI 316 **-ES**

Type	Kv value* m³/h water	Type	Kv value* m³/h water	DN	Thread
Reaction pressure at 0.5 - 2.5 bar		**Reaction pressure at 2 - 8 bar**			
USV 38-2.5	2.7 - 3.7	USV 38-8	1.9 - 3.9	10	G 3/8"
USV 12-2.5	4.3 - 5.2	USV 12-8	2.2 - 1.0	15	G 1/2"
USV 34-2.5	6.1 - 7.3	USV 34-8	4.5 - 8.5	20	G 3/4"
USV 10-2.5	10.8 - 13.7	USV 10-8	8.5 - 11.3	25	G 1"
USV 114-2.5	16.0 - 18.9	USV 114-8	7.6 - 6.5	32	G 1 1/4"
USV 112-2.5	21.7 - 26.1	USV 112-8	10.9 - 15.1	40	G 1 1/2"
USV 20-2.5	31.6 - 43.0	USV 20-8	24.3 - 47.4	50	G 2"
Reaction pressure at 2 - 12 bar		**Reaction pressure at 12 - 20 bar**			
USV 38-12	1.6 - 3.7	USV 38-20	1.7 - 0.2	10	G 3/8"
USV 12-12	1.8 - 1.3	USV 12-20	0.4 - 0.6	15	G 1/2"
USV 34-12	3.7 - 9.3	USV 34-20	2.8 - 0.7	20	G 3/4"
USV 10-12	4.2 - 5.9	USV 10-20	2.2 - 0.7	25	G 1"
USV 114-12	6.2 - 5.0	USV 114-20	6.8 - 5.0	32	G 1 1/4"
USV 112-12	8.8 - 17.6	USV 112-20	10.1 - 11.5	40	G 1 1/2"
USV 20-12	17.9 - 43.9	USV 20-20	18.9 - 36.6	50	G 2"



Order example: USV 38-2.5 **
Standard type
Designation for the options: Body made of stainless steel . .-ES

* at 1 bar excessive pressure

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Blow guns, water guns

Standard
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Blow guns
with extension tube
Page 528

CEJN plastic
blow guns
Page 529

CEJN Multiflow
blow guns for air
and water
Page 530

High performance
blow guns
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High performance
blow guns Cannon
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Water guns
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Nozzles

Short nozzles
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Extension nozzles
Page 525

Noise
protection nozzle
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Venturi nozzles
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Protective screens
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Flat nozzle,
round nozzles
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CEJN and TYPHOON
nozzles
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Compressed air tools, tools

Hand tyre inflator
Page 533

Spray guns
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Painting guns
Page 534

Blast guns
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Impact screwdrivers
Page 535

Ratchets,
drilling machines,
power wrenches
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Chisel hammer
and grinder
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Grease presses
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Manual dispenser
for Tesa tapes
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Tube bending device
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Barrel pumps
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Accessories for
compressed air tools
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Spring balancers
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Power module
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Hydraulic tools

SPX POWER TEAM

Flat cylinder
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Single acting cylinders
Page 542

Hollow
piston type cylinder
Page 543

Spreaders
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Extractor
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Manual pumps
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Compressed air
operated pumps
Page 544

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Knives, lamps, batteries, cables

Leatherman
Page 595

Cutter
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Tube cutter
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Batteries & rechargeable batteries
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Pen lights
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Forehead lamps
Page 594

Cables & sockets
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Assortments

Push-in fittings
Page 596

Threaded fittings
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Hexagonal head screws DIN 933
Page 597

Hexagon socket screws DIN 912
Page 597

Nuts and spring washers
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Wing washers
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Button head tapping screws
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Button head drilling screws
Page 598

Particle board counters. head screws (TORX)
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Repair sets for hydraulic couplings
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Safety rings assortments
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Spring assortments
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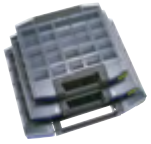
Hose clamps & gasket assortments
Page 600-601


Empty boxes & Fischer boxes
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Lubricants

OKS oils
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OKS greases
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OKS pastes/ service products
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Grease nipple
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Push-in fittings for lubrication technology
Page 579

Cleaning technology

Atlas spray, technical sprays & cleaners
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OKS cleaners
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Cleaning agent, canisters
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Cleaning cloths, rags
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Industrial cleaning rags
Page 583

Hand washing paste
Page 602

Sweeping set and rubbish bags
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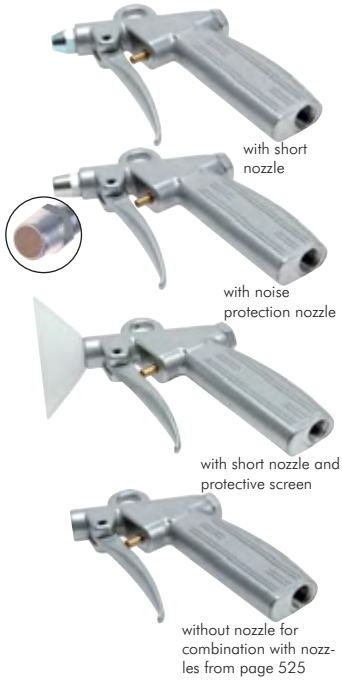
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Blow guns



Blow guns, standard

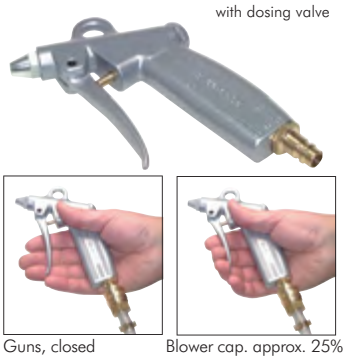
Materials: Housing: Aluminium with plastic coating, internal parts: Brass, stainless steel, NBR, short nozzle: Zinc-plated steel, noise protection nozzle: Aluminium with sintered brass insert

Advantages: • Warm handle feeling because of plastic seal.

Type **with short nozzle Ø 1.5 (standard)**	Type **with noise protection nozzle**	Type **with short nozzle Ø 1.5 and protective screen**	Type **without nozzle, with female thread M 12 x 1.25****	Connection
With female thread				
BLP 14	BLP 14 LD	BLP 14 SS	BLP 14 OD	G 1/4" female thread
With hose connection				
BLP 6	BLP 6 LD	BLP 6 SS	BLP 6 OD	6 mm hose connection
BLP 9	BLP 9 LD	BLP 9 SS	BLP 9 OD	9 mm hose connection
BLP 13	BLP 13 LD	BLP 13 SS	BLP 13 OD	13 mm hose connection
With coupling plug				
BLP KS 5	---	---	---	NW 5 coupling plug
BLP KS	BLP KS LD	BLP KS SS	BLP KS OD	NW 7.2 coupling plug*
Replacement parts				
BLP 14 REP	Repair set for blow guns, standard			

* standard coupling, ** for combination with nozzles as of page 525.

PVC fabric hoses with coupling & plug on page 208



Blow guns with dosing valves

Materials: Housing: Aluminium with plastic coating, short nozzle: Zinc-plated steel, internal parts: Brass, stainless steel, NBR

Advantages: • Warm handle feeling because of plastic seal.
• Quantity of air blown out can be metered via the actuating lever.
• Can also be used for sensitive blowing-out operations, e.g. precision engineering or the plastics industry.

Type	Nozzle bore	Connection
With female thread		
BLP 14 DOSI	1.5	G 1/4" female thread
With hose connection		
BLP 6 DOSI	1.5	6 mm hose connection
BLP 9 DOSI	1.5	9 mm hose connection
BLP 13 DOSI	1.5	13 mm hose connection
With coupling plug		
BLP KS 5 DOSI	1.5	NW 5 coupling plug
BLP KS DOSI	1.5	NW 7.2 coupling plug*
Replacement parts		
BLP 14 DOSI REP	Repair set for blow guns with dispensing valve	

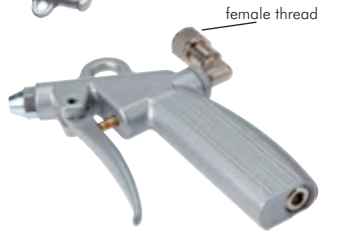
* standard coupling

Blow guns sets with spiral hoses

Operating pressure: Max. 10 bar
Temperature range: -20°C to max. +60°C

Advantages: • With rotary connections for slow rotary movements to avoid twisting the hoses.
• Axial outlets for more workspace
• Can be used immediately
• For universal use, as equipped with coupling socket and coupling plug NW 7.2

Working length 2.5 m	Working length 5 m	Working length 7.5 m	Hose Ø external x internal
SPKD 148/2.5 BLP	SPKD 148/5 BLP	SPKD 148/7.5 BLP	8 x 6

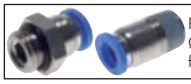


Blow guns (female threads) for connection to hose balancers

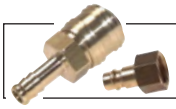
Materials: Housing: Aluminium with plastic coating, short nozzle: Zinc-plated steel, internal parts: Brass, stainless steel, NBR

Type	Nozzle bore	Connection
BLP 14 SZ	1.5	G 1/4" female thread

Hose balancers can be found on page 541.



Push-in fittings Ø 3 - 32 mm from page 24



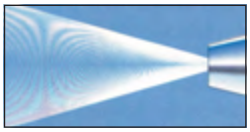
Coupling sockets and plugs from page 150

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Nozzles for blow guns - short nozzles

Suitable: Short nozzle for standard use

Type **zinc-plated steel**	Type **POM**	Nozzle bore	Thread male
KD-BLP	KD-BLP K	1.5 mm	M 12 x 1.25

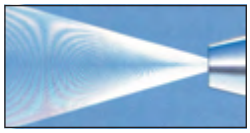


type KD-BLP type KD-BLP K

Nozzles for blow guns - controllable

Suitable: Enables the air quantities to be matched optimally to the required working conditions. At the same time energy costs and sound levels are reduced. The POM short nozzle can be replaced by any nozzle with M 12 x 1.25 MT.

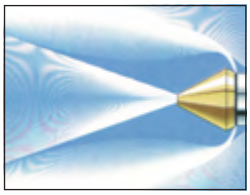
Type **aluminium/POM**	Thread male
RSD-BLP	M 12 x 1.25



Nozzles for blow guns - safety nozzles

Suitable: Nozzle with centre hole and a lateral circular slot or. boreholes on the side. Protective screen formation against rebounding chippings. When closing the nozzle bore or. air venting takes place through the circular slot or the boreholes to the side.

Type **aluminium**	Thread male
SD-BLP	M 12 x 1.25

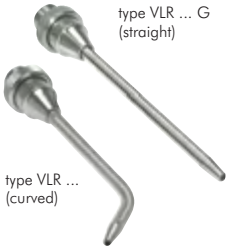


Nozzles for blow guns - extension tubes with nozzles

Material: Brass nickel-plated

Advantages: The extension tubes with a nozzle are equipped with a rotating lock, thus allowing the tubes to be placed in any position.

Type **curved**	Tube length	Type **straight**	Tube length	Thread male
VLR 100	110	VLR 100 G	115	M 12 x 1.25
VLR 150	160	VLR 150 G	165	M 12 x 1.25
VLR 250	260	VLR 250 G	265	M 12 x 1.25
---	---	VLR 400 G	415	M 12 x 1.25



type VLR ... G (straight)

type VLR ... (curved)

Nozzles for blow guns - protective screens

Suitable: Assemble the protective shield behind the nozzle. Any chippings that rebound will be stopped.

Warning: Please order nozzles separately

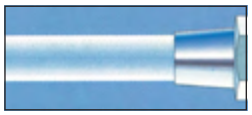
Type **plastic**	For thread male
SS-BLP	M12 x 1.25

Nozzles for blow guns - noise protection

Material: Aluminium with sintered brass insert

Suitable: Low noise level of approx. 63 - 73 dB (A). Good blowing action up to 380 l/min.

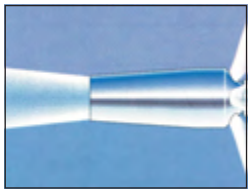
Type	Thread male
LD-BLP	M12 x 1.25

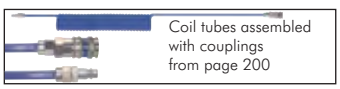


Nozzles for blow guns - venturi nozzles

Suitable: Lateral air intake saves energy, whereby an amplification in the ratio of approx. 1::4 is achieved. For the same performance of the blower, only approx. 25% of the air is required. Is particularly suited for blowing dust and water.

Type **plastic**	Type **aluminium**	Thread male
VD-BLP	VD-BLP ALU	M12 x 1.25





Coil tubes assembled with couplings from page 200

PU, PA, PTFE and PE hoses from page 192

Ball valves from page 280

Eye protection from page 591

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Blow guns/nozzles

Nozzles for blow guns - multi-channel fan nozzles — quiet

Pressure range: Max. 6 bar
Temperature range: POM: Max. +50°C, PP: Max. +60°C, aluminium: Max. +200°C, AISI 316L: Max. +550°C
Suitable: Multi-channel nozzles are particularly quiet and economical. They are particularly suitable for large area blowing-off of water or dust as well as blowing out and further transport of stampings, plastic and elastic mouldings.

⚠ **Warning: For screwing into imperial nozzles in BLP 14: Thread adapter type RN M12x1.25-14 MS**

Type **POM** (blue)	B	Type **PP** (FDA compliant)	B	Type **aluminium**	B	Air consumption at 4 bar	Thread male
FACH F BLP	47	FACH F PP	47	FACH F ALU	51	416 l/min.	G 1/4"
FACH F BLP 25	25	---		---		180 l/min.	G 1/4"
FACH F BLP 25 M12	25	---		---		180 l/min.	M12 x 1.25
Special nozzle made of AISI 316L (INOX)							
FACH F ES	42					416 l/min.	G 1/4"
FACH F 70 ES	70					780 l/min.	G 1/4"
Eco-Line made of ABS (blue) (Outstanding value!)							
FACH F BLP E	47					550 l/min.	R 1/4"

Nozzles for blow guns - multi-channel round nozzles — quiet

Air consumption: 466 l/min at 4 bar
Pressure range: Max. 6 bar
Temperature range: ABS: Max. +50°C, zinc: Max. 90°C
Suitable: Multi-channel nozzles are particularly quiet and economical. They are particularly suitable for large area blowing-off of water or dust as well as blowing out and further transport of stampings, plastic and elastic mouldings.

Type **ABS**	Type **zinc**	Thread male
FACH R BLP	FACH R BLP ZN	G 1/4"*
FACH R BLP M12	FACH R BLP M12 ZN	M12 x 1.25

* not suitable for BLP 14 blow gun! Please use type FACH R BLP M12

Nozzles for blow guns - softy round — quiet

Materials: Nozzle inserts: Hard-PVC
Temperature range: Max. +90°C
Air consumption: 150 l/min at 4 bar
Powerful, focussed point air jet, lower noise level. Up to 12 dB(A) quieter than conventional single bore nozzles.

Type **aluminium**	Type **AISI 316L** (INOX)	Thread male
SOFTY M128	SOFTY M128 ES	M12 x 1.25

Nozzles for blow guns - softy — quiet

Materials: Nozzle inserts: Hard-PVC
Temperature range: Max. +90°C
⚠ **Warning: For screwing into imperial nozzles in BLP 14: Thread adapter type RN M12x1.25-38 MS**

Type **brass nickel-plated**	Type **AISI 316L** (INOX)	Length	Height**	Width**	Air consumption at 4 bar	Thread male
SOFTY 614 M12*	---	50	6	14	530 l/min.	M 12 x 1.25
SOFTY 45215 M12	---	100	4.5	21.5	350 l/min.	M 12 x 1.25
SOFTY 429 M12	---	100	4	29	700 l/min.	M 12 x 1.25
SOFTY 621 M12	---	100	6	21	665 l/min.	M 12 x 1.25
SOFTY 614*	---	50	6	14	530 l/min.	G 3/8"
SOFTY 45215	SOFTY 45215 ES	100	4.5 (5.5)	21.5 (22.5)	350 l/min.	G 3/8"
SOFTY 429	SOFTY 429 ES	100	4 (5)	29 (31)	700 l/min.	G 3/8"
SOFTY 621	SOFTY 621 ES	100	6 (7.5)	21	665 l/min.	G 3/8"
SOFTY 629	SOFTY 629 ES	100	6 (7)	29 (30)	1166 l/min.	G 3/8"

* body zinc-plated steel, ** values in parentheses for type AISI 316L

Extension tubes without nozzles for blow guns

Material: Aluminium anodised

✓ **Advantages:** All extensions can be combined with one another to form an even larger length selection. On the input side, they are equipped with a rotating lock in order to position the tube correctly with the nozzle. They can be outfitted with all nozzles with an M 12 x 1.25 connection thread.

Type **curved**	Type **straight**	Tube length	Thread female/male
VLR 150 OD	VLR 150 G OD	150	M 12 x 1.25
VLR 300 OD	VLR 300 G OD	300	M 12 x 1.25
VLR 450 OD	VLR 450 G OD	450	M 12 x 1.25
VLR 800 OD	VLR 800 G OD	800	M 12 x 1.25

Adapters for nozzle assemblies in aluminium blow guns — PN 16

Type	Thread male	Thread female
RN M12x1.25-18 MS	M 12 x 1.25	G 1/8"
RN M12x1.25-14 MS	M 12 x 1.25	G 1/4"
RN M12x1.25-38 MS	M 12 x 1.25	G 3/8"

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Pressure reducing valves for blow guns

Materials: Housing: Brass, seal: NBR
Input pressure: Max. 15 bar

Advantages: • Tool machines are not damaged, since chipping is not depressed in sensitive areas (seals, lathe chuck, machine bed, etc.)
Suitable: Only for compressed air

input pressure max. 15 bar

output pressure 2-8 bar

Type	Thread (FT/MT)	Output pressure at input pressure 5 bar [1]/10 bar [2]/15 bar [3]
BLP DR 20	G 1/4"	1.5/2.0/2.5
BLP DR 30	G 1/4"	2.2/2.9/3.5
BLP DR 40	G 1/4"	2.8/3.7/4.5
BLP DR 50	G 1/4"	3.5/4.6/5.4

Type	Thread (FT/MT)	Output pressure at input pressure 5 bar [1]/10 bar [2]/15 bar [3]
BLP DR 60	G 1/4"	3.8/5.0/6.0
BLP DR 70	G 1/4"	4.8/6.2/7.3
BLP DR 80	G 1/4"	5.5/7.3/8.2

[1] ± 0.6, [2] ± 0.5 bar, [3] ± 0.2 bar

Saves air - protects machine

Suction blow guns "WONDER GUN"

This new type of suction blow gun makes absolutely no compromises on cleanliness in the factory. With a traditional blow gun, dirt unnecessarily spreads across the factory and the chippings flying all over pose a significant risk of injury.
The WONDER GUN on the other hand, sucks chippings and collects them directly into a connected reusable container.
A simple change of the control nozzle can change the function of the pistol from suction to blowing. By doing so, up to 75% of energy is saved using the Venturi-principle.
Supply volume: • Guns incl. hose and collection container
• Nozzle set consisting of round, flat, brush and mini nozzles

Type	Connection
WONDER GUN	G 1/4"

Filter sets
WONDER GUN REP

A clean solution

Brass blow guns with short nozzles — PN 12

Materials: Body: Brass or aluminium, pusher and nozzle: Zinc-plated steel
Temperature range: -20°C to max. +100°C
Version: Sturdy blower tap for harsh operating conditions. Nozzle connection: G 3/8" (FT)

Type brass	Type aluminium	Connection
With female thread		
---	BLPG 14 A	G 1/4" female thread
With hose connection		
BLPG 6 MS	---	6 mm hose connection
BLPG 9 MS	---	9 mm hose connection
BLPG 13 MS	---	13 mm hose connection
With coupling plug		
---	BLPG KS A NW7.2	NW 7.2 coupling plug*

* standard coupling

Blow-out pens with clips — PN 12

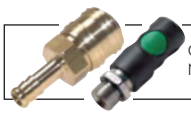
Continuously adjusted airflow adjustment of closed to max. flow by means of convenient one-handed operation, connection with push-in nipple for NW 7.2 couplings
Materials: Housing: Aluminium anodised, seals: NBR
Temperature range: -10°C to max. +60°C
Flow: Max. 300 l/min at 6 bar
Nozzle Ø: Controllable (0 - 3 mm)

Type	Length	Weight	Connection
BLP AUSBLASSTIFT	116 mm	25 g	NW 7.2 coupling plug*

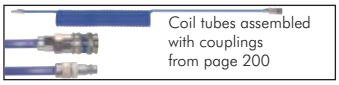
* standard coupling

TIP *Fits in every pocket*

9


Coupling sockets NW7 from page 150

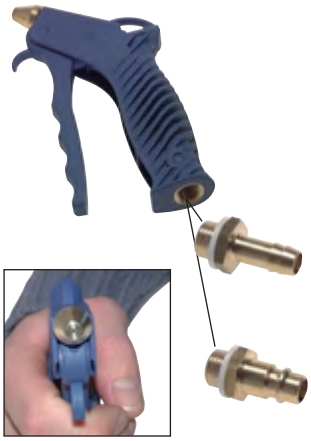
Hose clamps from page 234


Coil tubes assembled with couplings from page 200

PVC fabric hoses on page 208

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Blow guns/nozzles



Adjustable plastic blow guns with short nozzles

Advantages:
- Warm handle feeling because of plastic body.
- Low weight.
- Quantity of air blown out can be metered via the actuating lever.
- Can also be used for sensitive blowing-out operations, e.g. precision engineering or the plastics industry.

Type	Connection
With female thread	
BLP 14 K	G 1/4" female thread
With hose connection	
BLP 6 K	6 mm hose connection
BLP 9 K	9 mm hose connection
BLP 13 K	13 mm hose connection
With coupling plug	
BLP KS 5 K	NW 5 coupling plug
BLP KS K	NW 7.2 coupling plug*

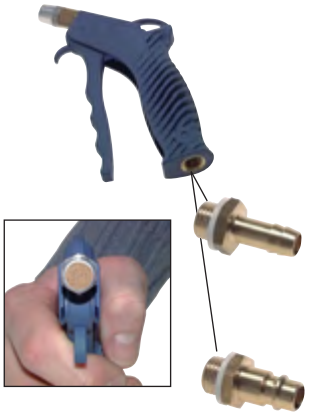
* standard coupling

Adjustable plastic blow guns with extension tubes

Advantages:
- Warm handle feeling because of plastic body.
- Low weight.
- Quantity of air blown out can be metered via the actuating lever.
- Can also be used for sensitive blowing-out operations, e.g. precision engineering or the plastics industry.

Type	Connection
With female thread	
BLPVL 14 K	G 1/4" female thread
With hose connection	
BLPVL 6 K	6 mm hose connection
BLPVL 9 K	9 mm hose connection
BLPVL 13 K	13 mm hose connection
With coupling plug	
BLPVL KS 5 K	NW 5 coupling plug
BLPVL KS K	NW 7.2 coupling plug*

* standard coupling

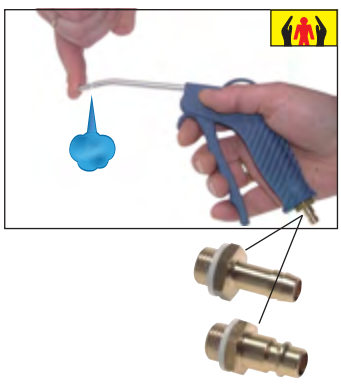


Adjustable plastic blow guns with noise protection nozzles

Advantages:
- Warm handle feeling because of plastic body.
- Low weight.
- Quantity of air blown out can be metered via the actuating lever.
- Can also be used for sensitive blowing-out operations, e.g. precision engineering or the plastics industry.
- No noise pollution because of silent blowing sound.

Type	Connection
With female thread	
BLPSD 14 K	G 1/4" female thread
With hose connection	
BLPSD 6 K	6 mm hose connection
BLPSD 9 K	9 mm hose connection
BLPSD 13 K	13 mm hose connection
With coupling plug	
BLPSD KS 5 K	NW 5 coupling plug
BLPSD KS K	NW 7.2 coupling plug*

* standard coupling



Adjustable plastic blow guns with safety nozzles

Advantages:
- Warm handle feeling because of plastic body.
- Low weight.
- Quantity of air blown out can be metered via the actuating lever.
- Can also be used for sensitive blowing-out operations, e.g. precision engineering or the plastics industry.
- As soon as the distance between nozzle and surface becomes too small, the air will escape from the side.

Type	Connection
With female thread	
BLPVLS 14 K	G 1/4" female thread
With hose connection	
BLPVLS 6 K	6 mm hose connection
BLPVLS 9 K	9 mm hose connection
BLPVLS 13 K	13 mm hose connection
With coupling plug	
BLPVLS KS 5 K	NW 5 coupling plug
BLPVLS KS K	NW 7.2 coupling plug*

* standard coupling

PVC fabric hoses with coupling & plug on page 208

Coil tubes from page 200

Service units FUTURA series from page 330

Knives on page 595

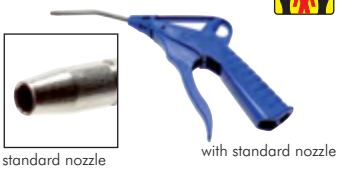
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

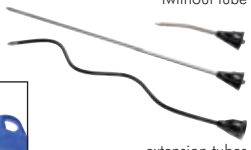
Finely adjustable plastic blow guns with extension tubes

Advantages:
- Warm handle feeling because of plastic body.
- Low weight.
- The blow gun allows particularly fine metering.
- By forming the nozzle, the gun will generate a particularly low-noise, soft air jet.
- Wide range of applications due to interchangeable tubes and nozzle attachments.

Type with standard nozzle	Type with noise protection nozzle	Type without tube	Connection
With female thread			
BLPVLC 14 KB	BLPVLC 14 K	BLPVLC 14 K OD	G 1/4" female thread
With hose connection			
BLPVLC 6 KB	BLPVLC 6 K	BLPVLC 6 K OD	6 mm hose connection
BLPVLC 9 KB	BLPVLC 9 K	BLPVLC 9 K OD	9 mm hose connection
BLPVLC 13 KB	BLPVLC 13 K	BLPVLC 13 K OD	13 mm hose connection
With coupling plug			
BLPVLC KS KB	BLPVLC KS K	BLPVLC KS K OD	NW 7.2 coupling plug*
Accessories for all blow guns			
BLPC MF MAG	Magnet holder for BLPVLC and MultiFLOW blow guns		
Accessories for blow guns without a tube			
---	BLPVLC LD	Short noise protection nozzle	
BLPVLC VLR 90 DR	---	Extension tube 90 mm, curved, with pressure regulator that reduces the output pressure to a safe value if the distance between the nozzle and the surface becomes too small or if the tube becomes clogged.	
BLPVLC VLR 90 B	BLPVLC VLR 90	Extension tube 90 mm, curved	
BLPVLC VLR 300 B	BLPVLC VLR 300	Extension tube 300 mm, straight	
BLPVLC VLR 500 B	BLPVLC VLR 500	Extension tube 500 mm, straight	
BLPVLC VLR 400 FLEX	---	Extension tube 400 mm, flexible and bendable	

* standard coupling





Finely adjustable plastic blow guns with PU spiral hoses

Advantages: • The blow gun allows particularly fine metering. By forming the nozzle, the gun will generate a particularly low-noise, soft air jet.

Type	Usable working length	Connection coupling
BLPVLC SP	2 m	NW 7.2*

* standard coupling

Short nozzles with bypasses for plastic blow guns with extension tubes

Nozzle for connecting to CEJN blow guns with extension tube. As soon as the distance between the nozzle and the surface becomes too small, the bypass reduces the pressure to less than 2 bar. The air then escapes though the lateral side.

Type	Connection
KD-BLPC	For attaching

Noise protection nozzles for plastic blow guns with extension tubes

Nozzle for connecting to CEJN blow guns with extension tube. The noise level can be markedly reduced by diverting the air in the nozzle.

Type	Connection
LD-BLPC	For attaching

Venturi nozzles for plastic blow guns with extension tubes

Nozzle for connecting to CEJN blow guns with extension tube. Lateral air intake saves energy. This reduces the compressed air consumption by approx. 25%. As soon as the distance between the nozzle and the surface becomes too small, the bypass reduces the pressure to less than 2 bar. The air then escapes though the lateral side.

Type	Connection
VD-BLPC	For attaching

Safety nozzles for plastic blow guns with extension tubes

Nozzles for connecting to CEJN blow guns with extension tube. A protective shield of air protects against rebounding chippings. As soon as the distance between the nozzle and the surface becomes too small, the bypass reduces the pressure to less than 2 bar. The air then escapes though the lateral side.

Type	Connection
SD-BLPC	For attaching

Nozzles with rubber points for plastic blow guns with extension tubes

Nozzle for connecting to CEJN blow guns with extension tube. Suited particularly to sensitive surfaces. The rubber tip prevents any damage to the surface.
Suitable: For safe blowing out of throughway bores.

Type	Nozzles Ø	Connection
GD-BLPC	14 mm	For attaching

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Blow guns/nozzles

Rubber nozzle sets for CEJN plastic blow guns with extension tubes

Nozzles for connecting to CEJN blow guns with extension tube. Suited particularly to sensitive surfaces. The rubber tips prevent any damage to the surface.
Suitable: For safe blowing out of throughway bores.

Type	Nozzles Ø	Connection
GD-BLPC SET	14, 25 and 34 mm	For attaching

Protective screens for CEJN plastic blow guns with extension tubes

Protective shields for connecting to CEJN blow guns with extension tube to protect against rebounding chippings.

Type	Connection
SS-BLPC	For attaching

CEJN MultiFLOW blow guns for air and water

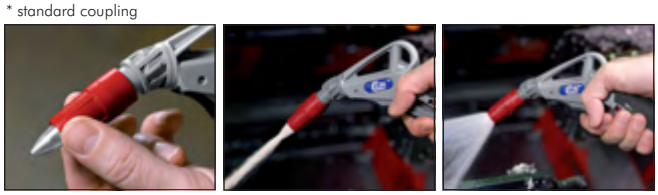
Materials: Body: POM, TPE and aluminium, seals: NBR
Temperature range: -20°C to max. +80°C
Operating pressure: Max. 16 bar (>60°C max. 10 bar)
Flow: Air: Max. 1200 l/min. (water: Max. 25 l/min.)

Advantages:
- Very high blow force
- Easy flow regulation
- Finely adjustable stream
- Suitable for air and water
- Warm handle feeling because of plastic body
- Safety nozzles acc. to OSHA standard

Type	Connection
BLPC MF 14	G 1/4" (FT)
BLPC MF KS	NW 7.2 coupling plug*
BLPC MF WS	Coupling plug for GARDENA couplings
Accessories	
BLPC MF MAG	Magnet holder for BLPVLC and MultiFLOW blow guns

* standard coupling

application example: assembled magnet holder



typhoon® nozzle

CEG-1® multijet nozzle

Blow nozzles for line assemblies — TYPHOON®/CEG-1®

Description: The proven high performance nozzles of the Typhoon®- and CEG-1® blow guns are now also available with standard male threads. The special nozzle geometry produces a highly effective air jet, with a minimal air consumption and minimal noise generation.
Materials: Aluminium
Operating pressure: Max. 10 bar

Advantages:
- Low air consumption – energy saving
- Low procurement and operating costs
- No moving parts – maintenance free
- Low sound level (occupation protection)

Type	Thread	Description
TYPH KDA 14	R 1/4" (MT)	Thyphoon® single nozzle
TYPH MJ 34	G 3/4" (FT)	CEG-1® multijet nozzle for max. blowing capacity

High performance blow out taps — CEG-1®

Materials: Body: Aluminium chrome-plated with elastomer covering, handle: Steel nickel-plated with PVC coating
Operating pressure: Max. 10 bar

Advantages:
- Higher blower capacity than conventional blow guns (similar to Typhoon blow gun)
- Very stable design at low weight
- Lies safely in the hand
- Equipped with safety nozzle

extension tube

type BLH KDA

Type	Description
Blow out taps	
BLH 14	Blow out tap G 1/4" (FT)
Accessories	
BLH VLR 150	150 mm extension tube without nozzle
BLH VLR 300	300 mm extension tube without nozzle
BLH VLR 600	600 mm extension tube without nozzle
BLH KDA	Replacement nozzle with male thread (for gun and extension tube)
BLP TYPH GDA	Rubber nozzle set (safety nozzle, cone nozzle) with male thread

type BLP TYPH GDA

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High performance blow guns TYPHOON®

Materials: Body: Aluminium chrome-plated, handle: PVC (type PRO: aluminium chrome-plated)
Operating pressure: Max. 10 bar

Advantages:
- Significantly higher blower capacity than conventional blow guns whilst simultaneously providing very good dosing
- Very stable design at low weight
- Lies safely in the hand
- Equipped with safety nozzle

Type PRO: Resistant to many chemicals and solvents due to complete chrome surface, easy to clean
Type MULTIJET: Highest blowing force through 3-way jet-nozzle

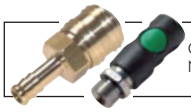
Type **Standard**	Type **PRO**	Type **MultiJet**	Type **without nozzle, with female thread 1/2"-27 UNS**	Connection
With female thread				
BLP TYPH 14	BLP TYPH 14 P	BLP TYPH 14 MJ	BLP TYPH 14 OD	G 1/4" female thread
With hose connection				
BLP TYPH 6	BLP TYPH 6 P	BLP TYPH 6 MJ	BLP TYPH 6 OD	6 mm hose connection
BLP TYPH 9	BLP TYPH 9 P	BLP TYPH 9 MJ	BLP TYPH 9 OD	9 mm hose connection
BLP TYPH 13	BLP TYPH 13 P	BLP TYPH 13 MJ	BLP TYPH 13 OD	13 mm hose connection
With coupling plug				
BLP TYPH KS	BLP TYPH KS P	BLP TYPH KS MJ	BLP TYPH KS OD	NW 7.2 coupling plug*

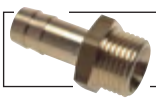
* standard coupling

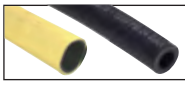
Accessories for high performance blow guns TYPHOON®

Advantages: • Can be combined with every Typhoon® blow gun

Type **Standard/PRO**	Type **MultiJet**	Description
Extension tubes with nozzle		
BLP TYPH VLR 30	BLP TYPH VLR 30MJ	300 mm extension tube with nozzle
BLP TYPH VLR 60	BLP TYPH VLR 60MJ	600 mm extension tube with nozzle
BLP TYPH VLR 90	BLP TYPH VLR 90MJ	900 mm extension tube with nozzle
Replacement nozzles		
BLP TYPH KDA	---	Replacement nozzle with male thread (for direct assembly in gun)
BLP TYPH KD	---	Replacement nozzle with female thread (for assembly on extension tubes)
BLP TYPH GDA	---	Rubber nozzle set (safety nozzle, cone nozzle) with male thread
---	BLP TYPH MJ	Replacement nozzle w/ female or male threads (f. tube and gun assembly)
Adapter for nozzle assembly M12 x 1.25 on Typhoon blow guns		
RN TYPH-M12x1.25 A		Adapter 1/2"-27 UNS (MT) to M 12 x 1.25 (FT)


Coupling sockets NW7 from page 150


Threaded nozzles from page 64


Compressed air rubber hoses from page 212

type BLP TYPH GDA

High performance blow guns CANNON®

Materials: Aluminium, brass and stainless steel
Operating pressure: 6 - 8 bar
Air requirement: 3800 l/min. (at 7 bar) - minimum hose diameter 13 mm!
Connection thread: G 3/4" female thread (we recommend hose connection with compressor coupling, type KAG 34)

Advantages:
- Protruding blower capacity, ideal for the paper and metal industry, steelworks and large plants
- Low actuation force via servo pushbutton
- Sit closes automatically when the actuator is released (deadman's switch)
- Meets OSHA safety standard
- MultiJet generates even more air volume in a large area air jet
- Extension by using connections up to 2400 mm possible

Type	Description
Blow gun standard	
BLP CANNON 60	Gun with 600 mm longer standard nozzle
BLP CANNON 120	Gun with 1200 mm longer standard nozzle
Blow gun MultiJet	
BLP CANNON MJ	Gun with 50 mm longer MultiJet nozzle
BLP CANNON 60 MJ	Gun with 600 mm longer MultiJet nozzle
BLP CANNON 120 MJ	Gun with 1200 mm longer MultiJet nozzle
Accessories for standard type and MultiJet type	
BLP CANNON VLR 5	50 mm adapter (MT/MT)
BLP CANNON VLR 60	600 mm extension tube (MT/MT)
BLP CANNON VLR 120	1200 mm extension tube (MT/MT)
BLP CANNON MU	Connector used to connect 2 extension tubes (FT/FT)
BLP CANNON HG	Convenience actuator to make operation with gloves easier
BLP CANNON D	Standard replacement nozzle (FT)
BLP CANNON DMJ	MultiJet replacement nozzle (FT)

type standard with 1200 mm nozzle and convenience actuator

type MultiJet with 50 mm nozzle

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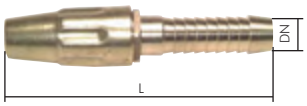
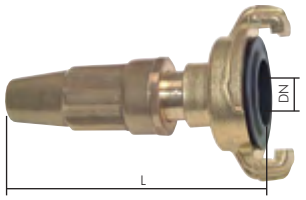
Water guns



Hose sprayers with hose connections

Type	Size	Nozzle Ø	DN	Hose Ø internal	Length L approx.
GSK SPR 13	1/2"	5.3	9	13 (1/2")	90
GSK SPR 19	3/4"	6.4	16	19 (3/4")	110
GSK SPR 25	1"	7.2	21	25 (1")	135



Hose sprayers for garden hose quick couplings 40 mm

Type	Size	Nozzle Ø	DN	Length L approx.	Seal NBR
GSK SPR 12	1/2"	5.3	9	84	GKOR
GSK SPR 34	3/4"	6.4	14	95	GKOR
GSK SPR 10	1"	7.0	20	112	GKOR

Plastic water sprinklers 8 bar

Materials: PA 66 (FDA 177.1500), valve: Stainless steel, seal: EPDM (KTW approval and FDA 177.2600)
Temperature range: Max. +60°C
Operating pressure: Max. 8 bar
Operating range: Ergonomic hand shower for the food processing industry

Advantages:
- Ergonomically shaped
- Low weight

Type	Connection
BRAUSE 12 PA	G 1/2" (FT)

type WSP 12

type WSP 12 ES

Water conserving guns 24 bar

Materials: Stainless steel/brass combination rubber jacketing (type stainless steel: stainless steel complete, rubber jacketed), rubber jacketing: EPDM
Temperature range: Max. +95°C
Operating pressure: Max. 24 bar
Flow: Max. 80 l/min.
Optional: Insulated stainless steel safety bracket **-S**

Advantages:
- Variable regulation of the water jet from a fine spray mist to a concentrated jet.
- Optimum protection against heat, cold and impact by the thick rubber jacketing.
- Mounting clamp for continuous operation.

type WSP 12 -S

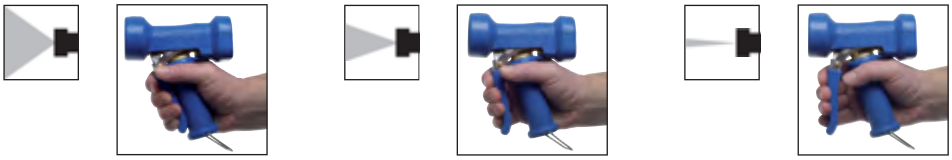
type WSP 12 ES -S

Type stainless steel/brass	Type complete stainless steel (INOX)	Connection
WSP 12	WSP 12 ES	G 1/2" (FT)
Replace. parts blue	**Replace. parts white**	
WSP 12 GRIFF	WSP 12 GRIFF WS	Grip sleeve
WSP 12 SCHUTZ	WSP 12 SCHUTZ WS	Protective sleeve
Hot water swivel joint		
WSP 12 DREH	WSP 12 DREH ES	G 1/2" (FT/MT)

type WSP 12 GRIFF

type WSP 12 SCHUTZ

type WSP 12 DREH ES



Safety washing guns 40 bar

Materials: Body: Aluminium, lever: Brass, grip plates: Polyamide, safety bar: Zinc-plated steel
Temperature range: Max. +90°C
Operating pressure: Max. 40 bar
Flow: Nozzles Ø 2 mm (Standard): At 6 bar - 5 l/min., at 16 bar - 8 l/min., at 40 bar - 13 l/min.
Nozzles Ø 4 mm (optional): At 6 bar - 20 l/min., at 16 bar - 32 l/min., at 40 bar - 50 l/min.

Advantages:
- Variable regulation of the water jet from a fine spray mist to a concentrated jet.
- Operating pressure up to 40 bar.
- Actuating lever secured by safety bar.

Optional: Nozzle 4 mm Ø **-4**

Type	Connection
WSPH 13	13 mm hose connection
WSPH 19	19 mm hose connection
Replacement nozzles	
WSPH DUSE 2	Nozzles Ø 2 mm
WSPH DUSE 4	Nozzles Ø 4 mm

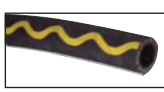
Order example: WSPH 13 **

Standard type

Designation for the options:
Nozzles Ø 4mm . . . . . **-4**

Garden hose couplings from page 178

Hose clamps from page 234


Water hoses - Goldschlange® on page 212

GARDENA Hose sprayers from page 181

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hand tyre inflators (pressure gauges Ø 63) — for tyre valves VG 8 (7.7 mm)

Type	Pressure gauge display	Plug	Filling hose connection	Connection	Replacement pressure gauge
Hobby version					
HRFB	0 - 12 bar	Moment	G 1/4", rigid	Coupling plug NW 7.2*	---
Industrial version					
HRF	0 - 10 bar	Lever	G 1/4", rotatable	6 mm nozzle	HRF MANO
HRF KS	0 - 10 bar	Lever	G 1/4", rotatable	Coupling plug NW 7.2*	HRF MANO
HRFS	0 - 12 bar	Moment	G 1/4", rigid	Coupling plug NW 7.2*	HRFS MANO

* standard coupling

Hand tyre inflators (pressure gauges Ø 80) — for tyre valves VG 8 (7.7 mm)

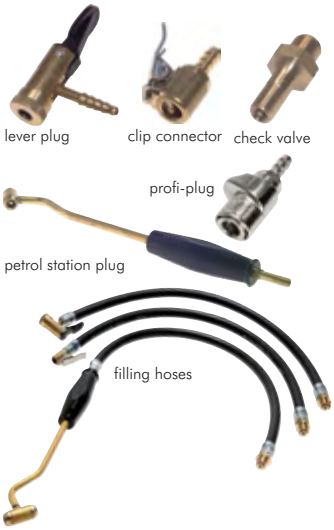
Connection: Coupling plugs, NW 7.2 (standard coupling)

Type	Pressure gauge display	Plug	Filling hose connection	Version	Replacement pressure gauge*
HRFG	0 - 12 bar	Lever	G 1/4", rotatable	Calibrated	HRFG MANO
HRFG B	0 - 12 bar	Lever	G 1/4", rotatable	Not calibrated	HRFG MANO
HRFG TS	0 - 12 bar	Petrol sta.	G 1/4", rotatable	Calibrated	HRFG MANO
HRFG 25	0 - 25 bar	Lever	G 1/4", rotatable	Not calibrated	HRFG MANO 25
HRFGS	0 - 12 bar	Moment	G 1/4", rigid	Calibrated	HRFGS MANO

* replacing the pressure gauge invalidates the HRFG's calibration seal. A new calibration is needed after the pressure gauge is changed.

Hand tyre inflator accessories — for tyre valves VG 8 (7.7 mm)

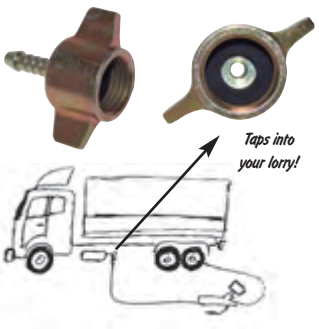
Type	Connection	Description	Replacement seals
LEVER PLUG	6 mm nozzle	Lever plug	HEBELSTECKER MEM
CLIP CONNECTOR	6 mm nozzle	Clip connector	---
QUICKSTECKER 6	6 mm nozzle	Profi-plug with double	---
QUICKSTECKER 8	8 mm nozzle	Claw holder	---
PETROL STATION PLUG	Valve plug VG 8 (7.7 mm)	Petrol station plug	TANKSTELLENST MEM
TANKSTELLENSTECKER S	6 mm nozzle	Petrol station plug	TANKSTELLENST MEM
PRUFVENTIL 18	G 1/8" (MT)	Check valve with VG 8 tyre valve and dust cover	---
HRFG SCHLAUCH	G 1/4"/M 20x1 (MT) rotatable	500 mm filling hose, with lever plug	HEBELSTECKER MEM
HRFG SCHLAUCH MS	G 1/4"/M 20x1 (MT), rotatable	500 mm filling hose, with clip connector	---
HRFG SCHLAUCH TS	G 1/4"/M 20x1 (MT), rotatable	500 mm filling hose, with petrol station plug	TANKSTELLENST MEM



Hose nozzles for lorry tyre inflation bottles

Advantages: • This hose nozzle fits the majority of vehicles with compressed air brakes, e.g. trucks, Unimog, etc.

Type	Thread	Connection
ST LKW	M 16 x 1.5	6 mm nozzle



PU hose sets with coupling & plug on page 208

Coil tubes assembled with couplings from page 200

Ball valves with venting from page 287

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise in

Tyre inflator hoses with wing union nuts M 16x1.5 and lever plugs — 15 bar

Materials: Hose: EPDM with polyester braiding
Test pressure: 25 bar
This hose is a part of the equipment supplied with utility vehicles beyond 7.5 tons.

Type	Total length m
RFS 6	6
RFS 8	8
RFS 10	10
RFS 12	12
RFS 16	16

Spray guns with adjustable spray agent amounts — 1.2 l

Advantages:
- Spray agent amount can be regulated by flow control valve
- Suitable for solvents

Type	Description	Connection
SPGC	Plastic spray gun, 1.2 l content	G 1/4" female thread

Spray guns with spray stream adjustment and plastic cups — 0.7 l

type SPG

type SPGSW
nozzle 360° adjustable

Type	Description	Connection
SPG	Spray gun with a straight spray pipe	Coupling plug NW 7.2*
SPGSW	Spray gun with a straight spray pipe - 360° adjustable nozzle	Coupling plug NW 7.2*
Accessories		
SPGT	Plastic cups for spray guns	
SPGD	Plastic cover for plastic cups	
SPGTM	Metal cups for spray guns	
SPGDM	Metal cover for metal cups	
SPGDR	Cork gasket for metal cups	

* standard coupling

High performance spray guns

type SPP N1

type SPP B1

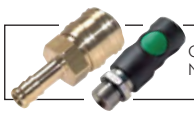
Type	Quality	Version
SPP N1	Professional device	Powerful all-round painting gun in innovative and environmentally friendly HVLP (High Volume Low Pressure) technology incl. practical storage box and numerous accessories. Nozzle 1.3 mm (on request 1.5/1.7/1.9/2.2 mm), 0.7 l plastic container, continuously adjustable for round spray as well as wide stream, VOC conforming.
SPP B1	Hobby equipment	Standard painting gun with 1.5 mm nozzle, 0.5 l plastic container, continuously adjustable for round spray as well as wide stream.

Pneumatic atomisers

Materials: Body: Aluminium anodised, nozzle and adjustment needle: Brass, seals: NBR
Temperature range: Max. 60°C
Pressure range: 3 to 8 bar
Pressure supply: Filtered compressed air
Media that can be atomised: Water, low-viscosity oil and other non-aggressive liquids
Function: In keeping with the Venturi-principle, compressed air flowing from input P carries a quantity of liquid from input A along with it and atomizes this into small particles. The pressure and the quantity of compressed air quantity must be set with the help of external regulators and bidirectional flow control valves. The liquid is sucked automatically.

After extended use, drops may form on the nozzle created by deposits. The nozzle must be attached in a manner that the drops do not negatively influence the application.

Type	Compressed air connection	Liquid connection	Thread for panel mounting	Atomised liquid quantity	Type **fastening nut**
ZERSTAUB M5 B	M 5 (FT)	M 5 (FT)	M 12 x 0.75	15 - 60 cm³/min	GM 12075 MSV


Coupling sockets NW7 from page 150

PVC fabric hoses with coupling & plug on page 208

Pressure regulator standard from page 338

Cleaning technology on page 582

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Professional painting guns with suction cups - 1.5 mm nozzles

Type	Function
SPP SAUG B	The guns ensure good gun guidance and ease of handling through sophisticated ergonomics. Very fine atomization, self-adjusting needle seal, variable material flow, full and wide stream regulation.

Blast guns

Type	Quality	Version
SAND P	Professional device	5 mm Ø hardened steel nozzle, 1 litre suction cup made from metal
SAND PB	Hobby equipment	Low-priced version for handymen, approx. 150 l/min. Air consumption

Sandblast hoses on page 219

type professional device

type hobby equipment

Silicosis harmless blasting abrasives

Info: Using silica sand is not permitted for health reasons.

Type	Version	Packing
SAND	Blasting abrasives for blast machines	7 kg

Protective hoods with neck protection

Type	Version
SH 90	Sturdy plastic housing with a large exchangeable screen for protection in all blasting and spraying work

Replace. screen
SH 90 E

Impact screwdrivers

Type	Weight kg	Air consumption l/min.	Torque Nm	Speed min.$^{-1}$	Operating pressure	Square drive	Sound level db (A)	Air connection
★☆☆	**Automotive**							
AM 2020	2.1	250	400	6000	6 bar	1/2" (12.7 mm)	87	Rp 1/4"
★★☆	**Industrial version with pin clutch striking mechanism**							
2205	2.5	350	580	7800	6 bar	1/2" (12.7 mm)	87	Rp 1/4"
★★★	**Industrial version with DUOPACT striking mechanism**							
2202*	1.3	540	610	9000	6 bar	1/2" (12.7 mm)	95	Rp 1/4"
2267	1.25	510	660	10200	6 bar	1/2" (12.7 mm)	93	Rp 1/4"
2277	2.0	700	1250	8200	6 bar	1/2" (12.7 mm)	93	Rp 1/4"
2315	4.7	990	1500	5600	6 bar	3/4" (19.0 mm)	91	Rp 3/8"
2377	3.4	970	1950	6000	6 bar	3/4" (19.0 mm)	97	Rp 3/8"
2425*	9.4	1020	2450	3200	6 bar	1" (25.4 mm)	98	Rp 1/2"
2437 Xi	7.2	1100	2700	6000	6 bar	1" (25.4 mm)	101	Rp 1/2"

* a hammer striking mechanism

type AM 2020

type 2205

type 2202

type 2267

type 2315

type 2377

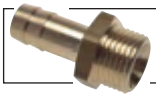
type 2425

type 2433 Xi

Especially compact!

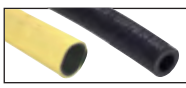
type 2277

Big push-in fittings up to Ø 32 mm from page 24



Threaded nozzles from page 64

Safety couplings from page 156



Compressed air rubber hoses from page 212

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Screwdriver holders

Advantages:
- Keeps the tool always close at hand
- Protects the tool from external influences
- Ensures increased safety due to a clear working area

Rugged industrial rubber protects your compressed air tool and holds it securely in its position. This quiver is fastened to the wall and offers your tool the best protection. Thanks to its conical shape, the quiver can take almost any tool size.

Type	Diameter	Height	Mounting hole
SCHRAUBERKOCHER	70 mm/110 mm	145/170	M 6

type 4114

type 818

type 413WP

Power socket sets for impact screwdrivers

Type	Version	SW	For actuator
Power socket sets			
3113	13-pc. set in plastic magazine	7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 and 19	3/8" (9.5 mm)
4114	14-pc. set in plastic magazine	10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 26 and 27	1/2" (12.7 mm)
618	8-pc. set in plastic magazine	26, 27, 29, 30, 32, 35, 36 and 38	3/4" (19.0 mm)
818	8-pc. set in plastic magazine	27, 30, 32, 33, 35, 36, 38 and 41	1" (25.4 mm)
Lorry power socket sets			
814D	4-pc. shock resistant	27, 32, 33 and 36	1" (25.4 mm)
Power socket sets, long, with PVC coating for fitting aluminium wheels			
413WP	3-pc. set in plastic magazine	17, 19 and 21	1/2" (12.7 mm)

Long power sockets for impact screwdrivers

Version: Long, thin walled, blistered

Type	SW	For actuator
842017	17	1/2" (12.7 mm)
842019	19	1/2" (12.7 mm)
842021	21	1/2" (12.7 mm)
842024	24	1/2" (12.7 mm)

type 3607
type 3700

Ratchet screwdrivers

Type	Weight kg	Air consumption l/min.	Torque Nm	Speed min.$^{-1}$	Operating pressure	Square drive	Sound level db (A)	Air connection
3607	1.25	460	90	170	6 bar	1/2" (12.7 mm)	89	Rp 1/4"
3700	1.6	830	130*	320	6 bar	1/2" (12.7 mm)	92	Rp 1/4"

* max. hand torque 250 Nm

type 4100
type 4105
type 4500
type 4550
type 4650

Drills with quick action chucks

Type	Weight kg	Air consumption l/min.	Output watts	Speed min.$^{-1}$	Operating pressure	Drill Ø mm	Sound level dB (A)	Air connection
Gun drilling machine								
4100	1.0	470	500	2200	6 bar	1 - 10	87	Rp 1/4"
4105*	0.6	440	180	3000	6 bar	1 - 6.5	71	Rp 1/4"
4500	1.2	620	500	2000	6 bar	1 - 10	93	Rp 1/4"
4550	1.4	585	500	800	6 bar	1.5 - 13	92	Rp 1/4"
Angle drilling machine								
4650*	1.1	450	500	1500	6 bar	1 - 10	90	Rp 1/4"

* with crown gear chuck, right-left running

type 4784
type 4780-1

Power wrenches

Type	Weight kg	Air consumption l/min.	Torque Nm	Speed min.$^{-1}$	Operating pressure	Actuator-hexagon socket	Sound level db (A)	Air connection
4784	0.9	595	1 - 6	1770	6 bar	1/4" (6.3 mm)	80	Rp 1/4"
4780-1	1.5	395	5 - 25	1200	6 bar	1/4" (6.3 mm)	87	Rp 1/4"

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Chisel hammers

Type	Weight kg	Air consumption l/min.	No. of blows min.$^{-1}$	Operating pressure	Holder mm	Stroke mm	Sound level dB (A)	Air connection
Chisel hammer set with 5 chisels								
5120	1.5	400	3000	6 bar	11	60	95	Rp 1/4"
Chisel hammer without chisel (please order separately)								
5400	7.5	720	1700	6 bar	14.7	76	98	Rp 3/8"
Chisel for chisel hammer								
RC 92	Flat chisel for type 5400 (length: 250 mm, width: 25 mm, hexagon: 14.7 mm)							
RC 93	Chisel point for type 5400 (length: 250 mm, hexagon: 14.7 mm)							
Replacement hammer springs								
RC 70	Hammer spring for type 5120 and type 5180							

type 5400

Flat chisel

type RC 70

Needle rust removers

Supply volume: Basic equipment Type 5615 with 1 needle set: 12 pieces 3 mm needles
Type 5620 with 2 needle sets: 28 pieces 3 mm and 14 pieces 4 mm needles

Type	Weight kg	Air consumption l/min.	No. of blows min.$^{-1}$	Operating pressure	Sound level dB (A)	Air connection
5615	1.3	180	4000	6 bar	88	Rp 1/4"
5620	3.6	300	4500	6 bar	98	Rp 3/8"
Replacement needle set						
845606	Needle set Ø 3 mm for type 5615					
845608	Needle set Ø 3 mm for type 5620					
845609	Needle set Ø 4 mm for type 5620					

type 5615

type 5620

Blind rivet guns

Suitable: For aluminium- or copper rivets

Type	Weight kg	Air consumption l/stroke	Rivet force N	Operating pressure	Absorbing rivet mm	Sound level dB (A)	Air connection
6700	1.6	1.2	12000	6 bar	2.4/3.2/4.0/4.8/5.0	87	Rp 1/4"

type 6700

Axial grinders

Type	Weight kg	Air consumption l/min.	Output watts	Speed rpm	Operating pressure	Ø collet mm	Sound level dB (A)	Air connection
AM 7070	0.6	490	300	22000	6 bar	6	92	Rp 1/4"
7025-1	0.6	475	450	22000	6 bar	6	74	Rp 1/4"*
7051	0.2	190	40	60000	6 bar	3 & 1/8"	60	Rp 1/4"*
Set in a case, including 3 and 6 mm collet as well as five 3 and 6 mm corundum grinders, automotive								
AM 7070 S	1.15	490	300	22000	6 bar	3 & 6	92	Rp 1/4"

* with exhaust hose

type AM 7070

type 7025-1

type 7051

Mini angle grinders

Type	Weight kg	Air consumption l/min.	Output watts	Speed min.$^{-1}$	Operating pressure	Ø collet mm	Sound level dB (A)	Air connection
7100RE-1	0.4	225	300	22000	6 bar	6	80	Rp 1/4"

Belt sanders

Type	Weight kg	Air consumption l/min.	Belt speed m/s	Operating pressure	Belt mm	Sound level dB (A)	Air connection
Belt sanders							
7155	0.8	520	20	6 bar	10 x 330	80	Rp 1/4"
Replacement grinding belts (10 pack)							
847098	Replacement grinding belt, P040						
847045	Replacement grinding belt, P080						
847063	Replacement grinding belt, P120						
847064	Replacement grinding belt, P180						
847065	Replacement grinding belt, P240						

type 7155

type replacement grinding belt

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Compressed air tools/grease presses

Rough/separator grinders

Type	Weight kg	Air consumption l/min.	Output watts	Speed min.$^{-1}$	Operating pressure	Disc Ø mm	Sound level db (A)	Air connection
7166	1.6	650	750	10000	6 bar	115 x 22/ 125 x 22	83	Rp 1/4"

Low vibration jig saws in sets with 2x5 saw blades

Type	Weight kg	Air consumption l/min.	No. of str., strokes/min	Stroke mm	Operating pressure	Sound level db (A)	Air connection
6051	0.65	220	9500	10	6 bar	80	Rp 1/4"

type standard

Pneumatic cartridges spray guns

Type	Weight kg	Operating pressure	Used for	Air connection
Standard device				
8000	1.1	2 - 4 bar	310 ml cartridges	Rp 1/4" (FT)
Professional Loctite device, can be regulated and metered				
97002	0.8	2 - 8.5 bar	310 ml cartridges and 250 ml tubes (Loctite)	G 1/4" (MT)

type Profi

Application example:
250 ml tube (Loctite)

Manual cartridge gun
Can be found on page 639

type KPM4

type FIS DM S

type 97002

Under body protection cavity guns with flexible nozzle pipes

Version: Complete set, consists of a gun for several functional uses: (1) Underbody protection for 1 litre standard bundle, (2) cavity protection for 1 litre standard bundle, with long cavity spray hose, (3) spraying and cleaning with adjustable spray nozzle

Type	Weight kg	Air consumption l/min.	Operating pressure	Socket contents	Nozzle pipe length mm	Air connection
8035	0.4	280	6 bar	1l	520	Rp 1/4"

Cleaning technology on page 582

PVC fabric hoses on page 208

Eye protection from page 591

Compressed air grease presses

Type	Weight kg	Air consumption l/min.	Operating pressure	For grease cartridges*	Compression ratio	Air connection
Material flow in the interval (with each triggering only a small amount of grease flows)						
FEPR LU	1.2	170	2 - 10 bar	400 g	40:1	Coupling plug NW 7.2**
Continuous material flow (as long as the trigger is depressed, grease is flowing)						
FEPR LU K	1.6	370	4 - 10 bar	400 g	40:1	Coupling plug NW 7.2**

* max. 240 x 56 mm, suitable for 215 x 50 mm cartridges (DIN 1284) or 500 ml loosely filled, ** standard coupling

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Grease presses for 400 g grease cartridges* — DIN 1283

Type	Version	Connection	Figure
Grease press assembly			
FEPR R	Grease press with tube and coupling	R 1/8"	Press incl. 1
FEPR S	Grease press with hose (300 mm) and coupling	R 1/8"	Press incl. 2
FEPR RS	Grease press with tube, hose (300 mm) and coupling	R 1/8"	Press incl. 1 & 2
Replacement parts			
FEPR ROHR	Tube (150 mm)	R 1/8" (MT)	1
FEPR SCHL 200	Hose (200 mm)	R 1/8" (MT)	2
FEPR SCHL 300	Hose (300 mm)	R 1/8" (MT)	2
FEPR SCHL 500	Hose (500 mm)	R 1/8" (MT)	2
FEPR SCHL 200 OK	Hose (200 mm) without coupling	R 1/8" (MT)	3
FEPR SCHL 300 OK	Hose (300 mm) without coupling	R 1/8" (MT)	3
FEPR SCHL 500 OK	Hose (500 mm) without coupling	R 1/8" (MT)	3
FEPR KUP 18	Coupling with 4 cheeks for ball grease nipple	G 1/8" (FT)	4
FEPR KUPD 18	Coupling as nozzle for funnel type grease nipple	G 1/8" (FT)	5
FEPR KUPFL 10	Coupling for flat grease nipple, 10 mm	G 1/8" (FT)	6
FEPR KUPFL 16	Coupling for flat grease nipple, 16 mm	G 1/8" (FT)	6
FEPR KUPFL 22	Coupling for flat grease nipple, 22 mm	G 1/8" (FT)	6
FEPR KUPFL 16 O	Open coupling for flat grease nipple, 16 mm	G 1/8" (FT)	7

* max. 240 x 56 mm, suitable for 215 x 50 mm cartridges (DIN 1284) or 500 ml loosely filled

Hand lever barrel pumps — for low viscosity media

Version: Robust, chemical-resistant, self-priming lever pump for bottling from 200 - 225 l barrels, pump body made of PP with FKM seals, 3-part telescopic suction pipe (500 - 900 mm in length) and integrated barrel screw connection for G 2" (standard barrel thread with FKM seal), S 56 x 4 (triSure with SANTOPREN seal) and S 70 x 6 (mauser with EPDM seal).
Media: Water, diesel, biodiesel, heating oil, AdBlue, acids, alkalis

Type	Flow-rate l/stroke	Drum thread
FPH 30	0.3	G 2"/S 56 x 4/S 70 x 6

Electric barrel pumps — for low viscosity media

Version: With suction hose and filter for immersion depths up to 1600 mm, suction stage with integrated lever protection, discharge hose 4 m DN 19 x 4 bend protection spring and standard nozzle
Media: Diesel, heating oil EL/L and anti-freeze (undiluted)
Voltage: 230V AC (Schuko-Plug)
Motor power: 250 Watt
Protection class: IP 44
☞ **Optional:** Digital counter (not appropriate for verification) **-Z**

Type	Flow-rate l/min.	Drum thread	Autom. nozzle*
FP 40	40	M 64 x 4/G 2"	No
FP 40 A	35	M 64 x 4/G 2"	Yes

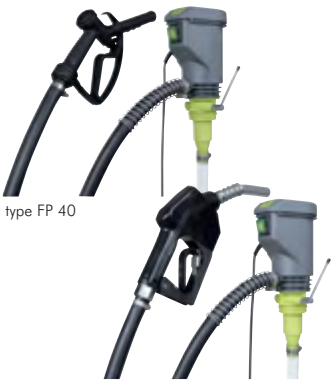
Replacement gun
FP 40 Pi
FP 40 A Pi

* construction type approved

☞ **Order example:** FP 40 **

Standard type | **Designation for the options:** Digital counter (not appropriate for verification) **-Z**

Option: With digital counter



Electric barrel pumps — for high viscosity media

Version: Self-priming, with suction tube for immersion depths up to 840 mm, 4 m discharge hose DN 19 x 4 and oil nozzle
Media: Engine and transmission oil SAE 80, hydraulic oil, (viscosity 100 - 2000 mPa*s)
Voltage: 230V AC (Schuko-Plug)
Motor power: 740 Watt
Protection class: IP 54
☞ **Optional:** Digital counter (not appropriate for verification) **-Z**

Type	Flow-rate l/min.	Drum thread	Autom. nozzle*
FP 25	25	G 2"	No

* construction type approved

☞ **Order example:** FP 25 **

Standard type | **Designation for the options:** Digital counter (not appropriate for verification) **-Z**

Oil binding agents & oil binding cloths from page 581

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Accessories for compressed air tools

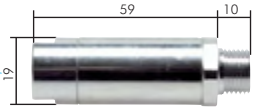
Pressure regulators for compressed air tools — up to 800 l/min.*

after decoupling no residual pressure in the tool

Description: The inline-pressure regulators are screwed directly into the tool to turn down the working pressure to a value that is optimal for the tool. The pressure regulators are distinguished by their low weight (approx. 40 g), high flow performance (up to 800 l/min*), and **an automatic relieving system**.
Materials: Housing: Aluminium, seal: NBR
Temperature range: 0°C to max. +80°C
Input pressure: Max. 25 bar

Advantages: • A piece of compressed air equipment uncoupled from the compressed air line is immediately fully vented, unlike blow gun pressure reducing valves. This removes the risk of injury from accidental release of an uncoupled pneumatic nail gun, for example.
• The pressure which has been set cannot be altered.

Suitable: Only for compressed air

input pressure max. 25 bar →  → output pressure 2-8 bar

Type	Thread (FT/MT)	Flow* approx.	Output pressure (± 10 %)
TOOL DR 20	G 1/4"	500 l/min.	2 bar
TOOL DR 30	G 1/4"	550 l/min.	3 bar
TOOL DR 40	G 1/4"	600 l/min.	4 bar

Type	Thread (FT/MT)	Flow* approx.	Output pressure (± 10 %)
TOOL DR 50	G 1/4"	650 l/min.	5 bar
TOOL DR 60	G 1/4"	700 l/min.	6 bar
TOOL DR 80	G 1/4"	800 l/min.	8 bar

* at 12 bar input pressure, Δp=0.5 bar

Blow guns pressure reducing valves

Saves air - protects machine

Materials: Housing: Brass, seal: NBR
Input pressure: Max. 15 bar

Advantages: • Tool machines are not damaged, since chipping is not are not depressed in sensitive areas (seals, lathe chuck, machine bed, etc.)

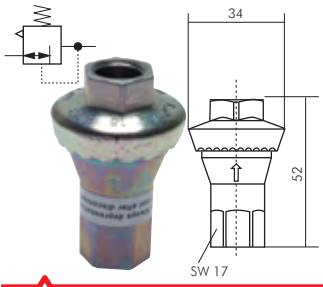
Suitable: Only for compressed air

input pressure max. 15 bar → → output pressure 2-8 bar

Type	Thread (FT/MT)	Output pressure at input pressure 5 bar [1] /10 bar [2] /15 bar [3]
BLP DR 20	G 1/4"	1.5/2.0/2.5
BLP DR 30	G 1/4"	2.2/2.9/3.5
BLP DR 40	G 1/4"	2.8/3.7/4.5
BLP DR 50	G 1/4"	3.5/4.6/5.4

Type	Thread (FT/MT)	Output pressure at input pressure 5 bar [1] /10 bar [2] /15 bar [3]
BLP DR 60	G 1/4"	3.8/5.0/6.0
BLP DR 70	G 1/4"	4.8/6.2/7.3
BLP DR 80	G 1/4"	5.5/7.3/8.2

[1] ± 0.6, [2] ± 0.5 bar, [3] ± 0.2 bar



Warning: When relieving the primary side, the secondary side is not vented!
Special pressure regulator for compressed air tools (vent on secondary side) can be found above.

Inline pressure regulators — 700 l/min.*

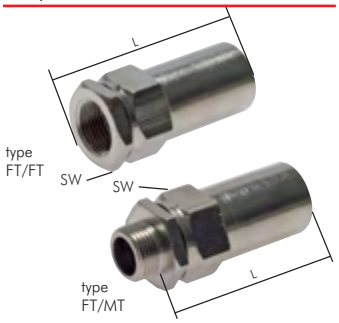
Function: Not resettable, preset diaphragm pressure regulator
Materials: Housing: Zinc die-casting, internal parts: Brass, stainless steel, seals: NBR
Temperature range: 0°C to max. +60°C
Input pressure: Max. 18 bar, **media:** Compressed air, nitrogen, neutral gas

Advantages: • The pressure which has been set cannot be altered

Type	Thread	Output pressure	Press. tolerance
iLDR 14-1	G 1/4"	1 bar	± 0.3 bar
iLDR 14-2	G 1/4"	2 bar	± 0.3 bar
iLDR 14-3	G 1/4"	3 bar	± 0.3 bar
iLDR 14-4	G 1/4"	4 bar	± 0.4 bar
iLDR 14-5	G 1/4"	5 bar	± 0.5 bar
iLDR 14-6	G 1/4"	6 bar	± 0.6 bar
iLDR 14-7	G 1/4"	7 bar	± 0.7 bar
iLDR 14-8	G 1/4"	8 bar	± 0.8 bar

* at 7 bar input pressure

Inline filters — up to 2800 l/min.

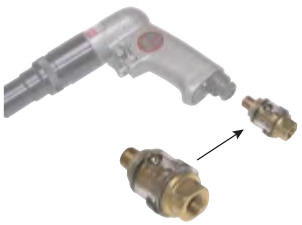


Application: Filter for direct installation in a compressed air line, a hose or directly before a compressed air tool
Materials: Housing: Brass nickel-plated, filter: Sintered bronze, seals: NBR
Temperature range: 0°C to max. +80°C
Input pressure: Max. 12 bar, **filter porosity:** 36 µm

Type **FT/FT**	Type **FT/MT**	Thread	Flow* approx.	L	SW
iLF 18	iLF 18 iA	G 1/8"	600 l/min.	36	17
iLF 14	iLF 14 iA	G 1/4"	1250 l/min.	42	19
iLF 38	iLF 38 iA	G 3/8"	2100 l/min.	54	24
iLF 12	iLF 12 iA	G 1/2"	2800 l/min.	62	30

* at 6 bar input pressure

Inline lubricators for compressed air tools



Pressure range: Max. 6.3 bar
Note: For compressed air equipment with heavy vibrations, we recommend connecting the lubricator to the device with a short piece of hose.

Advantages: • This lubricator is used directly on the compressed air tool. Through the short path from the lubricator to the device, a constant supply of oil is guaranteed. The fill level is always visible.

Type	Input (FT)	Output (MT)	Air permeability	Oil supply
PT 1025	Rp 1/4"	R 1/4"	Approx. 860 l/min	20 ml

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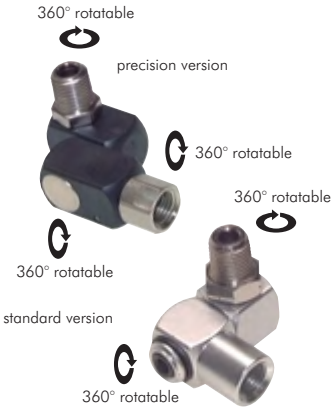
Swivel joints with male and female threads 360° rotatable

Suitable: For reduced rotary movements, e.g. connection to compressed air tools, especially for suspended compressed air tools.
Materials: Brass nickel-plated/plastic
Temperature range: 0°C to max. +60°C
Operating pressure: 0 - 15 bar, **media:** Compressed air

Type	Thread female	Thread male	Version 360° rotatable
Precision version			
DREHGELENK 14	R 1/4" (con)	R 1/4"	3-way
DREHGELENK 38	R 3/8" (con)	R 3/8"	2-way
DREHGELENK 12	R 1/2" (con)	R 1/2"	2-way
Standard version			
DREHGELENK 14 B	Rp 1/4"	R 1/4"	2-way

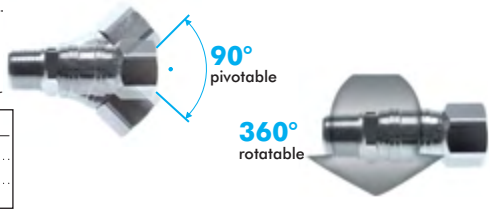


Swivel joints with male and female threads 360° rotatable

Suitable: For slow rotary movements, e.g. to avoid the twisting of hoses.
Materials: Steel nickel-plated
Temperature range: 0°C to max. +60°C
Operating pressure: 0 - 15 bar, **media:** Compressed air

Type	Thread	Connection
DG 1414 IA	G 1/4" (FT)	R 1/4" (MT)
DG 3838 IA	G 3/8" (FT)	R 3/8" (MT)
DG 14 KSNW7*	G 1/4" (MT)	Plug NW 7.2

* 50° pivotable



Spring balancers

Application: In the case of spring balancers, the cable force increases as the cable is extended. After being used, the load (e.g. a tool) is retracted to its original position using the spring balancer. This makes it possible to supply workstations with power wrenches or other tools from above, thus maintaining a free workspace. The tension can be regulated with ease using the knob.

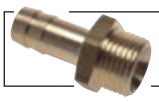
Type	Extension length	Capacity
Lightweight design, outstanding value		
TW 06 R	1.5 m	0.2 - 0.6 kg
TW 1 R	1.5 m	0.5 - 1.5 kg
TW 2 R	1.5 m	1 - 2 kg
Standard		
RW 0	2.0 m	0.5 - 1.5 kg
RW 3	2.0 m	1 - 3 kg
RW 5	2.0 m	2.5 - 5 kg

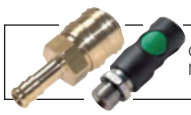
Balancers

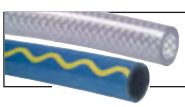
Application: In the case of cable balancers, the cable force remains virtually identical across the entire length of the cable. The load (e.g. a tool) is not retracted by means of spring force but remains at its current position instead. Because the cable force does not change noticeably, it is possible to carry out very precise and delicate work even with heavy tools. Using balancers makes work less tiring even over longer periods of time and with heavy loads. The hose balancers combine the properties of a cable balancer with those of a hose reel. In this case, the load is maintained by the hose instead of a cable. The hose 6.5 x 10 (interior x exterior) is equipped with a male thread R 1/4" and the compressed air is supplied via a female thread Rp 1/4".

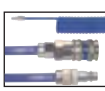
Type	Extension length	Capacity
Cable balancer, aluminium housing		
TW 00	0.5 m	0.5 - 1.5 kg
TW 0	1.0 m	0.5 - 1.5 kg
TW 3	1.3 m	1 - 3 kg
TW 5	1.3 m	2.5 - 5 kg
TW 9	1.3 m	4.5 - 9 kg
TW 15	1.3 m	9 - 15 kg
TW 22	1.5 m	15 - 22 kg
TW 30	1.5 m	22 - 30 kg
TW 40	1.5 m	30 - 40 kg
TW 50	1.5 m	40 - 50 kg
TW 60	1.5 m	50 - 60 kg
TW 70	1.5 m	60 - 70 kg
Hose balancer, plastic housing (max. 10 bar, temperature range: -10°C to max. +40°C)		
HW 0	1.3 m	0.5 - 1.5 kg
HW 3	1.3 m	1.5 - 3 kg
HW 5	1.3 m	3 - 5 kg

9


Threaded nozzles from page 64


Coupling sockets NW7 from page 150


Compressed air and water hoses from page 208


Coil tubes assembled with couplings from page 200

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Especially flat!

Single acting flat cylinders with spring returns — 5-150 tons lifting force

Advantages: • The flat design of these cylinders makes them particularly suitable for use in confined work areas.
Max. working pressure: 700 bar
Supply volume: All cylinders are delivered by the factory along with an assembled coupling sleeve 9796 (page 544).

type RLS 100

Type	Lifting force	Stroke	Oil volume	Height retracted
RLS 50	5 tons	14.3	10.2 cm³	41.3
RLS 100	10 tons	11.1	16.4 cm³	44.5
RLS 200	20 tons	11.1	32.8 cm³	50.8
RLS 300	30 tons	12.7	52.5 cm³	58.7
RLS 500 S	50 tons	15.9	98.4 cm³	66.7
RLS 750 S	75 tons	15.9	162.4 cm³	79.4
RLS 1000 S	100 tons	15.9	201.7 cm³	85.7
RLS 1500 S	150 tons	14.3	282.1 cm³	101.6

Especially economical!

Single acting cylinders with spring returns — 5-100 tons lifting force

Advantages: • Robust and high quality multi-purpose cylinder for lifting and crimping process at a special price.
Max. working pressure: 700 bar
Supply volume: All cylinders are delivered by the factory along with an assembled coupling sleeve 9796 (page 544).

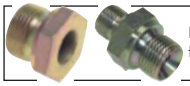
type C 106 C

type C 2510 C

type C 756 C

Type	Stroke	Oil volume	Height retracted
5 tons lifting force, piston rod UNF 3/4"-16 (FT), cylinder UN 1 1/2"-16 (MT) approx. Ø 38			
C 51 C	25.4	18.0 cm³	110.3
C 53 C	82.6	52.4 cm³	165.1
C 55 C	133.4	85.2 cm³	215.9
C 57 C	184.2	118.0 cm³	273.1
C 59 C	235.0	150.8 cm³	323.9
10 tons lifting force, piston rod UNC 1"-8 (FT), cylinder UN 2 1/4"-14 (MT) approx. Ø 58			
C 101 C	25.4	36.1 cm³	92.1
C 102 C	54.0	78.7 cm³	120.7
C 104 C	104.8	150.8 cm³	171.5
C 106 C	155.6	224.5 cm³	247.7
C 108 C	206.4	326.2 cm³	298.5
C 1010 C	257.2	370.4 cm³	349.3
C 1012 C	308.0	444.2 cm³	400.1
C 1014 C	358.8	517.9 cm³	450.9
C 1016 C	406.4	592.0 cm³	520.7
15 tons lifting force, piston rod UNC 1"-8 (FT), cylinder UN 2 3/4"-16 (MT) approx. Ø 70			
C 151 C	25.4	50.8 cm³	123.8
C 152 C	54.0	109.8 cm³	149.2
C 154 C	104.8	211.4 cm³	200.0
C 156 C	155.6	314.7 cm³	271.4
C 158 C	206.4	417.9 cm³	322.2
C 1510 C	257.2	521.2 cm³	373.0
C 1512 C	308.0	624.5 cm³	423.8
C 1514 C	358.8	727.7 cm³	476.6
C 1516 C	406.4	824.4 cm³	522.3
25 tons lifting force, piston rod UN 1 1/2"-16 (FT), cylinder UN 3 5/16"-12 (MT) approx. Ø 86			
C 251 C	25.4	83.6 cm³	139.7
C 252 C	50.8	168.8 cm³	165.1
C 254 C	101.6	337.6 cm³	215.9
C 256 C	158.8	527.8 cm³	273.1
C 258 C	209.6	696.6 cm³	323.9
C 2510 C	260.4	865.4 cm³	374.7
C 2512 C	311.2	1035.8 cm³	425.5
C 2514 C	362.0	1204.7 cm³	476.3
55 tons lifting force, cylinder UN 5"-12 (MT) approx. Ø 127			
C 552 C	50.8	362.2 cm³	174.6
C 554 C	108.0	768.7 cm³	231.8
C 556 C	158.8	1130.9 cm³	282.6
C 5510 C	260.4	1855.3 cm³	384.2
C 5513 C	336.6	2397.9 cm³	460.4
75 tons lifting force, cylinder UN 5 3/4"-12 (MT) approx. Ø 147			
C 756 C	155.6	1596.4 cm³	314.3
C 7513 C	333.4	3420.6 cm³	492.1
100 tons lifting force, cylinder UN 6 1/4"-12 (MT) approx. Ø 159			
C 1002 C	50.8	675.3 cm³	219.1
C 1006 C	168.3	2245.4 cm³	336.6
C 10010 C	260.4	3466.5 cm³	428.6

Cutting ring fittings from page 77


Hydraulic adapter from page 103

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Hydraulic hoses from page 231

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Single acting hollow piston type cylinders with spring returns 10-100 tons lifting force

Advantages: • Ideal for pulling and stretching cables, pulling out bolts, anchor bolts, screws, pressure spindles etc.
Max. working pressure: 700 bar
Supply volume: All cylinders are delivered by the factory along with an assembled coupling sleeve 9796 (page 544).

Type	Stroke	Oil volume	Height retracted	Centre hole diameter	Cylinder external Ø	Cylinder male threads
10 tons lifting force						
RH 102	63.5	90.5 cm³	134.9	19.4	76.2	---
RH 108	203.2	290.0 cm³	287.3	19.4	76.2	---
12 tons lifting force						
RH 120**	7.9	14.3 cm³	55.6	17.5	69.9	UN 2 3/4"-16
RH 121	41.3	73.6 cm³	122.2	20.2	69.9	UN 2 3/4"-16
RH 123	76.2	136.0 cm³	184.2	20.6	69.9	UN 2 3/4"-16
20 tons lifting force						
RH 202	50.8	155.0 cm³	155.6	27.4	98.4	UN 3 7/8"-12
RH 203	76.2	192.9 cm³	154.0	26.6	101.6	---
RH 206	152.4	465.0 cm³	308.0	27.4	98.4	UN 3 7/8"-12
30 tons lifting force						
RH 302	63.5	260.0 cm³	158.8	32.9	120.7	UN 4 3/4"-12
RH 306	152.4	624.9 cm³	247.7	32.5	120.7	UN 4 3/4"-12
RHA 306*	149.2	624.9 cm³	283.4	32.5	130.2	---
50 tons lifting force						
RH 503	76.2	534.3 cm³	181.0	42.5	152.4	UN 6"-12
60 tons lifting force						
RH 603	76.2	606.8 cm³	235.0	54.0	158.8	UN 6 1/4"-12
RH 606	152.4	1211.3 cm³	311.2	54.0	158.8	UN 6 1/4"-12
100 tons lifting force						
RH 1003	76.2	1013.5 cm³	254.0	79.4	212.7	---

* aluminium cylinder especially light, ** FT 1/4" NPT connection thread without coupling sleeve. For connection with the special hydraulic hose, please use reducing nipple type 9689 and sleeve type 9796

type RH 203

type RH 503

Hydraulic spreader (hydraulic crowbars)

Advantages: • Suitable for lifting machines, pre-tensioning concrete forms, for clamping and straightening.
Material: HS 2000: forged steel, HS 3000: High quality cast iron

Type	Force	Oil volume	Minimum required margin	Spread width
HS 2000	1.0 tons	4.06 cm³	14.2	101.6
HS 3000	1.5 tons	19.70 cm³	30.2	292.1

type HS 2000

Hydraulic pullers, usable 2- or 3-armed

Advantages: • The extractor is very quick to use, everything is contained in a practical case.
• In the basic version supports are available that can fit either a 2 or 3-armed puller, so that the puller can be operated in a 2 or 3 armed way.
• The hydraulic pump is fitted directly onto the cylinder (no tube installation is required).
Supply volume: Hydraulic pump, hydraulic cylinder and 3 pieces removal arms, robust equipment case

Type	Max. tractive force	Depth of removal	Spread width	Stroke
PH 63 C	6 tons	152	200	80
PH 83 C	8 tons	190	249	80
PH 113 C	11 tons	229	280	80
PH 303 C	30 tons	375	540	110

type PH 83 C

Manual pullers, 2-armed

GEDORE

Advantages: • Full steel version, forged with tempered crossbeam
• Leg brake with push-button release secures the legs against unintentional movements
• Can be used as external and internal extractor by reversing the legs
• The laser-engraved scale makes it easier to align the legs symmetrically and allows for centred extraction with an optimised distribution of force
• replaceable spindle head

Type	Max. tractive force	Depth of removal	Clamping range as ext. extractor	Clamping range as int. extractor
ABZI M 130	5 tons	100	0 - 130	70 - 170
ABZI M 200	10 tons	150	0 - 200	110 - 260
ABZI M 350	15 tons	200	0 - 350	150 - 420

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Hydraulic manual pumps for single acting cylinders — up to 700 bar

type P 19 L

type P 59

Advantages:
- Robust full metal construction ensures strength and a long service life - Welding sparks do not burn through.
- The pump is equipped with a safety valve and a check valve.
- A large control valve button simplifies the precise, slow relieving of the load.

Use of one-stage pumps: Move a cylinder without the load precisely as fast as when moving with the load (outstanding value).
Use of two-stage pumps: Enables rapid extension of a cylinder. As soon as the cylinder makes contact with a load, the pump is automatically switched on to raise the load in the high pressure stage.
Connection thread: NPT 3/8" (FT)
Note: The pumps are delivered filled with HLP oil.

Type	Delivery volume per stroke Depressurised	Max. operating press.	Operating pressure	Tank volume	Usable oil volume
One-stage					
P 12	---	1.1 cm³	700 bar	0.2 l	0.15 l
P 23	---	2.6 cm³	210 bar	0.4 l	0.33 l
P 55	---	2.6 cm³	700 bar	0.9 l	0.74 l
Two-stage					
P 19	5.0 cm³	1.2 cm³	700 bar	0.4 l	0.3 l
P 19 L*	4.1 cm³	0.9 cm³	700 bar	0.5 l	0.4 l
P 59	10.9 cm³	2.6 cm³	700 bar	0.9 l	0.7 l
P 59 L*	12.0 cm³	2.6 cm³	700 bar	1.1 l	1.0 l
P 157	10.7 cm³	2.6 cm³	700 bar	2.5 l	2.2 l
P 159	42.6 cm³	2.6 cm³	700 bar	2.5 l	2.2 l
P 300	42.6 cm³	2.6 cm³	700 bar	5.7 l	5.0 l
P 460	120.5 cm³	4.6 cm³	700 bar	9.5 l	7.5 l

* material aluminium: particularly light and economical

Compressed air operated hydraulic pumps for single acting cylinders — 700 bar

type PA 6

Advantages:
- This pump is operated with 3 - 8 bar of compressed air
- The pump is supplied with a safety valve and an air filter from the factory
- The pump can be easily operated using a hand or foot pedal

Connection thread, hydraulic: NPT 3/8" (FT)
Connection thread, compressed air: NPT 1/4" (FT) – please use RN 14NPT14G MS (page 116) to adapt to G 1/4".
Max. operating pressure: 700 bar
Oil filling: The pumps are filled in the factory with HLP oil (page 574).
Required compressed air supply: 3 - 8 bar
Useful accessories: As the compression ratio of compressed air/hydraulic measures approx. 1/100, it makes more sense to switch a precision pressure regulator prior to the pump. Pressure regulators can be found on page 347.

Type	Delivery volumes Depressurised 700 bar		Tank volume	Usable oil volume	Tank material
One-stage					
PA 6	1.2 l/min.	0.16 l/min.	1.7 l	1.6 l	Plastic
PA 6 M	1.2 l/min.	0.16 l/min.	1.7 l	1.6 l	Metal

Special hydraulic hoses — 700 bar

type 9756 E

type 9796 type 9798

Outstanding value!

Type rubber	Type polyurethane orange	Length	Type polyurethane red FDN	Length	Nominal width	Thread both sides (MT)
---	9765 E	0.6 m	---	---	6.4	NPT 3/8"
9755 E	9766 E	0.9 m	9766 EC	1 m	6.4	NPT 3/8"
9756 E	9767 E	1.8 m	9767 EC	2 m	6.4	NPT 3/8"
9754 E*	9764 E*	1.8 m	---	---	6.4	NPT 3/8"
9757 E	9768 E	2.4 m	---	---	6.4	NPT 3/8"
9758 E	9769 E	3.1 m	9769 EC	3 m	6.4	NPT 3/8"
9759 E	9770 E	3.7 m	9770 EC	4 m	6.4	NPT 3/8"
9760 E	9771 E	6.4 m	9771 EC	6 m	6.4	NPT 3/8"

* incl. 1 x 9798 plug and 1 x 9800 dust cover

Screw couplings — 700 bar

type 9800

Type	Description	Thread
9796	Sleeve including dust caps (for use on the cylinder)	NPT 3/8" (MT)
9798	Plug (for use on hose)	NPT 3/8" (FT)
9800	Dust cover for coupling sleeve and plug	---

Glycerine pressure gauges

type 9040 E

Type	Connection	Diameter	Display range	Scale graduation
9040 E	NPT 1/4"	63	0 - 690 bar	20 bar
9052 E	NPT 1/4"	100	0 - 690 bar	10 bar

Adapters and connection accessories — 700 bar

type 9642

Type	Description	Thread
9642	2-way distributor block with 2 needle valves	4 x NPT 3/8" (FT)
9644	4-way distributor block with 4 needle valves	6 x NPT 3/8" (FT)
9671	T-piece with female threads	3 x NPT 3/8" (FT)
9672	LE screw-in piece with female and male threads	2 x NPT 3/8" (FT)/1 x NPT 3/8" (MT)
9680	Sleeve	2 x NPT 3/8" (FT)
9682	Double nipple	2 x NPT 3/8" (MT)
9689	Reducing nipple	NPT 1/4" (MT)/NPT 3/8" (FT)
RN 38NPT38G HD	Reducing nipple	NPT 3/8" (MT)/G 3/8" (FT)

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Pressure limiting valves for tube integration — 700 bar

Suitable: When using single and double acting cylinders, the pressure limit valve can be used to adjust the maximum operating pressure below the opening pressure of the pump overpressure valve between 20 and 700 bar. The connections for the input and output can be combined arbitrarily.
Max. working pressure: 700 bar
Flow quantity: 0.27 to 22.7 l/min
Supply volume: 1 unit Pressure limiting valve, approx. 1 m bleed oil hose with tank connection option

Type	Connection input/output (FT)	Connection bleed oil hose (FT)
9633	2 x 3/8" NPT, 1 x 1/8" NPT	1 x 1/8" NPT

Hand tube bending devices — up to Ø 18

Type	Suitable for tubes Ø external	Bend radius	Processing
HRB 10	3 - 4 mm	14 mm	W/o/with bench vice press
	5 - 6 mm	16 mm	W/o/with bench vice press
	7 - 8 mm	24 mm	W/o/with bench vice press
	10 mm	29 mm	W/o/with bench vice press
HRB 12	6 - 8 mm	19/20 mm	In the bench vice press
	10 mm	25 mm	In the bench vice press
	12 mm	26 mm	In the bench vice press
HRB 18	6 - 8 mm	33/34 mm	In the bench vice press
	10 - 12 mm	35.5/36.5 mm	In the bench vice press
	14 mm	36.5 mm	In the bench vice press
	15 - 16 mm	44 mm	In the bench vice press
	18 mm	51.5 mm	In the bench vice press

Electric bending devices — up to Ø 28

Supply volume: Bending set in a plastic box with basic equipment of 230V AC (Schuko-plug CEE 7/4 F), sliding shoe axle, bending segments and sliding shoes for the relevant tube diameter.
Bending angle: Automatic shut-off after reaching the preset bending angle (max. 180°)

Type	Description
HRBE 28 B	Complete bending set as described above for tube diameter 15, 18, 22 and 28 mm
Accessories	
HRBE 28 B-12	Additional bending kit for tube diameter 12 mm
HRBE 28 B-14	Additional bending kit for tube diameter 14 mm
HRBE 28 B-16	Additional bending kit for tube diameter 16 mm
HRBE 28 B-20	Additional bending kit for tube diameter 20 mm
HRBE 28 B-25	Additional bending kit for tube diameter 25 mm and 1"
HRBE 28 B-DB	Tripod stand for HRBE 28 B

Round sheet metal punches, triple cuttings, with ball bearings

Version: Sheet metal punch consisting of: stamp, dies, and ball-bearing mounted draw-in bolt for manual and hydraulic operation
Description: Round-hole puncher in triple cutter version, for the easy, fast, and burr-free stamping of normal steel ST37 (max. sheet thickness 2 mm) and plastics.
Suitable: Power plant construction, switch cabinet construction, mechanical engineering, electronics, etc.

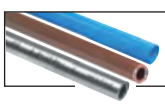
Type	Punched hole Ø	Drill Ø	SW
BLECHLOCHER R 22.5	22.5 mm/PG16	10.5	17
BLECHLOCHER R 30.5	30.5 mm	10.5	19

Professional hot air blowers

Application: Versatile tools for shrinking hose or cables, detaching and welding foils, welding plastics, deforming, soldering, drying, thawing, removing paint and more.
Temperature range: +80°C to +630°C, variable speed
Air quantities: 150 to 500 l/min 3-stage adjustable
Power supply: 230V AC (Schuko-plug, CEE 7/4 F)

Type	Power output Watt	Weight kg
HLG 2200	2200	0.85

Hydraulic pumps and electric motors can be found in the Online Shop



Aluminium, copper and steel pipes on page 250

Shrink tubes can be found on page 219

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Chapter 10 - Industrial demand

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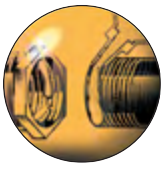
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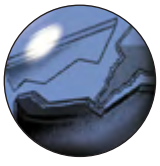
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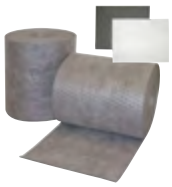
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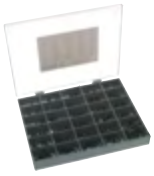
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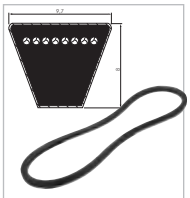
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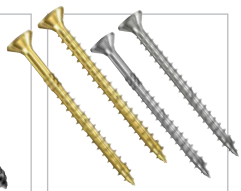
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Sealing tapes/flax

Especially good value!

KTW PTFE sealing tapes — Standard quality

Application: For standard use up to 20 bar
Temperature range: -60° to max. +260°C (gas and liquid gas: up to max. +125°C)
Media: Air, nitrogen, gas (max. 5 bar), liquid gas, drinking water (max. 16 bar), Oxygen (max. 25 bar, max. +60°C)
Density: Approx. 60 g/m²
Approvals: DVGW, KTW, BAM (Oxygen)
Class: FRp

Type	Thickness	Width	Roll length
DB 121	0.10	12	12 m

UL PTFE sealing tapes — high quality

Application: Thread sealing tape of high density for high quality thread seals up to 100 bar (at 200°C to max. 16 bar)
Temperature range: -240° to max. +260°C
Media: Air, water, nitrogen, gas (max. 7 bar), propane, butane, ammonia, hydrogen, solvents, acids, alkalis, fuels, refrigerants, steam (max. 180°C, max. 16 bar)
Density: Approx. 100 g/m²
Approvals: UL (USA+Canada), MIL-T-27730A

Advantages:
- Threaded connection can be adjusted up to 45° (remains malleable)
- Requires less windings
- Minimises the danger of clogging of the lines due to a high resistance to tears and fractures.

Warning: Not approved for use with oxygen!

Type	Thickness	Width	Roll length
DB TFL B	0.10	12.7	12 m

FDA UL PTFE sealing tapes — maximum quality

CHESTERTON Global Solutions. Local Service.

Application: Thread sealing tape of extremely high density for high quality thread seals up to 170 bar (hydraulic up to 700 bar)
Temperature range: -240° to max. +260°C
Media: Air, water, nitrogen, gas (max. 7 bar), propane, butane, ammonia, hydrogen, oxygen, solvents, acids, alkalis, fuels, refrigerants, steam
Density: approx. 100 g/m²
Approvals: UL (USA+Canada), MIL-T-27730A, USA (FDA), DVGW, BAM for oxygen (max. 30 bar, max. +100°C)
Class: GRp

Advantages:
- Threaded connection can be adjusted up to 90° (remains malleable)
- Approved for gaseous oxygen
- Requires less windings
- Minimises the danger of clogging of the lines due to a high resistance to tears and fractures.

Type	Thickness	Width	Roll length
DB TFL	0.09	12.7	4.6 m
DB TFL-13	0.09	12.7	13.7 m
DB TFL-33	0.09	12.7	32.9 m

Flange seals can be found on page 265.

Thread sealing fibre — LOCTITE

Operating range: Thread sealing fibre for applying plastic and metal screw threads. Developed especially for pneumatic, hydraulic and sanitary applications. Replaces hemp, pastes and PTFE sealing tapes; does not harden and remains soft and adaptable (alternative type in addition: resistant against almost all known chemicals, absolutely inactive)
Media: Loctite type: Air, drinking water (max. 16 bar, max. +85°C), hot water (max. 7 bar, max. +130°C), gas (max. 5 bar, -20°C to +70°C), oxygen (max. 20 bar, max. +60°C), industrial oils
Alternative type: Air, drinking water, gas (gaseous form max. 5 bar, liquid form max. 20 bar, -20°C to +125°C), propane, butane, ammonia, hydrogen, oxygen (max. 30 bar, max. +100°C - gaseous form with lubricant, liquid form without lubricant), oils, solvents, acids, alkalis, fuels, refrigerants, steam
Approvals: DVGW gas and hot water, KTW recommendation, WRAS, BAM for oxygen, (Loctite type, additionally NSF 61, alternative type, additionally ASTM F423 steam & cold water as well as KIWA GASTEC)

Type Loctite	Type alternative	Packing	Thread	Temperature range
55/50	---	50 m	Up to 4"	-20°C to max. +130°C
55/160	---	160 m	Up to 4"	-20°C to max. +130°C
---	DB 55/175	175 m	Up to 4"	-200°C to max. +240°C

Plait

Dispenser

Dispenser

Seal flax*

Type	Description
Plait	
FLACHS MAZZONI	Original seal flax MAZZONI "1A Extra", braid with approx. 200g
Dispenser	
FLACHS DISP 40	Seal flax in the dispenser, approx. 40g
FLACHS DISP 80	Seal flax in the dispenser, approx. 80g
Dispenser	
FLACHSI	Flax dispenser "FLACHSI" +GF+ (without flax coil)
FLACHSI SPULE	Flat coil for "FLACHSI", original +GF+
FLACHSI SPULE B	Flat coil for "FLACHSI", alternative

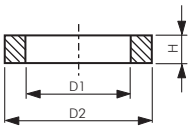
* only use for metal connections!

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Gaskets made of hard PVC (standard)

Temperature range: -10°C to max. +70°C
Operating pressure: -0.95 to 16 bar

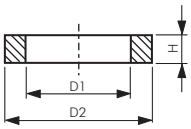
Type	For threads	D1	D2	H	Packing unit
DR 50 K	M 5	5.4	7.9	1.0	100
DR 18 K	G 1/8"	10.3	13.5	2.0	100
DR 14 K	G 1/4"	13.3	17.9	2.0	100
DR 38 K	G 3/8"	17.2	21.2	2.0	100
DR 12 K	G 1/2"	21.2	27.9	2.0	100
DR 34 K	G 3/4"	26.7	32.5	2.0	100
DR 10 K	G 1"	33.6	39.0	2.0	50



Gaskets made of nylon

Advantages: • These gaskets are particularly dimensionally stable and pressure resistant

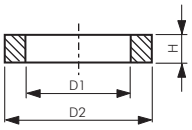
Type	for threads	D1	D2	H
DR 18 N	G 1/8"	10.0	14.0	1.5
DR 14 N	G 1/4"	13.0	18.0	1.5
DR 38 N	G 3/8"	17.0	21.5	1.5
DR 12 N	G 1/2"	21.0	25.5	1.5

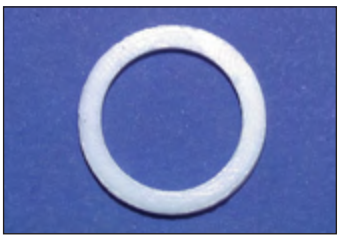


Gaskets made of PTFE (highly resistant)

Temperature range: -200°C to max. +220°C, chambered up to +270°C
Operating pressure: Does not depend on temperature

Type	For threads	D1	D2	H
DR 50 TE	M 5	5.3	8.0	1.0
DR 18 TE	G 1/8"	10.3	13.0	2.0
DR 14 TE	G 1/4"	13.5	18.0	2.0
DR 38 TE	G 3/8"	17.3	21.5	2.0
DR 12 TE	G 1/2"	21.3	28.0	2.0
DR 34 TE	G 3/4"	26.5	33.0	2.0
DR 10 TE	G 1"	33.5	39.1	2.0





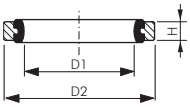
ELASTO gaskets

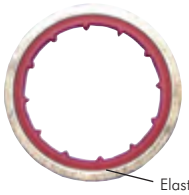
Materials: Spacer ring: Brass zinc-plated, Gasket: elastomer
Temperature range: -20°C to max. +70°C
Operating pressure: -0.95 to 30 bar

Advantages:
- Sealing effect does not depend on torque
- Relatively resistant to heavy tightening of a screw connection
- Banjo bolt union combinations are held together reliably as the holding burls allow the ring to maintain its position on its own

Type	For threads	D1	D2	H
DR 18 EL	G 1/8"	10.1	14.7	2.2
DR 14 EL	G 1/4"	13.4	17.7	2.2
DR 38 EL*	G 3/8"	16.9	21.8	2.2
DR 12 EL	G 1/2"	20.8	26.3	2.2

* usable from SW 20



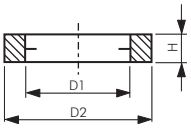


Captive gaskets

Temperature range: -20°C to max. +80°C
Operating pressure: 0.95 to 15 bar

Advantages: • Banjo bolt union combinations are held together reliably as the holding burls allow the ring to maintain its position on its own

Type	for threads	D1	D2	H
DR 50 P	M 5	5.2	8.0	1.0
DR 18 P	G 1/8"	10.0	14.0	1.5
DR 14 P	G 1/4"	13.5	18.0	1.5
DR 38 P	G 3/8"	16.8	21.0	1.5
DR 12 P	G 1/2"	21.1	26.0	2.0
DR 34 P	G 3/4"	27.0	32.0	2.5
DR 10 P	G 1"	34.0	41.0	2.5



Sealing paste for hemp or flax seals

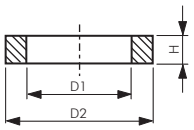
Type	Packing	Description
Original "neo-fermit"		
FERMIT N 150	150g tube	Non-toxic sealing paste for indoor installation of gas, water (also drinking water) and heating systems. For metal threaded connections in connection with hemp or flange (DIN DVGW Reg. NV-5142BM0052 according to DIN EN 751-2 and DIN 30660)
FERMIT N 325	325g tube	
FERMIT N 450	450g container	
FERMIT N 800	800g container	
Original "plastic-fermit"		
FERMIT P 250	250g container	White, permanently elastic plastic-based sealant mastic for maximum requirements, temperature resistant up to over +100°C, unlimited durability, of great bonding force, no contamination of hands. For the installation of sanitary facilities of all types, for cold or hot water gauges. Not suitable for porous substrates, such as.g. marble.
FERMIT P 500	500g container	
FERMIT P 1000	1kg container	

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Gaskets made of vulcanised fibre — DIN 7603 A

Temperature range: -10°C to max. +100°C
Operating pressure: 0 to 16 bar, as well as low vacuum
Suitable: For oxygen, compressed air and gasses

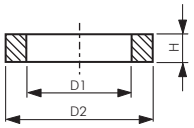
Type	For threads	D1	D2	H
DR 50 Fi*	M 5	5.2	8.9	1.0
DR 18 Fi	G 1/8"	10.2	13.4	1.0
DR 14 Fi*	G 1/4"	13.2	17.9	1.5
DR 38 Fi	G 3/8"	17.2	20.9	1.5
DR 12 Fi	G 1/2"	21.2	25.9	1.5
DR 34 Fi	G 3/4"	27.3	31.9	2.0
DR 10 Fi	G 1"	33.3	38.9	2.0



* similar to DIN 7603 A

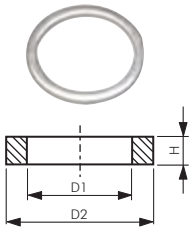
Standard gaskets made of aluminium — DIN 7603 A

Type	For threads	D1	D2	H
DR 50 A*	M 5	5.2	8.9	1.0
DR 18 A*	G 1/8"	10.2	13.9	1.0
DR 14 A*	G 1/4"	13.2	17.9	1.5
DR 38 A	G 3/8"	17.2	20.9	1.5
DR 12 A	G 1/2"	21.2	25.9	1.5
DR 34 A	G 3/4"	27.3	31.9	2.0
DR 10 A	G 1"	33.3	38.9	2.0
DR 114 A	G 1 1/4"	42.3	48.9	2.0
DR 112 A	G 1 1/2"	48.3	54.9	2.0
DR 20 A	G 2"	60.5	67.8	2.5



* similar to DIN 7603 A

Gaskets made of aluminium



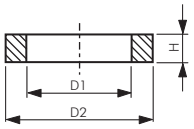
Type	D1	D2	H
DR 50 A	5.2	8.9	1.0
DR 18 A	10.2	13.9	1.0
AL 12181,5	12.2	17.9	1.5
DR 14 A	13.2	17.9	1.5
AL 14181,5	14.2	17.9	1.5
AL 16261	16.2	25.9	1.0

Type	D1	D2	H
DR 38 A	17.2	20.9	1.5
DR 12 A	21.2	25.9	1.5
DR 34 A	27.3	31.9	2.0
AL 32382	32.3	37.9	2.0
DR 10 A	33.3	38.9	2.0
AL 36422	36.3	41.9	2.0

Type	D1	D2	H
DR 114 A	42.3	48.9	2.0
DR 112 A	48.3	54.9	2.0
AL 50572	50.3	56.9	2.0
DR 20 A	60.5	67.8	2.5
AL 80902,5	80.0	90.0	2.5
AL 1001102,5	100.0	110.0	2.5

Standard gaskets made of copper — DIN 7603 A

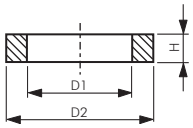
Type	For threads	D1	D2	H
DR 50 CU*	M 5	5.2	8.9	1.0
DR 18 CU*	G 1/8"	10.2	13.9	1.0
DR 14 CU*	G 1/4"	13.2	17.9	1.5
DR 38 CU	G 3/8"	17.2	20.9	1.5
DR 12 CU	G 1/2"	21.2	25.9	1.5
DR 34 CU	G 3/4"	27.3	31.9	2.0
DR 10 CU	G 1"	33.3	38.9	2.0
DR 114 CU	G 1 1/4"	42.3	48.9	2.0
DR 112 CU	G 1 1/2"	48.3	54.9	2.0
DR 20 CU	G 2"	60.5	67.8	2.5



* similar to DIN 7603 A

Pressure gauge gaskets can be found on page 384.

Gaskets made of copper



Type	D1	D2	H
CU 481	4.2	7.9	1.0
DR 50 CU	5.2	8.9	1.0
CU 6101	6.2	9.9	1.0
CU 6121	6.2	11.9	1.0
CU 6122	6.2	11.9	2.0
CU 8121	8.2	11.9	1.0
CU 8141	8.2	13.9	1.0
DR 18 CU	10.2	13.9	1.0
CU 10142	10.2	13.9	2.0
CU 10161	10.2	15.9	1.0
CU 10181,5	10.2	17.9	1.5
CU 10202	10.2	19.9	2.0
CU 1215,51,5	12.2	15.4	1.5
CU 12181,5	12.2	17.9	1.5
CU 12201,5	12.2	19.9	1.5
DR 14 CU	13.2	17.9	1.5
CU 13182	13.2	17.9	2.0
CU 13191,5	13.2	18.9	1.5

Type	D1	D2	H
CU 14181	14.2	17.9	1.0
CU 14181,5	14.2	17.9	1.5
CU 14201,5	14.2	19.9	1.5
CU 16201,5	16.2	19.9	1.5
CU 16241,5	16.2	23.9	1.5
CU 17211	17.2	20.9	1.0
DR 38 CU	17.2	20.9	1.5
CU 17221,5	17.2	21.9	1.5
CU 18221,5	18.2	21.9	1.5
CU 18241,5	18.2	23.9	1.5
CU 20241,5	20.2	23.9	1.5
DR 12 CU	21.2	25.9	1.5
CU 21262	21.2	25.9	2.0
CU 21271,5	21.2	26.9	1.5
CU 21272	21.2	26.9	2.0
CU 22291,5	22.2	28.9	1.5
CU 24302	24.3	29.9	2.0
CU 24322	24.3	31.9	2.0

Type	D1	D2	H
CU 26321,5	26.3	31.9	1.5
DR 34 CU	27.3	31.9	2.0
CU 28342	28.3	33.9	2.0
CU 30361,5	30.3	35.9	1.5
DR 10 CU	33.3	38.9	2.0
CU 33412	33.3	40.9	2.0
CU 35412	35.3	40.9	2.0
CU 36422	36.3	41.9	2.0
CU 38442	38.3	43.9	2.0
CU 40472	40.3	46.9	2.0
DR 114 CU	42.3	48.9	2.0
CU 45522	45.3	51.9	2.0
DR 112 CU	48.3	54.9	2.0
CU 50572	50.3	56.9	2.0
CU 52602,5	52.5	59.8	2.5
DR 20 CU	60.5	67.8	2.5

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Gasket assortment copper solid sealing rings — DIN 7603 A

Type	Content	Dimensions	
CU SORTI 540	540 pieces	30 dimensions	4 - 33 mm
CU SORTI 1500	1500 pieces	12 dimensions	10 - 42 mm
CU SORTI 3000	3000 pieces	12 dimensions	4 - 22 mm

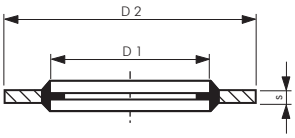
Gasket assortment copper filter gaskets, asbestos-free — DIN 7603 C

Advantages: • with soft core, e.g. for oil drain plugs

Type	Content	Dimensions	
CA SORTI 500	500 pieces	28 dimensions	6 - 33 mm
CA SORTI 1500	1500 pieces	12 dimensions	10 - 42 mm
CA SORTI 2000	2000 pieces	11 dimensions	6 - 22 mm

Hydraulic gaskets with NBR inserts (self-centering)

Materials: Zinc-plated steel, with NBR insert
Temperature range: -20°C to max. +80°C
Operating pressure: 400 bar D2 ≤ 40, 250 bar D2 > 40, for countersinking: 1000 bar



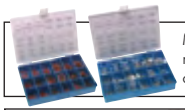
Advantages:
- After attaching to the thread, the gasket is held in place by the retaining lip
- Sealing effect does not depend on torque
- Relatively resistant to heavy tightening of a screw connection

Type	Thread	D1	D2	s
For imperial threads				
DR 18 HD	G 1/8"	10.4	15.9	2.0
DR 14 HD	G 1/4"	13.7	20.6	2.0
DR 38 HD	G 3/8"	17.3	23.8	2.0
DR 12 HD	G 1/2"	21.5	28.6	2.0
DR 34 HD	G 3/4"	27.1	34.9	2.5
DR 10 HD	G 1"	33.9	42.8	2.5
DR 114 HD	G 1 1/4"	42.9	52.4	2.5
DR 112 HD	G 1 1/2"	48.4	58.6	2.5
DR 20 HD	G 2"	60.6	73.0	2.5

Type	Thread	D1	D2	s
For metric threads				
DR M8 HD	M 8	8.7	14.0	1.0
DR M10 HD	M 10	10.4	15.9	2.0
DR M12 HD	M 12	12.7	18.0	1.5
DR M14 HD	M 14	14.7	22.0	1.5
DR M16 HD	M 16	16.7	24.0	1.5
DR M18 HD	M 18	18.7	26.0	1.5
DR M20 HD	M 20	20.7	28.0	1.5
DR M22 HD	M 22	22.7	30.0	2.0
DR M24 HD	M 24	24.7	32.0	2.0
DR M27 HD	M 27	27.1	34.9	2.0
DR M30 HD	M 30	30.8	38.0	2.0
DR M33 HD	M 33	33.9	42.8	2.5
DR M42 HD	M 42	42.9	52.4	2.5
DR M48 HD	M 48	48.4	58.6	2.5

Hydraulic gasket assortment

Type	Content	Dimensions
DRHD SORTI 145	140 pieces	8 dimensions from M8 to M22
DRHD SORTI 120 Z	120 pieces	5 dimensions from G 1/4" up to G 3/4" and 4 dimensions JIC-UNF 1/2", 9/16", 3/4", 7/8"



More gasket assortments can be found on page 600.

Sealing paper

Temperature range: -20°C to max. +120°C

Type	Material thickness/mm	Dimension cm
DIPA 25	0.25	50 x 250
DIPA 50	0.50	50 x 250
DIPA 75	0.75	50 x 250

Sealing paper, heat resistant

Temperature range: -100°C up to max. +225°C (with application technical test to max. +400°C)

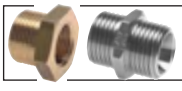
Type	Material thickness/mm	Dimension cm
DIPAH 150	1.5	100 x 100

Cork seals

Temperature range: -20°C to max. +120°C

Type	Material thickness/mm	Dimension cm
DIKO 100	1.0	100 x 100
DIKO 200	2.0	100 x 100

Cutting ring fittings from page 77


Threaded fittings from page 102

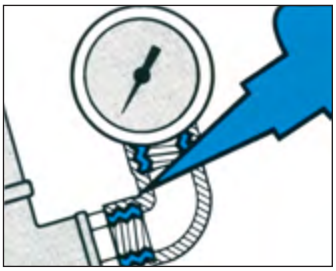
Flanges from page 260

Flange seals can be found on page 265.

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Loxeal anaerobic adhesives/seals

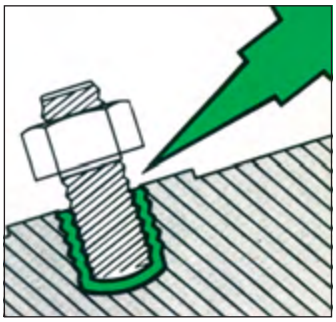
Function: These liquid polymeric materials undergo curing together with metals in a hermetically sealed environment. They find applications in securing, mounting and sealing threaded connections, surface joints and joint connections.
Note: Passive surfaces, such as stainless steel, chrome, nickel, zinc or plastic, should be pre-treated with AKTIVATOR to ensure optimum adhesion.



Loxeal and LOCTITE® thread seals

Outstanding value! Type Loxeal	Type Loctite*	Packing ml	Temperature range	Max. gap mm	Break-out torque Nm	Function
18-10/50	511/50	50	-55°C to +150°C	0.30	6-11	Tube seal up to 2" with PTFE, approved for gas (DVGW) and drinking water (KTW, WRAS)
18-10/250	511/250	250	-55°C to +150°C	0.30	6-11	
53-14/10	542/10	10	-55°C to +150°C	0.15	12-16	Tube seal up to 3/4" moderately stiff for hydraulic and pneumatic fittings, approved for gas (DVGW)
53-14/50	542/50	50	-55°C to +150°C	0.15	12-16	
53-14/250	542/250	250	-55°C to +150°C	0.15	12-16	
55-37/50	---	50	-55°C to +150°C	0.25	18-22	Flexible seal to 1 1/2", approval for gas (DVGW) and water (KTW)
55-37/250	---	250	-55°C to +150°C	0.25	18-22	
58-11/50	577/50	50	-55°C to +150°C	0.50	18-22	Tube seal up to 3" moderately stiff, approved for gas (DVGW up to 2"), water (WRAS) and oxygen (BAM)
58-11/250	577/250	250	-55°C to +150°C	0.50	18-22	
85-86/50	620/50	50	-55°C to +200°C	0.30	28-36	High-strength sealant up to 2", approved for gas (HSE) and drinking water (KTW), Loctite without approvals
85-86/250	620/250	250	-55°C to +200°C	0.30	28-36	

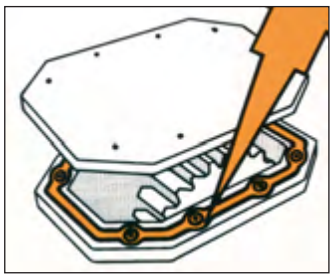
* Similar properties, see page 555 and on for technical data or request that information from us



Loxeal and LOCTITE® screw-type locker

Outstanding value! Type Loxeal	Type Loctite*	Packing ml	Temperature range	Max. gap mm	Break-out torque Nm	Function
24-18/50	222/50	50	-55°C to +150°C	0.20	5-8	Low strength to M 24, vibration resistant
24-18/250	222/250	250	-55°C to +150°C	0.20	5-8	
55-03/10**	243/10	10	-55°C to +150°C	0.25	18-23	Medium strength to M 36, for oily surfaces, approved for gas (DVGW) and water (WRAS)
55-03/50**	243/50	50	-55°C to +150°C	0.25	18-23	
55-03/250**	243/250	250	-55°C to +150°C	0.25	18-23	
83-05/50***	---	50	-55°C to +200°C	0.50	20-30	High-strength up to M56 screw and thread sealant for stainless steel and passive materials without the use of an activator
83-05/250***	---	250	-55°C to +200°C	0.50	20-30	
70-14/50	290/50	50	-55°C to +150°C	0.07	15-25	
70-14/250	290/250	250	-55°C to +150°C	0.07	15-25	
---	2701/10	10	-55°C to +150°C	0.15	25-35	High-strength up to M 20 for mounting bolts, nuts and pins.
---	2701/50	50	-55°C to +150°C	0.15	25-35	
---	2701/250	250	-55°C to +150°C	0.15	25-35	
86-72/50**	272/50	50	-55°C to +230°C	0.30	25-35	High-strength to M 56, high temperature resistant, approved for gas (DVGW)
86-72/250**	272/250	250	-55°C to +230°C	0.30	25-35	

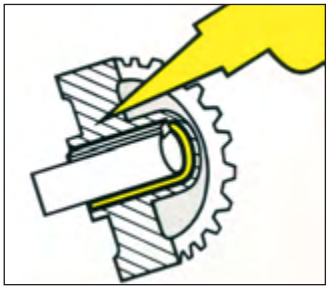
* similar properties, technical date see starting on page 554 or request this from us ** can also be used as thread sealing *** can also be used as joint connection



Loxeal and LOCTITE® face seals

Outstanding value! Type Loxeal	Type Loctite*	Packing ml	Temperature range	Max. gap mm	Tensile strength N/mm²	Function
28-10/75	573/50[1]	75	-55°C to +150°C	0.30	2-4	Flexible for precise connections
28-10/250	573/250	250	-55°C to +150°C	0.30	2-4	
58-14/75	574/50[1]	75	-55°C to +150°C	0.50	5-8	Flexible to fill medium gaps
58-14/250	574/250	250	-55°C to +150°C	0.50	5-8	
58-31/75	518/65[2]	75	-55°C to +180°C	0.50	7-10	Hardens quickly, resistant to strong vibrations
58-31/250	518/300[3]	250	-55°C to +180°C	0.50	7-10	
59-20/310	510/300[3]	310	-55°C to +180°C	3.0	1.8-3	On a silicone basis, oil resistance, for large gap filling

* Similar properties, see page 555 and on for technical data or request that information from us
[1] Packing 50 ml, 2) Packing 65 ml, 3) Packing 300 ml



Loxeal and LOCTITE® joint connections

Outstanding value! Type Loxeal	Type Loctite*	Packing	Temperature range	Max. gap mm	Pressure shearing resistance N/mm²	Function
53-11/50	641/50	50 ml	-55°C to +150°C	0.12	8-12	removable
82-33/50	603/50	50 ml	-55°C to +150°C	0.10	17-22	For fits with oily surfaces
82-33/250	603/250	250 ml				
83-21/10	648/10	10 ml	-55°C to +175°C	0.12	25-35	High-strength, fast hardening Approved for oxygen (BAM)
83-21/50	648/50	50 ml				
83-21/250	648/250	250 ml				
89-51/75	660/50[1]	75 ml	-55°C to +150°C	0.50	25-30	Renewal of worn shafts and threads

* Similar properties, see page 556 and on for technical data or request that information from us
[1] Packing 50 ml

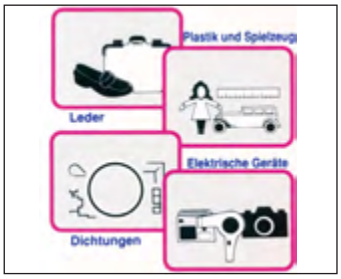
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Manual dispensing guns for anaerobic adhesives

Type Loctite	Used for	Description
98414	50 ml bottle	Affordable manual dispensing device. Compatible with all anaerobic adhesives (Loctite and Loxeal).
97001	250 ml bottle	

Loxeal and LOCTITE® instant adhesive (cyanoacrylate adhesive)

Temperature range: -50°C to max. +80°C



Type Loxeal (Outstanding value!)	Type Loctite*	Packing	Setting time	Function
SK 43/20	401/20	20 g	2-5 sec.	Universal type - Standard
SK 43/50	401/50	50 g		
SK 43/500	401/500	500 g		
SK 14/20	---	20 g	4-8 sec.	For metal, rubber and plastic
SK 14/50	---	50 g		
SK 29/20		20 g	8-15 sec.	Black adhesive for impact resistant metal/metal and metal/plastic bonding
SK 29/500		500 g		
SK 32/20	406/20	20 g	1-2 sec.	Hardens quickly, for rubber, EPDM and microcellular rubber, O-ring repairs
SK 32/50	---	50 g		
SK 32/500	---	500 g		
SK 47/20	454/20	20 g	4-8 sec.	For porous and absorbent surfaces and larger tolerances. Processing possible on vertical surfaces, gel
SK 63/20	---	20 g	8-15 sec.	odourless, non-blooming

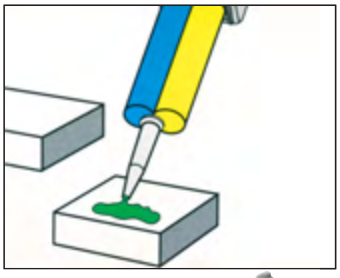
* similar properties, see page 558 and on for technical data or request that information from us

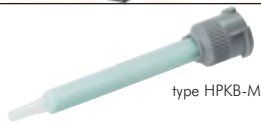
Loxeal primer and activator

Type Loxeal	Type alternative (Outstanding value!)	Packing	Function
Primer			
PRIMER 7	---	20 ml Glass with brush	Surface treatment for cyanoacrylate adhesives of plastics with poor adherence properties such as PE, PP, thermoplastic elastomers, silicone and PTFE.
Activator			
AKTIVATOR 9	---	200 ml Spray can	Speeds up the hardening for cyanoacrylate (instant adhesive) on porous or absorbent surfaces, prevents blooming.
AKTIVATOR 11 L	AKTIVATOR 11	200 ml Spray can	Activates passive surfaces such as stainless steel, zinc, nickel or plastic. Speeds up the hardening for anaerobic adhesives. .

Loxeal 2-component adhesive in double cartridge

Temperature range: -30°C to max. +80°C
Processing: For the exact dosage, the HPK manual gun with mixing nozzle is required in the case of the 50 ml dual cartridge. For the 25 ml twin syringe, no manual gun is required. However, we recommend the use of the mixing nozzle HPKB-MD.





type HPKB-MD

Type	Packing	Tensile strength (N/mm^2)	Pot life	Function
31-42/25	25 ml twin syringe	12-14	5 min	Standard, clear and colourless
31-42/50	50 ml dual cartridge*			
35-44/50	50 ml dual cartridge*	5-9	20 min	Clear, flexible, high peel strength
34-15/50	50 ml dual cartridge*	5-10	35 min	Elastic, high shock resist. and peel strength
36-10/50	50 ml dual cartridge*	12-18	1-2 hours	High-strength
Accessories				
HPK	Dispensing gun with dual cartridge insert for processing 2-component adhesives (50 ml)			
HPKB-MD	Mixing nozzle (B system) for 25 ml twin syringe and 50 ml dual cartridge			

* Dispensing gun required

Leak detection sprays

Type	Packing	Function
LSS	400 ml Spray can	Leak detection spray (DVGW approved). Spray the area to be tested, any leaks will be indicated by foaming. Suitable for compressed air, heating and compressed gas equipment of all types, air tanks, screw connections, valves and fittings. With corrosion protection, non-flammable.
LSS-5	5 l canister (DIN 51)	
Accessories for canister goods		
DPZ 10		Professional pressure pump atomiser for approx. 1 litre REINIGER M-5/10, REINIGER LE-1, LSS-5 leak detection spray (not REINIGER i-5), materials: PP/FKM.
KHA DIN51		Drain cock for 5 l and 10 l canisters (DIN 51). Reusable.

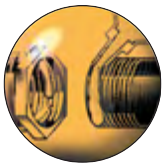
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

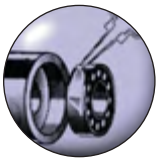
Chemical auxiliary materials for workshop and repair

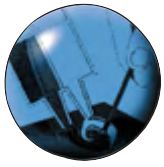
The basic guideline for solving technical problems

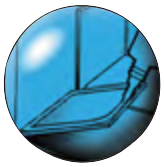
Secure screws
Page 554

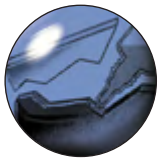
Seal surfaces
Page 555

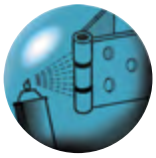

Seal threads
Pages 555-559

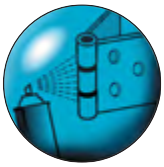

Shaft/hub joints
Page 556


Structural bonding
Page 557


Elastic bonding
Page 558


Bonding with instant adhesive
Page 558


Industrial lubricants
Page 559


Assembly aids
Page 559

Repair loosenings
Page 560

Cleaning
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Prepare surfaces
Page 561

Dispensing aids
Page 561

Thread lockers

LOCTITE

Liquid screw-type locker

Type Loctite	Type Loxeal**	Packing	Thread size	Functional strength*	Break-out torque	Description
Medium strength (temperature range: -55°C to max. +180°C)						
243/5	---	5 ml	Up to M 36	2 h	26 Nm	Recommended for all metal threaded connections up to M 36 threads. The connections can be disassembled using normal hand tools. **Tolerates oily contaminants to a small extent.**
243/10	55-03/10	10 ml				
243/50	55-03/50	50 ml				
243/250	55-03/250	250 ml				
High strength (temperature range: -55°C to max. +150°C)						
290/10	---	10 ml	Up to M 6	3 h	10 Nm	Recommended for **later securing of screws.** Ideally suited for setting screws, bolts on maintenance holes, carburettor screws etc.
290/50	70-14/50	50 ml				
290/250	70-14/250	250 ml				
2701/5	---	5 ml	Up to M 20	6 h	38 Nm	Improved Loctite 270. Recommended for all metal threaded connections, including **passive materials**, such as high alloyed steel. Ideal for strong vibrations and shock resistant threaded connections, z.g. Stay bolts on motors or pumps etc. **DVGW approval**
2701/10	---	10 ml				
2701/50	---	50 ml				
2701/250	---	250 ml				
270/10	83-54/10	10 ml	Up to M 20	6 h	33 Nm	Recommended for all metal threaded connections. Ideal for strong vibration and shock stressed threaded connections, e.g. stay bolts on motors or pumps etc., temperature range -55°C to max. +180°C (type 272 to max. +200°C)
270/50	83-54/50	50 ml				
270/250	83-54/250	250 ml				
272/50	86-72/50	50 ml	Up to M 80	24 h	23 Nm	
272/250	86-72/250	250 ml				
Stick - medium strength (temperature range: -55°C to max. +150°C)						
248/19		19 g (Stick)	Up to M 50	6 h	19 Nm	Recommended for hard to reach glue joints or for bonding parts that cannot be moved. No spills or drops. Effective with all metal screw threads up to M 50. The connections can be disassembled using normal hand tools.
Stick - high strength (temperature range: -55°C to max. +150°C)						
268/19		19 g (Stick)	Up to M 50	24 h	25 Nm	Recommended for hard to reach glue joints or for bonding parts that cannot be moved. No spills or drops. Effective with all metal screw threads up to M 50.

* average value at 22°C, **Similar properties (see page 552 and on for technical data or request that information from us.)

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Face seals

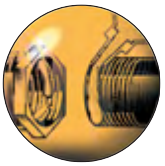
Type Loctite	Type Loxeal**	Packing	Immediate tightness	Max. gap width	Description
For rigid flanges (temperature range: -55°C to +150°C)					
574/50	58-14/75[1]	50 ml	Yes	0.5 mm	Suitable as a face seal **for use on rigid metal flanges like**, e.g. cast housings, pumps, etc. Excellent resistance to oil, water/glycol.
574/250	58-14/250	250 ml tube			
518/50	58-31/75[1]	50 ml	Yes	0.5 mm	Elastic face seal for medium to high-strength connections. With its high viscosity form, it is ideal **for vertical surfaces and overhead work.** Excellent resistance to oil, water/glycol.
518/300	58-31/250[2]	300 ml cartridge			
For flexible flanges (temperature range: -60°C to +200°C)					
5910/50	---	50 ml	Yes	0.3 to 5 mm	**Permanently elastic face seal** also suitable for **non-rigid flanges,** for plastic/plastic and metal/plastic connections. Excellent coolant and oil resistance. Hardens with atmospheric moisture. Excellent resistance to oil, medium resistance to water/glycol.
5910/300	59-20/310[3]	300 ml cartridge			
5923/117	---	117 ml container	After	0.1 mm	Permanently elastic face seal. As a face seal or **to optimize solid seals.** Thin liquid, with a brush in the can lid. Excellent resistance to oil, water/glycol.
5923/450	---	450 ml container	Flash off		

** similar properties (see page 552 and on for technical data or request that information from us.)
[1] packing 75 ml, [2] packing 250 ml tube, [3] packing 310 ml

Thread seals

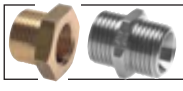
Type Loctite*	Type Loxeal**	Packing	Thread size	Immediat. tightness	Hardening speed	Description
Low strength (temperature range: -55°C to max. +150°C)						
511/50	18-10/50	50 ml	Up to 2"	No	Medium	Recommended for all **coarse metal threads** where a slow cure of the thread sealant is required. Applications: fittings, taps, valves for example. **DVGW approval**
511/250	18-10/250	250 ml				
5331/100	---	100 ml	Up to 3"	Yes	Quick	Low-strength, permanently elastic thread sealingfor sealing **threaded metal and plastic connections** conducting hot and cold water. For use on plastic tubes in industrial and agricultural applications or in drainage systems. Approved for gas **DVGW** and drinking water **(WRAS)**
5331/300	---	300 ml				
Medium strength (temperature range: -55°C to max. +150°C)						
542/10	53-14/10	10 ml	Up to 3/4"	No	Medium	Thread sealant for heavy-duty metal fine-thread connections up to 3/4", **e.g. pneumatic and hydraulic applications**. For uses in machinery construction, the automotive industry and in agricultural and construction machinery. **DVGW approval**
542/50	53-14/50	50 ml				
542/250	53-14/250	250 ml				
572/50	---	50 ml	Up to 3"	No	Extreme slow	Recommended for all **coarse metal threads** where a slow cure of the thread sealant is required. Applications: fittings, taps, valves for example.
572/250	---	250 ml				
577/50	58-11/50	50 ml	Up to 3"	Yes	Medium	For securing and sealing metal tube threads, and for applications at low temperatures, e.g. for maintenance work outside of industrial plants, etc., BAM approval for use with **oxygen** up to 15 bar and +60°C. **DVGW approval** for up to 2"
577/250	58-11/250	250 ml				
5776/50	---	50 ml	Up to 3"	Yes	Quick	Recommended for coarse metal threads. Especially for quick processing during maintenance work outside. **DVGW approval**.
High strength (temperature range: -55°C to max. +150°C)						
586/50	---	50 ml	Up to 2"	No	Medium	Recommended for all **coarse metal threads** where a slow cure of the thread sealant is required. Applications: fittings, taps, valves for example.
586/250	---	250 ml				

** similar properties (see page 552 and on for technical data or request that information from us.)



Cutting ring fittings from page 77

JIC, NPT, UNF and metric double nipples starting on page 104

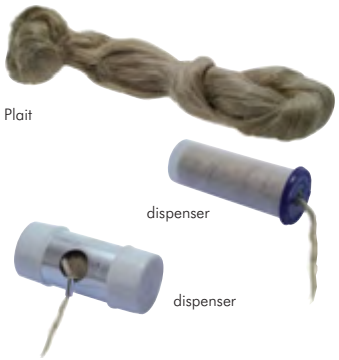

Threaded fittings from page 102

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Thread sealing fibre

Application: Thread sealing fibre for applying plastic and metal screw threads. Developed especially for pneumatic, hydraulic and sanitary applications. Replaces hemp, pastes and PTFE sealing tapes; does not harden and remains soft and adaptable (alternative type in addition: resistant against almost all known chemicals, absolutely inactive)
Media: Loctite type: Air, drinking water (max. 16 bar, max. +85°C), hot water (max. 7 bar, max. +130°C), gas (max. 5 bar, -20°C to +70°C), oxygen (max. 20 bar, max. +60°C), industrial oils
Alternative type: Air, drinking water, gas (gaseous form max. 5 bar, liquid form max. 20 bar, -20°C to +125°C), propane, butane, ammonia, hydrogen, oxygen (max. 30 bar, max. +100°C - gaseous form with lubricant, liquid form without lubricant), oils, solvents, acids, alkalis, fuels, refrigerants, steam
Approvals: DVGW gas and hot water, KTW recommendation, WRAS, BAM for oxygen, (Loctite type, additionally NSF 61, alternative type, additionally ASTM F423 steam & cold water as well as KIWA GASTEC)

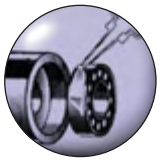
Type **Loctite**	Type **alternative**	Packing	Thread	Temperature range
55/50	---	50 m	Up to 4"	-20°C to max. +130°C
55/160	---	160 m	Up to 4"	-20°C to max. +130°C
---	DB 55/175	175 m	Up to 4"	-200°C to max. +240°C



Seal flax*

Type	Description
Plait	
FLACHS MAZZONI	Original seal flax MAZZONI "1A Extra", braid with approx. 200g
Dispenser	
FLACHS DISP 40	Seal flax in the dispenser, approx. 40g
FLACHS DISP 80	Seal flax in the dispenser, approx. 80g
Dispenser	
FLACHSI	Flax dispenser "FLACHSI" +GF+ (without flax coil)
FLACHSI SPULE	Flat coil for "FLACHSI", original +GF+
FLACHSI SPULE B	Flat coil for "FLACHSI", alternative

* only use for metal connections!



Joints

Type **Loctite**	Type **Loxeal****	Packing	Bonding gap	Fixing time*	Description
High strength (temperature range: To max. +150°C, type 638 & 648: To max. +180°C, type 620: To max. +230°C)					
638/10	85-21/10	10 ml	Up to 0.25 mm	4 min.	Special joint products with **very high gap filling and excellent temperature stability (to +180°C).** For adhesion of components that are used in gears, pulley blocks or similar applications. Also well-suited to passive surfaces such as stainless steel. **DVGW, NSF and WRAS approval.**
638/50	85-21/50	50 ml			
638/250	85-21/250	250 ml			
620/50	---	50 ml	Up to 0.2 mm	80 min.	Special joint products with **high gap filling and extended temperature stability (to +230°C).** For mounting dowels in coolers, slide bushes in pump housings and bearings in vehicle gearboxes.
620/250	---	250 ml			
648/10	83-21/10	10 ml	Up to 0.15 mm	3 min.	Joint products with good gap filling, quick touch-safe and **excellent temperature stability (up to +180°C).** For mounting bearings, shafts, etc. Also well-suited to passive surfaces such as stainless steel. **DVGW, NSF and WRAS approval.**
648/50	83-21/50	50 ml			
648/250	83-21/250	250 ml			
603/10	---	10 ml	Up to 0.1 mm	8 min.	For fixing cylindrical components with limited gaps. Is particularly suited for **bearing attachment**. Tolerates **oily contaminants** to a small extent. Tested and recommended for leading manufacturers of roller bearings.
603/50	82-33/50	50 ml			
603/250	82-33/250	250 ml			
660/50	---	50 ml	Up to 0.5 mm	20 min.	**Quick metal** with a very high gap filling. Ideal for repairing worn out bearing seats, shafts, bushes and feather keys. Use with Loctite 7240 activator.
---	89-51/75	75 ml	Up to 0.3 mm	30 min.	
Medium strength (temperature range: -55°C to max. +150°C)					
641/10	---	10 ml	Up to 0.1 mm	30 min.	Recommended for cylindrical parts that are **continuously maintained and, if necessary, removed,** such as e.g. mounting of bearings on shafts or in bearing housings.
641/50	53-11/50	50 ml			
641/250	---	250 ml			

* average value at 22°C, **Similar properties (see page 552 and on for technical data or request that information from us.)

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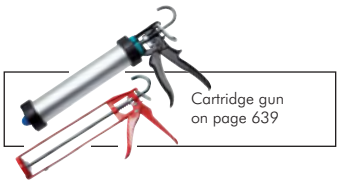
Structural adhesives

LOCTITE®

Type Loctite	Packing	Temperature range	Processing duration*	Fixing time*	Description
2 component epoxy adhesives					
3421/50 3421/200	50 ml Double cartridge** 200 ml Double cartridge**	To +120°C	150 min.	240 min.	**Universal** dual component epoxide adhesive for adhesion of larger surfaces requiring exposure for an extended period of time. Ideal for adhesion of parts exposed to high **degree of humidity,** such as the internal equipment in boats or the lamination of surfing boards. Colour: Transparent, amber-coloured
9466/50 9466/400	50 ml Double cartridge** 400 ml Double cartridge**	To +120°C	60 min.	180 min.	Medium viscosity, low density, high strength and **shock resistance** make this adhesive stand out. This high-strength 2 component epoxy adhesive is ideal for applications requiring a long setting time and **a high bonding resistance**. Excellent for a wide-range of materials: Metals, ceramics and most plastics, for example. Colour: Light beige
9492/50 9492/400	50 ml Double cartridge** 400 ml Double cartridge**	To +180°C	15 min.	75 min.	**High temperature resistant**, universally applicable 2 K epoxy adhesive, with which a wide variety of materials can be bonded and repaired. Resistant to solvents, low outgassing, temperature resistant, electrically insulated and particularly shock resistant. Colour: White
3430/24 3430/50 3430/200	24 ml twin syringe 50 ml Double cartridge** 200 ml Double cartridge**	To +80°C	4 min.	12 min.	Medium viscosity, high transparency and high strength are this adhesive's characteristics. This is a five-minute 2 component epoxy adhesives for applications needing an optically transparent bond. **Ideal for bonding glass**, decorative panelling and displays as well as general DIY use. Colour: Clear
3450/25	25 ml Twin syringe	To +100°C	5 min.	15 min.	This adhesive features medium viscosity and high strength. It is a five-minute, two-component epoxy adhesive. Suited for rough and uneven surfaces made of metal, ceramic, duroplasts and wood. **Ideal for metal repairs.** Colour: Grey
2 K acrylate					
330/7388/50	50/40 ml	To +100°C	---	5 min.	Two components, no mixing, quick hardening, impact resistant adhesive with excellent shock resistance. Suitable for metals and various plastics including PC, PVC and acrylic glass. Colour: Light grey

* average value at 22°C, ** dispensing gun required (see page 561)



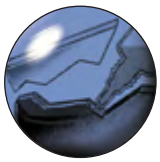
Cartridge gun on page 639

Adhesives and sealants

fischer

Type fischer	Type alternative*	Colour	Description
Adhesive sealants			
FISCHER MK	---	White	**Mounting adhesive "MK"** dispersion adhesive for adhesive applications indoors. Hardens by water evaporation. At least one of the components to be glued must have a suction function. Packing: 310 ml cartridge Temperature range: -20°C to max. +70°C
FISCHER KK	---	Beige	**Construction adhesive "KK"** on the PUR basis for adhesive applications outdoors and indoors. Hardening is carried out under the influence of air humidity. At least one of the components to be glued must have a suction function. Packing: 310 ml cartridge Temperature range: -40°C to max. +110°C
FISCHER KD	KLEDI STRONG	White	**Multi-adhesive and sealing compound "KD"** with MS polymer base for adhesive and sealing applications. Complies with EN 15651-1: F-EXT-INT-20HM (facade element exterior/interior), EN 15651-3: S-XS1 (sanitation) and EN 15651-4: PW-INT (interior floors). Hardening is carried out under the influence of air humidity. At least one of the components to be glued must have a suction function. Packing: 290 ml cartridge Temperature range: -50°C to max. +200°C

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

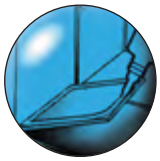


Bonding with instant adhesives

LOCTITE®

Type Loctite	Type Loxeal**	Packing	Temperature range	Fixing time*	Description
Universal					
401/3	---	3 g	To +120°C	3 - 10 sec.	**Universal** instant adhesive. Bonds the widest variety of material composites, including porous (plastics, elastomers, metals, paper, cardboard, wood). Approval for foodstuff P1 NSF.
401/5	---	5 g			
401/20	SK 43/20	20 g			
401/50	SK 43/50	50 g			
401/500	SK 43/500	500 g			
Universal Gel					
454/3	---	3 g	To +120°C	5 - 10 sec.	Universal instant adhesive-**gel** for bonding metals, other bonding materials, wood, cork, foamed materials, leather, cardboard, paper and ceramics. Recommended for application on vertical surfaces or for overhead work. Approval for foodstuff P1 NSF.
454/10	---	10 g			
454/20	SK 47/20	20 g			
454/300	---	300 g			
For plastics and elastomers					
406/20	SK 32/20	20 g	To +120°C	2 - 10 sec.	Quick adhesion of **rubbers (including EPDM), plastics and elastomers**. In combination with the primer 7239/4, even plastics with poor adherence properties, such as FKM or PP, adhere to each other.
---	SK 32/50	50 g			
406/100	---	100 g			
406/500	SK 32/500	500 g			
For flexible materials					
4850/5	---	5 g	To +80°C	3 - 10 sec.	**Flexible** instant adhesive, medium viscosity, fast hardening, transparent. Especially developed for the assembly and repair of flexible materials and components. Typical fields of application: joining of materials for production, repair of flexible seals and sleeves, and assembly of loudspeaker components.
4850/20	---	20 g			
4850/500	---	500 g			
For metals and plastics, impact resistant					
480/20	SK 29/20	20 g	To +100°C	20 - 50 sec.	Black, **impact resistant** instant adhesive. For metal/metal and metal/rubber bonding. Excellent shear and impact-resistance.
480/100	---	100 g			
480/500	SK 29/500	500 g			
For metals					
496/20	---	20 g	To +110°C	20 - 60 sec.	Colourless universal adhesive, especially for the adhesion of **metallic materials**, but also suitable for rubber and plastic materials.
496/50	---	50 g			
496/100	---	100 g			
496/500	---	500 g			
Gel for gaps of up to 5 mm					
3090/10	---	10 g	To +80°C	90 - 150 sec.	For use with gaps of up to 5 mm or with surplus adhesives (for use where a good visual appearance and minimal blooming are required), for porous materials such as wood, paper, leather, cork and textiles.

* average value at 22°C, **Similar properties (see page 553 and on for technical data or request that information from us.)



Elastic adhesives

LOCTITE®

Type Loctite	Type alternative***	Colour	Packing	Temperature range	Skin form. time*	Description
Universal, also suitable for glass						
5366	---	Clear	310 ml Cartridge	To +250°C	5 min.	**Permanently elastic adhesive and sealant** hardens to a permanently elastic rubber. Recommended for sticking, sealing and protecting parts exposed to vibrations. Suitable for glass, metal, ceramic, composite materials as well as most plastics.
5367	KLEDI STRONG	White				
5368**	---	Black				
Especially suited for high temperature applications						
5399	KLEDI HT-R	Red	310 ml Cartridge	To +350°C	5 min.	**High temperature resistant**, permanently elastic adhesive and sealing compound. Suitable for bonding and sealing glass, metal and ceramics. Temperature resistant up to max. 350°C. Applications e.g. industrial furnaces, fireplaces, electrical equipment and ventilation systems.

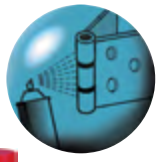
* average value at 22°C,**additionally resistant to oil up to max. +150°C and coolants up to max. +100°C,
* similar properties (technical data, see page 639)

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Industrial lubricants

Type Loctite	Type alternative*	Packing	Temperature range	Description
Universal use				
8201/400	WD 40-400	400 ml spray can	-20°C to +120°C	**Universal lubricant** for releasing, lubrication, cleaning, moisture displacement, corrosion protection. To release frozen and corroded screws, nuts and hinges, to clean metals and plastics and to lubricate small parts.
Especially suited for lubricating chains				
8011	---	400 ml spray can	-30°C to +250°C	High temperature oil spray. The oxidation resistance extends the life of the lubricant. This product is used to **lubricate gears, conveyor belts and chains** which might be exposed to high temperatures of up to 250°C. H2 NSF
Cutting oil				
8030/250	---	250 ml bottle	---	**Cutting oil** protects cutting tools. For machining operations such as drilling, turning, milling, sawing and thread cutting steel and non-ferrous metals. Particularly suitable for stainless steel.
8031	SCHNEIDOLSPRAY	400 ml spray can	---	
Silicone oil				
8021	---	400 ml spray can	-30°C to +150°C	**Silicone oil** is ideal for plastics and elastomers.
Dry lubricants				
8191	---	400 ml spray can	-180°C to +450°C	MoS_2 dry lubricant **for universal use**. Protects surfaces from seizing and corrosion. Improves the performance of oils and greases.
8192	PTFESPRAY	400 ml spray can	-180°C to +260°C	PTFE dry lubricant with **approval for foodstuff.** The guide CNERNA approved in 1992. Ideal for application in roller bars and conveyor belts. H2 NSF

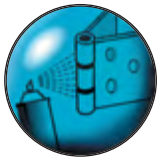
* similar properties (see page 575 and on for technical data or request that information from us.)



Assembly aids

Type Loctite	Type alternative*	Packing	Temperature range	Description
Anti-seize, free of metal				
8156/500	PASTE ES	500 g container	-25°C to +900°C	**Universal, white metal-free** anti-seize is recommended where cleanliness is critical. Can be used on stainless steel, copper alloys, in humid environments and for all other standard uses. SECLF 216
Anti-seize with approval for foodstuff				
8014	---	907 g container	-30°C to +400°C	**White, metal-free** anti-seize with **approval for foodstuff**. For use with stainless steel components that are used in the food and packaging industry. This product can also be used in humid environments. FDA 21 CFR 178-3570, H1 NSF
Assembly paste				
8012/450	---	454 g brush tin	-30°C to +400°C	**MoS_2 assembly paste** with unsurpassed lubricating characteristics, a high pressure capacity and ideal properties to protect parts during run up (cold starts) and in operation.
Aluminium-based anti-seize				
8150/500	---	500 g container	-30°C to +900°C	**High-temperature resistant**, grey anti-seize, which protects the threaded connections from seizing and corrosion.
8150/1000	---	1 kg container		
8151/400	---	400 ml spray can		
Stick - C5-A anti-seize, copper based				
8065/20	---	20 g (Stick)	-30°C to +980°C	C5-A® anti-seize pen **copper based** for screws, nuts, pipes, heat exchangers, etc. Typical fields of application: Screws on exhaust systems and brake callipers. MIL-PRF-907E

* similar properties (see page 580 and on for technical data or request that information from us.)



Cleaning technology on page 582

Stainless steel screw connections from page 78

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Metal Magic Steel (TM) Stick

LOCTITE

Loctite 3463 is a kneadable, two component repair material to fill and repair cracks and defects in housings and pipelines. The material sticks to dry and wet surfaces and even cures under water. When cured, the material can be machine finished and painted.

Type **Loctite**	Type **alternative**	Processing time	Hand tight	Hardening	Temperature range
3463	KALTMETALL*	3 minutes	6 minutes	10 minutes	-30°C to +120°C

* temperature range: -35°C to max. +180°C, hardening in 30 minutes

Pipe Repair Kit

LOCTITE

Loctite 5070 is designed to be used for quick repairs to steel of plastic pipes/tubes, or to reinforce vulnerable areas.
Supply volume: The set includes protective gloves, Loctite 3463 and a urethane-impregnated GFK-tape

Type	Processing time	Temperature range
5070	3 minutes	-30°C to +120°C

Tape band (extra strong)

LOCTITE

Adhesive tape for repairing, reinforcing, mounting and sealing. Suitable for all applications in plumbing and heading systems as well as automotive and industrial applications.

Advantages:
- Can be torn by hand
- Temperature range from -10°C to max. +70°C
- 100% water resistant
- Pressure resistant up to 4 bar

Type **Locite**	Type **alternative***	Roller length
5080/25	---	25 m
5080/50	KLBG 50/50 SIL	50 m

* similar technical data, temperature range: 0°C to +60°C max., please request the rest

O-ring set

LOCTITE

With this set you can create your own O-rings in seconds.
The round cord included is cut to length and glued together in seconds using a special adhesive. The bond is as strong as the rubber itself.
Supply volume: NBR round cords (each 1 m) in diameters 1.6 mm, 2.5 mm, 3.2 mm, 5.9 mm, and 8.8 mm, cutting template, cutting knife, Loctite 406 adhesive, complete in a practical plastic case

Type **complete set**
ORSET

Adhesive for rubber (round cords)

LOCTITE

Type **Loctite**	Type **Loxeal****	Packing	Temperature range	Fixing time*	Description
406/20	SK 32/20	20 g	To +120°C	2 - 10 sec.	Quick adhesion of **rubbers (including EPDM), plastics and elastomers**. In combination with the primer 7239/4, even plastics with poor adherence properties, such as FKM or PP, adhere to each other.
---	SK 32/50	50 g			
406/100	---	100 g			
406/500	SK 32/500	500 g			

* average value at 22°C, **Similar properties (see page 553 and on for technical data or request that information from us.)

Fast rust dissolver

LOCTITE

Type	Packing	Function
8040	400 ml Spray can	Cools rusted up and seised parts (bolts, screws, nuts) to a temperature of approximately - 43°C. From a "shock freezing effect" microscopic cracks open in the layer of rust that can then be penetrated by the lubricant contained in the spray. Immediately afterwards the treated parts can be undone with minimal effort.

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Cleaner

Type Loctite	Type alternative*	Packing	Description
Hand cleaner			
7850/400	FAST ORANGE/440[1]	400 ml bottle	**Hand cleaner** with pumice and orange scent for gentle cleaning up soiled hands without water. Removes oil, soot, tar, grease, glue, paint, resin and even bad smells. Dermatologically tested, biologically degradable.
7850/3000	FAST ORANGE/3800[2]	3 l pump canister	
Adhesive and sealant compound remover			
7200	SPEZIALREINIGER	400 ml Spray can	**Removes hardened sealant and adhesives** from most surfaces within 10 to 15 minutes.
Contact cleaner			
7039	---	400 ml Spray can	**Contact cleaner** does not attack insulating varnish. For the cleaning of contacts, potentiometers, relays, fuses and connection elements, in terms of moisture displacement, it leaves a water repellent film.
Universal cleaner			
7840/750	---	750 ml spray bottle	**Universal cleaner**, biologically degradable, solvent-free, non-toxic and non-inflammable, can be diluted with water. Removes grease, oil, cutting oil and factory dirt.
7840/5000	---	5 l canister (DIN 38)	

* similar properties (technical data can be found in our Online Shop)
[1] 440 ml bottle, [2] 3800 ml pump canister

Prepare surfaces

Type Loctite	Type alternative*	Packing	Description
Cleaning and degreasing			
7063/400	INDUSTRIEREINIGER	400 ml Spray can	Part cleaning quickly before **applying the adhesives and sealing compounds**. Dries off quickly leaving no residues behind. Ideal for preparation of bonding surfaces. Can be used on metals, glass, rubber, the majority of plastics and painted surfaces.
7063/400P	---	400 ml pump bottle	
7063/10000	REINIGER i-5[1]	10 litre canister (DIN 51)	
Activator			
7240/90	AKTIVATOR 11[2]	90 ml spray can	Solvent-free activator to speed up the hardening **of anaerobic adhesives** on passive surfaces such as rust-free stainless steel, aluminium or passivated metals.
---	AKTIVATOR 11 L[4]	200 ml Spray can	
7458/500	---	500 ml container	Minimised blooming of **instant adhesives** following hardening while at the same time optimizing the bonding resistance. Low odour. Recommended for all application areas where rapid hardening and aesthetics are important role, such as in the manufacture or repair of loud speakers and electrical equipment housings where a clean and uniform adhesive joint is important.
Primer			
7239/4	PRIMER 7[3]	4 ml	Universal primer, suitable for application in all industrial plastics for **improved adhesion of instant adhesives e.g. for FKM**.
Zinc spray			
7800	ZINKSPRAY	400 ml Spray can	Zinc spray, glossy, long-term corrosion protection for bright ferrous components. Corrosion protection for ferrous components post-processing and for the preservation of welding seams. Can also be used as a primer prior to painting. Temperature range: -50°C to max. +550°C

* similar properties (technical data can be found in our Online Shop)
[1] 5 litre canister (DIN 51), [2] 200 ml aerosol (especially economical), [3] 20 ml content

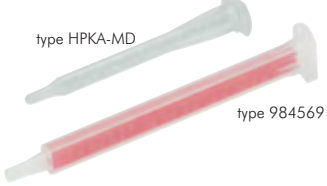
Dispensing devices

type 98414

type 97002

type 96003

type 96001

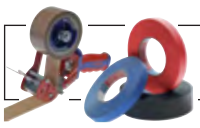

type HPKA-MD

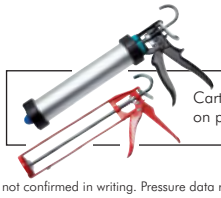
type 984569

Type Loctite	Type alternative*	Used for	Description
Manual dispensing gun			
98414	---	50 ml bottle	Affordable manual dispensing device. Compatible with all anaerobic adhesives (Loctite and Loxeal).
97001	---	250 ml bottle	
Cartridge gun* **			
97002	8000	310 ml cartridge	Can be controlled and metered pneumatically.
2 K cartridge gun			
96001	---	50 ml dual cartridge	Automatically mixes Loctite® structural adhesives in the right proportions. The application of the product-specific dose is done without losses.
96003	---	200 ml dual cartridge	
983438	---	400 ml dual cartridge	
Replacement mixer nozzles for 2-component cartridge gun			
984569**	HPKA-MD	50 ml dual cartridge	Replacement mixer nozzles (A system)
984570**	---	200 & 400 ml dual cartridge	

* similar properties (technical data can be found in our Online Shop), ** supply volume: 10 pieces,
*** more cartridge guns can be found on page 639

Industrial cleaner and cleaning cloths on page 582


tesa® tesa®-adhesive technology from page 585


Cartridge gun on page 639

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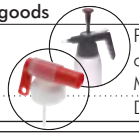
Industrial sprays

Industrial cleaners (brake cleaners)

Type	Packing	Function
INDUSTRIEREINIGER	500 ml Spray can	Specially for professional use in industry and assembly. Removes pore-deep grease, oil, dirt residues, soot, etc. Ideal for bonding surface preparation. Pleasant citrus scent.
REINIGER i-5	5 l canister (DIN 51)	Specially for professional use in industry and assembly. Removes pore-deep grease, oil, dirt residues, soot, etc.
Accessories for canister goods		
DPZ 10 PA		Professional pressure pump atomiser for approx. 1 litre cleaner (also solvent containing, but not acetone containing, e.g. REINIGER i-5, brake cleaner). Materials: PA/FKM.
KHA DIN51		Drain cock for 5 l and 10 l canisters (DIN 51). Reusable.



Leak detection sprays

Type	Packing	Function
LSS	400 ml Spray can	Leak detection spray (DVGW approved). Spray the area to be tested, any leaks will be indicated by foaming. Suitable for compressed air, heating and compressed gas equipment of all types, air tanks, screw connections, valves and fittings. With corrosion protection, non-flammable.
LSS-5	5 l canister (DIN 51)	
Accessories for canister goods		
DPZ 10		Professional pressure pump atomiser for approx. 1 litre REINIGER M-5/10, REINIGER LE-1, LSS-5 leak detection spray (not REINIGER i-5), materials: PP/FKM. Drain cock for 5 l and 10 l canisters (DIN 51). Reusable.
KHA DIN51		

Multi-function oils

Type	Packing	Function
MUFUOL	400 ml Spray can	Silicone- and resin-free multi-purpose oil, protects, maintains, lubricates, subverts water and dissolves rusted and oxidised connections. The corrosion additives form a protective, antistatic protective film, that prevents corrosion and wet formation. Does not negatively affect the conductivity of the hand-led material. Ideal for protection and care of all metal surfaces, electrical units, devices, motors, vehicles, weapons and tools. Pleasant vanilla scent.

Foam cleaners

Type	Packing	Function
SCHAUMREINIGER	400 ml Spray can	The cleaning foam easily removes dust, grease, nicotine accumulation, insects etc from various surfaces. The antistatic additive prevents dirt from accumulating again. Ideal for cleaning keyboards, monitors, writing tables etc.

Adhesive and sealant compound removers

Type	Packing	Function
SPEZIALREINIGER	400 ml Spray can	Dissolves and removes sealant, hardened adhesive residue, paint and varnishes quickly and easily. Dissolves oil, resin, grease and tar residues. Adhesive and sealant compound remover can be used on metal, glass, wood, ceramics, stone and many other materials. For delicate surfaces, perform preliminary trials.

Stainless steel care sprays

Type	Packing	Function
EDELSTAHLSPRAY	400 ml Spray can	Highly effective stainless steel care ingredients for streak-free cleaning of all stainless steel and chrome-plate surfaces. Removes and reduces fingerprints, light surface lubricant and makes surface look like new. Leaves a long lasting protective layer that repels water. Prevents the formation of new dirt. Meets all purity requirements of DAB 10 and the European pharmacopoeia.

Zinc sprays (long-term rust protection)

Type	Packing	Function
ZINKSPRAY	400 ml Spray can	Long-term rust protection with 99% pure zinc in accordance with DIN 50976. Electrically conductive, hence suitable for spot welding colour. For repair and optical adjustments of defects and welding seams. Firm adhesion, quick drying and weather resistant.

Zinc sprays (zinc corrective sprays)

Type	Packing	Function
ZINKSPRAY B	400 ml Spray can	Zinc corrective spray is an aluminium colour for repair and optical adjustment of damaged points and welding at the zinc-plated parts. Firm adhesion, quick drying and weather resistant.

Aluminium sprays

Type	Packing	Function
ALUSPRAY	400 ml Spray can	Corrosion protection with 99.5% aluminium content for exhaust systems, aluminium components, galvanised surfaces, damaged zinc plating and to coat metals and for surface finishing. Abrasion resistant, heat resistant and quick drying.

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Rust converter primers

Type	Packing	Function
ROSTUMWANDLER	400 ml Spray can	Rust converting elastic single part primer for particularly resilient repainting. For iron, aluminium and zinc coated, as well as corrugated iron, concrete and asbestos cement. Can be painted and sprayed over, extremely weather, heat, sea water, oil and petrol resistant.

Protective wax sprays

Type	Packing	Function
PROTECTSPRAY	400 ml Spray can	Protective wax for all metals and unpainted parts against rust, water, dirt, road salt, etc. The ideal protective film to preserve tools and precision parts. Long-term protection during oversea shipping. Easy to remove using INDUSTRIAL CLEANER.

PTFE sprays

Type	Packing	Function
PTFESPRAY	400 ml Spray can	Universally used as non-greasy sliding, lubricating and separating agents, e.g. on chutes in the plastics industry. Adheres to all materials, such as glass, rubber, wood, plastics and metal. Temperature stability from -60°C to a max. +260°C. Is water resistant and corrosion-protective at the same time. Ideal for the prevention of creaking and squeaking noises in various material composites. Reduces friction and wear, prevents dust formation. Especially suitable in demoulding processes caused by anti-bonding behaviour, for the coating of seals and O-rings, for lubricating purposes and as anti-bonding material.

Lubricant spray - transparent with high lubricating ability

Type	Packing	Function
HAFTSCHMIERSPRAY	400 ml Spray can	High pressure adhesive lubricant can be exposed to great loads and reduces wear. Adhesive, non-dripping for quick cycle. High creep and penetrating ability in chain joints, bolts, cable braids, bearing, etc. Reduces the required drive energy by reducing friction value. Corrosion protecting in aggressive environment. Transparent, colourless lubricating technology. Very economical because of high functional safety and secure long-term lubrication.

Refrigerant sprays

Type	Packing	Function
KALTESPRAY	400 ml Spray can	Quick acting agent for freezing and shrinking metals. To find errors like thermal breaks. Helps prevent heat damage when soldering.

Compressed air sprays

Type	Packing	Function
DRUCKLUFTSPRAY	400 ml Spray can	Easily removes dust and loose dirt even in areas that are not easily accessible. Sensitive surfaces can be cleaned without any contact.

Drilling and cutting oil sprays

Type	Packing	Function
SCHNEIDOLSPRAY	400 ml Spray can	Synthetic oil mixture with best corrosion behaviour. Excellent lubrication action with oxidation protection For all drilling and cutting tools and machines operated pneumatically and with compressed-air and tools operated at low temperature ranges. Extraordinary lubricating ability, even with clamped parts. Enables higher tool service life and reduces risk of breakage.

Silicone spray

Type	Packing	Function
SILIKONSPRAY	400 ml Spray can	Universal lubricating, separating, gliding and impregnating agent for the permanent care and protection of metal, rubber, and plastics. Eliminates squeaks and running noise, is waterproof, weather resistant, anti-static and dust-repellent.

Welding protection sprays, silicone-free

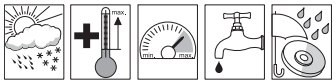
Type	Packing	Function
SCHWEISSSPRAY	400 ml Spray can	The silicone free separating agent prevents the adhesion of welding spatter, protects nozzles and parts from sticking of weld spatters, and does not affect subsequent painting. Increases the torch service life.

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

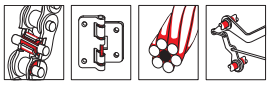
OKS Oils

OKS 340/341 - chain protector, extremely adhesive

Temperature range: -30°C to max. +180°C.
Field of application: Synthetic lubricant for machine components that are exposed to high pressures or corrosive effects.
Properties: Extremely high lubricating ability, extremely adhesive and excellent resistant to being thrown-off, excellent wear protection, O-ring neutral, for fast running chains.



Type	Packing
OKS 341-400ML	400 ml spray can
OKS 340-1L	1 l container
OKS 340-5L	5 l canister (DIN 51)
OKS 340-25L	25 l canister (DIN 61)



OKS 360/3601 - high performance corrosion protection for the food industry

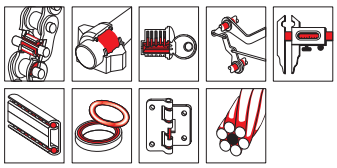
Temperature range: -40°C to max. +80°C.
Field of application: Oil-based corrosion protection as long-term protection for storage and transport of bare surfaces and machine components. Preservation with higher corrosive stress, e.g. industrial atmospheres, outdoor weathering under roof of semi-finished products and finished goods. Corrosion protection and lubrication of moving parts, e.g. valve spindles, piston rods, wire cables, drive and conveyor chains, hinges and guides Shipping protection from packaged and non-packaged machines and machine components in extreme climate conditions. Certified for use in food technology.
Properties: Optimum corrosion protection through high effectiveness of the corrosion protection additives, good creep and lubrication properties, after drying of the solvent forms a transparent, oily protective film, contains non-ferrous metal activator.
Approvals: NSF H1 (OKS 360: Reg. 153877, OKS 3601: Reg. 154933)

Type	Packing
OKS 3601-400ML	400 ml spray can
OKS 360-5L	5 l canister (DIN 51)

OKS 370/371 - universal oil for food industry

Temperature range: -10°C to max. +180°C.
Field of application: High performance oil for precision engineering machine components in the textile and packaging industries.
Properties: Taste- and odour neutral, extremely high lubricating ability, water repelling, dirt and rust removal, can be washed from textiles.
Approvals: NSF H1 (OKS 370: Reg. 124382, OKS 371: Reg. 124384).

Type	Packing
OKS 371-400ML	400 ml spray can
OKS 370-5L	5 l canister (DIN 51)
OKS 370-25L	25 l canister (DIN 61)

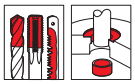


OKS 390/391 - cutting oil for all metals

Field of application: For machining processes on all metals.
Properties: Enables high cutting speeds, reduces physical effort, results in optimum cutting surfaces and increases tool service life; universal use in workshops and for assembly jobs.

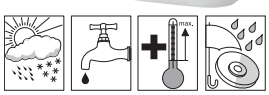
Type **OKS**	Type **alternative***	Packing
OKS 391-400ML	SCHNEIDOLSPRAY	400 ml spray can
OKS 390-250ML	---	250 ml bottle
OKS 390-5L	---	5 l canister (DIN 51)
OKS 390-25L	---	25 l canister (DIN 61)

* similar properties (technical data, see starting at page 563)

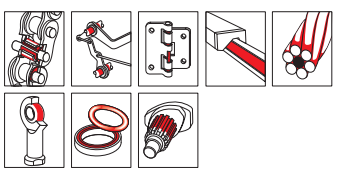


OKS 450/451 - chains and adhesive lubricants, transparent

Temperature range: -30°C to max. +200°C.
Field of application: For fast running chains and other machine components that are exposed to high pressures or corrosive effects.
Properties: Extremely high lubricating ability, extremely adhesive, resistant to being thrown-off, excellent wear protection, water resistant, for lubricating flexible drives.



Type	Packing
OKS 451-400ML	400 ml spray can
OKS 450-120 ML	120 ml chronolube cartridge
OKS 450-1L	1 l container
OKS 450-5L	5 l canister (DIN 51)



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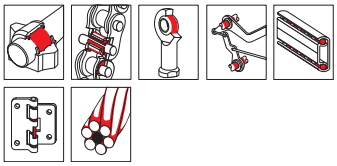
OKS 600/601 - multi-oil

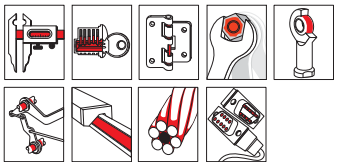
Temperature range: -30°C to max. +60°C.
Field of application: Low viscosity multi-oil for industry, workshop and hobby.
Properties: Extremely high lubricating ability, disassembly of rusted parts, good lubricating properties, moisture displacing, cleaning and care of metal surfaces, protection of electrical contacts.



Type	Packing
OKS 601-400ML	400 ml spray can
OKS 600-5L	5 l canister (DIN 51)
OKS 600-25L	25 l canister (DIN 61)

OKS 640/641 - service oil

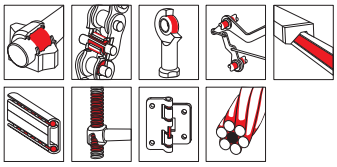
Temperature range: -30°C to max. +60°C (after vaporising the solvent, up to max. +150°C)
Field of application: For the disassembly, lubrication and care of machine components and metal surfaces in industry, workshop and hobby.
Properties: Good cleaning effect, temporary protection from corrosion, moisture displacing.



Type	Packing
OKS 641-400ML	400 ml spray can
OKS 640-5L	5 l canister (DIN 51)

OKS 670/671 - high performance lubricating oils with white solid lubricants

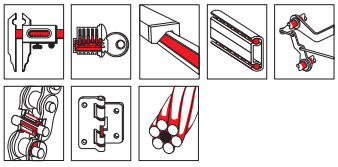
Temperature range: -30°C to max. +60°C (after vaporising the solvent, up to max. +150°C)
Field of application: Long-term lubrication of machine components that are exposed to high pressures and dust or humidity - bicycle chain oil.
Properties: Good corrosion protection, ideal for chains in a dusty and humid environment, e.g. transport systems, packaging machines and automated bottling.



Type	Packing
OKS 671-400ML	400 ml spray can
OKS 670-5L	5 l canister (DIN 51)

OKS 700/701 - fine-care oils, synthetic

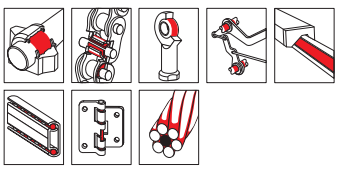
Temperature range: -50°C to max. +100°C.
Field of application: For lubrication and care of high-precision machine components.
Properties: Resin and acid-free, good creep behaviour, excellent wetting behaviour, plastic compatible, for use in precision engineering and optics.



Type	Packing
OKS 701-100ML	100 ml spray can
OKS 701-400ML	400 ml spray can
OKS 700-5L	5 l canister (DIN 51)

OKS 3750/3751 - adhesive lubricants with PTFE

Temperature range: -35°C to max. +135°C.
Field of application: Lubricating oil with PTFE additive.
Properties: Long operating times due to high temperature resistance and oxidation resistance, excellent protection against wear, adheres well, resistant to steam, alkaline and acidic disinfectants and cleaning agents, tasteless and odourless.
Approvals: NSF H1 (OKS 3751: Reg. 124801, OKS 3750: Reg. 124383).



Type	Packing
OKS 3751-400ML	400 ml spray can
OKS 3750-5L	5 l canister (DIN 51)

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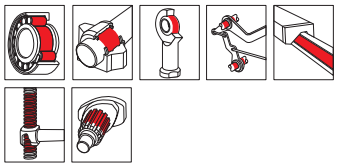
OKS Grease

OKS 400 - MoS_2 multi-purpose high performance grease

Temperature range: -30°C to max. +120°C.
Field of application: For heavily loaded or impact-loaded roller and slide bearings, spindles and joints.
Properties: Formation of MoS_2 lubricating film for emergency running properties, wear-reducing, ageing and oxidation resistant, universal use high pressure grease, NLGI (National Lubricating Grease Institute) grade 2.

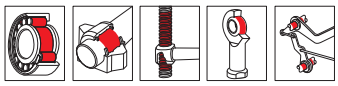
Type	Packing
OKS 400-120ML	120 ml chronolube cartridge
OKS 400-80ML	80 ml tube
OKS 400-400ML	400 ml cartridge
OKS 400-1KG	1 kg container
OKS 400-5KG	5 kg hobbock



OKS 402 - roller bearings high performance grease

Temperature range: -30°C to max. +120°C.
Field of application: For machine components such as roller and slide bearings, spindles and sliding guides under normal load.
Properties: Wear decreasing, good pressure and water resistance, ageing and oxidation stable, multi-purpose grease, NLGI Grade 2.

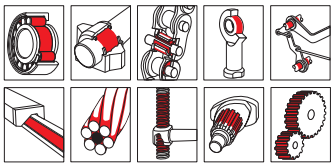
Type	Packing
OKS 402-400ML	400 ml cartridge
OKS 402-1KG	1 kg container
OKS 402-5KG	5 kg hobbock
OKS 402-25KG	25 kg hobbock



OKS 403 - special grease for exposure to sea water

Temperature range: -25°C to max. +80°C
Field of application: Lubrication of machine components exposed to water and/or seawater, tried and tested in wet operating environments and in coastal and marine areas. Suitable as water pump grease.
Properties: Best suited as a special water resistant grease above and below water, adheres well, excellent corrosion protection, NLGI class 1-2

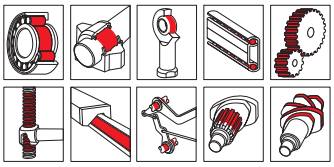
Type	Packing
OKS 403-400ML	400 ml cartridge
OKS 403-1KG	1 kg container
OKS 403-5KG	5 kg hobbock



OKS 422 - universal grease for long-term lubrication

Temperature range: -40°C to max. +140°C.
Field of application: For roller and slide bearings and spindles (incl. on tooling machines) at extreme temperatures and high speeds.
Properties: Extremely shock and pressure resistant, excellent wear protection, long re-lubrication intervals, usage outside of normal performance ranges, NLGI class 2.

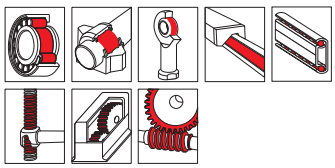
Type	Packing
OKS 422-120ML	120 ml chronolube cartridge
OKS 422-400ML	400 ml cartridge
OKS 422-1KG	1 kg container
OKS 422-5KG	5 kg hobbock



OKS 424 - synthetic high-temperature grease

Temperature range: -30°C to max. +200°C.
Field of application: For roller and slide bearing at high temperatures and high loads, e.g. in exhaust gas ventilators.
Properties: Good temperature resistance, good compatibility of plastics and elastomer, good resistance to aggressive environmental effects, NLGI Grade 1-2.

Type	Packing
OKS 424-400ML	400 ml cartridge
OKS 424-1KG	1 kg container
OKS 424-5KG	5 kg hobbock



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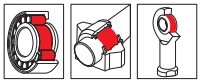
OKS 432 - high temperature bearing grease

Temperature range: -25°C to max. +190°C.
Field of application: For roller and slide bearing at high temperatures and high loads, e.g. for casting ladles, hot air fan, ...
Properties: Good temperature and pressure resistance. Excellent wear protection, high oxidation and ageing resistance, NLGI class 2.

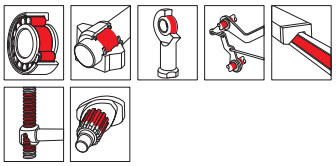
Type	Packing
OKS 432-400ML	400 ml cartridge
OKS 432-1KG	1 kg container
OKS 432-5KG	5 kg hobbock



OKS 470/471 - white all round high performance grease (also for food technology)

Temperature range: -30°C to max. +120°C.
Field of application: For heavily loaded roller and slide bearings, spindles and sliding guides, when dark-coloured lubricants cannot be used.
Properties: Good pressure characteristics, wear-reducing, ageing and oxidation stable, water resistant, hygienically harmless, NLGI Grade 2.
Approvals: OKS 470: NSF H2 (reg. 137707).

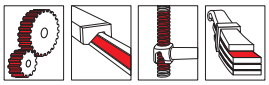
Type	Packing
OKS 471-400ML	400 ml spray can
OKS 470-80ML	80 ml tube
OKS 470-400ML	400 ml cartridge
OKS 470-1KG	1 kg container
OKS 470-5KG	5 kg hobbock



OKS 490 - gear grease, sprayable

Temperature range: -30°C to max. +220°C.
Field of application: For gears with high-pressure and high circumferential speeds. Lubrication of guides and sliding rails.
Properties: Very good pressure resistance due to EP additive and solid lubricants. Protects the tooth flanks, even with extended re-lubrication intervals, NLGI class 0.

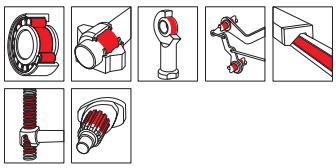
Type	Packing
OKS 490-1KG	1 kg container



OKS 476 - multi-purpose grease for the food industry

Temperature range: -30°C to max. +110°C
Field of application: For roller and slide bearings and other machine components in the food processing industry.
Properties: Resistant against cold and hot water, as well as disinfectants and cleaning agents, oxidation resistant, wear-reducing, universal use multi-purpose grease for the food industry, NLGI (National Lubricating Grease Institute) grade 2.
Approvals: NSF H1 (reg. 137619).

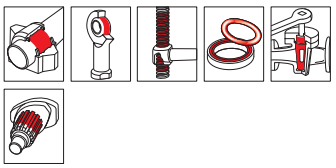
Type	Packing
OKS 476-400ML	400 ml cartridge
OKS 476-1KG	1 kg container
OKS 476-5KG	5 kg hobbock



OKS 477 - tap grease for the food industry

Temperature range: -10°C to max. +140°C
Field of application: Sealing lubrication for adapted sliding surfaces, e.g. ground components such as stopcocks, metering pistons, valves, beer taps, etc. Maintenance lubrication for plastic and rubber components such as stuffing boxes, lip seals and O-rings. Roller and slide bearing lubrication for slow-turning parts, gears or chains on bottling and packaging machines, agitators, grinders, etc.
Properties: Best suited as a sealing lubricant for the food and drink industry, e.g. on bier taps. It is odourless and tasteless and does not affect the properties of the beer froth. Meets strictest standards of hygiene. Resistant to hot and cold water, steam, aqueous-alkaline and acidic disinfectants and cleaning agents.
Approvals: NSF H1 (reg. 135750), UBA guideline for drinking water, approval from BPV Weihenstephan

Type	Packing
OKS 477-80ML	80 ml tube
OKS 477-1KG	1 kg container
OKS 477-5KG	5 kg hobbock



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OKS 479 - high temperature grease for the food industry

Temperature range: -35°C to max. +120°C (temporarily up to max. +160°C)
Field of application: Fully synthetic grease used in food processing to lubricate roller and slide bearings, as well as other machine components at high operating temperatures. Also suited for lubricating fittings, seals, elastic mouldings and components made of elastic rubber material in hot and cold water.
Properties: Universal use due to good high-temperature properties, long-term lubrication effect and excellent adhesion to metal surfaces, resistant to hot and cold water, steam, aqueous-alkaline and acidic disinfectants and cleaning agents, high resistance to oxidation and ageing, NLGI class 1.
Approvals: NSF H1 (reg. 135675)

Type	Packing
OKS 479-120ML	120 ml chronolube cartridge
OKS 479-400ML	400 ml cartridge
OKS 479-1KG	1 kg container
OKS 479-5KG	5 kg hobbock

OKS 1110 - multi-silicone grease

Temperature range: -40°C to max. +200°C
Field of application: For fittings, seals and plastic parts.
Properties: Compatible with plastics and elastomers, fully EPDM-compatible, resistant to cold and hot water as well as acetone, ethanol, ethylene glycol, glycerine and methanol. No drying out or bleeding, tasteless and odourless, extremely adhesive, multi-purpose silicone grease, NLGI class 3.
Approvals: NSF H1 (reg. 124381), UBA guideline for drinking water.

Type	Packing
OKS 1110-10ML	10 ml tube
OKS 1110-80ML	80 ml tube
OKS 1110-400ML	400 ml cartridge
OKS 1110-500G	500 g container
OKS 1110-5KG	5 kg hobbock

OKS 4200 - synthetic high temperature bearing grease with MoS_2

Temperature range: -10°C to max. +180°C
Field of application: Grease lubrication for slide bearings and roller bearings in high temperature ranges, where greases based on mineral oils are no longer used, e.g. on hot air blowers and ventilators, autoclaves, drying ovens or systems in steelworks and foundries.
Properties: Drip-proof high-temperature bearing grease for wide range of temperatures with high resistance to oxidation and moisture. Best suited for long-term lubrication of lubrication points subjected to high temperatures. With organic molybdenum complex to increase performance.

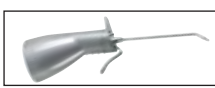
Type	Packing
OKS 4200-400ML	400 ml cartridge
OKS 4200-1KG	1 kg container
OKS 4200-5KG	5 kg hobbock

OKS 4220 - high temperature bearing grease

Temperature range: -20°C to max. +280°C
Field of application: Grease lubrication for slide bearings and roller bearings in high temperature ranges, used for bearings under the influence of chemicals and hydrocarbons
Properties: For long-term lubrication of lubrication points subjected to high temperatures of up to +280° C, high resistance to water, steam and chemicals, compatible with plastic and elastomer, can also be used in food processing, NLGI class 2.
Approvals: NSF H1 (reg. 124380)

Type	Packing
OKS 4220-40ML	40 ml tube
OKS 4220-500G	500 g container
OKS 4220-800G	800 g cartridge
OKS 4220-1KG	1 kg container
OKS 4220-5KG	5 kg hobbock

Loctite special hand cleaner from page 561


Industrial oiler on page 576

Funnel and measuring cans on page 576

PE canisters + buckets from page 642

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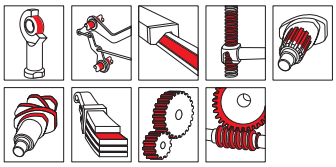
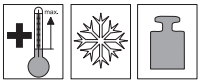
OKS Dry lubricants

OKS 110/111 - MoS_2 powder, micro-fine

Temperature range: -185°C to max. +450°C.
Field of application: For improving sliding properties of machine components, devices and precision mechanisms. For long-term and possibly even life-long lubrication. Powder is also suited for incorporation into plastics, seals, packages and sintered metals in order to improve their sliding properties.
Properties: Running-in lubricant in combination with oils and greases. Prevents friction and wear, even at high pressures. Good adhesion, even on microfinished surfaces. For difficult deformation processes. For pressing in bearings.





Type	Packing
OKS 111-400ML	400 ml spray can
OKS 110-1KG	1 kg container
OKS 110-5KG	5 kg hobbock

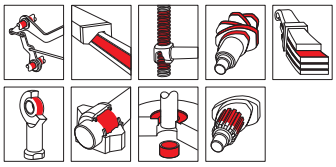
OKS 491 - gear spray, dry

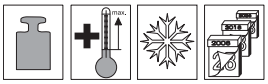
Temperature range: -30°C to max. +100°C.
Field of application: Dry lubrication of slowly-turning open pinion gears, steel cables etc., that are exposed to high pressures, dust, or corrosive influences such as outdoor weathering.
Properties: Decreases friction and wear, prevents sticking of dust and dirt.

Type	Packing
OKS 491-400ML	400 ml spray can

OKS 511 - MoS_2 bonded coating, fast-drying

Temperature range: -180°C to max. +450°C.
Field of application: Dry lubrication for temporary operation or long downtimes in dusty environments and with low slide speeds.
Properties: Running-in lubricant in combination with oils and greases, has emergency running properties, dries at room temperature.

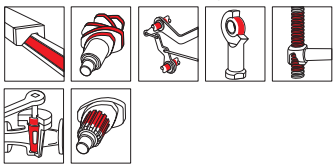


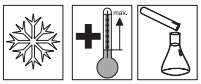


Type	Packing
OKS 511-400ML	400 ml spray can

OKS 571 - PTFE bonded coating

Temperature range: -180°C to max. +260°C.
Field of application: Dry lubrication of sliding surfaces of different materials at low pressures, low slide speeds, and in dusty environments.
Properties: Colourless, non-soiling sliding and separating film, prevents tribocorrosion, dries at room temperature.





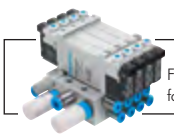
Type **OKS**	Type **alternative***	Packing
OKS 571-400ML	PTFESPRAY	400 ml spray can

* similar properties (technical data, see starting at page 563)

FESTO
Mini-carriages are found in our Online Shop

FESTO
Festo shock absorbers can be found in our Online Shop

FESTO
Festo rotary actuators can be found in our Online Shop


FESTO
Festo valves can be found in our Online Shop

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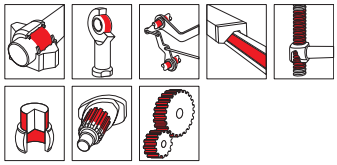
OKS Pastes

OKS 200 - MoS_2 assembly paste

Temperature range: -35°C to max. +450°C
Field of application: Assembly paste for press-fitting wheels, shafts, supports or bearings to prevent scuffing. Non-stick primer for moving threads (e.g. thread spindles), supports, guideways and slideways to prevent stick-slip. Wear-in lubrication for heavily loaded sliding surfaces, e.g. slide bearings, gear drives, crankshafts for generating emergency running properties.
Properties: Highly effective due to the strong affinity of the MoS_2 to metals. Lowest possible friction with highest possible resistance: Resistant to water, oils, greases, chemicals and hydraulic media.

Type	Packing
OKS 200-40ML	40 ml tube
OKS 200-250G	250 g container
OKS 200-1KG	1 kg container
OKS 200-5KG	5 kg hobbock



OKS 235 - aluminium paste (anti-seize)

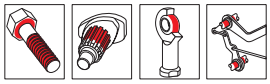
Temperature range: -40°C to max. +1100°C.
Field of application: For the assembly of screw and bolt connections that are exposed to high temperatures and corrosive effects.
Properties: Prevents sticking and rusting,optimum balance of screw tightening torque to achievable pretensioning, prevents seizing, lubricating and separating paste.

Type	Packing
OKS 235-250G	250 g brush tin
OKS 235-1KG	1 kg container

OKS 252 - white high temperature paste for the food industry

Temperature range: -40°C to max. +160°C (after vaporising the oil contained inside, up to max. +1200°C)
Field of application: Lubrication of all types of heavily loaded sliding surfaces with low slide speeds or oscillating movements, e.g. for screw, push-in and bayonet connections made of steel or NE metals. Assembly paste and corrosion protection for screws, bolts, pins, sleeves, flanges, spindles and fits in the entire food industry. Separation of threaded connection subject to high temperatures, even after long periods of operation.
Properties: Adheres well to metal surfaces, good water resistance and good corrosion protection.
Neutral to alloyed steels as it is free of metallic pigments and sulphurous components.
Approvals: NSF H1 (reg. no. 135748)

Type	Packing
OKS 252-200G	200 g dispenser
OKS 252-250G	250 g brush tin
OKS 252-1KG	1 kg container
OKS 252-5KG	5 kg hobbock



OKS 240/241 - fire resistant paste (copper paste)

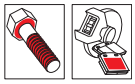
Temperature range: -30°C to max. +200°C (after vaporising the oil contained inside, up to max. +1100°C)
Field of application: For assembly of screw connections that are exposed to high temperatures and corrosive effects.
Properties: Prevents sticking and rusting,optimum balance of screw tightening torque to achievable pretensioning, classic anti-seize paste.

Type	Packing
OKS 241-400ML	400 ml spray can
OKS 240-8ML	8 ml tube
OKS 240-75ML	75 ml tube
OKS 240-250G	250 g brush tin
OKS 240-1KG	1 kg container

OKS 245 - copper paste with high performance corrosion protection

Temperature range: -30°C to max. +150°C (after vaporising the oil contained inside, up to max. +1100°C)
Field of application: For assembling hose connections exposed to high temperatures and corrosive effects, such as: on combustion engines, pipe/flange/fitting screw connections from superheated steam pipes, exhaust pipe and combustion chamber screw connections, fastening screws from gas and oil burners, suitable for brake systems of motor vehicles.
Properties: To prevent sticking, seizing or rusting of screw connections when exposed to water, completely resistant to water and salt water, extremely adhesive.

Type	Packing
OKS 245-250ML	250 ml brush tin
OKS 245-1KG	1 kg container
OKS 245-5KG	5 kg hobbock

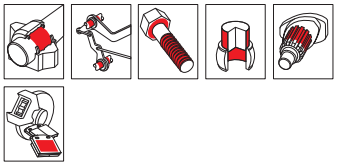


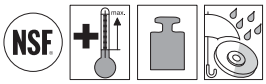
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

OKS 250/2501 - white all-round paste, metal free

Temperature range: -40°C to max. +200°C (after vaporising the oil contained inside, up to max. +1400°C)
Field of application: High-temperature paste for screws and sliding surfaces that are exposed to high pressures and temperatures.
Properties: Optimum balance of screw tightening torque to achievable pretensioning, metal free, excellent corrosion protection, ideal for stainless steel connections.
Approvals: Type OKS 250: NSF H2 (reg. 131379).

Type **OKS**	Type **alternative***	Packing
OKS 2501-400ML	---	400 ml spray can
OKS 250-8ML	---	8 ml tube
OKS 250-80ML	---	80 ml tube
OKS 250-250G	PASTE ES PP	250 g brush tin
OKS 250-1KG	PASTE ES	1 kg container

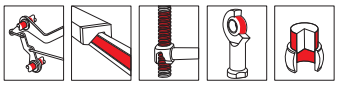




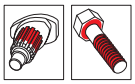
* similar properties (technical data, see starting at page 580)

OKS 260 - white assembly paste

Temperature range: -25°C to max. +150°C.
Field of application: For screws and sliding surfaces that are exposed to high pressures at low velocities.
Properties: Optimum balance of screw tightening torque to achievable pretensioning, prevents frictional corrosion, metal free, water resistant.



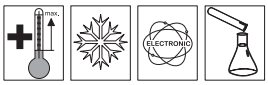
Type	Packing
OKS 260-250G	250 g container
OKS 260-1KG	1 kg container



OKS 1103 - heat-conducting paste to protect electronic components from overheating

Temperature range: -40°C to max. +180°C
Field of application: Protection of sensitive components, such as sensors, probes and measuring instruments, or semi-conductors, such as diodes, transistors and thyristors, by reinforcing the thermal coupling to the heat sink or metal housings.
Properties: Highly effective due to good heat conductivity, electrically insulated, resistant to acids and alkalis.

Type	Packing
OKS 1103-40ML	40 ml tube
OKS 1103-500G	500 g container
OKS 1103-5KG	5 kg hobbock



OKS Cleaner

OKS 2610/2611 - universal cleaner

Field of application: For machine components and surfaces with oily or greasy soiling.
Properties: Evaporates quickly and without residue, high cleaning power, no undercooling, cleaner for lubricating and bonding locations.

Type **OKS**	Type **alternative***	Packing
OKS 2611-500ML	INDUSTRIEREINIGER	500 ml spray can
OKS 2610-5L	REINIGER i-5	5 l canister (DIN 51)
OKS 2610-25L	---	25 l canister (DIN 61)

* similar properties (technical data, see starting at page 562)

OKS 2631 - multi foam cleaner

Field of application: Removes resilient organic soiling such as nicotine, grease and silicone coatings; also from vertical surfaces.
Properties: Cleans metals, plastics, glass and rubber in catering trade, offices and vehicles.

Type **OKS**	Type **alternative***	Packing
OKS 2631-400ML	SCHAUMREINIGER	400 ml spray can

* similar properties (technical data, see starting at page 562)

OKS 2650 - BIOlogic industrial cleaner, water-based concentrate

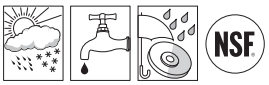
Field of application: For cleaning cooling units, beverage and vending machines, tiles, ceramics or natural stone, construction machinery and trucks (canvases), tooling machines and workshop floors.
Properties: Water-based alkaline cleaner for removing oily, greasy and sooty substances. Free of organic solvents and phosphates. No harmful vapours during use. Suitable for use with high pressure cleaners. Biodegradable.
Approvals: NSF A1 (reg. no. 129003).
Instructions for use: Can be diluted up to a maximum of 1:10 with water, depending on degree of soiling.10 with water.

Type	Packing
OKS 2650-500ML	500 ml pump spray bottle
OKS 2650-5L	5 l canister
OKS 2650-25L	25 l canister

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

OKS Corrosion protection

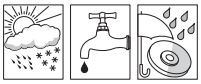
OKS 2100/2101 - protective film for metals



Temperature range: -40°C to max. +70°C
Field of application: Preservation of bare metal surfaces of all types that are stored for a long period of time and exposed to weather conditions. Ideal protection for spare parts with direct installation option without previously removing the wax film
Properties: Clean protective film, excellent corrosion and oxidation protection, suitable for all climate zones, no surface discolouration.
Approvals: Type OKS 2100: NSF H2 (reg. 142256)

Type	Packing
OKS 2101-400ML	400 ml spray can
OKS 2100-5L	5 l canister
OKS 2100-25L	25 l canister

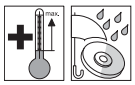
OKS 2301 - mould protection spray



Temperature range: -40°C to max. +70°C
Field of application: Preservation of bare metal surfaces of all types that are stored for a long period of time and exposed to weather conditions. Ideal disposition and storage protection for spare parts with direct installation option.
Properties: Highly effective due to good film forming properties with long-lasting water resistance. Ideally suited for generating anti-slip, greenish protective films. Excellent corrosion and oxidation protection with lubricating effect.

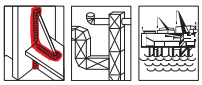
Type	Packing
OKS 2301-400ML	400 ml spray can

OKS 2511 - zinc protection spray

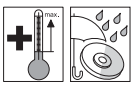


Temperature range: Max. +400°C
Field of application: Long-term corrosion protection based on zinc for the first layering. For use in steel construction and air conditioning. Repair of welding seams on zinc-plated surfaces, e.g. after welding, drilling or cutting processes. Primer of ferrous metals, when zinc plating cannot be implemented, e.g. for vehicle or boat repairs, in civil and bridge engineering, in tank and overhead line construction, grids, railings and traffic light posts, exhaust systems, gutters. Also as adhesive primer for coating systems.
Properties: Highly effective due to active, cathodic corrosion protection. Wide range of applications as a durable corrosion protection for thermally stressed metal parts. It supplements the zinc plating and forms a rough holding primer for subsequent coats of paint. Also suitable for spot welding. Fast-drying.

Type	Packing
OKS 2511-400ML	400 ml spray can

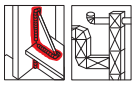


OKS 2521 - gloss zinc spray



Temperature range: +10°C to max. +240°C
Field of application: Decorative corrosion protection based on zinc and aluminium powder as a second layer over zinc spray (e.g. OKS 2511) to form a weather resistant surface with aluminium gloss finish. In steel construction and air conditioning, for the repair of zinc plating that has been marked or damaged by soldering, drilling or cutting, without subsequent coats of paint. Suitable as a decorative, gloss finish as with normal zinc sprays.
Properties: Highly effective due to proven formula with high zinc and aluminium content. It combines excellent zinc protection with decorative aluminium gloss finish. Full penetration welding, abrasion resistant and can be painted over. Fast-drying.

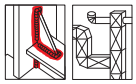
Type	Packing
OKS 2521-400ML	400 ml spray can



OKS 2531 - aluminium metallic spray

Temperature range: -30°C to max. +400°C (temporary: up to max. +800°C)
Field of application: Coating for tubes and aeration channels, furnaces, boilers, heating systems, containers, exhaust systems, silencers, metal alloy structures in commercial vehicles, repair of mechanically (chips) or chemically (road salt) damaged aluminium rims.
Properties: Ideal for exclusive, decorative corrosion protection, universal protective and decorative coating for all materials, high coverage, fast-drying.

Type	Packing
OKS 2531-400ML	400 ml spray can



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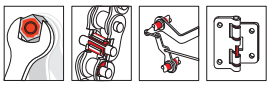
OKS Service products

OKS 611 - rust remover with MoS_2

Field of application: Universal rust remover for industry, workshops and hobbies, for the non-destructive disassembly of stuck or rusted machine components.
Properties: Excellent creeping properties, moisture displacing, good lubricating properties through MoS_2.

Type	Packing
OKS 611-400ML	400 ml spray can

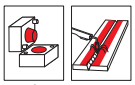


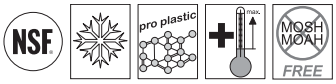
OKS 1361 - silicone separating agent

Field of application: Separating and lubricating agents in plastics processing.
Properties: Chemically neutral, solvent free, colourless, water repelling, insertion aid for rubber profiles, lubrication of cutting edges, care and impregnation of plastic surfaces and textiles.
Approvals: NSF H1 (reg. 129481).

Type	Type **alternative***	Packing
OKS 1361-400ML	SILIKONSPRAY	400 ml spray can

* similar properties (technical data can be found in the Online Shop or request that information from us.)



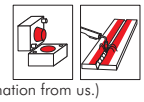


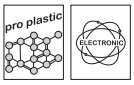
OKS 1511 - silicone-free separating agent

Field of application: Silicone-free separating agent for electro and inert gas arc welding, no sticking of welding spatter, increases torch service life, highly effective mould release agent for plastics processing, universal solvent-based welding spray.

Type	Type **alternative***	Packing
OKS 1511-400ML	SCHWEISSSPRAY	400 ml spray can

* similar properties (technical data can be found in the Online Shop or request that information from us.)





OKS 2711 - refrigerant spray

Field of application: For rapid under-cooling of smaller surfaces and parts to -45°C, simulation of cold-start conditions for automotive engines, search for thermo-related interruptions, protection of adjacent areas while soldering or welding, lighter assembly of press fits.

Type **OKS**	Type **alternative***	Packing
OKS 2711-400ML	KALTESPRAY	400 ml spray can

* similar properties (technical data can be found in the Online Shop or request that information from us.)

OKS 2731 - compressed air spray

Field of application: For maintenance jobs in electronics, precision mechanics, optics, and all kinds of office equipment, removal of dirt particles from inaccessible areas.
Properties: Dry and oil-free pressurised gas mixture, evaporates quickly and with no residue.

Type **OKS**	Type **alternative***	Packing
OKS 2731-400ML	DRUCKLUFTSPRAY	400 ml spray can

* similar properties (technical data can be found in the Online Shop or request that information from us.)

OKS 2800/2801 - leak detector

Field of application: Leak detection spray for the detection of leaks on pressurised pipelines, fittings and containers.
Properties: bubble formation indicates loss of gas, universal use, non-toxic, suitable for use on compressed air, oxygen, and gas equipment as well as refrigerating machines.
Approvals: DIN DVGW (reg. NG 5170AO0659).

Type **OKS**	Type **alternative***	Packing
OKS 2801-400ML	LSS	400 ml spray can
OKS 2800-5L	LSS-5	5 l canister (DIN 51)

* similar properties (technical data can be found in the Online Shop or request that information from us.)

OKS 2901 - belt tuning

Field of application: Universally usable for all V-belts, round belts, and flat belts.
Properties: Prevents slip, protects the belt from drying out and wear, increases service life and suppresses squeaks.

Type	Packing
OKS 2901-400ML	400 ml spray can

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Special oils for pneumatic lubricators

Temperature range: -35°C to max. +85°C

Type	Packing
Standard oil: In heated halls or outside areas > 5°C	
S OL	1 litre
S OL 5	5 litres (DIN 51)
S OL 10	10 litres (DIN 51)
S OL 20	20 litres (DIN 61)
Special oil: For increased condensate emergence e.g. unheated halls or outside areas < 5°C	
S OL Wi	1 litre
S OL Wi 5	5 litres (DIN 51)
S OL Wi 10	10 litres (DIN 51)
S OL Wi 20	20 litres (DIN 61)

TIP *Special for the food industry!*

Special oils for pneumatic lubricators in the food industry

Corresponds to the Guidelines for cleanliness laid down in the German Pharmacopoeia (DAB 10) and the FDA-Regulations 21 CFR 178.3620 (a). The oil is clear as glass and is totally odourless and tasteless.
Suitable: Food industry

Type	Packing
S OL LE	1 litre
S OL LE 5	5 litres (DIN 51)
S OL LE 10	10 litres (DIN 51)
S OL LE 20	20 litres (DIN 61)

Special oil for piston compressors

Type	Packing
CD 100	1 litre
CD 100 5	5 litres (DIN 51)

Hydraulic oil - HLP - primary raffinate — DIN 51524/2

Applications: Recommended for use in high performance hydraulic systems for heavy-duty operations, including high-rev/high-pressure applications in vane, gear and axial piston pumps. Excellent compatibility with bronze and steel components in addition to all types of valves and servos. Recommended for use when lubricating tooling machines that require technology resistant to wear. Suitable for customary lubrication systems for spindles and gears.

Type **46 mm²/sec***	Type **32 mm²/sec***	Packing
HLP 46 OL	HLP 32 OL	1 litre
HLP 46 OL 5	HLP 32 OL 5	5 litres (DIN 51)
HLP 46 OL 10	HLP 32 OL 10	10 litres (DIN 51)
HLP 46 OL 20	HLP 32 OL 20	20 litres (DIN 61)

* viscosity at 40°C

Refillable compressed air spray can

type filling spouts

Suitable: Suitable for all liquids that can be processed with compressed air (except for alkaline or acidic liquids attacking plastics). Can be used in all workshops and industries in which loose goods, such as cutting oil, rust remover, leak detection spray, lubricating and separating agents are used. The inner wall of the spray nozzle is coated and can be filled with air from any commercially available tyre inflator or directly with the optional filling spouts. Max. fill pressure: 10 bar, max. temperature: +40°C.

Type	Description
DSD 500	Refillable compressed air spray can with 500ml liquid filling quantity inclusive of the finely atomizing spray head.
DSD 500 REP	Spare part packet for DSD 500 (contains valve, point spraying spray head, point spraying spray head with additional tube, fine atomising spray head, finest atomising spray head).
DSD 500 FS	Filling spouts for refilling the DSD 500 spray nozzle, suitable for NW 7.2 workshop coupling. For filling with compressed air, the compressed air spray can is simply pressed onto the sockets.

Oil level inspection glass with reflector

Suitable: To indicate the oil level in the containers.
Materials: Body: aluminium, window: Transparent glass
Temperature range: -10°C to max. +250°C
Pressure range: 0 up to15 bar (1 1/2" - 2": up to 30 bar)
Media: Mineral oil

Type **inspection glass**	Type **counter nut**	Connect. thread	Thread length	SW
OSA 14	GM 14 MS	G 1/4"	8	17
OSA 38	GM 38 MS	G 3/8"	9	22
OSA 12	GM 12 MS	G 1/2"	9	27
OSA 34	GM 34 MS	G 3/4"	11	32

Type **inspection glass**	Type **counter nut**	Connect. thread	Thread length	SW
OSA 10	GM 10 MS	G 1"	10	40
OSA 114	GM 114 MS	G 1 1/4"	12	50
OSA 112	GM 112 MS	G 1 1/2"	17	55
OSA 20	GM 20 MS	G 2"	16	70

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WD-40 multi-purpose oil

Suitable: Silicone- and resin-free multi-purpose oil with 5-fold function. It can be used as a rust remove, lubricant (also in machining), contact spray, corrosion protection and part cleaner.
The number 1 problem solver - proven thousands of times over!

Type	Content	Packing
WD40-300	300 ml	Smart-Straw-spray can
WD40-400	400 ml	Classic spray can
WD40-500	500 ml	Smart-Straw-spray can
WD40-5000	5 litre	Canister (DIN 40)
WD40-SPRAY	600 ml	Atomizer (empty) for canister goods

smart-Straw-spray can 300 ml

classic spray can 400 ml

smart-Straw-spray can 500 ml

canister 5 litre

atomizer

WD-40 specialists

Type	Packing	Spray can	Description
Drilling and cutting oil			
WD40 SCHNEIDOL-400	400 ml	Smart-Straw	Improves machining processes for all metals, reduces heat generation and reduces wear, extends the service life of cutting tools and drills.
Brake cleaner			
WD40 BREMSEN-500	500 ml	Classic	Brake cleaner, residue free, works immediately, powerful spray, can be sprayed upside down.
Contact spray			
WD40 KONTAKT-100	100 ml	Classic	Fast-acting contact spray, removes oil, dirt, flux and oxidation residue, dries quickly without leaving behind any residue, NSF K2.
WD40 KONTAKT-400	400 ml	Smart-Straw	
White lithium grease spray			
WD40 LITHIUM-400	400 ml	Smart-Straw	Long-lasting lubrication without dripping or running, reduces friction from metal parts and thus keeps connections open, even under high pressure or at high temperatures, NSF H2. Temperature range: -18°C to max. +145°C
PTFE lubricant spray			
WD40 PTFE-400	400 ml	Smart-Straw	For use on metal, glass, vinyl, rubber and plastic, extends the service life of tools and devices, reduces friction and wear, long-lasting formula with excellent lubricating properties, NSF H2. Temperature range: -20°C to max. +100°C
PTFE dry lubricant spray			
WD40 PTFE T-400	400 ml	Smart-Straw	Anti-friction PTFE dry lubricating spray, improved lubricating properties at high temperatures and under high pressure, does not attract dust, dirt or oil, is an excellent lubricating and separating agent, NSF H2. Temperature range: -45°C to max. +260°C
Rust remover			
WD40 ROSTLO-100	100 ml	Classic	Powerful and fast acting, penetrates and separates stuck parts, highly water-repellent, NSF H2. Temperature range: -20°C to max. +90°C
WD40 ROSTLO-400	400 ml	Smart-Straw	
Lock cylinder spray			
WD40 SCHLZYL-100	100 ml	Classic	Specifically for servicing all types of lock cylinders. The silicone-free and grease-free formula, as well as the high capillary action, allow the product to seep into the cylinder mechanism and clear blockages without gumming up. It leaves behind a thin lubricating film, which additionally provides protection against corrosion. Temperature range: -70°C to max. +150°C
Silicone spray			
WD40 SILIKON-100	100 ml	Classic	Excellent lubricating properties, water-repellent, protects against moisture; suited for metals, wood, plastics and rubber, NSF H2. Temperature range: -35°C to max. +200°C
WD40 SILIKON-400	400 ml	Smart-Straw	
Universal cleaner			
WD40 REINIGER-500	500 ml	Smart-Straw	Fast acting, removes grease, oil, dirt and rust, without leaving any residues, especially suited to metals, extractor hoods and floor coverings, NSF K1.

drilling and cutting oil 400 ml

contact spray 400 ml

brake cleaner 500 ml

lithium grease spray 400 ml

PTFE lubricant spray 400 ml

PTFE dry lubricant spray 400 ml

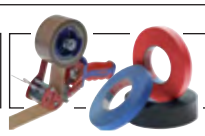
rust remover 400 ml

silicone spray 400 ml

universal cleaner 500 ml

lock cylinder spray 100 ml

Oil binding agents & oil binding cloths from page 581



tesa®-adhesive technology from page 585

Castors and wheels from page 605

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Pneumatic suction devices for liquids

Working pressure: 6 to 8 bar
Application: By actuating the suction device a vacuum is generated in the container. As a result non-inflammable, non-toxic liquids are sucked into the container through the suction hose supplied. It is recommended that the container of the liquid be emptied on reaching its mean level of filling as this would prevent the liquid from flowing out with the vacuum-generating air jet.
Recommendation: The device is ideal for an oil change in the gears, motors and compressors. The oil can easily be sucked out through the oil filler necks. Use petrol or other combustible liquids without dilution!

Type	Container content	Temperature range	Connection
SAUGPB	0.6 l	0°C to max. +50°C	Coupling plug NW 7.2*

* standard coupling

PE canister

Material: HD-PE
Media: Water, many acids, bases, salt solutions and oils. Partially suitable for solvents.

Type	Content	Dimensions (L x W x H)	Shutter/filling opening	HAZMAT licence (UN)
BEH KANiSTER 1	1 l	70 x 89 x 214	DIN 25 with a spout	No
BEH KANiSTER 2	2 l	109 x 145 x 181	DIN 45	Yes
BEH KANiSTER 5	5 l.	194 x 168 x 228	DIN 51	Yes
BEH KANiSTER 10	10 l	233 x 204 x 324	DIN 51	Yes
BEH KANiSTER 20	20 l	290 x 260 x 381	DIN 61	Yes

Drain cocks for plastic canisters

Materials: Body: PE, lever: PP, seal EPE (PE foam)

Type	Thread female	For canister threads male Ø	Thread pitch
KHA DIN45	DIN 45 (Ø internal: 41.0 mm)	44.6	4
KHA DIN51	DIN 51 (Ø internal: 50.2 mm)	54.8	5
KHA DIN61	DIN 61 (Ø internal: 55.6 mm)	60.5	6

Measuring cans and measuring cups

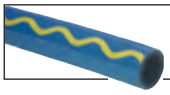
Type	Content
Measuring can (PE, white), with flexible discharge hose, cover, end cap and scale.	
BEH MKANNE 1 PE	1 l
BEH MKANNE 2 PE	2 l
BEH MKANNE 5 PE	5 l.
Measuring cup (PP, transparent), scaled, food-safe	
BEH MBECHER 1 PP	1 l
BEH MBECHER 2 PP	2 l
BEH MBECHER 5 PP	5 l.

Funnel, polyethylene

Type	Description
TRiCHTER 50-120 SET	Set of funnels in Ø 50/75/100/120 mm with retaining tab, fixed discharge
TRiCHTER 50-160 SET	Set of funnels in Ø 50/75/100/120/150/160 mm with retaining tab, fixed discharge (Ø 160 mm with removable brass screen)
TRiCHTER 160 FLEX	Ø 160 mm funnel, with flexible discharge (330 mm), removable brass screen

Work gloves on page 589

PE canisters + buckets from page 642



Industrial hoses from page 213

Industrial oiler

Description: Industrial oiler with brass double-pump, gravity actuated suction lance and aluminium spray pipe.

Type **PE container**	Type **metal container**	Spray pipe length	Content
MSOL 200	MSOL 200 HD	135	200 ml
MSOL 300	MSOL 300 HD	165	300 ml
MSOL 500	MSOL 500 HD	165	500 ml

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Compressed air grease presses

Type	Weight kg	Air consumption l/min.	Operating pressure	For grease cartridges*	Compression ratio	Air connection
Material flow in the interval (with each triggering only a small amount of grease flows)						
FEPR LU	1.2	170	2 - 10 bar	400 g	40:1	Coupling plug NW 7.2**
Continuous material flow (as long as the trigger is depressed, grease is flowing)						
FEPR LU K	1.6	370	4 - 10 bar	400 g	40:1	Coupling plug NW 7.2**

* max. 240 x 56 mm, suitable for 215 x 50 mm cartridges (DIN 1284) or 500 ml loosely filled, **standard coupling

Grease presses for 400 g grease cartridges* DIN 1283

Type	Version	Connection	Figure
Grease press assembly			
FEPR R	Grease press with tube and coupling	R 1/8"	Press incl. 1
FEPR S	Grease press with hose (300 mm) and coupling	R 1/8"	Press incl. 2
FEPR RS	Grease press with tube, hose (300 mm) and coupling	R 1/8"	Press incl. 1 & 2
Replacement parts			
FEPR ROHR	Tube (150 mm)	R 1/8" (MT)	1
FEPR SCHL 200	Hose (200 mm)	R 1/8" (MT)	2
FEPR SCHL 300	Hose (300 mm)	R 1/8" (MT)	2
FEPR SCHL 500	Hose (500 mm)	R 1/8" (MT)	2
FEPR SCHL 200 OK	Hose (200 mm) without coupling	R 1/8" (MT)	3
FEPR SCHL 300 OK	Hose (300 mm) without coupling	R 1/8" (MT)	3
FEPR SCHL 500 OK	Hose (500 mm) without coupling	R 1/8" (MT)	3
FEPR KUP 18	Coupling with 4 cheeks for ball grease nipple	G 1/8" (FT)	4
FEPR KUPD 18	Coupling as nozzle for funnel type grease nipple	G 1/8" (FT)	5
FEPR KUPFL 10	Coupling for flat grease nipple, 10 mm	G 1/8" (FT)	6
FEPR KUPFL 16	Coupling for flat grease nipple, 16 mm	G 1/8" (FT)	6
FEPR KUPFL 22	Coupling for flat grease nipple, 22 mm	G 1/8" (FT)	6
FEPR KUPFL 16 O	Open coupling for flat grease nipple, 16 mm	G 1/8" (FT)	7

* max. 240 x 56 mm, suitable for 215 x 50 mm cartridges (DIN 1284) or 500 ml loosely filled

Straight ball grease nipple DIN 71412 A

Type zinc-plated steel	Type AISI 303 (INOX)	Thread	Thread length	SW
SNH1 M6x1*	SNH1 M6x1 ES	M 6 (con.)	5.5 mm	7 mm
SNH1 M8x1*	SNH1 M8x1 ES	M 8 x 1 (con.)	5.5 mm	9 mm
SNH1 M8x1.25	SNH1 M8x1.25 ES	M 8 (con.)	5.5 mm	9 mm
SNH1 M10x1*	SNH1 M10x1 ES	M 10 x 1 (con.)	5.5 mm	11 mm
SNH1 M10x1.5	SNH1 M10x1.5 ES	M 10 (con.)	5.5 mm	11 mm
SNH1 18*	SNH1 18 ES	R 1/8"	5.5 mm	11 mm
SNH1 14	SNH1 14 ES	R 1/4"	6.5 mm	14 mm

* preferred types

45° ball grease nipple DIN 71412 B

Type zinc-plated steel	Type AISI 303 (INOX)	Thread	Thread length	SW
SNH2 M6x1*	SNH2 M6x1 ES	M 6 (con.)	5.5 mm	9 mm
SNH2 M8x1*	SNH2 M8x1 ES	M 8 x 1 (con.)	5.5 mm	9 mm
SNH2 M8x1.25	SNH2 M8x1.25 ES	M 8 (con.)	5.5 mm	9 mm
SNH2 M10x1*	SNH2 M10x1 ES	M 10 x 1 (con.)	5.5 mm	11 mm
SNH2 M10x1.5	SNH2 M10x1.5 ES	M 10 (con.)	5.5 mm	11 mm
SNH2 18*	SNH2 18 ES	R 1/8"	5.5 mm	11 mm
SNH2 14	SNH2 14 ES	R 1/4"	6.5 mm	14 mm

* preferred types

90° ball grease nipple DIN 71412 C

Type zinc-plated steel	Type AISI 303 (INOX)	Thread	Thread length	SW
SNH3 M6x1*	SNH3 M6x1 ES	M 6 (con.)	5.5 mm	9 mm
SNH3 M8x1*	SNH3 M8x1 ES	M 8 x 1 (con.)	5.5 mm	9 mm
SNH3 M8x1.25	SNH3 M8x1.25 ES	M 8 (con.)	5.5 mm	9 mm
SNH3 M10x1*	SNH3 M10x1 ES	M 10 x 1 (con.)	5.5 mm	11 mm
SNH3 M10x1.5	SNH3 M10x1.5 ES	M 10 (con.)	5.5 mm	11 mm
SNH3 18*	SNH3 18 ES	R 1/8"	5.5 mm	11 mm
SNH3 14	SNH3 14 ES	R 1/4"	6.5 mm	14 mm

* preferred types

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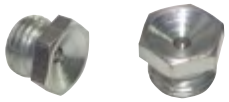
Plastic safety caps for ball grease nipple

Suitable: Suitable for all grease nipples with cone heads according to DIN 71412, safety covers serve to protect from contaminants and for colour coding (z.g. for marking lubrication intervals).
Packing unit: 10 units

Type	Colour
SNH SK ROT*	Red
SNH SK BLAU	Blue
SNH SK GELB	Yellow
SNH SK GRUN	Green

* preferred type



Straight funnel type grease nipple — DIN 3405 A

Type zinc-plated steel	Type AISI 303 (INOX)	Thread	Thread length	SW
SND1 M6x1	SND1 M6x1 ES	M 6	5.5 mm	7 mm
SND1 M8x1	SND1 M8x1 ES	M 8 x 1	6.5 mm	9 mm
SND1 M8x1.25	SND1 M8x1.25 ES	M 8	6.5 mm	9 mm
SND1 M10x1	SND1 M10x1 ES	M 10 x 1	6.5 mm	11 mm
SND1 18	SND1 18 ES	G 1/8"	6.5 mm	11 mm

Grease nipple in accordance with DIN 3405 A are only suitable for oil due to their short design. Other media should be tested by the user.

45° funnel type grease nipple — DIN 3405 B

Type	Thread	Thread length	SW
SND2 M6x1	M 6 (cone)	5.5 mm	9 mm
SND2 M8x1	M 8 x 1 (cone)	5.5 mm	9 mm
SND2 M10x1	M 10 x 1 (cone)	5.5 mm	11 mm
SND2 18	R 1/8"	5.5 mm	11 mm

90° funnel type grease nipple — DIN 3405 C

Type	Thread	Thread length	SW
SND3 M6x1	M 6 (cone)	5.5 mm	9 mm
SND3 M8x1	M 8 x 1 (cone)	5.5 mm	9 mm
SND3 M10x1	M 10 x 1 (cone)	5.5 mm	11 mm
SND3 18	R 1/8"	5.5 mm	11 mm

Straight flat grease nipple, head diameter 10 mm — DIN 3404

Type	Thread	Thread length	SW
SNM4 M6x1	M 6	6 mm	11 mm
SNM4 M8x1	M 8 x 1	6 mm	11 mm
SNM4 M10x1	M 10 x 1	6 mm	11 mm
SNM4 18	G 1/8"	6 mm	11 mm

Straight flat grease nipple, head diameter 16 mm — DIN 3404

Type zinc-plated steel	Type AISI 303 (INOX)	Thread	Thread length	SW
SNM1 M6x1	SNM1 M6x1 ES	M 6	6 mm	17 mm
SNM1 M8x1	SNM1 M8x1 ES	M 8 x 1	6 mm	17 mm
SNM1 M8x1.25	SNM1 M8x1.25 ES	M 8	6 mm	17 mm
SNM1 M10x1	SNM1 M10x1 ES	M 10 x 1	6 mm	17 mm
SNM1 M10x1.5	SNM1 M10x1.5 ES	M 10	6 mm	17 mm
SNM1 M12x1.5	SNM1 M12x1.5 ES	M 12 x 1.5	6 mm	17 mm
SNM1 M16x1.5	---	M 16 x 1.5	7 mm	17 mm
SNM1 18	SNM1 18 ES	G 1/8"	6 mm	17 mm
SNM1 14	SNM1 14 ES	G 1/4"	6 mm	17 mm

Straight flat grease nipple, head diameter 22 mm — DIN 3404

Type zinc-plated steel	Type AISI 303 (INOX)	Thread	Thread length	SW
SNM22 M16x1.5	SNM22 M16x1.5 ES	M 16 x 1.5	8 mm	22 mm
SNM22 14	SNM22 14 ES	G 1/4"	8 mm	22 mm
SNM22 38	SNM22 38 ES	G 3/8"	8 mm	22 mm

Grease nipple assortment in plastic box

☞ **Info:** Grease nipples are found above

Type	Content	Version
SN SORTI 80	80 pieces	Classified as SNH1-SNH2-SNH3
SN SORTI 170	170 pieces	Classified as SNH1-SNH2-SNH3-SNM1
SN SORTI 350	350 pieces	Classified as SNH1-SNH2-SNH3-SNM1-SNM22

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IQS push-in fittings up to 150 bar — HD

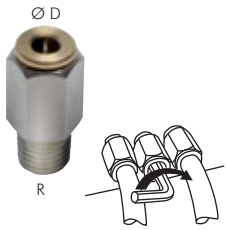
Materials: Body: Brass nickel-plated, collet: Brass, seal: NBR, Seeger ring: Zinc-plated steel
Temperature range: -20°C to max. +70°C
Operating pressure: Max. 150 bar
Application: Lubrication facilities
Media: Oils, greases

Advantages: • Ideal for lubrication systems
• Thread: M 6 x 1 to R 1/4"

Warning: Can only be used with high pressure polyamide tubes!

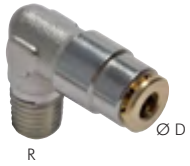
High pressure push in fittings — HD

Type	R	D
IQSG 184 HD	R 1/8"	4
IQSG M64 HD	M 6 x 1 (con.)	4
IQSG M84 HD	M 8 x 1 (con.)	4
IQSG M104 HD	M 10 x 1 (con.)	4
IQSG 186 HD	R 1/8"	6
IQSG 146 HD	R 1/4"	6
IQSG M66 HD	M 6 x 1 (con.)	6
IQSG M86 HD	M 8 x 1 (con.)	6
IQSG M106 HD	M 10 x 1 (con.)	6



High pressure L push-in fittings (fixed) — HD

Type	R	D
IQSL 184 HD B	R 1/8"	4
IQSL M64 HD B	M 6 x 1 (con.)	4
IQSL M84 HD B	M 8 x 1 (con.)	4
IQSL M104 HD B	M 10 x 1 (con.)	4
IQSL 186 HD B	R 1/8"	6
IQSL M66 HD B	M 6 x 1 (con.)	6
IQSL M86 HD B	M 8 x 1 (con.)	6
IQSL M106 HD B	M 10 x 1 (con.)	6



High pressure L push-in fittings (positionable) — HD

Type	R	D
IQSL 184 HD	R 1/8"	4
IQSL M64 HD	M 6 x 1 (con.)	4
IQSL M84 HD	M 8 x 1 (con.)	4
IQSL M104 HD	M 10 x 1 (con.)	4
IQSL 186 HD	R 1/8"	6
IQSL 146 HD	R 1/4"	6
IQSL M66 HD	M 6 x 1 (con.)	6
IQSL M86 HD	M 8 x 1 (con.)	6
IQSL M106 HD	M 10 x 1 (con.)	6

High pressure polyamide hoses (up to 136 bar) — PA ... HD

Temperature range: 0°C to max. +100°C
Properties: Suitable for high pressures, (colour black: additionally UV resistant)
Shore hardness: 96 D
Fields of application: Low pressure hydraulic, centralized grease filling systems
Roll length: 100 m

Temperature range	to +23°C	+40°C	+60°C	+80°C	+100°C
Utilisation rate	100%	72%	57%	40%	30%

Usable with:

HD push-in fittings	Brass compression ring fittings	Brass cutting ring connections	Cutting ring/compression ring fittings	Reinforcing rings
page no. 936	116	119b	122	in combination with 163

Type **natur**	Type **black**	Hose Ø external x internal	Min. bend radius	Operating pressure
PA 4x1,5 HD NATUR	PA 4x1,5 HD SCHWARZ	4 x 1,5	35	136 bar
PA 6x3 HD NATUR	PA 6x3 HD SCHWARZ	6 x 3,0	45	100 bar

Thread rotary distributor for compressed air and vacuum from page 139

FESTO Mini-carriages are found in our Online Shop

Thermometer from page 396

Roller bearing from page 603

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Multi-purpose grease (ISO 6743-9)/MoS2 (ISO6743-9) — DIN 1284

MZF 400: For lubrication of normally loaded bearing points, roller bearings and joints.
MZFMOS 400: For lubrication of shock-loaded or vibrating bearing points.
Temperature range: MZF 400: -25°C to + 120°C, MZFMOS 400: -25°C to +130°C
Dripping point: MZF 400: 185°C, MZFMOS 400: >190°C
Packed in cartridges for all commercial grease presses

Type	Version	Content	Dimension*
MZF 400	Standard lubricating grease	400 g	215 x 50
MZFMOS 400	Lubricating grease MoS2 for heavy requirements	400 g	215 x 50

* internal dimensions 215 x 50 mm (DIN 1284), outside dimensions 240 x 56 mm max.

OKS Cleaner and service products from page 564

Special assembly grease for cylinders and valves

Advantages:
- Good sliding properties in lower and higher temperatures
- Smooth, virtually wear-free operation of piston seals.
- As a lubricating grease for rolling and slide bearings, sliding pads, sprockets, and small gears.
- Formula does not contain any silicone raw materials, PWIS-free confirmed by various automotive plants.

Temperature range: Approx. -30°C to +140°C
Dripping point: >220°C, DIN ISO 2176

Type	Content	Packing
S FETT 40	40 g	Tube
S FETT SPRAY	250 ml	Spray can
S FETT 1000	1000 g	Container
S FETT 400	400 g	Cartridge

High performance lubricating paste for oxygen fittings

The lubrication paste combines the properties of high lubricating effectiveness with simultaneous resistance against the attack of oxygen, aggressive gases and chemicals, NSF-H1 listed, flame resistant, respiratory physiologically harmless. It is very compatible with plastics, elastomers and rubber.
Temperature range: -60°C to +250°C
Oxygen resistance: Up to 60°C/max. 260 bar, acc. to EN 1797 and ISO 21010
Colour: White
Note: Do not mix (grease) S FETT SAU 60 with other lubricants. When processing it is essential to have oil and grease free metal equipment (spatula). Before applying, the parts to be lubricated must be thoroughly cleaned.

Type	Content	Packing
S FETT SAU 60	60 g	Tube

FORD TOX 180514

Perfect dosing, even at the most difficult to reach places!

200ml press pack

Assembly paste for stainless steel cutting ring fittings

Info: For the error free assembly of ES cutting ring fittings, it is very important to grease the cutting ring as well as the thread of the union nut. PASTE ES would be most suited for this application.
PASTE ES is a white paste on the basis of synthetic lubricant. It contains high pressure and high temperature resistant ceramic components through which even under extreme operating conditions, metal parts under pressure (e.g. threads) can easily be separated again.

Advantages:
- Prevents corrosion and seizing
- Resistant to acids, alkalis, chemicals, fresh-and seawater, at temperatures from -20°C to +1400°C
- Seals threads, flanges and housings
- Saves costs by easily loosening joined parts (even after years), less time expenditure and less breakage

Tip: For food industry applications, we recommend Loctite product 8014 (see page 559)

Type	Packing
PASTE ES	500 g brush tin
PASTE ES PP	200 ml press pack with elbow dispenser and brush

Warning: not to be used for oxygen!

500g container

Rotary shaft seals from page 603

Roller bearing from page 603

Work gloves on page 589

Stainless steel screw connections from page 78

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Oil binding agent (grit)

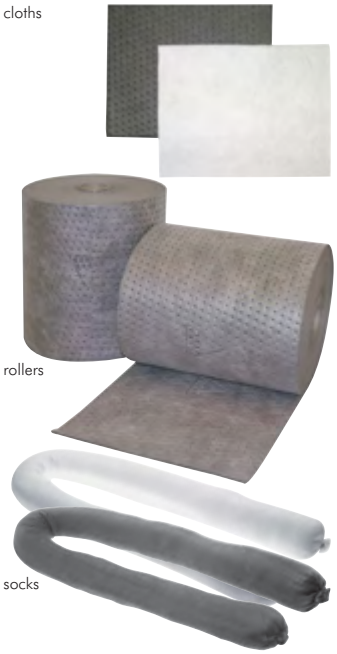
Type	Sack contents	Oil intake per sack (approx.)	Grain size (bulk density)	Material	Description
UNIVERSAL					
OLBG SSORB	20 kg (approx. 32 l)	15 l	0.5 - 1 mm (615 g/l)	Magnesium silicate hydroxide	tested oil binding agents type III R on Sepiolith basis Is a chemical inert product, not flammable and not toxic. **Ideally suited to take up oils, chemicals, weak acids and alkalis**. Suitable for industry, trades, roads and traffic surfaces. Possesses anti-slip effect and is ideal for roads and pedestrian paths.
OIL-ONLY					
OLBG 2000	50 l (approx. 12 kg)	33 l	0.125 - 4 mm (260 g/l)	Polyurethane	tested, buoyant oil binding agents Type I, II, III R on PUR basis. **Absorbs oils, but nearly no water.** Suitable for industry, trades, streets and traffic surfaces and waters. Especially suited for tiled and sealed workshop and industry floors. Do not use for acids or alkalis!

type OLBG 2000

type OLBG SSORB

Oil binding cloths/socks

Type	Package contents format	Fluid intake per pack (approx.)	Description
UNIVERSAL (grey)			
OLBT E1000	25 cloths 40x50 cm	25 l	Multi-layered, lint-free PP binding fleece with optimum suction performance and strong durability. Dimple-weld for particularly stable construction. Socks are filled with cellulose. **Suitable for universal binding of non-corrosive liquids and oils**.
OLBR E1500S	2 rolls, perforated 0.48x44 m	200 l	
OLBR E1500	1 roll, perforated 0.97x44 m	200 l	
OLBS U10	10 socks 8x120 cm	35 l	
OIL-ONLY (white)			
OLBT E100	25 cloths 40x50 cm	38 l	Consists of water repellent PP fibres, **exclusively for absorbing oils, fuels and other hydrocarbons**. Takes, up to 20 times its own weight. Ideal if no water is to be absorbed. Swims also in water when in saturated state.
OLBS P10	10 socks 8x120 cm	40 l	



cloths

rollers

socks

Oil binding carpet

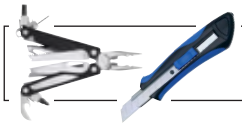
Suitable: Carpet to be laid out in areas such as in front of tooling machines or repair sites, etc., where oils and other non-aggressive fluids must be reliably absorbed. A slip-proof plastic film protects the bottom surface, even under supersaturation or when there is strong pressure against the fluid. The dark covering layer securely retains absorbed fluids in the carpet, and allows for walking and driving over the carpet without damaging it. Due to its dark surface, the carpet has a long service life.
Structure: Triple-layered structure with a reinforced surface and a sealed and slip-proof foil on the underside

Type	Dimension	Fluid intake per roll (approx.)
UNIVERSAL (grey) for universal binding of non-corrosive liquids and oils, black top surface		
OLBTP U80	1 roll 0.80x30 m	103 l
OLBTP U120	1 roll 1.20x30 m	154 l
OIL-ONLY (white),exclusively for the removal of oils, fuels, and other hydrocarbons. Will not take up water and is therefore ideal in oily conditions on the exterior, brown top surface		
OLBTP P80	1 roll 0.80x30 m	103 l
OLBTP P120	1 roll 1.20x30 m	154 l

PE canisters + buckets from page 642

Dustpans and hand sweepers on page 584

Cables can be found on page 643



Knives on page 595

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

type DPZ 10

type KHA DIN51

Cleaner

Type	Packing	Function
REINIGER M-5	5 l canister (DIN 51)	Economical power cleaner with wide scope of use. With special active ingredient combination for removal of oil and grease impurities on all alkali resistant surfaces and floor coverings. For the thorough cleaning of workshops, machines, manufacturing and production halls, etc. Cleans and maintains plastics, metals, clinker, rubber, PVC, industrial floors after only a short reaction time. Suitable for use with high pressure or machine cleaning devices. Concentrated and can be diluted up to 1:40 with water. RK listed
REINIGER M-10	10 l canister (DIN 51)	
REINIGER i-5	5 l canister (DIN 51)	Specially for professional use in industry and assembly. Removes pore-deep grease, oil, dirt residues, soot, etc. (Brake cleaner)
REINIGER LE-1	1 l bottle	Oil and grease solvent for gastronomy and food processing operations. Features strong grease, oil and soot removal capability, as well as good dispersing effect. For cleaning floors, walls, ceilings and work areas, stoves, boilers, exhaust hoods, sinks, smoke ovens, etc., as well as all alkali resistant objects and surfaces. Suitable for use with high pressure cleaning devices. Concentrated and can be diluted up to 1:100 with water. Tested for the food industry, biologically degradable, phosphate-free and chlorine free.
Accessories for canister goods		
DPZ 10		Professional pressure pump atomiser for approx. 1 litre REINIGER M-5/10, REINIGER LE-1, LSS-5 leak detection spray (not REINIGER i-5), materials: PP/FKM.
DPZ 10 PAz		Professional pressure pump atomiser for approx. 1 litre cleaner (also solvent containing, but not acetone containing, e.g. REINIGER i-5, brake cleaner). Materials: PA/FKM.
KHA DIN51		Drain cock for 5 l and 10 l canisters (DIN 51). Reusable.

EJN Spray guns with adjustable spray agent amounts 1.2 l

Advantages:
- Spray agent amount can be regulated by flow control valve
- Suitable for solvents

Type	Description	Connection
SPGC	Plastic spray gun, 1.2 l content	G 1/4" female thread

type SPG

type SPGSW
nozzle 360° adjustable

Spray guns with spray stream adjustment and plastic cups 0.7 l

Type	Description	Connection
SPG	Spray gun with a straight spray pipe	Coupling plug NW 7.2*
SPGSW	Spray gun with a straight spray pipe - 360° adjustable nozzle	Coupling plug NW 7.2*
Accessories		
SPGT	Plastic cups for spray guns	
SPGD	Plastic cover for plastic cups	
SPGTM	Metal cups for spray guns	
SPGDM	Metal cover for metal cups	
SPGDR	Cork gasket for metal cups	

* standard coupling

type PUTZT 90 B
(dispenser bucket)

type PUTZT 240 B
(dispenser bucket)

Moist towelettes

Properties: Moist cleaning cloths for removing heavy soiling without using water. Hand cleaner without cleaning gel, soap, wash cloth or water. For fast and thorough removal of oil, grease, ink, lacquer or tar. Moisturising ingredients protect hands.

Type	Supply volume	Towel dimensions	Colour
Moist towelettes (alternative product)	Outstanding value!		
PUTZT 90 B	90 pcs. (dispenser bucket)	26 x 29	Blue
PUTZT 240 B	240 pcs (dispenser bucket incl. 2 x 120 towels, 2 bottles cleaner)	20 x 38	Orange
PUTZT 480 B	480 pcs (refill pack: 4 x 120 towels, 4 bottles cleaner)	20 x 38	Orange
WYPALL® moist towelettes	Kimberly-Clark		
PUTZT 90	90 pcs. (dispenser bucket)	27 x 27	Green
PUTZT 75	75 pieces (refill pack for PUTZT 90)	27 x 27	Green
PUTZT 50	50 pcs. (dispenser box)	27 x 27	Green

WYPALL dispenser
bucket

WYPALL dispenser
box

10

Work gloves
on page 589

OKS Cleaner and service products from page 564

HYDAC Pipe clamps from page 244

Parker Push-in hoses on page 228

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Industrial cleaning cloths — DIN 61650

Version: Tricot cleaning rags, free of hooks and loops, disinfected, soft and absorbent version.

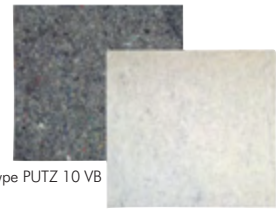
Type tricot, colourful (Outstanding value!)	Type tricot, white	Description
PUTZ 10 B	PUTZ 10	Cleaning cloths in a 10kg bale

Industrial non-woven cleaning cloths

Version: Tear-proof non-woven cleaning cloth, soft and absorbent version

Type colourful	Type white*	Width x sheet length	Description
PUTZ 10 VB	PUTZ 10 V	38 x 40	Cleaning cloths in a 10kg bale

* solvent resistant



type PUTZ 10 VB

type PUTZ 10 V

Cleaning cloths on a roll

Properties:

Tissue material: Above-average tear resistant material (industrial quality) at a low price. Unlike many other suppliers, we deliver at least the specified number of sheets and grammage!

AIRFLEX® material: Higher suction capacity, greater tear strength when wet and greater volume compared to tissue paper, approved for contact with food. Brand manufacturer Kimberly-Clark.

Type	W x sheet length	Roll length	Quality	Applications
Tissue ★★★☆☆				
Cleaning tissue papers, blue, perforated, industrial quality, volume embossed & separating sheet glued				
PUTZR T2-38 (Outstanding value!)	38x36	500 sheets (packing unit=2 pieces)	2-ply, 2x 18g/m²	General wiping processes tissue
PUTZR T3-38	38x36	500 sheets (packing unit=2 pieces)	3-ply, 3x 18g/m²	Medium to heavy wiping processes tissue
AIRFLEX® Kimberly-Clark ★★★★☆				
WYPALL® wipes, blue, perforated, industrial quality for the approved for contact with food				
PUTZR L10-E	33x38	1000 sheets	1-ply, 1x 35g/m² WYPALL® L10 Extra	General wiping processes
PUTZR L20-E	33x38	1000 sheets	2-ply, 2x 18g/m² WYPALL® L20 Extra	Medium to heavy wiping processes
PUTZR L30-U	33x38	750 sheets	3-ply, 3x 20g/m² WYPALL® L30 Ultra	Difficult wiping processes
Viscose ★★★★★				
Special wipe and polishing cloths, white, perforated, solvent resistant				
PUTZR S1-30	30x38	400 sheets	Perforated viscose cloth, 75 g/m²	To adsorb liquid and solid materials (oils and greases) from scratch-sensitive surfaces.
Cleaning paper dispenser				
PUTZR ABROLL	Floor stand up to 40 cm wide, on rollers, with rubbish bag holder			
PUTZR ABROLL B	Floor stand up to 40 cm wide, without rubbish bag holder			
PUTZR ABROLLW	Wall bracket up to 40 cm wide			

tissue/AIRFLEX®

viscose cloth

Operating recommendations:

Wiping process	Tissue	AIRFLEX®
General	2-ply	L10-E
Medium to heavy	3-ply	L20-E
Heavy	---	L30-U or viscose cloth

type PUTZR ABROLL

type PUTZR ABROLL B

type PUTZR ABROLLW

Precision wipes with dispenser box

Version: Polyester-reinforced cellulose. Absorbs liquids quickly and cleanly (such as paper) and is also extremely tear resistant in moist conditions (such as plastic). The cloths are solvent resistant and low lint. Ideal for use in high-precision mechanics, graphic industry, paint shops, gear manufacturing, glass-, mirror- and stainless steel cleaning.

Type	Width x sheet length	Description
PUTZ S2-SB	30x38	Dispenser box with 80 sheets

OKS Cleaner and service products from page 564

Cables can be found on page 643

Disposable overalls from page 591

Permanent marker from page 642

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

type MULL 120 BL

type MULL 120 BLZB

Rubbish bags and rubbish sacks (premium quality) made of polyethylene (PE)

Advantages:
- Made from environmentally neutral polyethylene (premium recycling) of high quality
- Ground water neutral at landfill site, releases no harmful gases or substances
- Can be burned safely, as PE consists only of hydrogen and carbon

Type	Volume (dimensions in cm)	Material	Colour	Roll length	Used for
MULL 20 TR-50	20 l (45x54)	HD-PE, 7µm	Transp.	50 pcs	Small trash can (16-20 l)
MULL 30 WE	30 l (50x60)	LD-PE, 12µm	White	50 pcs	Comm. avail. trash can, extra strong
MULL 70 BL	70 l (57x100)	LD-PE, 40µm (type 60)	Blue	25 pcs	Normal applications, standard
MULL 120 BL	120 l (70x110)	LD-PE, 40µm (type 60)	Blue	25 pcs	Normal applications, standard
MULL 120 GE	120 l (70x110)	LD-PE, 40µm (type 60)	Yellow	25 pcs	Normal applications, standard
MULL 120 RT	120 l (70x110)	LD-PE, 40µm (type 60)	Red	25 pcs	Normal applications, standard
MULL 120 SW	120 l (70x110)	LD-PE, 40µm (type 60)	Black	25 pcs	Normal applications, standard
MULL 120 TR	120 l (70x110)	LD-PE, 40µm (type 60)	Transp.	25 pcs	Normal applications, standard
MULL 120 BLHD	120 l (70x110)	LD-PE, 70µm (type 100)	Blue	25 pcs	Heavy applications, extra strong
MULL 120 BLZB	120 l (70x110)	LD-PE, 50µm (type 70)	Blue	25 pcs	Normal applications with strap
MULL 300 BL	300 l (95x125)	LD-PE, 100µm	Blue	1 pcs	Heavy duty application, fits in 210 l barrel

Rubbish sack holders

Description: Stationary rubbish sack holders with a stable square tube. Suitable for rubbish sacks with a volume of 70 to 120 litres. The robust and space-saving, rubbish sack holders that can be variably installed can also stand in narrow alcoves.
Material: Steel sheet, galvanised zinc-plated

Type	Dimensions (B x D x H)	Insertion slot
MULL STAND 120	425 x 525 x 965	Ø 315

MADE IN GERMANY

Brooms and squeegees

Type	Width	Material and intended purpose
Workshop broom with metal bracket Ø 24 mm, oil resistant		
BESEN WERK 40	400	Arenga bristles suitable for wet floors covered in oil or petrol, such as in workshops or garages
BESEN WERK 60	600	
All-round broom with metal bracket Ø 24 mm, universal		
BESEN ALL 40	400	Arenga/Elaston mixture for universal use, sweeps fine and course dirt in a single operation, even on wet surfaces (water resistant)
BESEN ALL 60	600	
Street broom with handle hole Ø 24 mm for coarse dirt*		
BESEN STRA 40 EL	400	Elaston synthetic fibre with high wet strength, for removing severe, stubborn soiling, for streets and pavements, in the construction industry, extremely durable
BESEN STRA 60 EL	600	
BESEN STRA 40 BA	400	high-quality, elastic natural Bahia bristles for fine to course dirt, heat resistant for use in road construction, long service life
Push broom with handle hole Ø 24 mm for coarse and medium dirt		
BESEN SAAL 40	400	Robust poly-coconut bristles, industrial broom, for warehouse, concrete and fibre cement floors, also for wet areas (waterproof)
BESEN SAAL 60	600	
Squeegee with handle grommet Ø 24 mm for wet use indoors and outdoors		
BESEN ABZIEH 45	450	Metal squeegee made of microcellular rubber for easily clearing water off of smooth and tiled surfaces
BESEN ABZIEH 60	600	
BESEN ABZIEH 75	750	Squeegee with water groove and an extremely stable handle bracket (professional version)
1400 mm wooden handle (must be ordered separately)		
BESEN STIEL 24		Ø 24 mm, cylindrical, suitable for holders with Ø 24 mm
BESEN STIEL 28		Ø 28 mm, with cone, suitable for holders with Ø 24 mm

* we recommend a wooden handle with Ø 28 mm for street brooms

GARDENA brooms can be found in our **Online Shop!**

Hand sweepers and dustpans

Type	Version
Industrial hand brush	
HAFE 30 F	Wood with black plastic edging, for fine dirt, 30 cm
HAFE 30 G	Wood with poly-coconut bristles, for coarse dirt, 30 cm
HAFE 45 FL	Wooden long handle with black plastic edging, for fine dirt, 45 cm
HAFE 35 LE **	PP (solid), with PE bristles for food industry, for fine dirt, 35 cm, steamable to +121°C
Industrial dustpans	
KEHRS 12 S	Wooden handle, metal, lacquered black, 11.5 cm
KEHRS 22 S	Wooden handle, metal, lacquered black, 22 cm
KEHRS 22 V	Wooden handle, metal, hot -galvanised, 22 cm
KEHRS 22 W	Socket handle, metal, white, powder coated, 22 cm
KEHRS 30 LE **	PP dustpan for food industry, 30 cm, steamable to +121°C
Professional sweeping set (hand brush and dustpan)	
KEHRSET 21	Plastic hand brush with PE edging and 21cm dustpan with lip, granite colour
KEHRSET 22	Industrial hand brush made of mixture of Arenga/elaston with high wet strength and 22 cm metal dustpan, hot-dip galvanised

** enter desired colour here (black, blue, yellow, red, green, white)

PP PP

type KEHRSET 22

In your order please enter the required colour here!

Order example: HAFE 35 LE **

Standard type

Order supplement for colour:
- Black . . . . . .SCHWARZ
- Blue . . . . . .BLAU
- Yellow . . . . . .GELB
- Red . . . . . .ROT
- Green . . . . . .GRUN
- White . . . . . .WEISS

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Packaging tapes - tesapack®

Roll dimensions: 50 mm x 66 m

Type **brown**	Type **transparent**	Application	Film type	Packing unit
TESA P64014 50x66B	TESA P64014 50x66T	For closing light to medium heavy cartons. The inexpensive PP foil can be unwound easily and quietly. Reasonable brand packaging tape.	PP-smooth, with acrylate - dispersion adhesive	6 pcs
TESA P4100 50x66B	TESA P4100 50x66T	For closing medium heavy cartons. The embossed foil allows a smooth, quiet and sleek unwinding. Optimum price-performance ratio.	PVC-notched, with natural rubber adhesive	6 pcs
TESA P4124 50x66B	TESA P4124 50x66T	For closing medium to heavy cartons. The high quality foil can be unwound easily and quietly. Firm adhesion to corrugated and solid cardboard.	PVC-smooth, with natural rubber adhesive	6 pcs

Packaging tape manual dispenser

Roll dimensions: Max. 50 mm x 66 m
Supply volume: 1 pc dispenser (without illustrated packaging tape)

Type	Application
ABROLLER B *Outstanding value!*	Packaging tape dispenser with metal frame, adjustable tension control and a serrated tear-off edge. Especially good value!
ABROLLER NOPI	NOPI brand packaging tape dispenser with metal frame, adjustable tension control and a serrated tear-off edge.
ABROLLER T6400	TESA industrial packaging tape dispenser for foil packing tapes. Equipped with a metallic frame, blade protection and adjustable tension control.

type ABROLLER B

type ABROLLER NOPI

type ABROLLER T6400

Filament packaging tapes (Mono-filament)

Description: Extra-strong, filament reinforced adhesive tapes to palletise, bundle, secure and close heavy packages.
Recommendation: For handling, use the special filament packaging tape dispenser ABROLLER T6032, or the packaging tape dispenser ABROLLER T6400!

Type **19 mm width** (packing unit: 8 pcs)	Type **25 mm width** (packing unit: 6 pcs)	Type **50 mm width** (packing unit: 3 pcs)	Breaking load on steel (N/cm)	Bonding force on steel (N/cm)
Mono-filament adhesive tape, longitudinally reinforced, 50 m roll length				
TESA FK 4590 19x50	TESA FK 4590 25x50	TESA FK 4590 50x50	250	6

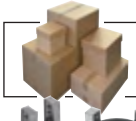
Filament packaging tape dispenser

Roll dimensions: Max. 25 mm x 50 m
Supply volume: 1 piece dispenser (without illustrated adhesive tape)

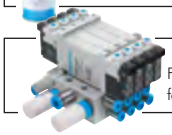
Type	Application
ABROLLER T6032	tesa® industrial tape dispenser for tear-proof strapping and filament tapes, special blade for filament tape handling, robust metal construction, ideal for bundling rod- or ring-shaped goods, for securing pallets, as well as closing and reinforcing shipping boxes. Easy handling: When using filament tape for securing pallets, press down on the brake tab with the thumb. This allows the tape to be unwound with the necessary tension.

Adhesive & sealant compound removers starting on page 562

Permanent marker from page 642


Shipping boxes on page 641

Test stickers on page 640


FESTO
Festo valves can be found in our Online Shop

FESTO
Mini-carriages are found in our Online Shop

FESTO
You will find grippers in our Online Shop

FESTO
Festo rotary actuators can be found in our Online Shop

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Spray adhesive - tesa®

Suitable: For gluing on large areas
Contents: 500 ml

Type	Temperature range	Material weight	Underground	Application
TESA SPK EST	-30°C to +80°C	Heavy	Smooth, rough	"EXTRA STRONG" spray glue for up to 2 m², white colour, extremely leak-proof, strong bonding mass application, approx. 20 min. drying time, water resistant
TESA SPK PER	-20°C to +60°C	Medium	Uneven	"PERMANENT" spray glue for up to 4 m², beige colour, fine, uniform bonding mass application, suitable for polystyrene®, approx. 10 min. drying time, water resistant

Adhesive tapes - tesakrepp®

Roller length: 50 m

Type **19 mm wide**	Type **30 mm wide**	Type **50 mm wide**	Temperature	Application
TESA K4309 19x50	TESA K4309 30x50	TESA K4309 50x50	120°C (max. 1 h)	High-quality, weak creped masking tape for paint work in the automotive sector with subsequent oven drying. Very good wet grinding strength, firm filler, quick and easy to remove.
TESA K4319 19x50	TESA K4319 30x50	TESA K4319 50x50	60°C (short-term)	Very strong creped masking tape for all paint and varnish work, ideally suitable for the curved bonding.

Electrical insulation tape with VDE-test seal

Application: Electrical insulation tape made of soft PVC (DIN EN 60454-3-1F-PVC/105/A-Tx Type 10) with VDE-test marks can be used for all normal insulation work, repairs of damaged insulations, taping cables etc. It is flame resistant and non-ageing, has a good resistance to chemicals (including operating resources of motor vehicles) and is wrinkle-free around the uneven areas.
Temperature range: -10°C to max. +105°C
Dielectric strength: >40 kV/mm
Strap thickness: 0.15 mm

Type **15 mm band width (10 m roll)**	Type **25 mm band width (25 m roll)**	Type **50 mm band width (25 m roll)**	Colour
ISOBAND 15x10 SCH	ISOBAND 25x25 SCH	ISOBAND 50x25 SCH	Black
ISOBAND 15x10 WE	ISOBAND 25x25 WE	ISOBAND 50x25 WE	White
ISOBAND 15x10 RO	ISOBAND 25x25 RO	ISOBAND 50x25 RO	Red
ISOBAND 15x10 GN	ISOBAND 25x25 GN	ISOBAND 50x25 GN	Green
ISOBAND 15x10 BL	ISOBAND 25x25 BL	ISOBAND 50x25 BL	Blue
ISOBAND 15x10 GE	ISOBAND 25x25 GE	ISOBAND 50x25 GE	Yellow
ISOBAND 15x10 BR	ISOBAND 25x25 BR	ISOBAND 50x25 BR	Brown
ISOBAND 15x10 GG	ISOBAND 25x25 GG	ISOBAND 50x25 GG	Green-yellow

Anti-slip adhesive tape - tesa®

Suitable: Very robust anti-slip adhesive tape with strong bonding force. Application indoors and outdoors e. g. on stairs, ramps, etc. It can be torn by hand, temperature resistant from -10°C to max. +50°C, sea water and UV resistant, resistant to many household cleaners.
Roller length: 15 m

Type	Band width	Colour
TESA G60950-25S	25 mm	Black
TESA G60950-50S	50 mm	Black
TESA G60951-50SG	50 mm	Black-yellow

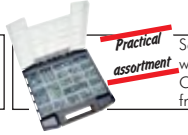
available colours:

black

black-yellow

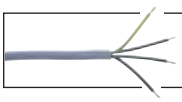
10

Cables can be found on page 643



Screws/bolts, nuts, washers, fittings, O-ring assortments, etc. from page 596

Hydraulic pumps and electric motors can be found in the Online Shop


Flexible control cables on page 641

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Industrial fabric adhesive tape - tesa®

Suitable: Fabric band for bundling, repairing, mounting, strengthening, labelling and much more. Highly weatherproof, water resistant for interior and external use. Tear resistant but can be torn by hand. Easily to label and smooth. The universal tape in the industry with natural rubber adhesive.

Type 19 mm wide	Type 50 mm wide	Colour
25 m Roll length		
TESA G4651 19x25S	TESA G4651 50x25S	Black
TESA G4651 19x25W	TESA G4651 50x25W	White
TESA G4651 19x25B	---	Blue
TESA G4651 19x25G	TESA G4651 50x25G	Yellow
TESA G4651 19x25R	---	Red
50 m Roll length		
TESA G4651 19x50S	TESA G4651 50x50S	Black
TESA G4651 19x50W	TESA G4651 50x50W	White
TESA G4651 19x50B	TESA G4651 50x50B	Blue
TESA G4651 19x50G	TESA G4651 50x50G	Yellow
TESA G4651 19x50R	TESA G4651 50x50R	Red

Tape band (extra strong)

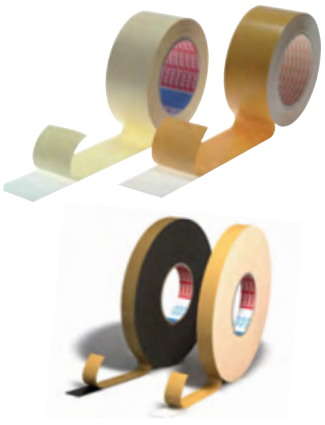
Adhesive tape for repairing, reinforcing, mounting and sealing. Suitable for all applications in plumbing and heading systems as well as automotive and industrial applications.

Advantages:
- Can be torn by hand
- Temperature range from -10°C to max. +70°C
- 100% water resistant
- Pressure resistant up to 4 bar

Type Locite	Type alternative*	Roll length
5080/25	---	25 m
5080/50	KLBG 50/50 SIL	50 m

* similar technical data, temperature range: 0°C to +60°C max., please request the rest

Double-sided adhesive tapes - tesafix®/NOPI



Type	Application
Universal use, roller width: 50 mm, roll length: 25 m	
NOPI FI 5617	Used universally, double-sided adhesive PP glazing tape. For carpets with smooth backs, for universal fixing, decoration and crafting. Adheres to all firm and hard substrates, except PVC, marble, artificial stone. Favourable brand adhesive tape.
TESA FI 4934	Used universally, double-sided adhesive tape made of a fabric carrier with a high adhesive mass wadding. For carpets, for universal fixing, decoration and crafting. Especially suitable for rough and fibrous substrates.
Compensating unevenness by foam backing, roller width: 19 mm, roll length: 25 m	
TESA FI 4957	Double-sided adhesive tape consisting of a soft, highly smooth PE foam backing (white) and an acrylic-based adhesive. Ideal for raw subsurfaces. Compensates differential expansions. For adhesion of strips, cable ducts, window bars, bottom rails, plastic hooks etc.

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Standard

self-sealing repair tape (breakdown tape)

Standard type:
Application: Self-sealing, non-sticky EPR repair tape for the temporary, cold- and heat-proof sealing of tube- and hose lines (incl. radiator- and oil-lines), covering of brake lines, tubes and electrical lines, insulation of electrical connections and cables, bundling of stiff and flexible tubes, as well as the production of temporary O-ring seals. The tape has good UV resistance.
Processing: Remove intermediate film, breakdown tape around the grease- and dirt-free object in a ring or overlapping spiral pattern, and while under tension (stretched by app. 250%).
Temperature range: -40°C to max. +130°C (processing: 0°C to max. +35°C)
Dielectric strength: 35 kV/mm
Type Xtreme conditions:
Self-sealing silicone repair tape for the temporary, **cold- and heat-proof** sealing of pipe- and hose lines (incl. radiator- and oil lines), covering of brake lines, tubes and electrical lines, insulation of electrical connections and wire, bundling of stiff and flexible tubes, as well as the production of temporary O-ring seals. The tape has **good resistance to UV and chemicals**, and is also available in transparent form. It is rot-resistant, hardly flammable, and yet can be removed cleanly and without residue.
Processing: Remove intermediate film, breakdown tape around the object in a ring or overlapping spiral pattern, and while under tension (stretched by app. 250%). Can also be used on **soiled, uneven, greasy or wet surfaces**. The tape can even be used under water or in refrigerated warehouses.
Temperature range: -65°C to max. +260°C (processing: 0°C to max. +35°C)
Breakdown voltage: 8 kV

Type **black**	Type **red**	Type **transparent**	Width	Thickness	Roll length
Standard					
PB 195	---	---	19	1	5 mtr.
Xtreme conditions					
PB 253 X SCHWARZ	PB 253 X ROT	PB 253 X TRANS	25	0,5	3 mtr.

Pipe repair Kit

LOCTITE

Loctite 5070 is designed to be used for quick repairs to steel or plastic pipes/tubes, or to reinforce vulnerable areas.
Supply volume: The set includes protective gloves, Loctite 3463 and a urethane-impregnated GFK-tape

Type	Processing time	Temperature range
5070	3 minutes	-30°C to +120°C

Adhesives and sealants

Type	Colour	Description
KLEDI SIL-TR	Transparent	**Construction silicon:** adhesive and sealing compound with silicone base, neutral cure. For elastic and universal adhesion in the craft and industry sector; also suited for grouting in the plumbing sector. Permanently elastic, weather resistant, acid and odour neutral, moisture and ageing resistant, no labelling required. Complies with EN 15651-1: F-EXT-INT-CC-12.5 E (facade elements for outdoors/indoors), EN 15651-2: G-CC (glazings, cold climate zones), EN 15651-3: S-S1 (sanitary area), supply volume: 310 ml standard cartridge Temperature range: -40°C to max. +120°C
KLEDI SIL-W	White	
KLEDI SIL-GR	Grey	
KLEDI STRONG	White	**Assembly and construction adhesive**: with MS polyester base. For adhesion of stone, concrete, mirrors, natural stone, plaster, polycarbonate, PVC, various types of plastic, copper, lead, zinc, aluminium, rust-free steel, various types of metal. Multiple applications in the field of body construction and ventilation systems as well; silicone-free, can be painted over, strong initial adhesion, weather-and UV resistant. Supply volume: 290 ml standard cartridge Temperature range: -40°C to max. +90°C
KLEDI HT-R	Red	**High-temperature silicone:** Permanently elastic adhesive and sealing compound with high-temperature silicone base with extreme adhesion to rust-free steel, aluminium, glass, ceramic; ideal for sealing motor housings, gearbox covers, valve covers, housing covers, oil pans, heating systems, water pumps, industrial furnaces, tiled stoves, exhaust systems, air conditioners. Supply volume: 310 ml standard cartridge Temperature range: -50°C to max. +250°C (red: -60°C to max. +260°C, temporary up to max. +300°C)
KLEDI HT-S	Black	

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Disposable gloves (premium quality) — EN 455

Properties:
Latex material: highly elastic, tear resistant and durable. No grease and oil resistance.
Nitrile material: Synthetic rubber material. Resists abrasion. Very good protection from hydrocarbon derivatives. Good grease and oil resistance. Suitable for persons with a latex allergy.

Type	Available sizes	Colour	Description
EHAND LAT-**	S, M, L, XL	Natural ○	Disposable latex gloves, powder free, non-sterile, roughened palms, in practical dispenser box with 100 pieces (CE Cat. I, EN 455-1,2,3, AQL 1.5)
EHAND NIT-**	S, M, L, XL	Blue ●	Nitrile disposable gloves, powder-free, non-sterile, roughened palms of the hand, food-safe, up to 100 pieces in a practical dispenser box (CE Cat. I, EN 455-1,2, AQL 1.5)

☞ **Order example:** EHAND LAT- **
Standard type — Required size

Gloves — EN 420/EN 388

CE Cat. 2

Application: For medium risks, but no protection against deadly hazards or serious and irreversible damage to health
Packing unit: 12 pair

Type ★★★ industrial quality	Available sizes	Type ★★☆ hobby quality	Available sizes	Version	Application examples
HAND NIT-**	7, 8, 9, 10, 11	HAND NIT B-**	7, 8, 9, 10, 11	Knitted cuff, flexible nitrile coating (oil resistant), firm grip, non-slip, good sense of touch	Metal processing, steel industry, mining, construction trade, waste and disposal management, agriculture and forestry, painting and chemical industry, printing industry, degreasing, cleaning operations
HAND PU GR-**	6, 7, 8, 9, 10, 11	---		Fine knit gloves with PU part coating, lint free, grey	Electronics, clean room, installation and pharmaceutical industry, glass and metal processing and much more.
HAND PU-**	6, 7, 8, 9, 10, 11	---		Fine knit gloves with PU-part coating, lint-free, white	Electronics, clean room, installation and pharmaceutical industry, glass and metal processing and much more.
HAND LEDER-**	8, 9, 10, 11, 12	HAND LEDER B	10	Leather gloves, heavy duty leather and cotton quality, split cow leather, grey (industrial quality: natural colours, soft grain cow leather, liquid-repellent)	Rough work, metal construction, construction and transport, assembly, agriculture and forestry, disposal

* not HAND BW B

Size conversion

Order size	Glove size Standard	PU gloves
6	---	S
7	S	M
8	M	L
9	L	XL
10	XL	XXL
11	XXL	XXXL

★★★ industrial quality

HAND NIT-**

HAND PU GR-**

HAND PU-**

HAND LEDER

★★☆ hobby quality

HAND NIT B-**

HAND LEDER B

☞ **Order example:** HAND NIT-**
Standard type — Required size

Dustpans and hand sweepers on page 584

Cables can be found on page 643

Buckets can be found on page 641

Hand washing paste can be found on page 602

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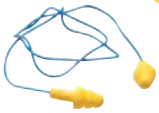
Earplugs — EN 352-2

classic II

classic soft


ultrafit

soft FX

Type	SNR value	Design	Package contents	Packaging
EAR PACK	28 dB	Classic II	5 pair	Carton
EAR BOX 250	28 dB	Classic II	250 pair	Dispenser box (single pack)
EAR BOX 250/5	28 dB	Classic II	250 pair	Distributor box (5 pack)
EAR BOX SOFT 200	36 dB	Classic soft	200 pair	Dispenser box (single pack)
EAR BOX FX 200	39 dB	Soft FX	200 pair	Dispenser box (single pack)
EAR BOX UFiT 50	32 dB	Ultrafit	50 pair	Dispenser box (single pack)

Banded ear plugs

Type	SNR value	Design	Package contents	Packaging
EAR BU	26 dB	Bracket	1 units	Single pack

Hearing protection muffs

type EARP 0 B

type EARP 1

type EARP 2

type EARP 3

Type	Description	SNR value	
EARP 0 B (Outstanding value!)	European brand product, very good quality, adjustable plastic holder. Ideal for mild to moderate noise levels, weight: approx. 100 g	23 dB	★☆☆☆☆
EARP 1	PELTOR Optime I, all-round hearing protection for longer usage times in environments with average noise exposure, for e.g. in workshops, printing presses, tinsmithing. Weight: approx. 150 g	27 dB	★★★☆☆
EARP 2	PELTOR Optime II, comfortable industrial ear protection for longer usage times in highly noisy environments, e.g. for machine operators, airport staff, farmers. Weight: approx. 220 g	31 dB	★★★★☆
EARP 3	PELTOR Optime III, for longer usage times in extremely noisy environments. Weight: approx. 265 g	35 dB	★★★★★

Safety goggles — EN 166

type SCHUBRI VS

type SCHUBRI VS AB

type SCHUBRI BE

type SCHUBRI ST

type SCHUBRI ST SCHW

type SCHUBRI UN

type SCHUBRI PA

Type	Description
Full-view glasses	
SCHUBRI VS	Full-view glasses, direct breathing through the perforations, can easily be worn over spectacles
SCHUBRI VS AB	Full-view glasses, indirect breathing and anti-fogging glasses, can easily be worn over spectacles, ideal for dusty environments
Visitors' goggles	
SCHUBRI BE	Visitor safety glasses made of polycarbonate, lightweight, can be worn over spectacles
Standard safety glasses	
SCHUBRI ST	Robust and price saving universal glasses, centre screw for glass replacement, glasses: Ø 50 mm, foldable lateral protection, shatterproof, colourless glasses
SCHUBRI ST SCHW	Robust and price saving universal glasses, centre screw for glass replacement, glasses: Ø 50 mm, foldable lateral protection, shatterproof, Athermal 5A-welder's safety goggles
Universal protection glasses	
SCHUBRI UN	Universal protection glasses, stylish, shatterproof, polycarbonate window in a single piece, durable Duralite coating resistant to scratching, adjustable bracket
Panorama glasses	
SCHUBRI PA	Two-component glasses, hard on the outside and soft inside, length and inclination of handle is adjustable, window made of scratch resistant, non-fogging, colourless polycarbonate.

Protective hood with neck protection on page 535

Blast guns and blasting abrasives on page 535

Blow guns from page 524

Spray guns from page 534

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Respirator half masks — EN 149

Type without valve	Packing unit	Type with valve	Packing unit	Protection against	Protection stage
ATEMSM 1 OV	20	ATEMSM 1	10	Inert fine dust	FF P1
ATEMSM 2 OV	20	ATEMSM 2	10	Solid and liquid mildly-toxic particles	FF P2
---	---	ATEMSM 3	5	Toxic solid/liquid mildly-toxic particles	FF P3

without valve

with valve

Disposable overalls

Version: All overalls are equipped with hood, arm, leg and waste elastic as well as a covered zipper strip. Good quality, comfortably tailored, industry quality.

Type white	Material	Available sizes	Tests	Purpose of use
OVERALL 1-**	PP-Vlies (approx. 50 g/m²)	L, XL, XXL	CE Cat. I	Slightly dirty work with non-hazardous substances Stable version in 50g quality.
OVERALL 3S-**	4-ply SMMS material (approx. 60 g/m²)	M, L, XL, XXL, XXXL	CE Cat. III (type 5 & 6), antistatic EN 1149	Breathable overalls for working with hazardous substances. Particle protection, limited spray consistency. Particularly permeable to air, but less fluid protection compared to film laminates.
OVERALL 3F-**	Micro-porous PP laminated film (approx. 60 g/m²)	M, L, XL, XXL, XXXL	CE Cat. III (type 5B & 6B), antistatic (EN 1149), radioactive particles (EN 1073-2), biological hazards (EN 14126), Oils and lubricants (EN 369)	Breathable overall for working with substances harmful to health. Particle protection, limited spray consistency. Especially low lint quantity, low wear as well as improved fluid protection against SMS material.

Order example: OVERALL 1- **
Standard type — Required size

type OVERALL 1

type OVERALL 3S

type OVERALL 3F

First aid case — DIN 13157/13169

Description: First aid case with wall bracket and 90° Stop-locked, two shells of the same size for the case, protected from dust and splashwater.

Advantage: • Sterile bandages by SÖHNGEN® with shelf life of 20 years!

Type	Description	Content
Standard case		
FIRSTAID KO57	First aid case "Quick CD", dimensions 260 x 170 x 110 mm	DIN 13157 (small)
FIRSTAID KO69	First aid case "MT-CD", dimensions 400 x 300 x 150 mm	DIN 13169 (large)
Special case (standard case plus occupational specific special contents), dimensions 400 x 300 x 150 mm		
FIRSTAID KO57 MET	Special case "Metal" for foundries, steel and sheet metal shaping, aluminium factories, turning shops, metalworking shops, welding technology, tinsmithing and other metalworking occupations	DIN 13157 (small)
FIRSTAID KO57 WER	Special case "Workshop" for servicing and repair companies as well as all technical workshops	DIN 13157 (small)
FIRSTAID KO57 ELE	Special case "Electrical engineering" for the entire electronics industry	DIN 13157 (small)
FIRSTAID KO57 HOL	Special case "Woodworking" for sawmills, furniture industry, joiner, carpenter, wood turner, wood carver and furniture restorers	DIN 13157 (small)
FIRSTAID KO57 BAU	Special case "Construction site" for building construction/civil engineering, road construction/maintenance, demolition, renovation, horticulture & landscaping	DIN 13157 (small)
FIRSTAID KO57 VER	Special case "Office" for workplaces mainly for office activities, insurances, administration of industry, trade and crafts	DIN 13157 (small)

Bandage material refilling set — DIN 13157/13169

Advantage: • Sterile bandages by SÖHNGEN® with shelf life of 20 years!

Type	Description	Content
FIRSTAID REP57	Refilling set, contents cc. to DIN 13157 (small)	DIN 13157 (small)
FIRSTAID REP69	Refilling set, contents cc. to DIN 13169 (large)	DIN 13169 (large)

Plaster dispenser

Advantage: • Sterile bandages by SÖHNGEN® with shelf life of 20 years!

Type	Description
FIRSTAID PS	Plaster dispenser made of ABS plastic, 160 x 122 x 57 mm, orange, with a transparent cover and a wall bracket. Containing 115 "aluderm-aluplast" adhesive plasters in 5 different versions, each of which is hygienically sealed.
FIRSTAID PS REP	115-piece, refilling set "aluderm-aluplast" for plaster dispensers, consisting of: 30 pieces each strips 7.2 x 1.9 cm and 7.2 x 2.5 cm, 25 pieces fingertip bandages, 20 pieces fingertip bandages 12 x 2 cm, 10 pieces finger joint bandages and 1 piece first aid block with 40 sheets

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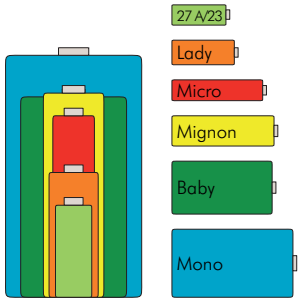
Batteries

Battery applications

Description	Features	Usage
Alkaline (AL)	High energy content, for continuous use	Audio devices, cameras, radio transmitter, calculators
Silver oxide (AgO)	Medium to high load-bearing	Clocks, cameras, pocket calculators, vernier callipers
Lithium (Li)	High load-bearing, low self-discharging	Cameras, electronic data storage, clocks, remote controls
Nickel Metal Hydride (NiMH)	High capacity and performance, no memory effect	Cameras, digital cameras, camera flashes, MP3 players, Palm, PDA



Battery sizes

Gen. description	USA	European designation Alkaline/NiMH	Ø x H (mm) L x W x H (mm)
27 A/23 A			7.7 x 28/10 x 28
Lady	N	LR1	12 x 30
Micro	AAA	LR03/HR03	11 x 45
Mignon	AA	LR6/HR6	15 x 51
Baby	C	LR14/HR14	26 x 50
Mono	D	LR20/HR20	33 x 62
9 V Block		E block	48 x 26 x 17

GP Batteries

One-way batteries

Type	Design	Voltage	Amount
Alkaline			
BAT 27A AL	Ø 7.7 x 28 mm	12V/18 mAh	1 units
BAT 23A AL	Ø 10 x 28 mm	12V/38 mAh	1 units
BAT N AL	Lady (LR1)	1.5V	2 pack
BAT AAA AL	Micro (LR03)	1.5V	4 pack
BAT AAA AL-12	Micro (LR03)	1.5V	12 pack
BAT AA AL	Mignon (LR6)	1.5V	4 pack
BAT AA AL-16	Mignon (LR6)	1.5V	16 pack
BAT C AL	Baby (LR14)	1.5V	2 pack
BAT D AL	Mono (LR20)	1.5V	2 pack
BAT 9V AL	9 Volt block	9V	1 units
Photo lithium (cameras)			
BAT CR2 LI	Ø 15.6 x 27 mm (CR 17355)	3V	1 pc.
BAT CR123A LI	Ø 16.8 x 34.5 mm (CR 17335)	3V	1 units
BAT 2CR5 LI	34 x 17 x 45 mm (W x D x H) (2CR5)	6V	1 units
BAT CRP2 LI	35 x 19.5 x 36 mm (W x D x H) (CR-P2)	6V	1 units

GP Batteries

Rechargeable batteries (NiMH)

Version: Nickel-metal hydride (NiMH) precharged, capable of fast charging, no memory effect, low self-discharge

Type	Design	Voltage	Capacity	Amount
BAT AAA NiMH R	Micro (HR03)	1.2V	850 mAh	4 pack
BAT AA NiMH R	Mignon (HR6)	1.2V	2000 mAh	4 pack
BAT C NiMH R	Baby (HR14)	1.2V	2200 mAh	2 pack
BAT D NiMH R	Mono (HR20)	1.2V	2200 mAh	2 pack
BAT 9V NiMH R	9 V Block	8.4V	200 mAh	1 units

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One-way batteries - coin cells

GP Batteries

Type	Description	Dimensions (Ø x height)	Capacity mAh
Silver oxide (voltage: 1.55 Volt)			
BAT 364 AGO	SR 60	6.8 x 2.15	18
BAT 377 AGO	SR 66	6.8 x 2.6	25
BAT 392 AGO	SR 41	7.9 x 3.6	42
BAT 395 AGO	SR 57	9.5 x 2.70	55
BAT 389 AGO	SR 54	11.6 x 3.05	70
BAT 357 AGO	SR 44	11.6 x 5.4	165
Alkaline (voltage: 1.5 Volt)			
BAT 189 AL	LR 54	11.6 x 3.05	44
BAT 186 AL	LR 43	11.6 x 4.2	70
BAT A76 AL	LR 44	11.6 x 5.4	110
BAT 625A AL	LR 9	15.6 x 5.95	190
Lithium (voltage: 3 Volt)			
BAT CR1220 Li	CR1220	12.5 x 2.0	35
BAT CR1616 Li	CR1616	16 x 1.6	42
BAT CR2016 Li	CR2016	20 x 1.6	72
BAT CR2025 Li	CR2025	20 x 2.5	160
BAT CR2032 Li	CR2032	20 x 3.2	220
BAT CR2430 Li	CR2430	24.5 x 3	270

Charging device for NiMH rechargeable batteries (Micro and Mignon)

GP Batteries

Supply volume: Charger for 2 or 4 NiMH rechargeable batteries
Version: Dual LED Load indicator, 2 charging channels for NiMH-batteries

Type	Description	Voltage
BAT LADER 1*	Quick charger for 2 or 4 NiMH rechargeable batteries (AAA/AA)	100-240V AC
BAT LADER 2	Table charger for 2 or 4 NiMH (AAA/AA/C/D/9V)	100-240V AC

* incl. 4 Mignon NiMH batteries (AA)

quick charger

table charger

Rechargeable torch

Advantages:
- Cutting-edge SMD-LED technology
- Wireless
- High brightness
- Charging status display
- Sturdy, splash resistant housing
- Holding magnets on back of housing and on bottom of handle

Supply volume: torch incl. USB-A cable

Type	Lumen	Protection class
HANDLAMPE 325	325	IP 54

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Torches/forehead lamps

type P2

type P4

type P5

type T2QC

Type TT

type P7

type P17

type P7R

type LED CLIP

type LED MAGNET

LED LENSER LED torches

Description: Micro-processor controlled multifunction LED lamps. Adjustable beam (Speed Focus) and splash water resistant, includes batteries.

Type	Lumen	Focus	Additional function	Incl. accessories	Batteries	Length
LED LENS P2	16	Speed	---	Nylon pouch*	1 x Micro (AAA)	10 cm
LED LENS P4	18	Speed	---	Nylon pouch*	2 x Micro (AAA)	15 cm
LED LENS P5	140	Speed	---	Nylon pouch*	1 x Mignon (AA)	11 cm
LED LENS T2QC	140	Diffuser	4 colours: White, red, green, blue	---	3 x Micro (AAA)	10 cm
LED LENS TT	280	Turning	Power/Low Power	Roll-away prot.	3 x Micro (AAA)	13 cm
LED LENS P7	450	Speed	High Power/Power/Low Power	Nylon pouch*	4 x Micro (AAA)	13 cm
LED LENS P17	1000	Speed	High Power/Power/Low Power	Belt clip	3 x Mono (D)	31 cm
LED LENS P7R**	1000	Speed	High Power/Power/Low Power	Charging cradle	Li-Ion battery	16 cm
Accessories						
LED CLiP 1			Belt clip, can be rotated 360°, can be fixed in any position, for model M5			
LED CLiP 2			Belt clip, can be rotated 360°, can be fixed in any position, for model P7.2, P7R			
LED MAGNET			Magnet holder, for LED CLiP 1/LED CLiP 2			

* with belt fastener, ** incl. charging cradle, USB cable and lithium-ion battery

type H3.2

type H7.2

type H8R

type S5

LED LENSER LED forehead lamps

Description: Optimum fit through soft, adjustable headband, swivelling, focus capable illumination head.

Type	Lumen	Batteries
Profi: Flexible spiral cable, continuously dimmable, 90° pivotable head		
LED LENS H3.2	120	3 x Micro (AAA)
LED LENS H7.2	250	4 x Micro (AAA)
Life & work: Flexible spiral cable, 3 performance levels		
LED LENS H8R	600	Li-Ion battery
Standard: Dimmable, flash and red light function		
LED LENS S5	180	3 x Micro (AAA)

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Multi-function tools

LEATHERMAN

Advantage: • 25 year guarantee against defects in material and workmanship.

Type	Contained tools
Micra® - the key ring (length: 6.4 cm, weight: 50 g)	
LEMA MICRA	Scissors, knife, tweezers, nail file and cleaner, cross-head and flat-head screwdrivers, watchmaker's screwdriver, medium-sized screwdriver, bottle opener, key ring, ruler
WINGMAN® - made of stainless steel (length 9.7 cm, weight: 199 g)	
LEMA WINGMAN	Snipe nose plier, wire cutters, knife, wood- and metal files, scissors, small and medium screwdriver, cross-head screwdriver, stripping blade, can opener/bottle opener, ruler, package opener, removable belt clip
Wave® - the most commonly purchased multitool produced by Leatherman (length: 10.2 cm, weight: 241 g)	
LEMA WAVE PLUS	Snipe nose plier, wire cutter, hardwire cutter, knife, serrated knife, saws, scissors, wooden and metal files, diamond coated files, small bit holder (including 2 double-sided bits: Small cross recess/watchmaker's screwdriver, cross recess 1- 2/recess 5 mm), large screwdriver, can opener/bottle opener, stripping blade, towing eye, ruler, leather holster
Supertool 300® - solid tool for the hardest of operating cases (length: 11.5 cm, weight: 286 g)	
LEMA SUPERTOOL	Snipe nose pliers, wire cutter, hardwire cutter, cable cutter, crimper, knife, serrated knife, wood and metal files, saws, scissors, small/medium and large screwdriver, cross-head screwdriver, awl with ear, can opener/bottle opener, stripping blade, towing eye, ruler, nylon holster
Surge® - the universal tool with changeable blades (length: 11.5 cm, weight: 355 g)	
LEMA SURGE	Snipe nose plier, wire cutter, hardwire cutter, cable cutter, crimper, knife, serrated knife, scissors, tool holder for saw blades, files, etc., with T-stem (incl. diamond-coated files, wood and metal files, saw blade), small and big bit holder (incl. 2 double-sided bits: small cross recess/watchmaker's screwdriver, cross recess 1- 2/recess 5 mm), awl with ear, can opener/bottle opener, stripping blade, towing eye, ruler, leather holster
Charge PLUS - particularly versatile with a multiple bit holder (length: 10.2 cm, weight: 235 g)	
LEMA CHARGE PLUS	Snipe nose plier, wire cutter, hardwire cutter, crimper, 154CM-stainless steel knife, serrated knife, tear blade, saw, wood and metal files, diamond coated files, small bit holder, 2 large bit holders (including 10 double-sided bits: Small cross recess/watchmaker's screwdriver, cross recess 1/2, recess 2/3 & 5/6.5 mm, pozidriv 1/2, hexagonal: 1.5/2 & 2.5/3 & 4/5, TORX: 10/15 & 20/25) big screwdriver, can opener/bottle opener, stripping blade, fixed and removable towing eye, removable clip, ruler, hard anodised aluminium handles, leather holster
Charge TTi® - the exclusive model with titanium handles (length: 10.2 cm, weight: 232 g)	
LEMA CHARGE TTI	Snipe nose plier, wire cutter, hardwire cutter, crimper, S30V-stainless steel knife, serrated knife, tear blade, saw, wood- and metal files, diamond coated files, scissors, small bit holder, large bit holder (including 9 double-sided bits:small cross recess/watchmaker's screwdriver, cross recess 1- 2/recess 5 mm, recess 2/3, pozidriv 1/2, hexagonal: 1.5/2 & 2.5/3 & 4/5, TORX: 10/15 & 20/25) big screwdriver, can opener/bottle opener, stripping blade, fixed and removable towing eye, removable clip, ruler, titanium handles, leather holster

type LEMA MICRA

type LEMA WINGMAN

type LEMA WAVE PLUS

type LEMA SUPERTOOL

type LEMA SURGE

type LEMA CHARGE PLUS

type LEMA CHARGE TTI

Professional cutter with soft handle

Properties: Very stable profile cutter, with rubber gripping section and metal blade guide. Automatically locks, securing the blade in the set position. The Auto-load Cutter also allows a automatic reloading of a new blade from the integrated blade magazine in the handle.
Supply volume: Cutter with replacement blades in the handle (standard and screw retainer type: 2 pieces, auto-load type: 9 mm: 5 pieces, 18 mm: 6 pieces)

Type **standard**	Type **auto-load**	Type **screw retainer**	Blade width	Type **replacement blades (10/12 pack)**
CUTTER 9	CUTTER 9 A	---	9	CUTTER 9 KL[1]
CUTTER 18	CUTTER 18 A	CUTTER 18 S[3]	18	CUTTER 18 KL[2]

[1] 10 pack, [2] 12 pack, not Wedo brand, [3] not Wedo brand

autoload

screw retainer

replacement blades

Tube cutter

Suitable: For cutting hoses at a right angle and without burrs.

Type	For tubes Ø	Type **replacement blade**
Clip		
SAS 14	0 - 14	SAS 14 KL
Pliers		
SAS 17	0 - 17	SAS 17 KL
SAS 28	0 - 28	SAS 28 KL
Profi-pliers, with ratchet function (also for plastic pipe)		
SAS 42 PRO	0 - 42	SAS 42 KL PRO
SAS 63 PRO	0 - 63	SAS 63 KL PRO

clip

pliers

Profi-pliers

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Assortment for the workshop

Multibox IQS push-in fittings

Description: This multi-box contains 159 straight screw connections, angle screw connections, straight push-in connectors, T push-in connectors, straight push-in reducers, plus a tube cutter.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: IQS push-in fittings are found on page 24

Type	Content
MULTIBOX IQS	70 straight screw connections (M 5 - R 1/8" - R 1/4", 4 - 6 - 8 mm hose) 37 angle screw connections (M 5 - R 1/8" - R 1/4", 4 - 6 - 8 mm hose) 21 straight push-in connectors (4 - 6 - 8 mm hose) 21 T push-in connectors (4 - 6 - 8 mm hose) 10 straight push-in reducers (4 - 6 - 8 mm hose) 1 tube cutter

Multibox IQS push-in fittings - MSV (brass nickel-plated)

Description: This multi-box contains 162 straight screw connections, angle screw connections, straight push-in connectors, T push-in connectors, straight push-in reducers, plus a tube cutter.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: IQS push-in fittings made of brass nickel-plated are found on page 46-52

Type	Content
MULTIBOX IQS MSV	70 straight screw connections (M 5 - G 1/8" - G 1/4", 4 - 6 - 8 mm hose) 40 angle screw connections (M 5 - G 1/8" - G 1/4", 4 - 6 - 8 mm hose) 21 straight push-in connectors (4 - 6 - 8 mm hose) 21 T push-in connectors (4 - 6 - 8 mm hose) 10 straight push-in reducers (4 - 6 - 8 mm hose) 1 tube cutter

Multibox IQS push-in fittings - ES (stainless steel)

Description: This multi-box contains 122 straight screw connections, angle screw connections, straight push-in connectors, T push-in connectors, straight push-in reducers, reducing nipples in stainless steel, plus a tube cutter.

Info: IQS push-in fittings made of stainless steel are found on page 42-45

Type INOX	Content
MULTIBOX IQS ES	37 straight screw connections (G 1/8" - G 1/4" - G 3/8", 6 - 8 - 10 mm hose) 26 angle screw connections (G 1/8" - G 1/4" - G 3/8", 6 - 8 - 10 mm hose) 9 straight push-in connectors (6 - 8 - 10 mm hose) 15 T push-in connectors (6 - 8 - 10 mm hose) 6 straight push-in reducers (6 - 8 - 10 mm hose) 29 reducing nipples/extension nipples (M 5 - G 1/8" - G 1/4" - G 3/8" - G 1/2") 1 tube cutter

Multibox threaded fittings brass nickel-plated

Description: This multi-box contains 182 closing plugs, reducing nipples, double nipples, and sleeves, M 5 to G 1"; in brass nickel-plated, plus corresponding sealant.

Info: Thread fittings are found on page 102-119

Type	Content
MULTIBOX MSV	32 closing plugs, brass nickel-plated (M 5 - G 1/8" - G 1/4" - G 3/8" - G 1/2") 58 reducing nipples/extension nipples, brass nickel-plated (M 5 - G 1/8" - G 1/4" - G 3/8" - G 1/2" - G 3/4" - G 1") 66 double nipples, brass nickel-plated (M 5 - G 1/8" - G 1/4" - G 3/8" - G 1/2" - G 3/4" - G 1") 23 sleeves, brass nickel-plated (M 5 - G 1/8" - G 1/4" - G 3/8" - G 1/2") 3 sleeves, brass (G 3/4" - G 1") 560 PVC gaskets (M 5 - G 1/8" - G 1/4" - G 3/8" - G 1/2" - G 3/4" - G 1") 1 PTFE sealing tape (sanitary version) DB 121 10 ml anaerobic sealing compound (liquid seal) 53.14/10

Multibox stainless steel threaded fittings

Description: This multi-box contains 142 angles, T-pieces, sleeves, closing plugs, reducing nipples, double nipples and threaded nozzles R 1/8" up to R 1" in stainless steel (AISI 316), plus corresponding PTFE sealant.

Info: Thread fittings made of stainless steel are found on page 102-119

Type INOX	Content
MULTIBOX ES	12 angles i/i in stainless steel (Rp 1/8" - Rp 1/4" - Rp 3/8" - Rp 1/2") 12 angles i/A in stainless steel (R 1/8" - R 1/4" - R 3/8" - R 1/2") 12 T-pieces in stainless steel (Rp 1/8" - Rp 1/4" - Rp 3/8" - Rp 1/2") 12 round sockets in stainless steel (Rp 1/8" - Rp 1/4" - Rp 3/8" - Rp 1/2") 30 reducing nipples i/A in stainless steel (R 1/8" - R 1/4" - R 3/8" - R 1/2") 12 threaded nozzles in stainless steel (R 1/4" - R 3/8" - R 1/2", 9 - 13 - 19 mm hose) 32 double nipples in stainless steel (R 1/8" - R 1/4" - R 3/8" - R 1/2") 20 closing plugs in stainless steel (R 1/8" - R 1/4" - R 3/8" - R 1/2") 40 PTFE gaskets (G 1/8" - G 1/4" - G 3/8" - G 1/2") 1 PTFE sealing tape (sanitary version) DB 121

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Multibox hexagonal screws DIN 933

Description: This multi-box contains 660 hexagonal head screws, M 4 to M 8, in zinc-plated steel.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Hexagonal screws can be found on page 622

Type	Content
MULTIBOX 933	300 screws M 4 (10 - 16 - 20 - 40 mm) 160 screws M 5 (16 - 20 - 30 - 40 - 50 mm) 115 screws M 6 (16 - 20 - 30 - 40 - 50 mm) 85 screws M 8 (16 - 20 - 25 - 40 - 50 mm)

Multibox hexagonal screws DIN 933 made of stainless steel

Description: This multi-box contains 260 hexagonal head screws, M 5 to M 10, in stainless steel A2.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Hexagonal head made of stainless steel are found on page 622

Type	Content
MULTIBOX 933 ES	95 screws M 5 (16 - 20 - 25 - 30 mm) 75 screws M 6 (16 - 20 - 25 - 30 - 40 mm) 80 screws M 8 (16 - 20 - 25 - 30 - 35 - 40 - 50 mm) 10 screws M 10 (30 - 40 mm)

Multibox internal hexagon socket screws DIN 912

Description: This multi-box contains 260 hexagon socket screws, M 5 to M 10, in zinc-plated steel.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Hexagon socket screws can be found on page 623

Type	Content
MULTIBOX 912	60 screws M 5 (10 - 20 - 30 mm) 80 screws M 6 (20 - 25 - 30 - 40 mm) 80 screws M 8 (20 - 25 - 30 - 40 mm) 40 screws M 10 (30 - 40 mm)

Multibox nuts - washers - spring washers

Description: This multi-box contains 1425 nuts, washers and spring washers for threads M 3 to M 10, in zinc-plated steel.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Nuts, washers and spring washers can be found on pages 617-618

Type	Content
MULTIBOX 934	475 nuts DIN 934 (M 3 - M 4 - M 5 - M 6 - M 8 - M 10) 475 washers DIN 125A (M 3 - M 4 - M 5 - M 6 - M 8 - M 10) 475 spring washers DIN 127A (M 3 - M 4 - M 5 - M 6 - M 8 - M 10)

Multibox nuts - washers - spring washers made of stainless steel

Description: This multi-box contains 735 nuts, washers and spring washers for threads M 3 to M 10, in stainless steel A2.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Stainless steel nuts, washers and spring washers can be found on pages 617-618

Type	Content
MULTIBOX 934 ES	245 nuts DIN 934 (M 3 - M 4 - M 5 - M 6 - M 8 - M 10) 245 washers DIN 125A (M 3 - M 4 - M 5 - M 6 - M 8 - M 10) 245 spring washers DIN 127B (M 3 - M 4 - M 5 - M 6- M 8 - M 10)

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Assortment for the workshop

Multibox wing washers

Description: This multi-box contains 800 wing washers for threads M 4 to M 12, in zinc-plated steel.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Wing washers can be found on page 617

Type	Content
MULTIBOX USKOT	200 wing washers M 4 (15 - 20 mm) 150 wing washers M 5 (20 - 30 mm) 200 wing washers M 6 (20 - 25 - 30 mm) 200 wing washers M 8 (20 - 25 - 30 mm) 25 wing washers M 10 (30 mm) 25 wing washers M 12 (32 mm)

Multibox button head tapping screws DIN 7981C

Description: This multi-box contains 1450 button head tapping screws, 2.9 to 4.8 mm, in zinc-plated steel.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Tapping screws can be found on page 626

Type	Content
MULTIBOX 7981C	100 screws 2.9 mm (9.5 mm) 300 screws 3.5 mm (13 - 16 - 19 mm) 350 screws 3.9 mm (9.5 - 13 - 16 - 19 mm) 400 screws 4.2 mm (9.5 - 13 - 16 - 19 - 25 mm) 300 screws 4.8 mm (13 - 16 - 19 -22 - 32 mm)

Multibox button head drilling screws DIN 7504M

Description: This multi-box contains 900 button head drilling screws, 3.5 to 4.8 mm, in zinc-plated steel.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Drilling screws can be found on page 629

Type	Content
MULTIBOX 7504M	200 screws 3.5 mm (9.5 - 13 - 16 - 19 mm) 200 screws 3.9 mm (13 - 16 - 19 - 25 mm) 250 screws 4.2 mm (13 - 16 - 19 - 22 - 25 mm) 250 screws 4.8 mm (13 - 16 - 19 - 22 - 25 mm)

Multibox particle board countersunk head screws (TORX)

Description: This multi-box contains 940 particle board screws, countersunk head (branded goods), 3 to 5 mm, made of in yellow zinc-plated steel, including compatible TORX bits.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Particle board screws can be found on page 630

Type	Content
MULTIBOX SPAN TX	200 countersunk head screws, 3.0 mm (16 - 20 mm) 280 countersunk head screws, 3.5 mm (20 - 25 - 30 - 40 mm) 280 countersunk head screws, 4.0 mm (25 - 30 - 40 - 45 - 50 mm) 90 countersunk head screws, 4.5 mm (35 - 40 - 50 mm) 90 countersunk head screws, 5.0 mm (40 - 50 - 60 mm) 4 Bits (TX10 - TX15 - TX20 - TX25)

Multibox particle board countersunk head screws (TORX) made of stainless steel

Description: This multi-box contains 690 particle board screws, countersunk head, 3 to 5 mm (branded goods), made of stainless steel, including compatible stainless steel TORX bits.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Particle board screws made of stainless steel are found on page 630

Type (INOX)	Content
MULTIBOX SPAN TX ES	120 countersunk head screws, 3.0 mm (16 - 20 mm) 180 countersunk head screws, 3.5 mm (20 - 25 - 30 - 40 mm) 200 countersunk head screws, 4.0 mm (25 - 30 - 40 - 45 mm) 110 countersunk head screws, 4.5 mm (35 - 40 - 50 - 60 mm) 80 countersunk head screws, 5.0 mm (40 - 50 - 60 mm) 4 Bits (TX10 - TX15 - TX20 - TX25)

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Multibox particle board countersunk head- and pan head-/half-round head-screws (TORX)

Description: This multi-box contains 710 particle board screws, countersunk head and pan head (branded goods), 3.5 to 5 mm, made of zinc-plated steel, including compatible TORX bits.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Particle board screws can be found on page 630

Type	Content
MULTIBOX SPAN HRTX	100 countersunk head screws, 3.5 mm (30 - 40 mm) 150 countersunk head screws, 4.0 mm (30 - 35 - 40 mm) 100 countersunk head screws, 4.5 mm (40 - 50 mm) 75 countersunk head screws, 5.0 mm (40 - 50 - 60 mm) 140 pan-head screws, 4.0 mm (30 - 35 - 40 mm) 70 pan-head screws, 4.5 mm (40 - 50 mm) 75 pan-head screws, 5.0 mm (40 - 50 - 60 mm) 3 Bits (TX15 - TX20 - TX25)

Repair set for hydraulic plug and screw couplings

Description: This repair set includes all the required sealing sets for the repair of hydraulic push-in couplings (ISO 7241-1 A) and hydraulic screw couplings. using the LIFTER SET included in the supply volume, changing the seal is done with very little effort. Ideal for construction site vehicles.

Advantages: For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

Info: Sealing sets for couplings and screw couplings can be found on page 170

Type	Content
MULTIBOX SVK/HDK	23 sealing sets for push-in couplings of sizes 1, 2A, 2T, 3, 4 and 6 16 sealing sets for screw couplings of sizes 1, 2, 3, 4 and 6 1 ring lifter set for rapid replacement of seals

Grease nipple assortment in plastic box

Info: Grease nipple can be found on page 577

Type	Content	Version
SN SORTI 80	80 pieces	Classified as SNH1-SNH2-SNH3
SN SORTI 170	170 pieces	Classified as SNH1-SNH2-SNH3-SNM1
SN SORTI 350	350 pieces	Classified as SNH1-SNH2-SNH3-SNM1-SNM22

Circlip assortments

Info: Safety rings can be found on page 633

Type	Content	Dimensions
SIRI SORTI A 330	330 pieces	Outer ring assortment 11 - 51 mm (for shafts)
SIRI SORTI I 330	330 pieces	Inner ring assortment 11 - 51 mm (for boreholes)
SIRI SORTI IA 330	330 pieces	Inner/outer ring assortment 12 - 50 mm

Tension spring assortment

Type	Content	Dimensions
FEDERZ SORTI 77	77 pieces	Length 35 to 150, Ø 5.0 to 19.0 mm
FEDERZ SORTI 147	147 pieces	Length 35 to 150, Ø 5.0 to 19.0 mm

Pressure spring assortment

Type	Content	Dimensions (all springs are 150 mm long)
FEDERD SORTI 45	45 pieces	Wire 1.0 mm, Ø 8.0 mm
		Wire 1.0 mm, Ø 10.0 mm
		Wire 1.2 mm, Ø 12.5 mm
		Wire 1.5 mm, Ø 12.5 mm
		Wire 1.8 mm, Ø 15.5 mm
		Wire 2.0 mm, Ø 15.7 mm
		Wire 2.2 mm, Ø 18.7 mm
		Wire 2.5 mm, Ø 19.3 mm
		Wire 3.0 mm, Ø 25.0 mm

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Assortment for the workshop

Hose clamp assortment — Band width 9 mm

☞ **Info:** Hose clips can be found on page 235

Type **NORMA zinc-plated steel**	Content	Ø clamping range
SS SORTI 50	50 pieces	8 - 60 mm
SS SORTI 100	100 pieces	8 - 70 mm

Multibox snap clamps

Description: This multi-box contains 125 nylon snap clips with a clamping range of 8 to 46 mm.

☞ **Info:** Snap clips can be found on page 234

Type	Content
MULTIBOX SSK	125 snap clamps (clamping range 8 to 46 mm)

Hose connector multibox with 56 connectors — PN 8

Temperature range: 0°C to max. +80°C
With the hose connector Multibox you always have the correct hose connector to hand.

☞ **Info:** Plastic hose connector can be found on page 62-63

Type **Polypropylene**	Content
MULTIBOX SVR	12 straight hose connector (4, 6, 8, 10, 12 and 14 mm) 12 T hose connector (4, 6, 8, 10, 12 and 14 mm) 12 Y hose connector (4, 6, 8, 10, 12 and 14 mm) 12 angle hose connector (4, 6, 8, 10, 12 and 14 mm) 2 universal hose connectors (4 to 17 mm) 6 reduction hose connector (4 - 8, 4 - 12 and 8 - 12 mm)

Spring cotter assortment

☞ **Info:** Spring cotters can be found on page 632

Type	Content
FEDERSTECK SORTI	356 spring cotter (2 - 2.5 - 3 - 4 - 5 - 6 - 7 mm)

O-ring assortment

☞ **Info:** O-rings can be found on page 603

Type **NBR***	Type **FKM***	Content	Dimensions	
Imperial				
OR SORTI 340	OR SORTI 340 V	340 pieces	30 dimensions	2.9 x 1.78 to 28.17 x 3.53
OR SORTI 275	OR SORTI 275 V	275 pieces	24 dimensions	20.35 x 1.78 to 50.16 x 5.33
Metric				
OR SORTI 425	OR SORTI 425 V	425 pieces	30 dimensions	3 x 1.5 to 30.2 x 3
OR SORTI 285	OR SORTI 285 V	285 pieces	24 dimensions	18 x 2 to 50 x 5

* colour: black

Hydraulic gasket assortment

☞ **Info:** Hydraulic gaskets can be found on page 551

Type	Content	Dimensions
DRHD SORTI 145	140 pieces	8 dimensions from M8 to M22
DRHD SORTI 120 Z	120 pieces	5 dimensions from G 1/4" up to G 3/4" and 4 dimensions, JIC-UNF 1/2", 9/16", 3/4", 7/8"

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Standard gasket assortment made of vulcanised fibre — DIN 7603 A

Temperature range: -10°C to max. +100°C
Operating pressure: 0 to 16 bar, as well as low vacuum
Suitable: For oxygen, compressed air and gasses
☞ **Info:** Gaskets made of vulcanised fibre can be found on page 550

Type	Content	Dimensions	
Fi SORTI 540	540 pieces	30 dimensions	4 - 33 mm
Fi SORTI 1500	1500 pieces	12 dimensions	10 - 42 mm

Gasket assortment made of aluminium — DIN 7603 A

☞ **Info:** Aluminium gasket rings can be found on page 550

Type	Content	Dimensions	
ALU SORTI 540	540 pieces	30 dimensions	4 - 33 mm
ALU SORTI 1500	1500 pieces	12 dimensions	10 - 42 mm
ALU SORTI 3000	3000 pieces	12 dimensions	4 - 22 mm

Gasket assortment copper solid sealing rings — DIN 7603 A

☞ **Info:** Copper gasket rings can be found on page 550

Type	Content	Dimensions	
CU SORTI 540	540 pieces	30 dimensions	4 - 33 mm
CU SORTI 1500	1500 pieces	12 dimensions	10 - 42 mm
CU SORTI 3000	3000 pieces	12 dimensions	4 - 22 mm

Gasket assortment copper filter gaskets, asbestos-free — DIN 7603 C

✓ **Advantages:** • with soft core, e.g. for oil drain plugs
☞ **Info:** Copper gasket rings can be found on page 550

Type	Content	Dimensions	
CA SORTI 500	500 pieces	28 dimensions	6 - 33 mm
CA SORTI 1500	1500 pieces	12 dimensions	10 - 42 mm
CA SORTI 2000	2000 pieces	11 dimensions	6 - 22 mm

Dowel assortment — fischer

Type	Dowel types	Content
DUBEL SORTI SX	SX- and UX-Dowel	60 pcs. SX 6x30 – 50 pcs. SX 8x40 – 20 pcs. SX 10x50 – 60 pcs. UX 5x30 R – 40 pcs. UX 6x50 R – 50 pcs. UX 8x50 R – 10 pcs. UX 10x60 R
DUBEL SORTI S6	S dowel	100 pcs. S 6 – 100 pcs. S 8 – 25 pcs. S 10

type DUBEL SORTI SX

type DUBEL SORTI S6

FIXtainer boxes (assortment and empty boxes) — fischer

Description: Fixtainer boxes are equipped with carrier handles, transparent covers and removable dividers. FIXtainers can be securely attached to and stacked on top of one another using the click system. They are compatible with the Sortimo L-Boxx system.

Type	Description
FISCHER FIX BOX	Empty box without contents: can be used as a storage box for packed lunches, collection box for small parts, utensils, tools, toys, etc.
FISCHER FIX SX	"SX dowel box": 120 pcs. dowel SX 6x30 – 60 pcs. dowel SX 8x40 – 30 pcs. dowel SX 10x50
FISCHER FIX SXS	"SX dowel and screw box": 60 pcs. dowels SX 6x30 and countersunk head screws 4.5x40 – 30 pcs. dowels SX 8x40 and countersunk head screws 5x60 – 15 pcs. dowels SX 10x50 and countersunk head screws 6x85
FISCHER FIX UNI 1	"All-in-one box": 50 SX 6x30 dowels and 4.5x40 countersunk head screws - 50 UX 6x35 R universal dowels 4.5x60 countersunk head screws - 25 GK plasterboard dowels incl. screw-in tool - 15 GKM metal plasterboard dowels

type FISCHER FIX BOX

type FISCHER FIX SX

type FISCHER FIX SXS

type FISCHER FIX UNI 1

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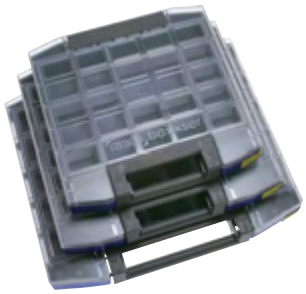
Assortment for the workshop

Assortment boxes (lightweight design) ★★★☆☆

Material: Polypropylene
Description: Inexpensive small parts storage box for screws and small parts. Drawers in different widths that can be labelled to make sorting and creation of order easy.

Type	Dimension	Drawers
MULTIBOX L 15	318 x 135 x 305	15



container application example

Assortment boxes (Profi-model series) ★★★★★

Materials: Cover: unbreakable polycarbonate, Bottom: Double wall construction made of PP, Collection boxes: PP
Description: Professional Box with profile grid in the floor and cover, secures the contents during transportation, handle with integrated locking safety, simple and easy access to the case contents, one-handed operation, particularly stable version.

Type	Dimension (L x W x H)	Quantity Insert boxes	Insert boxes (includ. in the scope of delivery)
Basic box including inserts			
MULTIBOX P 1-13	298 x 284 x 55	13	5x(9-1), 2x(9-2), 2x(9-4), 4x(8-1)
MULTIBOX P 1-15	298 x 284 x 55	15	8x(9-1), 4x(8-1), 1x(9-2), 1x(7-1), 1x(9-3)
MULTIBOX P 2-14	354 x 323 x 55	14	6x(9-1), 2x(9-4), 3x(8-1), 2x(7-1), 1x(6-1)
MULTIBOX P 3-25	421 x 361 x 55	25	25x(8-1)
MULTIBOX P 3-45	421 x 361 x 55	45	40x(9-1), 5x(8-1)
Insert box single			
MULTIBOX P E 9-1	39 x 55 x 47		9-1
MULTIBOX P E 9-2	39 x 109 x 47		9-2
MULTIBOX P E 9-3	39 x 163 x 47		9-3
MULTIBOX P E 9-4	39 x 218 x 47		9-4
MULTIBOX P E 8-1	55 x 79 x 47		8-1
MULTIBOX P E 8-2	55 x 157 x 47		8-2
MULTIBOX P E 7-1	79 x 109 x 47		7-1
MULTIBOX P E 6-1	109 x 157 x 47		6-1
Container	Dimension (L x W x H)		Number of possible basic boxes (not included in the scope of delivery)
MULTIBOX P 1 C	347 x 305 x 342		4 x MULTIBOX P 1-15 or MULTIBOX P 1-13

Hand washing paste - medium to heavy soiling — LORDIN EXTRA

Field of application: Medium to heavy soiling - with natural abrasive agent
Description: Handwashing paste for water-insoluble materials with a grease and pigment base, such as oil, grease, soot, graphite, and metal dust. Soap-free, solvent-free, pH-neutral, contains a skin-friendly natural abrasive agent.

Type	Packing
LORDINEXTRA 05	500 ml container
LORDINEXTRA 10	10 l bucket

vario-bottle

Hand washing paste - heavy soiling — LORDIN LIQUID POWER

Field of application: Heavy soiling - with natural abrasive agent combination
Description: Liquid handwashing paste for water-insoluble materials with a grease and pigment base, such as oils, grease, soot, graphite, and metal dust. Soap-free, perfumed, solvent-free, pH-neutral, contains a skin-friendly natural abrasive agent combination, and is suited for use with dispenser systems.

Type	Packing	Recomm. disp.
LORDINLIQUID 02	250 ml tube	---
LORDINLIQUID 2V	2 l vario-bottles	SPENVARIO 2 SPENVARIO 2 K
LORDINLIQUID 3	3 l container	SPENEURO 1* SPENEURO 2*
LORDINLIQUID 10	10 l canister	SPENEURO 1* SPENEURO 2*

* or other refillable dispensers

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

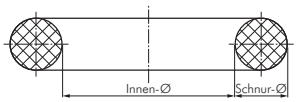
O-rings from 0.73 - 500 mm Ø

Standard according to DIN 3771, ISO 3601-1, JIS 240 P+G, SMS 1586, BS 1806/AS 568 A, BS 4518

Materials: NBR (70 Shore A), Temperature range: -25°C to max. +100°C **N**
FKM* (80 Shore A), Temperature range: -15°C to max. +200°C **V**
EPDM (70 Shore A), Temperature range: -45°C to max. +130°C **EP**

Internal Ø 0.73 to 500

Internal Ø	Possible cord Ø											
0.73	1.02											
1	1	2										
1.07	1.27											
...	...											
...	...											
All dimensions can be found in our Online Shop												
...	...											
...	...											
498	4											
499	4											
500	3	4	5	6	7	8	9	10				



We carry O-rings in all common sizes made of NBR, FKM and EPDM. The item number is made up of the inside diameter x string thickness. Search for an O-ring 150 x 6, enter OR 150x6* in our Online Shop

☞ **Order example:** OR 150 x 6 N

Standard type | Internal Ø | Cord Ø

Material label:
NBR (70 Shore A) . . . . . **N**
FKM* (80 Shore A) . . . . . **V**
EPDM (70 Shore A) . . . . . **EP**

* colour black (green on request)

Many additional products and sizes are available in our **Online Shop!**

Complete ball bearing program

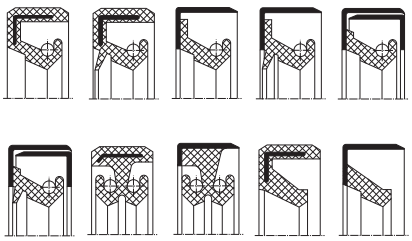
We carry ball bearings from well-known manufacturers. Groove ball bearings (DIN 625), angular contact ball bearings, one- and two-row (DIN 628), self-aligning ball bearings (DIN 630), pendular roller bearings (DIN 635), cylinder roller bearings (DIN 5412), taper roller bearings (DIN 355), axial groove ball bearings (DIN 711).
Search in our Online Shop according to the general market item numbers or download our ball bearing delivery program as PDF file from our Homepage.

Many additional products and sizes are available in our **Online Shop!**

Rotary shaft seals — DIN 3760

Radial rotary shaft seals serve to seal rotating machine components. The mainly consist of a rubber part with a reinforcement plate and a worm spring made of spring steel. Depending on the intended use, there are three basic types: The standard construction forms A, B and C.

Materials: NBR (72° Shore A)
Temperature range: -30°C to +100°C
Running speed: Max. 14 m/s
☞ **Optional:** Material FKM (-20°C up to +200°C, running speed max. 37 m/s) **-V**



Special requirements that need special models:

- High housing roughness
- High housing thermal expansion
- Resistant to pressure
- Synthetic oils with special additives
- Aggressive media

We carry rotary shaft seals in all common shapes and sizes. The item number is made up as follows:
WEDI "shaft diameter"/"outer diameter"/"width"/"design"
Search in our Online Shop according to WEDI*

☞ **Order example:** WEDI 13 / 30 / 7 A

Standard type | Internal Ø | External Ø | Width | Design

You will find a complete product description of our shaft gaskets in our Online Shop.

Many additional products and sizes are available in our **Online Shop!**

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

O-rings/round cords

O-ring assortments

Type NBR*	Type FKM*	Content	Dimensions	
Imperial				
OR SORTI 340	OR SORTI 340 V	340 pieces	30 dimensions	2.9 x 1.78 to 28.17 x 3.53
OR SORTI 275	OR SORTI 275 V	275 pieces	24 dimensions	20.35 x 1.78 to 50.16 x 5.33
Metric				
OR SORTI 425	OR SORTI 425 V	425 pieces	30 dimensions	3 x 1.5 to 30.2 x 3
OR SORTI 285	OR SORTI 285 V	285 pieces	24 dimensions	18 x 2 to 50 x 5

* colour: black

MADE IN GERMANY

O-ring lifters

Description: Hook set consisting of: 4 different hook tools for the rapid and gentle assembly and disassembly of small parts, e.g. O-rings, oil seals or springs, also for the cleaning of threads, boreholes or seal seats, for perforating soft materials or to detect cracks in the metal.

Type	Description
AUSHEB SET	Hook set comprises: 1x round awl, round hooks, 45° hooks, 90° hooks

Round cords (meter goods)

Materials: NBR (70 Shore A), temperature range: -20°C to max. +100°C
FKM* (75 Shore A), temperature range: -15°C to max. +200°C
EPDM (70 Shore A), temperature range: -45°C to max. +130°C

Type NBR	Roll length m	Type FKM*	Roll length m	Type EPDM	Roll length m	Cord Ø external
ORSM 1.50 N	10	ORSM 1.50 V	10	ORSM 1.50 EP	10	1.50
ORSM 1.78 N	10	ORSM 1.78 V	10	ORSM 1.78 EP	10	1.78
ORSM 2.00 N	10	ORSM 2.00 V	10	ORSM 2.00 EP	10	2.00
ORSM 2.50 N	10	ORSM 2.50 V	10	ORSM 2.50 EP	10	2.50
ORSM 2.62 N	10	ORSM 2.62 V	10	ORSM 2.62 EP	10	2.62
ORSM 3.00 N	10	ORSM 3.00 V	5	ORSM 3.00 EP	10	3.00
ORSM 3.50 N	10	ORSM 3.50 V	5	ORSM 3.50 EP	10	3.50
ORSM 3.53 N	10	ORSM 3.53 V	5	ORSM 3.53 EP	10	3.53
ORSM 4.00 N	10	ORSM 4.00 V	5	ORSM 4.00 EP	10	4.00
ORSM 4.50 N	10	ORSM 4.50 V	5	ORSM 4.50 EP	10	4.50
ORSM 5.00 N	10	ORSM 5.00 V	5	ORSM 5.00 EP	10	5.00
ORSM 5.33 N	10	ORSM 5.33 V	5	ORSM 5.33 EP	10	5.33
ORSM 5.70 N	10	ORSM 5.70 V	5	ORSM 5.70 EP	10	5.70
ORSM 6.00 N	10	ORSM 6.00 V	5	ORSM 6.00 EP	10	6.00
ORSM 6.50 N	10	ORSM 6.50 V	5	ORSM 6.50 EP	10	6.50
ORSM 6.99 N	10	ORSM 6.99 V	5	ORSM 6.99 EP	10	6.99
ORSM 7.00 N	10	ORSM 7.00 V	5	ORSM 7.00 EP	10	7.00
ORSM 8.00 N	10	ORSM 8.00 V	5	ORSM 8.00 EP	10	8.00
ORSM 8.40 N	10	ORSM 8.40 V	5	ORSM 8.40 EP	10	8.40
ORSM 9.00 N	10	ORSM 9.00 V	1	ORSM 9.00 EP	10	9.00
ORSM 9.50 N	10	ORSM 9.50 V	1	---	---	9.50
ORSM 10.00 N	10	ORSM 10.00 V	1	ORSM 10.00 EP	5	10.00
ORSM 11.00 N	5	ORSM 11.00 V	1	ORSM 11.00 EP	5	11.00
ORSM 12.00 N	5	ORSM 12.00 V	1	ORSM 12.00 EP	5	12.00
ORSM 13.00 N	5	ORSM 13.00 V	1	ORSM 13.00 EP	5	13.00
ORSM 14.00 N	5	ORSM 14.00 V	1	ORSM 14.00 EP	5	14.00
ORSM 15.00 N	5	ORSM 15.00 V	1	ORSM 15.00 EP	5	15.00
ORSM 16.00 N	5	ORSM 16.00 V	1	ORSM 16.00 EP	5	16.00
ORSM 20.00 N	5	ORSM 20.00 V	1	ORSM 20.00 EP	5	20.00

* colour black (green on request)

TIP *Round cord for O-ring self-assembly in combination with adhesive, see below!*

Loctite O-ring sets

With this set you can create your own O-rings in seconds.
The round cord included is cut to length and glued together in seconds using a special adhesive. The bond is as strong as the rubber itself.
Supply volume: NBR round cords (each 1 m) in diameters 1.6 mm, 2.5 mm, 3.2 mm, 5.9 mm, and 8.8 mm, cutting template, cutting knife, Loctite 406 adhesive, complete in a practical plastic case

Type complete set
ORSET

Adhesives for rubber (round cords)

Type Loctite	Type Loxeal	Packing	Usage
406/20	SK 32/20	20 g	Suitable for NBR and EPDM, (FKM*)
---	SK 32/50	50 g	Suitable for NBR and EPDM, (FKM*)
406/100	---	100 g	Suitable for NBR and EPDM, (FKM*)
406/500	SK 32/500	500 g	Suitable for NBR and EPDM, (FKM*)

* only when used with primer 7239/4

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Property symbols

You will often find symbols in the tables, that portray the features of the product in images.

Wheel diameter (±3%)	Height (±2mm)	Plate sizes
Wheel borehole	Loading (±2mm)	Borehole removal
Wheel width	Loading capacity*	Borehole diameter
Hub length		

* static load. For dynamic loads approx. 30% needs to be deducted

Appliance rollers 40 - 100 kg

Properties: Simple roller version for the in-house usage of smooth floors. Steel sheet housing, zinc-plated-chromatised. Wheels with plastic rim and a thermoplastic rubber binding, grey
Bearing type: Ball bearings with thread guard (Ø 50 without thread guard)

Type swivel castors	Type swivel castors w/ total lock	Type fixed castors									
Appliance rollers											
RO 50 A L	RO 50 A LF	RO 50 A B	50	18	73	54x54	40x40	6.3	26**	40
RO 75 A L	RO 75 A LF	RO 75 A B	75	24	103	60x60	37x37 47x47	6.3	34**	50
RO 100 A L	RO 100 A LF	RO 100 A B	100	24	124	60x60	37x37 47x47	6.3	39**	65
RO 101 A L	RO 101 A LF	RO 101 A B	100	30	137	95x70	75x45	9	42**	80
RO 125 A L	RO 125 A LF	RO 125 A B	125	31	163	95x70	75x45	9	44**	100
Appliance roller with bolt hole 10.2mm										
RO 50 A L RL	RO 50 A LF RL	---	50	18	70	---	---	---	26	40
RO 75 A L RL	RO 75 A LF RL	---	75	24	100	---	---	---	34	50
RO 100 A L RL	RO 100 A LF RL	---	100	24	121	---	---	---	39	65
RO 101 A L RL*	RO 101 A LF RL*	---	100	30	135	---	---	---	42	80
RO 125 A L RL*	RO 125 A LF RL*	---	125	31	160	---	---	---	44	100
Appliance double rollers										
RO 50 A L D	RO 50 A LF D	--- ---	50	2x18	75	60x60	38x38 46x46	6.2	30	60
RO 75 A L D	RO 75 A LF D	--- ---	75	2x24	102	77x67	56x46 61x51	6.2	33	80
Appliance double rollers with bolt hole 10.2mm										
RO 50 A L D RL	RO 50 A LF D RL	---	50	2x18	72	---	---	---	30	60
RO 75 A L D RL	RO 75 A LF D RL	---	75	2x24	99	---	---	---	33	80

* bolt hole: 12.2 mm ** does not apply to type fixed castor

swivel castor | swivel castor with total lock | fixed castor

Appliance rollers - wheels 40 - 100 kg

Properties: Simple wheel version for the in-house usage of smooth floors. With plastic rim and a thermoplastic rubber binding, grey

Type					
With slide bearing					
RO 50 A G	50	18	8.1	21	40
RO 75 A G	75	24	8.1	28	50
RO 100 A G	100	24	8.1	28	65
RO 101 A G	100	30	12.1	35	80
RO 125 A G	125	30	12.1	35	100
With ball bearing and thread guard					
RO 50 A*	50	18	6.1	22	40
RO 75 A	75	24	6.1	29	50
RO 100 A	100	24	8.1	29	65
RO 101 A	100	30	8.1	36	80
RO 125 A	125	31	8.1	36	100

* without thread guard

OKS Cleaner and service products from page 564

Cables can be found on page 643

Work gloves on page 589

PE canisters + buckets from page 642

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Castors and wheels

swivel castor

swivel castor with total lock

fixed castor

Transport device castors — 50 - 450 kg

Properties: Durable solid rubber tyres for light to medium loading. Silent running, protects cargo. Steel sheet housing, zinc-plated, double ball ring and seal in the yoke. Wheels with solid black rubber tyres on steel sheet rims.
Bearing type: Roller bearing with thread guard.

Type **swivel castors**	Type **swivel castors w/ total lock**	Type **fixed castors**	⌀							kg
RO 80 TG L	RO 80 TG LF	RO 80 TG B	80	25	105	104x80	72x52 80x60	9	34**	50
RO 100 TG L	RO 100 TG LF	RO 100 TG B	100	30	128	104x80	72x52 80x60	9	34**	70
RO 125 TG L	RO 125 TG LF	RO 125 TG B	125	37	155	104x80	72x52 80x60	9	36**	100
RO 140 TG L	RO 140 TG LF	RO 140 TG B	140	37	173	105x80	80x60	9	36**	115
RO 160 TG L	RO 160 TG LF	RO 160 TG B	160	40	195	135x110	105x75 105x80	11	48**	135
RO 180 TG L	RO 180 TG LF	RO 180 TG B	180	45	218	135x110	105x75 105x80	11	48**	170
RO 200 TG L	RO 200 TG LF	RO 200 TG B	200	50	235	135x110	105x75 105x80	11	55**	205
RO 225 TG L*	RO 225 TG LF*	RO 225 TG B*	225	55	257	135x110	105x75 105x80	11	61**	250
RO 250 TG L*	RO 250 TG LF*	RO 250 TG B*	250	60	290	135x110	105x75 105x80	11	66**	295
RO 280 TG L*	RO 280 TG LF*	RO 280 TG B*	280	70	325	186x170***	140x105	14.5	80**	385
RO 400 TG L*	RO 400 TG LF*	RO 400 TG B*	400	75	458	150x150	125x125	11	82**	450

* no thread guard ** does not apply to type fixed castor *** 175x140 for type fixed castor

Transport device castors - wheels — 50 - 475 kg

Properties: Durable solid rubber tyres on rims of zinc-plated steel sheet, for light to medium loading. Silent running, protects cargo.
Bearing type: Roller bearing

Type	⌀				kg
RO 80 TG	80	25	12	40	50
RO 100 TG	100	30	12	40	70
RO 125 TG	125	37	15	50	100
RO 140 TG	140	37	15	50	115
RO 160 TG	160	40	20	60	135
RO 180 TG	180	45	20	59	170
RO 181 TG	180	80	20	75	200
RO 200 TG	200	50	20	60	205
RO 225 TG	225	55	20	60	250
RO 250 TG	250	60	25	75	295
RO 260 TG*	260	85	20	75	200
RO 280 TG	280	70	30	75	385
RO 380 TG*	380	80	25	75	350
RO 400 TG	400	75	25	75	475

* convex running surface

swivel castor

swivel castor with total lock

fixed castor

Elastic solid rubber castors — 100 - 350 kg

Properties: High elasticity, great driving comfort, firm tyre seating and low roll resistance characterises these rollers. Steel sheet housing, zinc-plated, double ball ring in yoke, wheels with blue elastic solid rubber tyre, free of grooves, plastic wheel body, up to Ø 125 a thread guard is included in the delivery.
Bearing type: Roller bearing

Type **swivel castors**	Type **swivel castors w/ total lock**	Type **fixed castors**	⌀							kg
RO 80 VG L	RO 80 VG LF	RO 80 VG B	80	35	105	104x80	80x60	9	34*	100
RO 100 VG L	RO 100 VG LF	RO 100 VG B	100	36	128	104x80	80x60	9	34*	130
RO 125 VG L	RO 125 VG LF	RO 125 VG B	125	36	155	104x80	80x60	9	36*	160
RO 160 VG L	RO 160 VG LF	RO 160 VG B	160	50	195	135x110	105x75 105x80	11	48*	300
RO 200 VG L	RO 200 VG LF	RO 200 VG B	200	50	235	135x110	105x75 105x80	11	55*	350

* does not apply to type fixed castor

Elastic solid rubber castors - wheels — 100 - 350 kg

Properties: Elastic-solid rubber tyres, blue, no tracks, on a plastic wheel body, lower roll resistance.
Bearing type: Roller bearing

Type	⌀				kg
RO 80 VG	80	35	12	40	100
RO 100 VG	100	36	12	40	130
RO 125 VG	125	36	15	50	160
RO 160 VG	160	50	20	60	300
RO 200 VG	200	50	20	60	350

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Castors with pneumatic tyres/PU tyres — 60 - 300 kg

Properties: Good shock absorption, lowest roll resistance for poor floors, protects floor. Steel sheet housing, double ball ring in yoke. Wheels with black tyres, groove profile, steel sheet rims and roller bearing.
Bearing type: Roller bearing.
☞ **Optional:** Tyre made from solid PU (puncture-proof) **-PU**

Type swivel castors	Type swivel castors w/ total lock	Type fixed castors								
RO 180 L L	RO 180 L LF	RO 180 L B	180	45[3]	213	135x110	105x75 105x80	11.0	48[2]	60
RO 200 L L	RO 200 L LF	RO 200 L B	200	50	232	135x110	105x75 105x80	11.0	55[2]	75
RO 220 L L	RO 220 L LF	RO 220 L B	220	65[4]	250	135x110	105x75 105x80	11.0	61[2]	100
RO 260 L L	RO 260 L LF	RO 260 L B	260	85	295	175x175 230x125[1]	140x140 190x75[1]	14.5	70[2]	170
RO 300 L L[5]	---	RO 300 L B[5]	300	100	408	150x150	125x125	11.0	82[2]	200
RO 400 L L	---	RO 400 L B	400	100	458	150x150	125x125	11.0	82[2]	300

[1] only applies to type fixed castor, [2] does not apply to type fixed castor, [3] option PU: 40 mm [4] option PU: 70 mm [5] option PU: 290 x 85 mm

swivel castor

swivel castor with total lock

fixed castor

☞ **Order example:** RO 180 L L **

Standard type

Designation for the options:
Tyres made of solid PU . . . . . **-PU**

Pneumatic wheels/PU wheels — with slide bearing — 60 - 200 kg

Properties: Good shock absorption, protects floor, lowest roll resistance for poor floors.
Bearing type: Plastic rim with slide bearing

Type Air		Type PU (puncture resistant)					Profile	Bar	
RO 180 L KU G[1]	45	RO 180 L KU G PU[1]	40	180	20	48	Groove	2.0	60
RO 200 L KU G[1]	50	RO 200 L KU G PU[1]	50	200	20	58	Groove	2.5	75
RO 220 L KU G	65	RO 220 L KU G PU	70	220	20	75	Groove	2.5	100
RO 260 L KU G	85	RO 260 L KU G PU	85	260	20	75	Groove	2.5	170
RO 261 L KU G	85	RO 261 L KU G PU	85	260	20	75	Lug	2.5	170
RO 400 L KU G	100	RO 400 L KU G PU	100	400	20	75	Groove	2.0	200
RO 401 L KU G	100	RO 401 L KU G PU	100	400	25	75	Groove	2.0	200

[1] rim black

Especially good value!

lug tread

groove profile

Pneumatic wheels/PU wheels — with roller or ball bearings — 60 - 300 kg

Properties: Good shock absorption, protects floor, lowest roll resistance for poor floors.

Type Air		Type PU (puncture resistant)					Profile	Bar	
Plastic rim with roller bearing									
RO 200 L KU R[1]	50	RO 200 L KU R PU[1]	50	200	20	60	Groove	2.5	75
RO 220 L KU R	65	RO 220 L KU R PU	70	220	20	75	Groove	2.5	100
RO 260 L KU R	85	RO 260 L KU R PU	85	260	20	75	Groove	2.5	170
RO 261 L KU R	85	RO 261 L KU R PU	85	260	20	75	Lug	2.5	170
RO 400 L KU R	100	RO 400 L KU R PU	100	400	20	75	Groove	2.0	200
RO 401 L KU R	100	RO 401 L KU R PU	100	400	25	75	Groove	2.0	200
RO 402 L KU R	100	RO 402 L KU R PU	100	400	25	75	Lug	2.0	200
Steel sheet rims with roller bearing									
RO 180 L	45	RO 180 L PU	40	180	20	60	Groove	2.0	60
RO 200 L	50	RO 200 L PU	50	200	20	60	Groove	2.5	75
RO 220 L	65	RO 220 L PU	70	220	20	75	Groove	2.5	100
RO 260 L	85	RO 260 L PU	85	260	20	75	Groove	2.5	170
RO 261 L	85	RO 261 L PU	85	260	20	75	Lug	2.5	170
RO 262 L	85	RO 262 L PU	85	260	25	75	Lug	2.5	170
RO 300 L	100	RO 300 L PU[2]	85	300	20	75	Groove	2.5	200
RO 400 L	100	RO 400 L PU	100	400	25	75	Groove	2.0	300
RO 401 L	100	RO 401 L PU	100	400	25	90	Groove	2.0	300
Steel sheet rims with ball bearing									
RO 200 L KL	50	RO 200 L KL PU	50	200	20	60	Groove	2.5	75
RO 220 L KL	65	RO 220 L KL PU	70	220	20	75	Groove	2.5	100
RO 260 L KL	85	RO 260 L KL PU	85	260	20	75	Lug	2.5	170
RO 261 L KL	85	RO 261 L KL PU	85	260	25	75	Lug	2.5	170
RO 300 L KL	100	RO 300 L KL PU[2]	85	300	20	75	Groove	2.5	200
RO 400 L KL	100	RO 400 L KL PU	100	400	25	75	Groove	2.0	300
RO 401 L KL	100	RO 401 L KL PU	100	400	30	90	Lug	2.0	300

[1] rim black [2] Ø 290 mm, lug tread

lug tread

groove profile

lug tread

groove profile

lug tread

groove profile

OKS Cleaner and service products from page 564

Cables can be found on page 643

Work gloves on page 589

PE canisters + buckets from page 642

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Castors and wheels

swivel castor

swivel castor with total lock

fixed castor

Plastic castors — 125 - 400 kg

Properties: Easy running on smooth surfaces, more resistant to abrasion than rubber, heat resistant to 75°C, maintenance free, long life. Steel sheet housing, zinc-plated, double ball ring and seal in the yoke.
Bearing type: Roller bearing

Type swivel castors	Type swivel castors w/ total lock	Type fixed castors	Ø							kg
RO 80 PA L	RO 80 PA LF	RO 80 PA B	80	30	105	104x80	72x52 80x60	9	34*	125
RO 100 PA L	RO 100 PA LF	RO 100 PA B	100	35	128	104x80	72x52 80x60	9	34*	150
RO 125 PA L	RO 125 PA LF	RO 125 PA B	125	35	155	104x80	72x52 80x60	9	36*	200
RO 150 PA L	RO 150 PA LF	RO 150 PA B	150	45	190	135x110	105x75 105x80	11	48*	300
RO 200 PA L	RO 200 PA LF	RO 200 PA B	200	50	235	135x110	105x75 105x80	11	55*	350
RO 250 PA L	RO 250 PA LF	RO 250 PA B	250	50	290	135x110	105x75 105x80	11	66*	400

* does not apply to type fixed castor

Plastic castors - wheels — 125 - 450 kg

Properties: Easy running on smooth surfaces, more resistant to abrasion than rubber, heat resistant to 75°C, maintenance free, long life.
Bearing type: Roller bearing

Type	Ø				kg
RO 80 PA	80	30	12	38	125
RO 100 PA	100	35	12	38	150
RO 125 PA	125	35	15	48	200
RO 150 PA	150	45	20	58	350
RO 200 PA	200	50	20	60	450
RO 250 PA	250	50	20	72	700

swivel castor

swivel castor with total lock

fixed castor

Polyurethane heavy duty rollers — 280 - 2000 kg

Properties: Low noise run, robust and abrasion resistant as well as cut resistant to metal chipping, resistant to many aggressive media. Extra strong steel sheet housing, from Ø 200 mm welded housing, double ball bearing in yoke.
Bearing type: ball bearing (2-way)

Type swivel castors	Type swivel castors w/ total lock	Type fixed castors	Ø							kg
Aluminium rim										
RO 100 PU L**	RO 100 PU LF**	RO 100 PU B**	100	40	128	100x85	80x60	9.0	40*	280
RO 125 PU L	RO 125 PU LF	RO 125 PU B	125	50	178	138x110	105x75/80	11.0	48*	450
RO 150 PU L	RO 150 PU LF	RO 150 PU B	150	50	209	138x110	105x75/80	11.0	48*	550
Cast rim										
RO 201 PU L	RO 201 PU LF	RO 201 PU B	200	50	245	140x110	105x75/80	11.0	60*	1000
RO 250 PU L	RO 250 PU LF	RO 250 PU B	250	75	305	175x140	140x105	14.5	70*	1600
RO 300 PU L	RO 300 PU LF	RO 300 PU B	300	75	355	175x140	140x105	14.5	75*	2000

* does not apply to type fixed castor, ** with yellow PU coating

aluminium rim

cast rim

Polyurethane heavy duty rollers - wheels — 280 - 2000 kg

Properties: Low noise run, robust and abrasion resistant as well as cut resistant to metal chipping, resistant to many aggressive media.
Bearing type: Ball bearing (2-way)

Type	Ø				kg
Aluminium rim					
RO 100 PU*	100	40	12	40	280
RO 125 PU	125	50	20	60	450
RO 150 PU	150	50	20	60	550
RO 200 PU	200	50	20	60	800
Cast rim					
RO 201 PU	200	50	25	60	1000
RO 250 PU	250	75	30	82	1600
RO 300 PU	300	75	30	82	2000

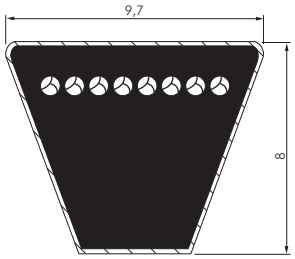
* with yellow PU coating

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

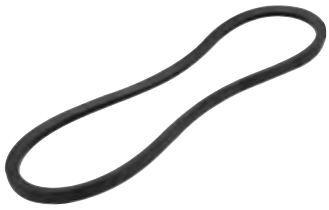
Narrow V-belts DIN 7753/1 — SPZ 9.7 x 8

Max. belt speed V_{max}: 40 m/s, **min. disc diameter:** 63 mm
Temperature range: -40°C to max. +100°C

Type	Ld	Type	Ld	Type	Ld
SPZ 630	630	SPZ 1077	1077	SPZ 1687	1687
SPZ 637	637	SPZ 1112	1112	SPZ 1700	1700
SPZ 662	662	SPZ 1120	1120	SPZ 1737	1737
SPZ 670	670	SPZ 1137	1137	SPZ 1762	1762
SPZ 687	687	SPZ 1162	1162	SPZ 1787	1787
SPZ 710	710	SPZ 1180	1180	SPZ 1800	1800
SPZ 722	722	SPZ 1187	1187	SPZ 1812	1812
SPZ 737	737	SPZ 1202	1202	SPZ 1837	1837
SPZ 750	750	SPZ 1212	1212	SPZ 1862	1862
SPZ 762	762	SPZ 1237	1237	SPZ 1887	1887
SPZ 772	772	SPZ 1250	1250	SPZ 1900	1900
SPZ 787	787	SPZ 1262	1262	SPZ 1937	1937
SPZ 800	800	SPZ 1287	1287	SPZ 1987	1987
SPZ 812	812	SPZ 1312	1312	SPZ 2000	2000
SPZ 825	825	SPZ 1320	1320	SPZ 2037	2037
SPZ 837	837	SPZ 1337	1337	SPZ 2120	2120
SPZ 850	850	SPZ 1347	1347	SPZ 2137	2137
SPZ 862	862	SPZ 1362	1362	SPZ 2187	2187
SPZ 875	875	SPZ 1387	1387	SPZ 2240	2240
SPZ 887	887	SPZ 1400	1400	SPZ 2262	2262
SPZ 900	900	SPZ 1412	1412	SPZ 2287	2287
SPZ 912	912	SPZ 1437	1437	SPZ 2300	2300
SPZ 925	925	SPZ 1462	1462	SPZ 2360	2360
SPZ 937	937	SPZ 1487	1487	SPZ 2450	2450
SPZ 950	950	SPZ 1500	1500	SPZ 2500	2500
SPZ 962	962	SPZ 1512	1512	SPZ 2650	2650
SPZ 987	987	SPZ 1537	1537	SPZ 2800	2800
SPZ 1000	1000	SPZ 1562	1562	SPZ 3000	3000
SPZ 1012	1012	SPZ 1587	1587	SPZ 3150	3150
SPZ 1024	1024	SPZ 1600	1600	SPZ 3350	3350
SPZ 1037	1037	SPZ 1612	1612	SPZ 3550	3550
SPZ 1047	1047	SPZ 1637	1637		
SPZ 1060	1060	SPZ 1662	1662		



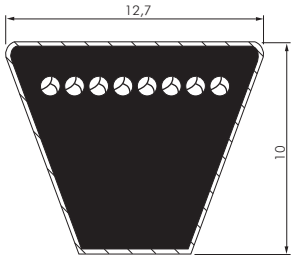
Ld = Reference/effective length (Lw, Lp)
Li = Inside length = Ld-38



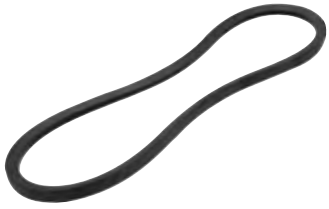
Narrow V-belts DIN 7753/1 — SPA 12.7 x 10

Max. belt speed V_{max}: 40 m/s, **min. disc diameter:** 90 mm
Temperature range: -40°C to max. +100°C

Type	Ld	Type	Ld	Type	Ld
SPA 732	732	SPA 1407	1407	SPA 2240	2240
SPA 757	757	SPA 1432	1432	SPA 2282	2282
SPA 782	782	SPA 1457	1457	SPA 2300	2300
SPA 800	800	SPA 1482	1482	SPA 2307	2307
SPA 807	807	SPA 1500	1500	SPA 2332	2332
SPA 832	832	SPA 1532	1532	SPA 2360	2360
SPA 850	850	SPA 1557	1557	SPA 2382	2382
SPA 857	857	SPA 1582	1582	SPA 2432	2432
SPA 882	882	SPA 1600	1600	SPA 2482	2482
SPA 900	900	SPA 1607	1607	SPA 2500	2500
SPA 907	907	SPA 1632	1632	SPA 2532	2532
SPA 932	932	SPA 1657	1657	SPA 2582	2582
SPA 950	950	SPA 1682	1682	SPA 2607	2607
SPA 957	957	SPA 1700	1700	SPA 2632	2632
SPA 982	982	SPA 1707	1707	SPA 2650	2650
SPA 1000	1000	SPA 1732	1732	SPA 2682	2682
SPA 1007	1007	SPA 1757	1757	SPA 2732	2732
SPA 1032	1032	SPA 1782	1782	SPA 2782	2782
SPA 1060	1060	SPA 1800	1800	SPA 2800	2800
SPA 1082	1082	SPA 1807	1807	SPA 2832	2832
SPA 1107	1107	SPA 1832	1832	SPA 2847	2847
SPA 1120	1120	SPA 1857	1857	SPA 2882	2882
SPA 1132	1132	SPA 1882	1882	SPA 2932	2932
SPA 1157	1157	SPA 1900	1900	SPA 3000	3000
SPA 1180	1180	SPA 1907	1907	SPA 3032	3032
SPA 1207	1207	SPA 1932	1932	SPA 3082	3082
SPA 1232	1232	SPA 1957	1957	SPA 3150	3150
SPA 1250	1250	SPA 1982	1982	SPA 3182	3182
SPA 1257	1257	SPA 2000	2000	SPA 3282	3282
SPA 1272	1272	SPA 2032	2032	SPA 3350	3350
SPA 1282	1282	SPA 2057	2057	SPA 3382	3382
SPA 1307	1307	SPA 2082	2082	SPA 3550	3550
SPA 1320	1320	SPA 2120	2120	SPA 3750	3750
SPA 1332	1332	SPA 2132	2132	SPA 4000	4000
SPA 1357	1357	SPA 2182	2182	SPA 4250	4250
SPA 1382	1382	SPA 2207	2207	SPA 4500	4500
SPA 1400	1400	SPA 2232	2232		



Ld = Reference/effective length (Lw, Lp)
Li = Inside length = Ld-45

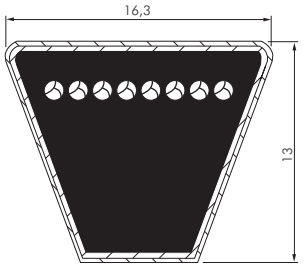


All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

V-belts

Narrow V-belts DIN 7753/1 — SPB 16.3 x 13

Max. belt speed V_{max}: 40 m/s, **min. disc diameter:** 140 mm
Temperature range: -40°C to max. +100°C

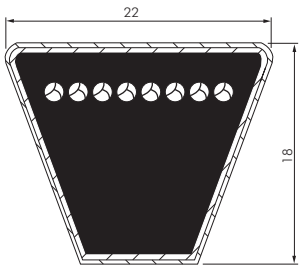


Ld = Reference/effective length (Lw, Lp)
Li = Inside length = Ld-60

Type	Ld	Type	Ld	Type	Ld
SPB 1100	1100	SPB 2360	2360	SPB 4500	4500
SPB 1200	1200	SPB 2500	2500	SPB 4750	4750
SPB 1250	1250	SPB 2650	2650	SPB 5000	5000
SPB 1320	1320	SPB 2800	2800	SPB 5300	5300
SPB 1400	1400	SPB 3000	3000	SPB 5600	5600
SPB 1500	1500	SPB 3150	3150	SPB 6000	6000
SPB 1600	1600	SPB 3250	3250	SPB 6300	6300
SPB 1700	1700	SPB 3350	3350	SPB 6700	6700
SPB 1800	1800	SPB 3450	3450	SPB 7100	7100
SPB 1900	1900	SPB 3550	3550	SPB 7500	7500
SPB 2000	2000	SPB 3750	3750	SPB 8000	8000
SPB 2120	2120	SPB 4000	4000	SPB 9500	9500
SPB 2240	2240	SPB 4250	4250	SPB 10000	10000

Narrow V-belts DIN 7753/1 — SPC 22 x 18

Max. belt speed V_{max}: 40 m/s, **min. disc diameter:** 224 mm
Temperature range: -40°C to max. +100°C



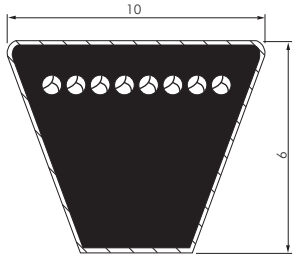
Ld = Reference/effective length (Lw, Lp)
Li = Inside length = Ld-83

Type	Ld	Type	Ld	Type	Ld
SPC 2000	2000	SPC 3750	3750	SPC 7100	7100
SPC 2120	2120	SPC 4000	4000	SPC 7500	7500
SPC 2240	2240	SPC 4250	4250	SPC 8000	8000
SPC 2360	2360	SPC 4500	4500	SPC 8500	8500
SPC 2500	2500	SPC 4750	4750	SPC 9000	9000
SPC 2650	2650	SPC 5000	5000	SPC 9500	9500
SPC 2800	2800	SPC 5300	5300	SPC 10000	10000
SPC 3000	3000	SPC 5600	5600	SPC 10600	10600
SPC 3150	3150	SPC 6000	6000	SPC 11200	11200
SPC 3350	3350	SPC 6300	6300	SPC 12500	12500
SPC 3550	3550	SPC 6700	6700		

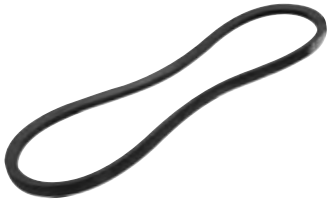
Classic V-belts DIN 2215 — Z/10 x 6

Max. belt speed Vmax: 30 m/s, **min. disc diameter:** 45 mm
Temperature range: -40°C to max. +80°C

TIP *Instead of the Z 10 belt, it is often possible to use a SPZ with the same Ld.*



Ld = Reference/effective length (Lw, Lp)
Li = Inside length



Type	Code	Li	Ld	Type	Code	Li	Ld
Z10x410	Z16	410	432	Z10x1145	Z45	1145	1167
Z10x432	Z17	432	454	Z10x1170	Z46	1170	1192
Z10x460	Z18	460	482	Z10x1180	Z46.5	1180	1202
Z10x480	Z19	480	502	Z10x1194	Z47	1194	1216
Z10x500	Z19.5	500	522	Z10x1220	Z48	1220	1242
Z10x508	Z20	508	530	Z10x1230	Z48.5	1230	1252
Z10x520	Z20.5	520	542	Z10x1250	Z49	1250	1272
Z10x533	Z21	533	555	Z10x1270	Z50	1270	1292
Z10x540	Z21.25	540	562	Z10x1300	Z51	1300	1322
Z10x560	Z22	560	582	Z10x1320	Z52	1320	1342
Z10x575	Z23	575	597	Z10x1346	Z53	1346	1368
Z10x600	Z24	600	622	Z10x1371	Z54	1371	1393
Z10x615	Z24.5	615	637	Z10x1400	Z55	1400	1422
Z10x635	Z25	635	657	Z10x1422	Z56	1422	1444
Z10x660	Z26	660	682	Z10x1450	Z57	1450	1472
Z10x685	Z27	685	707	Z10x1475	Z58	1475	1497
Z10x700	Z27.5	700	722	Z10x1500	Z59	1500	1522
Z10x710	Z28	710	732	Z10x1524	Z60	1524	1546
Z10x725	Z28.5	725	747	Z10x1550	Z61	1550	1572
Z10x737	Z29	737	759	Z10x1575	Z62	1575	1597
Z10x750	Z29.5	750	772	Z10x1600	Z63	1600	1622
Z10x765	Z30	765	787	Z10x1626	Z64	1626	1648
Z10x787	Z31	787	809	Z10x1651	Z65	1651	1673
Z10x800	Z31.5	800	822	Z10x1675	Z66	1675	1697
Z10x815	Z32	815	837	Z10x1700	Z67	1700	1722
Z10x840	Z33	840	862	Z10x1725	Z68	1725	1747
Z10x850	Z33.5	850	872	Z10x1750	Z69	1750	1772
Z10x865	Z34	865	887	Z10x1775	Z70	1775	1797
Z10x890	Z35	890	912	Z10x1800	Z71	1800	1822
Z10x915	Z36	915	937	Z10x1825	Z72	1825	1847
Z10x940	Z37	940	962	Z10x1850	Z73	1850	1872
Z10x965	Z38	965	987	Z10x1875	Z74	1875	1897
Z10x975	Z38.25	975	997	Z10x1900	Z75	1900	1922
Z10x1000	Z39	1000	1022	Z10x1930	Z76	1930	1952
Z10x1016	Z40	1016	1038	Z10x1950	Z77	1950	1972
Z10x1030	Z40.5	1030	1052	Z10x1975	Z78	1975	1997
Z10x1040	Z41	1040	1062	Z10x2000	Z79	2000	2022
Z10x1065	Z42	1065	1087	Z10x2120	Z83.5	2120	2142
Z10x1090	Z43	1090	1112	Z10x2240	Z88	2240	2262
Z10x1105	Z43.5	1105	1127	Z10x2360	Z93	2360	2382
Z10x1120	Z44	1120	1142	Z10x2500	Z98.5	2500	2522

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

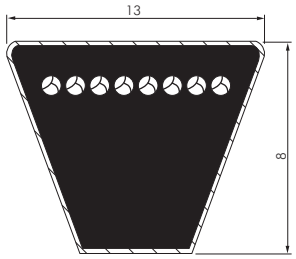
Classic V-belts DIN 2215 — A/13 x 8

Max. belt speed Vmax: 30 m/s
Temperature range: -40°C to max. +80°C
Min. disc diameter: 71 mm

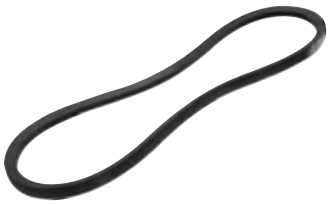
Type	Code	Li	Ld
A13x381	A15	381	411
A13x407	A16	407	437
A13x432	A17	432	462
A13x457	A18	457	487
A13x480	A19	480	510
A13x508	A20	508	538
A13x535	A21	535	565
A13x560	A22	560	590
A13x575	A23	575	605
A13x600	A23.5	600	630
A13x610	A24	610	640
A13x637	A25	637	667
A13x660	A26	660	690
A13x670	A26.5	670	700
A13x690	A27.25	690	720
A13x710	A28	710	740
A13x737	A29.25	737	767
A13x750	A29.5	750	780
A13x762	A30	762	792
A13x787	A31	787	817
A13x800	A31.5	800	830
A13x813	A32	813	843
A13x841	A33	841	871
A13x850	A33.5	850	880
A13x863	A34	863	893
A13x875	A34.5	875	905
A13x890	A35	890	920
A13x900	A35.5	900	930
A13x914	A36	914	944
A13x940	A37	940	970
A13x950	A37.5	950	980
A13x965	A38	965	995
A13x975	A38.5	975	1005
A13x990	A39	990	1020
A13x1000	A39.5	1000	1030
A13x1016	A40	1016	1046
A13x1030	A40.5	1030	1060
A13x1067	A42.25	1067	1097
A13x1075	A42.5	1075	1105
A13x1092	A43	1092	1122
A13x1105	A43.5	1105	1135
A13x1120	A44	1120	1150
A13x1143	A45	1143	1173
A13x1168	A46	1168	1198
A13x1180	A46.5	1180	1210
A13x1200	A47	1200	1230
A13x1220	A48	1220	1250
A13x1250	A49	1250	1280
A13x1270	A50	1270	1300
A13x1300	A51	1300	1330
A13x1320	A52	1320	1350
A13x1346	A53	1346	1376
A13x1372	A54	1372	1402
A13x1400	A55	1400	1430
A13x1422	A56	1422	1452
A13x1450	A57	1450	1480
A13x1475	A58	1475	1505
A13x1500	A59	1500	1530
A13x1525	A60	1525	1555
A13x1550	A61	1550	1580
A13x1575	A62	1575	1605
A13x1600	A63	1600	1630

Type	Code	Li	Ld
A13x1625	A64	1625	1655
A13x1650	A65	1650	1680
A13x1675	A66	1675	1705
A13x1700	A67	1700	1730
A13x1725	A68	1725	1755
A13x1750	A69	1750	1780
A13x1775	A70	1775	1805
A13x1800	A71	1800	1830
A13x1825	A72	1825	1855
A13x1854	A73	1854	1884
A13x1880	A74	1880	1910
A13x1900	A75	1900	1930
A13x1930	A76	1930	1960
A13x1956	A77	1956	1986
A13x1980	A78	1980	2010
A13x2000	A79	2000	2030
A13x2032	A80	2032	2062
A13x2060	A81	2060	2090
A13x2083	A82	2083	2113
A13x2100	A83	2100	2130
A13x2120	A83.5	2120	2150
A13x2134	A84	2134	2164
A13x2160	A85	2160	2190
A13x2187	A86	2187	2217
A13x2210	A87	2210	2240
A13x2240	A88	2240	2270
A13x2261	A89	2261	2291
A13x2286	A90	2286	2316
A13x2311	A91	2311	2341
A13x2337	A92	2337	2367
A13x2360	A93	2360	2390
A13x2388	A94	2388	2418
A13x2413	A95	2413	2443
A13x2438	A96	2438	2468
A13x2464	A97	2464	2494
A13x2500	A98	2500	2530
A13x2540	A100	2540	2570
A13x2591	A102	2591	2621
A13x2650	A104	2650	2680
A13x2667	A105	2667	2697
A13x2725	A107	2725	2755
A13x2743	A108	2743	2773
A13x2800	A110	2800	2830
A13x2845	A112	2845	2875
A13x2896	A114	2896	2926
A13x2946	A116	2946	2976
A13x3000	A118	3000	3030
A13x3048	A120	3048	3078
A13x3150	A124	3150	3180
A13x3200	A126	3200	3230
A13x3250	A128	3250	3280
A13x3350	A132	3350	3380
A13x3404	A134	3404	3434
A13x3454	A136	3454	3484
A13x3550	A140	3550	3580
A13x3658	A144	3658	3688
A13x3750	A148	3750	3780
A13x4000	A158	4000	4030
A13x4114	A162	4114	4144
A13x4250	A167	4250	4280
A13x4500	A177	4500	4530
A13x5000	A197	5000	5030

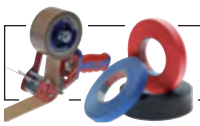
TIP *Instead of the A 13 belt, it is often possible to use a SPA with the same Ld.*



Ld = Reference/effective length (Lw, Lp)
Li = Inside length



Industrial cleaner and cleaning cloths on page 582


tesa® tesa®-adhesive technology from page 585

OKS Cleaner and service products from page 564

Roller bearing from page 603

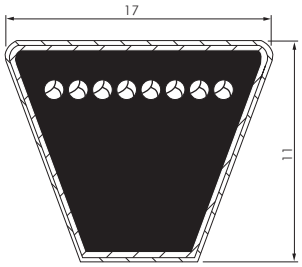
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Classic V-belts DIN 2215 — B/17 x 11

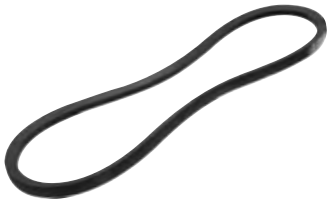
Max. belt speed V_{max}: 30 m/s
Temperature range: -40°C to max. +80°C
Min. disc diameter: 112 mm

Type	Code	Li	Ld	Type	Code	Li	Ld
B17x660	B26	660	703	B17x2187	B86	2187	2230
B17x686	B27	686	729	B17x2210	B87	2210	2253
B17x710	B28	710	753	B17x2240	B88	2240	2283
B17x737	B29	737	780	B17x2261	B89	2261	2304
B17x762	B30	762	805	B17x2286	B90	2286	2329
B17x800	B31.5	800	843	B17x2300	B91	2300	2343
B17x812	B32	812	855	B17x2337	B92	2337	2380
B17x826	B32.5	826	869	B17x2360	B93	2360	2403
B17x838	B33	838	881	B17x2388	B94	2388	2431
B17x863	B34	863	906	B17x2413	B95	2413	2456
B17x875	B34.5	875	918	B17x2438	B96	2438	2481
B17x889	B35	889	932	B17x2465	B97	2465	2508
B17x917	B36	917	960	B17x2500	B98	2500	2543
B17x942	B37	942	985	B17x2515	B99	2515	2558
B17x950	B37.5	950	993	B17x2540	B100	2540	2583
B17x965	B38	965	1008	B17x2565	B101	2565	2608
B17x975	B38.5	975	1018	B17x2600	B102	2600	2643
B17x990	B39	990	1033	B17x2616	B103	2616	2659
B17x1016	B40	1016	1059	B17x2650	B104	2650	2693
B17x1030	B40.5	1030	1073	B17x2667	B105	2667	2710
B17x1040	B41	1040	1083	B17x2700	B106	2700	2743
B17x1050	B41.5	1050	1093	B17x2718	B107	2718	2761
B17x1067	B42	1067	1110	B17x2750	B108	2750	2793
B17x1075	B42.5	1075	1118	B17x2800	B110	2800	2843
B17x1090	B43	1090	1133	B17x2820	B111	2820	2863
B17x1100	B43.5	1100	1143	B17x2850	B112	2850	2893
B17x1120	B44	1120	1163	B17x2900	B114	2900	2943
B17x1142	B45	1142	1185	B17x2921	B115	2921	2964
B17x1163	B45.5	1163	1206	B17x2950	B116	2950	2993
B17x1175	B46	1175	1218	B17x3000	B118	3000	3043
B17x1180	B46.5	1180	1223	B17x3048	B120	3048	3091
B17x1200	B47	1200	1243	B17x3100	B122	3100	3143
B17x1220	B48	1220	1263	B17x3150	B124	3150	3193
B17x1225	B48.5	1225	1268	B17x3200	B126	3200	3243
B17x1250	B49	1250	1293	B17x3250	B128	3250	3293
B17x1275	B50	1275	1318	B17x3300	B130	3300	3343
B17x1300	B51	1300	1343	B17x3350	B132	3350	3393
B17x1320	B52	1320	1363	B17x3404	B134	3404	3447
B17x1330	B52.5	1330	1373	B17x3450	B136	3450	3493
B17x1350	B53	1350	1393	B17x3500	B138	3500	3543
B17x1360	B53.5	1360	1403	B17x3550	B140	3550	3593
B17x1372	B54	1372	1415	B17x3600	B142	3600	3643
B17x1400	B55	1400	1443	B17x3658	B144	3658	3701
B17x1425	B56	1425	1468	B17x3700	B146	3700	3743
B17x1450	B57	1450	1493	B17x3750	B148	3750	3793
B17x1473	B58	1473	1516	B17x3810	B150	3810	3853
B17x1500	B59	1500	1543	B17x3860	B152	3860	3903
B17x1525	B60	1525	1568	B17x3912	B154	3912	3955
B17x1550	B61	1550	1593	B17x3950	B155	3950	3993
B17x1575	B62	1575	1618	B17x3962	B156	3962	4005
B17x1600	B63	1600	1643	B17x4000	B158	4000	4043
B17x1625	B64	1625	1668	B17x4064	B160	4064	4107
B17x1650	B65	1650	1693	B17x4087	B161	4087	4130
B17x1675	B66	1675	1718	B17x4115	B162	4115	4158
B17x1700	B67	1700	1743	B17x4200	B165	4200	4243
B17x1725	B68	1725	1768	B17x4250	B167	4250	4293
B17x1750	B69	1750	1793	B17x4394	B173	4394	4437
B17x1775	B70	1775	1818	B17x4450	B175	4450	4493
B17x1800	B71	1800	1843	B17x4500	B177	4500	4543
B17x1829	B72	1829	1872	B17x4572	B180	4572	4615
B17x1850	B73	1850	1893	B17x4750	B187	4750	4793
B17x1880	B74	1880	1923	B17x4953	B195	4953	4996
B17x1900	B75	1900	1943	B17x5000	B197	5000	5043
B17x1930	B76	1930	1973	B17x5300	B208	5300	5343
B17x1950	B77	1950	1993	B17x5334	B210	5334	5377
B17x1981	B78	1981	2024	B17x5600	B220	5600	5643
B17x2000	B79	2000	2043	B17x5792	B228	5792	5835
B17x2032	B80	2032	2075	B17x6000	B236	6000	6043
B17x2060	B81	2060	2103	B17x6100	B240	6100	6143
B17x2083	B82	2083	2126	B17x6300	B248	6300	6343
B17x2108	B83	2108	2151	B17x6700	B264	6700	6743
B17x2120	B83.5	2120	2163	B17x7000	B276	7000	7043
B17x2134	B84	2134	2177	B17x7100	B280	7100	7143
B17x2160	B85	2160	2203				

TIP *Instead of the B 17 belt, it is often possible to use a SPB with the same Ld.*



Ld = Reference/effective length (Lw, Lp)
Li = Inside length



All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

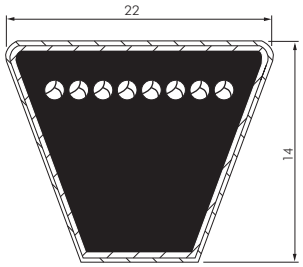
Classic V-belts DIN 2215 — C/22 x 14

Max. belt speed V_{max}: 30 m/s
Temperature range: -40°C to max. +80°C
Min. disc diameter: 180 mm

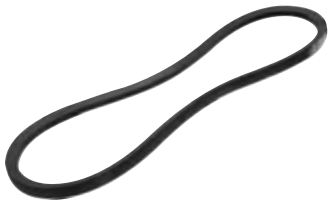
Type	Code	Li	Ld	Type	Code	Li	Ld
C22x1194	C47	1194	1252	C22x2235	C88	2235	2293
C22x1220	C48	1220	1278	C22x2260	C89	2260	2318
C22x1250	C49	1250	1308	C22x2286	C90	2286	2344
C22x1295	C51	1295	1353	C22x2311	C91	2311	2369
C22x1320	C52	1320	1378	C22x2336	C92	2336	2394
C22x1350	C53	1350	1408	C22x2360	C93	2360	2418
C22x1370	C54	1370	1428	C22x2388	C94	2388	2446
C22x1400	C55	1400	1458	C22x2413	C95	2413	2471
C22x1425	C56	1425	1483	C22x2438	C96	2438	2496
C22x1450	C57	1450	1508	C22x2462	C97	2462	2520
C22x1475	C58	1475	1533	C22x2489	C98	2489	2547
C22x1500	C59	1500	1558	C22x2525	C99	2525	2583
C22x1525	C60	1525	1583	C22x2540	C100	2540	2598
C22x1550	C61	1550	1608	C22x2560	C101	2560	2618
C22x1575	C62	1575	1633	C22x2591	C102	2591	2649
C22x1600	C63	1600	1658	C22x2642	C104	2642	2700
C22x1650	C65	1650	1708	C22x2667	C105	2667	2725
C22x1676	C66	1676	1734	C22x2692	C106	2692	2750
C22x1700	C67	1700	1758	C22x2750	C108	2750	2808
C22x1727	C68	1727	1785	C22x2800	C110	2800	2858
C22x1750	C69	1750	1808	C22x2845	C112	2845	2903
C22x1776	C70	1776	1834	C22x2896	C114	2896	2954
C22x1800	C71	1800	1858	C22x2921	C115	2921	2979
C22x1830	C72	1830	1888	C22x2950	C116	2950	3008
C22x1854	C73	1912	1854	C22x2971	C117	2971	3029
C22x1880	C74	1880	1938	C22x3000	C118	3000	3058
C22x1905	C75	1905	1963	C22x3048	C120	3048	3106
C22x1930	C76	1930	1988	C22x3100	C122	3100	3158
C22x1956	C77	1956	2014	C22x3150	C124	3150	3208
C22x1981	C78	1981	2039	C22x3200	C126	3200	3258
C22x2006	C79	2006	2064	C22x3250	C128	3250	3308
C22x2032	C80	2032	2090	C22x3302	C130	3302	3360
C22x2057	C81	2057	2115	C22x3350	C132	3350	3408
C22x2082	C82	2082	2140	C22x3404	C134	3404	3462
C22x2108	C83	2108	2166	C22x3456	C136	3456	3514
C22x2134	C84	2134	2192	C22x3505	C138	3505	3563
C22x2159	C85	2159	2217	C22x3550	C140	3550	3608
C22x2184	C86	2184	2242	C22x3607	C142	3607	3665
C22x2210	C87	2210	2268				

More dimensions on request

TIP *Instead of the C 22 belt, it is often possible to use a SPC with the same Ld.*



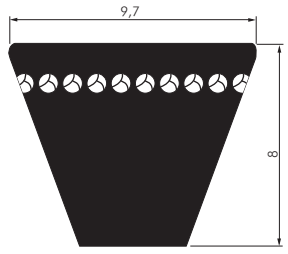
Ld = Reference/effective length (Lw, Lp)
Li = Inside length



High performance narrow V-belts, cogged raw edges, moulded cogged DIN 7753/1 — XPZ 9.7 x 8

Max. belt speed V_{max}: 50 m/s
Temperature range: -40°C to max. +100°C
Min. disc diameter: 50 mm

Type	Ld	Type	Ld	Type	Ld
XPZ 620	620	XPZ 1000	1000	XPZ 1487	1487
XPZ 630	630	XPZ 1012	1012	XPZ 1500	1500
XPZ 637	637	XPZ 1037	1037	XPZ 1512	1512
XPZ 662	662	XPZ 1060	1060	XPZ 1537	1537
XPZ 670	670	XPZ 1077	1077	XPZ 1562	1562
XPZ 687	687	XPZ 1087	1087	XPZ 1587	1587
XPZ 710	710	XPZ 1112	1112	XPZ 1600	1600
XPZ 737	737	XPZ 1120	1120	XPZ 1612	1612
XPZ 750	750	XPZ 1137	1137	XPZ 1637	1637
XPZ 762	762	XPZ 1162	1162	XPZ 1662	1662
XPZ 772	772	XPZ 1180	1180	XPZ 1700	1700
XPZ 787	787	XPZ 1187	1187	XPZ 1762	1762
XPZ 800	800	XPZ 1202	1202	XPZ 1800	1800
XPZ 812	812	XPZ 1212	1212	XPZ 1900	1900
XPZ 825	825	XPZ 1237	1237	XPZ 2000	2000
XPZ 837	837	XPZ 1250	1250	XPZ 2120	2120
XPZ 850	850	XPZ 1262	1262	XPZ 2240	2240
XPZ 862	862	XPZ 1287	1287	XPZ 2360	2360
XPZ 875	875	XPZ 1312	1312	XPZ 2500	2500
XPZ 887	887	XPZ 1320	1320	XPZ 2650	2650
XPZ 900	900	XPZ 1337	1337	XPZ 2800	2800
XPZ 912	912	XPZ 1362	1362	XPZ 3000	3000
XPZ 925	925	XPZ 1387	1387	XPZ 3150	3150
XPZ 937	937	XPZ 1400	1400	XPZ 3350	3350
XPZ 950	950	XPZ 1412	1412	XPZ 3550	3550
XPZ 962	962	XPZ 1437	1437		
XPZ 987	987	XPZ 1462	1462		

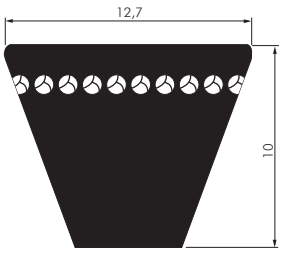


Ld = Reference/effective length (Lw, Lp)
Li = Inside length = Ld-38

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

High performance narrow V-belts, cogged raw edges, moulded cogged DIN 7753/1 XPA 12.7 x 10

Max. belt speed V_{max}: 50 m/s
Temperature range: -40°C to max. +100°C
Min. disc diameter: 63 mm



Ld = Reference/effective length (Lw, Lp)
Li = Inside length = Ld-45

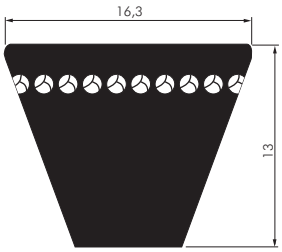
Type	Ld
XPA 732	732
XPA 757	757
XPA 782	782
XPA 800	800
XPA 807	807
XPA 832	832
XPA 850	850
XPA 857	857
XPA 882	882
XPA 900	900
XPA 907	907
XPA 932	932
XPA 950	950
XPA 957	957
XPA 982	982
XPA 1000	1000
XPA 1007	1007
XPA 1030	1030
XPA 1060	1060
XPA 1082	1082
XPA 1107	1107
XPA 1120	1120
XPA 1132	1132
XPA 1157	1157
XPA 1180	1180

Type	Ld
XPA 1207	1207
XPA 1232	1232
XPA 1250	1250
XPA 1257	1257
XPA 1272	1272
XPA 1282	1282
XPA 1307	1307
XPA 1320	1320
XPA 1332	1332
XPA 1357	1357
XPA 1372	1372
XPA 1382	1382
XPA 1400	1400
XPA 1432	1432
XPA 1457	1457
XPA 1482	1482
XPA 1500	1500
XPA 1507	1507
XPA 1532	1532
XPA 1557	1557
XPA 1582	1582
XPA 1600	1600
XPA 1607	1607
XPA 1632	1632
XPA 1657	1657

Type	Ld
XPA 1682	1682
XPA 1700	1700
XPA 1707	1707
XPA 1732	1732
XPA 1757	1757
XPA 1782	1782
XPA 1800	1800
XPA 1882	1882
XPA 1900	1900
XPA 2000	2000
XPA 2120	2120
XPA 2240	2240
XPA 2360	2360
XPA 2500	2500
XPA 2650	2650
XPA 2800	2800
XPA 3000	3000
XPA 3150	3150
XPA 3350	3350
XPA 3550	3550
XPA 3750	3750
XPA 4000	4000
XPA 4250	4250
XPA 4500	4500

High performance narrow V-belts, cogged raw edges, moulded cogged DIN 7753/1 XPB 16.3 x 13

Max. belt speed V_{max}: 50 m/s
Temperature range: -40°C to max. +100°C
Min. disc diameter: 100 mm



Ld = Reference/effective length (Lw, Lp)
Li = Inside length = Ld-60

Type	Ld
XPB 1250	1250
XPB 1320	1320
XPB 1400	1400
XPB 1500	1500
XPB 1600	1600
XPB 1700	1700
XPB 1800	1800
XPB 1900	1900
XPB 2000	2000
XPB 2120	2120
XPB 2240	2240

Type	Ld
XPB 2360	2360
XPB 2500	2500
XPB 2650	2650
XPB 2800	2800
XPB 3000	3000
XPB 3150	3150
XPB 3350	3350
XPB 3550	3550
XPB 3750	3750
XPB 4000	4000
XPB 4250	4250

Type	Ld
XPB 4500	4500
XPB 4750	4750
XPB 5000	5000
XPB 5300	5300
XPB 5600	5600
XPB 6000	6000
XPB 6300	6300
XPB 6700	6700
XPB 7100	7100
XPB 7500	7500

Electric foot switches on page 430

FESTO
Festo rotary actuators can be found in our Online Shop

Vibrators on page 501

Knives on page 595

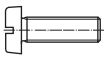
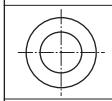
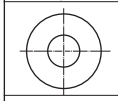
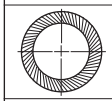
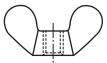
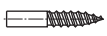
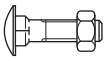
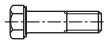
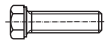
One-way control valves made of nickel-plated brass starting on page 52

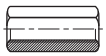
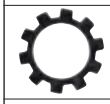
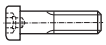
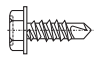
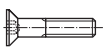
Abrasion protection hoses on page 249

Thermometer from page 396

Temperature switches from page 401

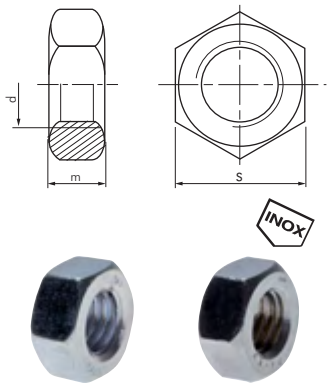
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

	DIN	ISO	Materials ● Steel ● St. steel	Description	Page
	84	1207	● ●	Socket head cap screws	624
	94	1234	● ●	Cotter pins	633
	125	7089	● ●	Washer shape A	617
	125	7090	●	Washer shape B	617
			● ●	Wing washers	617
	127		● ●	Spring washers	618
			● ●	Original Schnorr safety washers S	618
	315		●	Wing nuts	616
	471		● ●	Safety rings for shafts	633
	472		● ●	Safety rings for boreholes	633
	571		● ●	Hexagonal head wood screws	628
			● ●	Hanger bolts	628
	603	8677	● ●	Cup screws	627
	912	4762	● ●	Socket head cap screws with hexagon socket	623
	913	4026	● ●	Threaded rods with conical tip	619
	914	4027	● ●	Threaded rods with tip	619
	915	4028	● ●	Threaded rods with pin	619
	916	4029	● ●	Threaded rods with cupped gripping point	620
	931	14014	● ●	Hexagonal screws with shaft	621
	933	4017	● ●	Hexagonal screws threaded to approaching the head	622

	DIN	ISO	Materials ● Steel ● St. steel	Description	Page
	934	4032	● ●	Hexagonal nuts	616
	965	7046	● ●	Flat-head screws with cross recess	625
	975		● ●	Threaded bars	620
			●	Connection sockets for threaded bars	620
	985		● ●	Hexagonal nuts, self-locking	616
	1151	10230-1	● ●	Nails (wire pins) with countersunk head shape B	631
	1481	8752	● ●	Spring pins, heavy duty	632
	1587		● ●	Cap nut	616
	6797		● ●	Tooth lock water	618
	6912		● ●	Socket head cap screws with hexagon socket, low head	624
	7504	15480	●	Drilling screw, shape K, hexagonal head	629
	7504	15481	●	Drilling screw, shape M, button head	629
	7981	7049	● ●	Button head tapping screws with cross recess	626
	7982	7050	● ●	Countersunk tapping screws with cross recess	627
	7991	10642	● ●	Flat-head screws with hexagon socket	625
	9021	7093	● ●	Washers, large (OD = 3 x id)	617
	11024*		●	Safety cotter pins single and double	632
			● ●	Particle board countersunk screws with TORX drive	630
			●	Particle board countersunk screws with cross recess (pozidriv)	630
			●	Particle board half-round head screws with TORX drive	631

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hexagonal nuts — DIN 934/ISO 4032



☞ Optional: Stainless steel A4 -ES4A

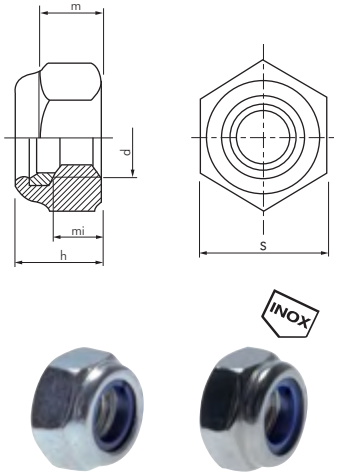
Type zinc-plated steel 8	Type stainless steel A2	d	m	s	Type zinc-plated steel 8	Type stainless steel A2	d	m	s
934-M3	934-M3 ES	M 3	2.4	5.5	934-M24	934-M24 ES	M 24	19	36
934-M4	934-M4 ES	M 4	3.2	7	934-M27	934-M27 ES	M 27	22	41
934-M5	934-M5 ES	M 5	4	8	934-M30	934-M30 ES	M 30	24	46
934-M6	934-M6 ES	M 6	5	10	934-M33	934-M33 ES	M 33	26	50
934-M8	934-M8 ES	M 8	6.5	13	934-M36	934-M36 ES	M 36	29	55
934-M10	934-M10 ES	M 10	8	17	934-M39	---	M 39	31	60
934-M12	934-M12 ES	M 12	10	19	934-M42	---	M 42	34	65
934-M14	934-M14 ES	M 14	11	22	934-M45	---	M 45	36	70
934-M16	934-M16 ES	M 16	13	24	934-M48	---	M 48	38	75
934-M18	934-M18 ES	M 18	15	27	934-M56	---	M 56	45	85
934-M20	934-M20 ES	M 20	16	30	934-M60	---	M 60	48	90
934-M22	934-M22 ES	M 22	18	32					

☞ Ordering example of other threads: 934- ** **

Standard type | Required threads

Designation for the options: Stainless steel A4 . . . . . .-ES4A

Hexagonal nuts, self-locking with plastic compression rings — DIN 985/ISO 10511



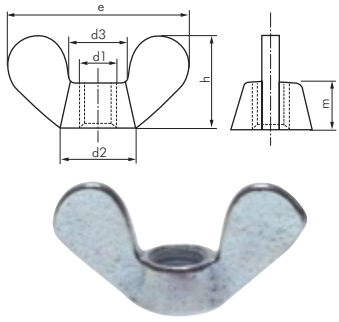
Type zinc-plated steel 6/8*	Type stainless steel A2	d	h	m (min)	mi (min)	s
985-M3	985-M3 ES	M 3	4	2.4	1.65	5.5
985-M4	985-M4 ES	M 4	5	2.9	2.2	7
985-M5	985-M5 ES	M 5	5	3.2	2.75	8
985-M6	985-M6 ES	M 6	6	4	3.3	10
985-M8	985-M8 ES	M 8	8	5.5	4.4	13
985-M10	985-M10 ES	M 10	10	6.5	5.5	17
985-M12	985-M12 ES	M 12	12	8	6.6	19
985-M14	985-M14 ES	M 14	14	9.5	7.7	22
985-M16	985-M16 ES	M 16	16	10.5	8.8	24
985-M18	985-M18 ES	M 18	18.5	13	9.9	27
985-M20	985-M20 ES	M 20	20	14	11	30
985-M22	985-M22 ES	M 22	22	15	12.2	32
985-M24	985-M24 ES	M 24	24	15	13.2	36
985-M27	---	M 27	27	17	14.8	41
985-M30	---	M 30	30	19	16.5	46
985-M33	---	M 33	33	22	18.2	50
985-M36	---	M 36	36	25	19.8	55
985-M39	---	M 39	39	27	21.5	60

* in line with manufacturer's choice

☞ Ordering example of other threads: 985- **

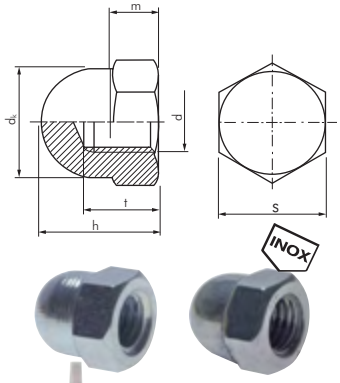
Standard type | Required threads

Wing nuts — DIN 315



Type mall. cast iron galvanised	d1	d2 (max)	d3 (max)	e (max.)	h (max.)	m (max)
315-M4	M 4	8	7	20	10.5	4.6
315-M5	M 5	11	9	26	13	6.5
315-M6	M 6	13	11	33	17	8
315-M8	M 8	16	12.5	39	20	10
315-M10	M 10	20	16.5	51	25	12
315-M12	M 12	23	19.5	65	33.5	17
315-M16	M 16	29	23	73	37.5	17
315-M20	M 20	35	29	90	46.5	21

Cap nuts, high shape — DIN 1587



Type zinc-plated steel 6	Type stainless steel A2	d	d_k	h	m	t	s
1587-M3	1587-M3 ES	M 3	5.5	6	2.5	4.1	5
1587-M4	1587-M4 ES	M 4	6.5	8	3.2	5.5	7
1587-M5	1587-M5 ES	M 5	7.5	10	4	7.5	8
1587-M6	1587-M6 ES	M 6	9.5	12	5	8	10
1587-M8	1587-M8 ES	M 8	12.5	15	6.5	11	13
1587-M10	1587-M10 ES	M 10	16	18	8	13	17
1587-M12	1587-M12 ES	M 12	18	22	10	16	19
1587-M14	1587-M14 ES	M 14	21	25	11	18	21
1587-M16	1587-M16 ES	M 16	23	28	13	21	24
1587-M18	1587-M18 ES	M 18	26	32	15	25	27
1587-M20	1587-M20 ES	M 20	28	34	16	26	30
1587-M24	1587-M24 ES	M 24	34	42	19	31	36

☞ Ordering example of other threads: 1587- **

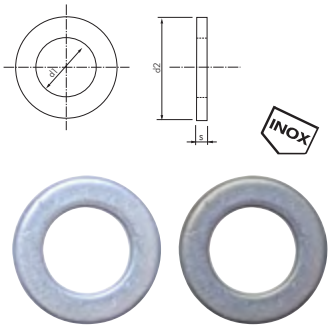
Standard type | Required threads

LOCTITE Thread locker and thread seals from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Washers without chamfer (centre designs) — DIN 125 A/ISO 7089

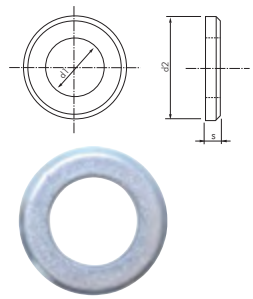
Type zinc-plated steel	Type stainless steel A2	d1	d2	s	For screws
125A-3	125A-3 ES	3.2	7	0.5	M 3
125A-4	125A-4 ES	4.3	9	0.8	M 4
125A-5	125A-5 ES	5.3	10	1.0	M 5
125A-6	125A-6 ES	6.4	12	1.6	M 6
125A-8	125A-8 ES	8.4	16	1.6	M 8
125A-10	125A-10 ES	10.5	20	2.0	M 10
125A-12	125A-12 ES	13.0	24	2.5	M 12
125A-14	125A-14 ES	15.0	28	2.5	M 14
125A-16	125A-16 ES	17.0	30	3.0	M 16
125A-18	125A-18 ES	19.0	34	3.0	M 18
125A-20	125A-20 ES	21.0	37	3.0	M 20
125A-22	125A-22 ES	23.0	39	3.0	M 22
125A-24	125A-24 ES	25.0	44	4.0	M 24
125A-27	125A-27 ES	28.0	50	4.0	M 27
125A-30	125A-30 ES	31.0	56	4.0	M 30
125A-33	125A-33 ES	34.0	60	5.0	M 33
125A-36	125A-36 ES	37.0	66	5.0	M 36
125A-39	125A-39 ES	40.0	72	6.0	M 39
125A-42	125A-42 ES	43.0	78	7.0	M 42



Washers with chamfer (centre designs) — DIN 125 B/ISO 7090

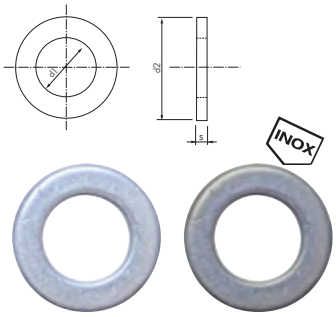
Type zinc-plated steel	d1	d2	s	For screws
125B-5	5.3	10	1.0	M 5
125B-6	6.4	12	1.6	M 6
125B-8	8.4	16	1.6	M 8
125B-10	10.5	20	2.0	M 10
125B-12	13.0	24	2.5	M 12
125B-14	15.0	28	2.5	M 14
125B-16	17.0	30	3.0	M 16

Type zinc-plated steel	d1	d2	s	For screws
125B-18	19.0	34	3.0	M 18
125B-20	21.0	37	3.0	M 20
125B-22	23.0	39	3.0	M 22
125B-24	25.0	44	4.0	M 24
125B-27	28.0	50	4.0	M 27
125B-30	31.0	56	4.0	M 30



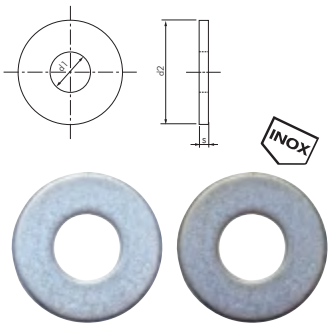
Washers for socket head cap screws — DIN 433/ISO 7092

Type zinc-plated steel	Type stainless steel A2	d1	d2	s	For screws
433-3	433-3 ES	3.2	6	0.5	M 3
433-4	433-4 ES	4.3	8	0.5	M 4
433-5	433-5 ES	5.3	9	1.0	M 5
433-6	433-6 ES	6.4	11	1.6	M 6
433-8	433-8 ES	8.4	15	1.6	M 8
433-10	433-10 ES	10.5	18	1.6	M 10
433-12	433-12 ES	13.0	20	2.0	M 12
433-14	433-14 ES	15.0	24	2.5	M 14
433-16	433-16 ES	17.0	28	2.5	M 16
433-18	433-18 ES	19.0	30	2.5	M 18
433-20	433-20 ES	21.0	34	3.0	M 20



Washers, large — DIN 9021-100HV/ISO 7093

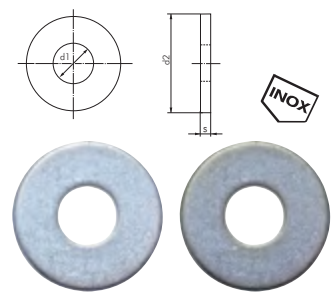
Type zinc-plated steel	Type stainless steel A2	d1	d2	s	For screws
9021-3	9021-3 ES	3.2	9	0.8	M 3
9021-4	9021-4 ES	4.3	12	1.0	M 4
9021-5	9021-5 ES	5.3	15	1.2	M 5
9021-6	9021-6 ES	6.4	18	1.6	M 6
9021-8	9021-8 ES	8.4	24	2.0	M 8
9021-10	9021-10 ES	10.5	30	2.5	M 10
9021-12	9021-12 ES	13.0	37	3.0	M 12
9021-14	9021-14 ES	15.0	44	3.0	M 14
9021-16	9021-16 ES	17.0	50	3.0	M 16
9021-18	9021-18 ES	20.3	56	4.0	M 18/M 20
9021-20	9021-20 ES	22.3	60	4.0	M 20/M 22



Wing washers

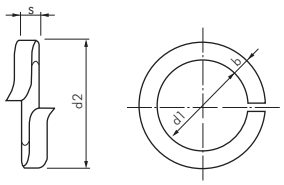
Type zinc-plated steel	Type stainless steel A2	d1	d2	s
USKOT-4x15	---	4.3	15	1.25
USKOT-4x20	USKOT-4x20 ES	4.3	20	1.25
USKOT-5x20	USKOT-5x20 ES	5.3	20	1.25
USKOT-5x25	---	5.3	25	1.25
USKOT-5x30	---	5.3	30	1.25
USKOT-6x20	USKOT-6x20 ES*	6.4	20	1.25
USKOT-6x25	USKOT-6x25 ES*	6.4	25	1.25
USKOT-6x30	USKOT-6x30 ES*	6.4	30	1.25
USKOT-6x40	---	6.4	40	1.25
USKOT-8x20	USKOT-8x20 ES*	8.4	20	1.25

Type zinc-plated steel	Type stainless steel A2	d1	d2	s
USKOT-8x25	USKOT-8x25 ES*	8.4	25	1.25
USKOT-8x30	USKOT-8x30 ES*	8.4	30	1.25
USKOT-8x40	USKOT-8x40 ES*	8.4	40	1.25
USKOT-10x20	---	10.5	20	1.25
USKOT-10x25	USKOT-10x25 ES*	10.5	25	1.25
USKOT-10x30	---	10.5	30	1.25
USKOT-10x35	---	10.5	35	1.25
USKOT-10x40	---	10.5	40	1.25
USKOT-12x32	---	13.3	32	1.5
USKOT-14x45	---	14.3	45	1.5

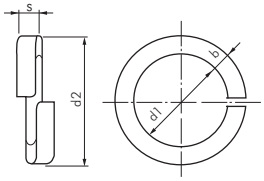


* s=1.5mm

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



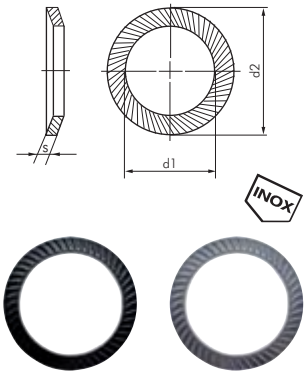
shape A (bent up)



shape B (smooth)

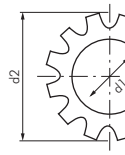
Spring washers — DIN 127 A/B

Type shape A zinc-plated steel	Type shape B stainless steel A2	d1	d2 (max)	b	s	For screws
127A-3	127B-3 ES	3.1	6.2	1.3	0.8	M 3
127A-4	127B-4 ES	4.1	7.6	1.5	0.9	M 4
127A-5	127B-5 ES	5.1	9.2	1.8	1.2	M 5
127A-6	127B-6 ES	6.1	11.8	2.5	1.6	M 6
127A-8	127B-8 ES	8.1	14.8	3.0	2.0	M 8
127A-10	127B-10 ES	10.2	18.1	3.5	2.2	M 10
127A-12	127B-12 ES	12.2	21.1	4.0	2.5	M 12
127A-14	127B-14 ES	14.2	24.1	4.5	3.0	M 14
127A-16	127B-16 ES	16.2	27.4	5.0	3.5	M 16
127A-18	127B-18 ES	18.2	29.4	5.0	3.5	M 18
127A-20	127B-20 ES	20.2	33.6	6.0	4.0	M 20
127A-22	---	22.5	35.9	6.0	4.0	M 22
127A-24	127B-24 ES	24.5	40.0	7.0	5.0	M 24
127A-27	127B-27 ES	27.5	43.0	7.0	5.0	M 27
127A-30	127B-30 ES	30.5	48.2	8.0	6.0	M 30
127A-33	---	33.5	55.2	10.0	6.0	M 33
127A-36	---	36.5	58.2	10.0	6.0	M 36
127A-39	---	39.5	61.2	10.0	6.0	M 39
127A-42	---	42.5	68.2	13.0	7.0	M 42



Original Schnorr safety washers — S shape

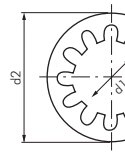
Type steel blackened	Type stainless steel A2	d1	d2	s	For screws
USS-S3	USS-S3 ES	3.2	5.5	0.45	M 3
USS-S4	USS-S4 ES	4.3	7.0	0.5	M 4
USS-S5	USS-S5 ES	5.3	9.0	0.6	M 5
USS-S6	USS-S6 ES	6.4	10.0	0.7	M 6
USS-S8	USS-S8 ES	8.4	13.0	0.8	M 8
USS-S10	USS-S10 ES	10.5	16.0	1.0	M 10
USS-S12	USS-S12 ES	13.0	18.0	1.1	M 12
USS-S14	---	15.0	22.0	1.5	M 14
USS-S16	---	17.0	24.0	1.3	M 16
USS-S18	---	19.0	27.0	1.5	M 18
USS-S20	---	21.0	30.0	1.5	M 20
USS-S24	---	25.6	36.0	1.8	M 24
USS-S30	---	31.6	45.0	2.0	M 30



shape A = outer toothing

Tooth lock water outer toothing — DIN 6797 A

Type zinc-plated steel	Type stainless steel A2	d1	d2	For screws
6797A-3	6797A-3 ES	3.2	6.0	M 3
6797A-4	6797A-4 ES	4.3	8.0	M 4
6797A-5	6797A-5 ES	5.3	10.0	M 5
6797A-6	6797A-6 ES	6.4	11.0	M 6
6797A-8	6797A-8 ES	8.4	15.0	M 8
6797A-10	6797A-10 ES	10.5	18.0	M 10
6797A-12	6797A-12 ES	13.0	20.5	M 12
6797A-14	---	15.0	24.0	M 14
6797A-16	6797A-16 ES	17.0	26.0	M 16
6797A-19	---	19.0	30.0	M 18
6797A-20	---	21.0	33.0	M 20
6797A-24	---	25.0	38.0	M 24



shape J = inner toothing

Tooth lock water inner toothing — DIN 6797 J

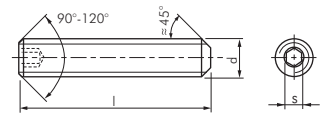
Type zinc-plated steel	Type stainless steel A2	d1	d2	For screws
6797J-3	6797J-3 ES	3.2	6.0	M 3
6797J-4	6797J-4 ES	4.3	8.0	M 4
6797J-5,1	---	5.1	9.0	---
6797J-5	6797J-5 ES	5.3	10.0	M 5
6797J-6	6797J-6 ES	6.4	11.0	M 6
6797J-8	6797J-8 ES	8.4	15.0	M 8
6797J-10	6797J-10 ES	10.5	18.0	M 10
6797J-12	6797J-12 ES	13.0	20.5	M 12
6797J-14	---	15.0	24.0	M 14
6797J-16	6797J-16 ES	17.0	26.0	M 16
6797J-19	---	19.0	30.0	M 18
6797J-20	---	21.0	33.0	M 20
6797J-24	---	25.0	38.0	M 24

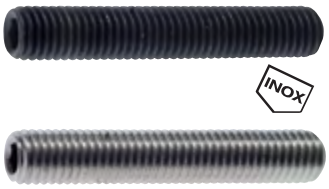
LOCTITE
Thread locker and thread seals
from page 549

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Threaded rods with hexagon sockets & conical tips — DIN 913/ISO 4026

Type steel 45 H	Type stainless steel A2	d	l	s	Type steel 45 H	Type stainless steel A2	d	l	s
913-M3x5	913-M3x5 ES	M 3	5	1.5	913-M6x16	913-M6x16 ES	M 6	16	3
913-M3x6	913-M3x6 ES	M 3	6	1.5	913-M6x20	913-M6x20 ES	M 6	20	3
913-M3x8	913-M3x8 ES	M 3	8	1.5	913-M6x25	913-M6x25 ES	M 6	25	3
913-M3x10	913-M3x10 ES	M 3	10	1.5	913-M6x30	913-M6x30 ES	M 6	30	3
913-M4x5	913-M4x5 ES	M 4	5	2	913-M6x35	913-M6x35 ES	M 6	35	3
913-M4x6	913-M4x6 ES	M 4	6	2	913-M6x40	913-M6x40 ES	M 6	40	3
913-M4x8	913-M4x8 ES	M 4	8	2	913-M8x8	913-M8x8 ES	M 8	8	4
913-M4x10	913-M4x10 ES	M 4	10	2	913-M8x10	913-M8x10 ES	M 8	10	4
913-M4x12	913-M4x12 ES	M 4	12	2	913-M8x12	913-M8x12 ES	M 8	12	4
913-M5x5	913-M5x5 ES	M 5	5	2.5	913-M8x16	913-M8x16 ES	M 8	16	4
913-M5x6	913-M5x6 ES	M 5	6	2.5	913-M8x20	913-M8x20 ES	M 8	20	4
913-M5x8	913-M5x8 ES	M 5	8	2.5	913-M8x25	913-M8x25 ES	M 8	25	4
913-M5x10	913-M5x10 ES	M 5	10	2.5	913-M8x30	913-M8x30 ES	M 8	30	4
913-M5x12	913-M5x12 ES	M 5	12	2.5	913-M8x35	913-M8x35 ES	M 8	35	4
913-M5x16	913-M5x16 ES	M 5	16	2.5	913-M8x40	913-M8x40 ES	M 8	40	4
913-M5x20	913-M5x20 ES	M 5	20	2.5	913-M8x50	913-M8x50 ES	M 8	50	4
913-M5x25	913-M5x25 ES	M 5	25	2.5	913-M10x10	913-M10x10 ES	M 10	10	5
913-M5x30	913-M5x30 ES	M 5	30	2.5	913-M10x12	913-M10x12 ES	M 10	12	5
913-M5x35	913-M5x35 ES	M 5	35	2.5	913-M10x16	913-M10x16 ES	M 10	16	5
913-M5x40	913-M5x40 ES	M 5	40	2.5	913-M10x20	913-M10x20 ES	M 10	20	5
913-M6x8	913-M6x8 ES	M 6	8	3	913-M10x25	913-M10x25 ES	M 10	25	5
913-M6x10	913-M6x10 ES	M 6	10	3					





Ordering example of other threads and lengths: 913-**x***

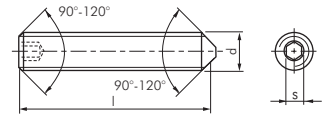
Standard type

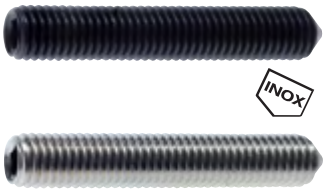
Required threads

Required length

Threaded rods with hexagon sockets & tips — DIN 914/ISO 4027

Type steel 45 H	Type stainless steel A2	d	l	s	Type steel 45 H	Type stainless steel A2	d	l	s
914-M3x5	914-M3x5 ES	M 3	5	1.5	914-M6x16	914-M6x16 ES	M 6	16	3
914-M3x6	914-M3x6 ES	M 3	6	1.5	914-M6x20	914-M6x20 ES	M 6	20	3
914-M3x8	914-M3x8 ES	M 3	8	1.5	914-M6x25	914-M6x25 ES	M 6	25	3
914-M3x10	914-M3x10 ES	M 3	10	1.5	914-M6x30	914-M6x30 ES	M 6	30	3
914-M4x5	914-M4x5 ES	M 4	5	2	914-M6x35	914-M6x35 ES	M 6	35	3
914-M4x6	914-M4x6 ES	M 4	6	2	914-M8x8	914-M8x8 ES	M 8	8	4
914-M4x8	914-M4x8 ES	M 4	8	2	914-M8x10	914-M8x10 ES	M 8	10	4
914-M4x10	914-M4x10 ES	M 4	10	2	914-M8x12	914-M8x12 ES	M 8	12	4
914-M4x12	914-M4x12 ES	M 4	12	2	914-M8x16	914-M8x16 ES	M 8	16	4
914-M5x5	914-M5x5 ES	M 5	5	2.5	914-M8x20	914-M8x20 ES	M 8	20	4
914-M5x6	914-M5x6 ES	M 5	6	2.5	914-M8x25	914-M8x25 ES	M 8	25	4
914-M5x8	914-M5x8 ES	M 5	8	2.5	914-M8x30	914-M8x30 ES	M 8	30	4
914-M5x10	914-M5x10 ES	M 5	10	2.5	914-M8x35	914-M8x35 ES	M 8	35	4
914-M5x12	914-M5x12 ES	M 5	12	2.5	914-M8x40	914-M8x40 ES	M 8	40	4
914-M5x16	914-M5x16 ES	M 5	16	2.5	914-M8x50	914-M8x50 ES	M 8	50	4
914-M5x20	914-M5x20 ES	M 5	20	2.5	914-M10x10	914-M10x10 ES	M 10	10	5
914-M5x25	---	M 5	25	2.5	914-M10x12	914-M10x12 ES	M 10	12	5
914-M5x30	---	M 5	30	2.5	914-M10x16	914-M10x16 ES	M 10	16	5
914-M6x8	914-M6x8 ES	M 6	8	3	914-M10x20	914-M10x20 ES	M 10	20	5
914-M6x10	914-M6x10 ES	M 6	10	3	914-M10x25	914-M10x25 ES	M 10	25	5





Ordering example of other threads and lengths: 914-**x***

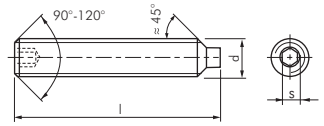
Standard type

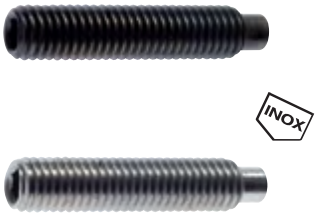
Required threads

Required length

Threaded rods with hexagon sockets & pins — DIN 915/ISO 4028

Type steel 45 H	Type stainless steel A2	d	l	s	Type steel 45 H	Type stainless steel A2	d	l	s
915-M3x5	915-M3x5 ES	M 3	5	1.5	915-M6x16	915-M6x16 ES	M 6	16	3
915-M3x6	915-M3x6 ES	M 3	6	1.5	915-M6x20	915-M6x20 ES	M 6	20	3
915-M3x8	915-M3x8 ES	M 3	8	1.5	915-M6x25	915-M6x25 ES	M 6	25	3
915-M3x10	915-M3x10 ES	M 3	10	1.5	915-M6x30	915-M6x30 ES	M 6	30	3
915-M4x5	915-M4x5 ES	M 4	5	2	915-M6x35	915-M6x35 ES	M 6	35	3
915-M4x6	915-M4x6 ES	M 4	6	2	915-M8x8	915-M8x8 ES	M 8	8	4
915-M4x8	915-M4x8 ES	M 4	8	2	915-M8x10	915-M8x10 ES	M 8	10	4
915-M4x10	915-M4x10 ES	M 4	10	2	915-M8x12	915-M8x12 ES	M 8	12	4
915-M4x12	915-M4x12 ES	M 4	12	2	915-M8x16	915-M8x16 ES	M 8	16	4
915-M5x5	915-M5x5 ES	M 5	5	2.5	915-M8x20	915-M8x20 ES	M 8	20	4
915-M5x6	915-M5x6 ES	M 5	6	2.5	915-M8x25	915-M8x25 ES	M 8	25	4
915-M5x8	915-M5x8 ES	M 5	8	2.5	915-M8x30	915-M8x30 ES	M 8	30	4
915-M5x10	915-M5x10 ES	M 5	10	2.5	915-M8x35	915-M8x35 ES	M 8	35	4
915-M5x12	915-M5x12 ES	M 5	12	2.5	915-M8x40	915-M8x40 ES	M 8	40	4
915-M5x16	915-M5x16 ES	M 5	16	2.5	915-M8x50	915-M8x50 ES	M 8	50	4
915-M5x20	915-M5x20 ES	M 5	20	2.5	915-M10x10	915-M10x10 ES	M 10	10	5
915-M5x25	---	M 5	25	2.5	915-M10x12	915-M10x12 ES	M 10	12	5
915-M5x30	---	M 5	30	2.5	915-M10x16	915-M10x16 ES	M 10	16	5
915-M6x8	915-M6x8 ES	M 6	8	3	915-M10x20	915-M10x20 ES	M 10	20	5
915-M6x10	915-M6x10 ES	M 6	10	3	915-M10x25	915-M10x25 ES	M 10	25	5





Ordering example of other threads and lengths: 915-**x***

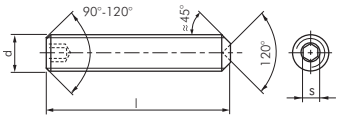
Standard type

Required threads

Required length

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Threaded rods with hexagon sockets & cupped gripping points — DIN 916/ISO 4029



INOX

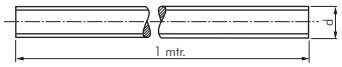
Type steel 45 H	Type stainless steel A2	d	l	s	Type steel 45 H	Type stainless steel A2	d	l	s
916-M3x5	916-M3x5 ES	M 3	5	1.5	916-M6x16	916-M6x16 ES	M 6	16	3
916-M3x6	916-M3x6 ES	M 3	6	1.5	916-M6x20	916-M6x20 ES	M 6	20	3
916-M3x8	916-M3x8 ES	M 3	8	1.5	916-M6x25	916-M6x25 ES	M 6	25	3
916-M3x10	916-M3x10 ES	M 3	10	1.5	916-M6x30	916-M6x30 ES	M 6	30	3
916-M4x5	916-M4x5 ES	M 4	5	2	916-M6x35	916-M6x35 ES	M 6	35	3
916-M4x6	916-M4x6 ES	M 4	6	2	916-M8x8	916-M8x8 ES	M 8	8	4
916-M4x8	916-M4x8 ES	M 4	8	2	916-M8x10	916-M8x10 ES	M 8	10	4
916-M4x10	916-M4x10 ES	M 4	10	2	916-M8x12	916-M8x12 ES	M 8	12	4
916-M4x12	916-M4x12 ES	M 4	12	2	916-M8x16	916-M8x16 ES	M 8	16	4
916-M5x5	916-M5x5 ES	M 5	5	2.5	916-M8x20	916-M8x20 ES	M 8	20	4
916-M5x6	916-M5x6 ES	M 5	6	2.5	916-M8x25	916-M8x25 ES	M 8	25	4
916-M5x8	916-M5x8 ES	M 5	8	2.5	916-M8x30	916-M8x30 ES	M 8	30	4
916-M5x10	916-M5x10 ES	M 5	10	2.5	916-M8x35	916-M8x35 ES	M 8	35	4
916-M5x12	916-M5x12 ES	M 5	12	2.5	916-M8x40	---	M 8	40	4
916-M5x16	916-M5x16 ES	M 5	16	2.5	916-M8x50	---	M 8	50	4
916-M5x20	916-M5x20 ES	M 5	20	2.5	916-M10x10	916-M10x10 ES	M 10	10	5
916-M5x25	---	M 5	25	2.5	916-M10x12	916-M10x12 ES	M 10	12	5
916-M5x30	---	M 5	30	2.5	916-M10x16	916-M10x16 ES	M 10	16	5
916-M6x8	916-M6x8 ES	M 6	8	3	916-M10x20	916-M10x20 ES	M 10	20	5
916-M6x10	916-M6x10 ES	M 6	10	3	916-M10x25	916-M10x25 ES	M 10	25	5

Ordering example of other threads and lengths: 916-**x***

Standard type | Required threads | Required length

Threaded bars — DIN 975/DIN 976

Rod length: 1 m



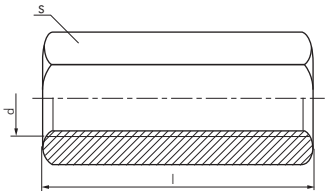
INOX

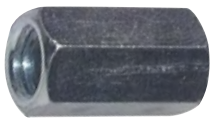
Type zinc-plated steel 4.6	Type zinc-plated steel 8.8	Type stainless steel A2	d
975-M3	---	975-M3 ES	M 3
975-M4	975-M4 8.8	975-M4 ES	M 4
975-M5	975-M5 8.8	975-M5 ES	M 5
975-M6	975-M6 8.8	975-M6 ES	M 6
975-M8	975-M8 8.8	975-M8 ES	M 8
975-M10	975-M10 8.8	975-M10 ES	M 10
975-M12	975-M12 8.8	975-M12 ES	M 12
975-M14	975-M14 8.8	975-M14 ES	M 14
975-M16	975-M16 8.8	975-M16 ES	M 16
975-M18	975-M18 8.8	---	M 18
975-M20	975-M20 8.8	975-M20 ES	M 20
975-M22	975-M22 8.8	---	M 22
975-M24	975-M24 8.8	975-M24 ES	M 24
975-M27	975-M27 8.8	975-M27 ES	M 27
975-M30	975-M30 8.8	975-M30 ES	M 30
975-M33	---	---	M 33
975-M36	---	---	M 36

Ordering example of other threads: 975- **

Standard type | Required threads

Connection sockets for threaded bars

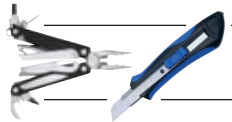




Type zinc-plated steel	Type stainless steel A2	d	l	s
GWS 5 VM	---	M 5	20	8
GWS 6 VM	GWS 6 VM ES	M 6	30	10
GWS 8 VM	GWS 8 VM ES	M 8	30	13
GWS 10 VM	GWS 10 VM ES	M 10	30	17
GWS 12 VM	GWS 12 VM ES	M 12	40	19
GWS 16 VM	GWS 16 VM ES	M 16	50	24
GWS 20 VM	GWS 20 VM ES	M 20	50	30

LOCTITE Thread locker and thread seals from page 549

Manual tools can be found in the Online Shop



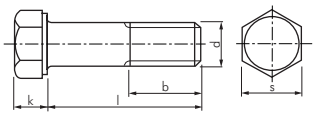
Knives on page 595

LED LENSER® Torches and head lamps on page 594

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Hexagonal screws with shafts — DIN 931/ISO 4014

Type zinc-plated steel 8.8	Type stainless steel A2 (INOX)	d	l	b
d=M 5; k=3.5; s=8				
931-M5x30	931-M5x30 ES	M 5	30	16
931-M5x35	931-M5x35 ES	M 5	35	16
931-M5x40	931-M5x40 ES	M 5	40	16
931-M5x45	931-M5x45 ES	M 5	45	16
931-M5x50	931-M5x50 ES	M 5	50	16
931-M5x55	931-M5x55 ES	M 5	55	16
931-M5x60	931-M5x60 ES	M 5	60	16
931-M5x65	931-M5x65 ES	M 5	65	16
931-M5x70	931-M5x70 ES	M 5	70	16
d=M 6; k=4; s=10				
931-M6x30	931-M6x30 ES	M 6	30	18
931-M6x35	931-M6x35 ES	M 6	35	18
931-M6x40	931-M6x40 ES	M 6	40	18
931-M6x45	931-M6x45 ES	M 6	45	18
931-M6x50	931-M6x50 ES	M 6	50	18
931-M6x55	931-M6x55 ES	M 6	55	18
931-M6x60	931-M6x60 ES	M 6	60	18
931-M6x65	931-M6x65 ES	M 6	65	18
931-M6x70	931-M6x70 ES	M 6	70	18
931-M6x75	931-M6x75 ES	M 6	75	18
931-M6x80	931-M6x80 ES	M 6	80	18
931-M6x90	931-M6x90 ES	M 6	90	18
931-M6x100	931-M6x100 ES	M 6	100	18
d=M 8; k=5.3; s=13				
931-M8x35	931-M8x35 ES	M 8	35	22
931-M8x40	931-M8x40 ES	M 8	40	22
931-M8x45	931-M8x45 ES	M 8	45	22
931-M8x50	931-M8x50 ES	M 8	50	22
931-M8x55	931-M8x55 ES	M 8	55	22
931-M8x60	931-M8x60 ES	M 8	60	22
931-M8x65	931-M8x65 ES	M 8	65	22
931-M8x70	931-M8x70 ES	M 8	70	22
931-M8x80	931-M8x80 ES	M 8	80	22
931-M8x90	931-M8x90 ES	M 8	90	22
931-M8x100	931-M8x100 ES	M 8	100	22
931-M8x120	931-M8x120 ES	M 8	120	22
931-M8x140	931-M8x140 ES	M 8	140	28
931-M8x160	931-M8x160 ES	M 8	160	28
d=M 10; k=6.4; s=17 (ISO:16)				
931-M10x40	931-M10x40 ES	M 10	40	26
931-M10x45	931-M10x45 ES	M 10	45	26
931-M10x50	931-M10x50 ES	M 10	50	26
931-M10x55	931-M10x55 ES	M 10	55	26
931-M10x60	931-M10x60 ES	M 10	60	26
931-M10x65	931-M10x65 ES	M 10	65	26
931-M10x70	931-M10x70 ES	M 10	70	26
931-M10x80	931-M10x80 ES	M 10	80	26
931-M10x90	931-M10x90 ES	M 10	90	26
931-M10x100	931-M10x100 ES	M 10	100	26
931-M10x120	931-M10x120 ES	M 10	120	26
931-M10x140	931-M10x140 ES	M 10	140	32
931-M10x160	931-M10x160 ES	M 10	160	32
931-M10x180	931-M10x180 ES	M 10	180	32
d=M 12; k=7.5; s=19 (ISO:18)				
931-M12x50	931-M12x50 ES	M 12	50	30
931-M12x55	931-M12x55 ES	M 12	55	30
931-M12x60	931-M12x60 ES	M 12	60	30
931-M12x65	931-M12x65 ES	M 12	65	30
931-M12x70	931-M12x70 ES	M 12	70	30
931-M12x80	931-M12x80 ES	M 12	80	30
931-M12x90	931-M12x90 ES	M 12	90	30
931-M12x100	931-M12x100 ES	M 12	100	30
931-M12x120	931-M12x120 ES	M 12	120	36
931-M12x140	931-M12x140 ES	M 12	140	36
931-M12x160	931-M12x160 ES	M 12	160	36
931-M12x180	931-M12x180 ES	M 12	180	36
d=M 14; k=8.8; s=22				
931-M14x50	931-M14x50 ES	M 14	50	34
931-M14x55	931-M14x55 ES	M 14	55	34
931-M14x60	931-M14x60 ES	M 14	60	34
931-M14x65	931-M14x65 ES	M 14	65	34
931-M14x70	931-M14x70 ES	M 14	70	34
931-M14x80	931-M14x80 ES	M 14	80	34
931-M14x90	931-M14x90 ES	M 14	90	34
931-M14x100	931-M14x100 ES	M 14	100	34
931-M14x120	931-M14x120 ES	M 14	120	34
931-M14x140	931-M14x140 ES	M 14	140	40
931-M14x160	931-M14x160 ES	M 14	160	40
931-M14x180	931-M14x180 ES	M 14	180	40
d=M 16; k=10; s=24				
931-M16x60	931-M16x60 ES	M 16	60	38
931-M16x65	931-M16x65 ES	M 16	65	38
931-M16x70	931-M16x70 ES	M 16	70	38
931-M16x80	931-M16x80 ES	M 16	80	38
931-M16x90	931-M16x90 ES	M 16	90	38
931-M16x100	931-M16x100 ES	M 16	100	38
931-M16x120	931-M16x120 ES	M 16	120	38
931-M16x140	931-M16x140 ES	M 16	140	44
931-M16x160	931-M16x160 ES	M 16	160	44
931-M16x180	931-M16x180 ES	M 16	180	44
d=M 20; k=12.5; s=30				
931-M20x60	931-M20x60 ES	M 20	60	46
931-M20x65	931-M20x65 ES	M 20	65	46
931-M20x70	931-M20x70 ES	M 20	70	46
931-M20x80	931-M20x80 ES	M 20	80	46
931-M20x90	931-M20x90 ES	M 20	90	46
931-M20x100	931-M20x100 ES	M 20	100	46
931-M20x120	931-M20x120 ES	M 20	120	46
931-M20x140	931-M20x140 ES	M 20	140	52
931-M20x160	931-M20x160 ES	M 20	160	52
931-M20x180	931-M20x180 ES	M 20	180	52
931-M20x200	931-M20x200 ES	M 20	200	52



INOX

☞ Ordering example of other threads and lengths: 931-**x***

Standard type

Required threads

Required length

Multibox hexagonal screws DIN 933

Description: This multi-box contains 660 hexagonal screws, M 4 bis M 8, in zinc-plated steel.

✓ **Advantages:** For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

☞ **Info:** Hexagonal screws can be found on page 622.

Type	Content
MULTIBOX 933	300 screws M 4 (10 - 16 - 20 - 40 mm) 160 screws M 5 (16 - 20 - 30 - 40 - 50 mm) 115 screws M 6 (16 - 20 - 30 - 40 - 50 mm) 85 screws M 8 (16 - 20 - 25 - 40 - 50 mm)

Type **stainless steel** can be found on page 597

Multibox nuts - washers - spring washers

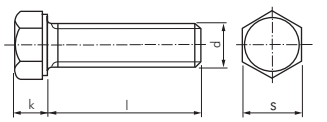
Description: This multi-box contains 1425 nuts, washers and spring washers for threads M 3 to M 10, in zinc-plated steel.

✓ **Advantages:** For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

☞ **Info:** Nuts, washers and spring washers can be found on pages 617-618.

Type	Content
MULTIBOX 934	475 nuts DIN 934 (M 3 - M 4 - M 5 - M 6 - M 8 - M 10) 475 washers DIN 125A (M 3 - M 4 - M 5 - M 6 - M 8 - M 10) 475 spring washers DIN 127A (M 3 - M 4 - M 5 - M 6 - M 8 - M 10)

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



Hexagonal screws, threaded to approaching the head — DIN 933/ISO 4017

☞ Optional: Stainless steel A4 -ES4A

Type zinc-plated steel 8.8	Type stainless steel A2 (INOX)	d	l
d=M 3; k=2; s=5.5			
933-M3x10	---	M 3	10
933-M3x12	---	M 3	12
933-M3x16	---	M 3	16
933-M3x20	---	M 3	20
933-M3x25	---	M 3	25
933-M3x30	---	M 3	30
d=M 4; k=2.8; s=7			
933-M4x6	933-M4x6 ES	M 4	6
933-M4x8	933-M4x8 ES	M 4	8
933-M4x10	933-M4x10 ES	M 4	10
933-M4x12	933-M4x12 ES	M 4	12
933-M4x16	933-M4x16 ES	M 4	16
933-M4x20	933-M4x20 ES	M 4	20
933-M4x25	933-M4x25 ES	M 4	25
933-M4x30	933-M4x30 ES	M 4	30
933-M4x35	933-M4x35 ES	M 4	35
933-M4x40	933-M4x40 ES	M 4	40
933-M4x45	933-M4x45 ES	M 4	45
933-M4x50	933-M4x50 ES	M 4	50
d=M 5; k=3.5; s=8			
933-M5x10	933-M5x10 ES	M 5	10
933-M5x12	933-M5x12 ES	M 5	12
933-M5x16	933-M5x16 ES	M 5	16
933-M5x20	933-M5x20 ES	M 5	20
933-M5x25	933-M5x25 ES	M 5	25
933-M5x30	933-M5x30 ES	M 5	30
933-M5x35	933-M5x35 ES	M 5	35
933-M5x40	933-M5x40 ES	M 5	40
933-M5x45	933-M5x45 ES	M 5	45
933-M5x50	933-M5x50 ES	M 5	50
d=M 6; k=4; s=10			
933-M6x10	933-M6x10 ES	M 6	10
933-M6x12	933-M6x12 ES	M 6	12
933-M6x16	933-M6x16 ES	M 6	16
933-M6x20	933-M6x20 ES	M 6	20
933-M6x25	933-M6x25 ES	M 6	25
933-M6x30	933-M6x30 ES	M 6	30
933-M6x35	933-M6x35 ES	M 6	35
933-M6x40	933-M6x40 ES	M 6	40
933-M6x45	933-M6x45 ES	M 6	45
933-M6x50	933-M6x50 ES	M 6	50
933-M6x55	933-M6x55 ES	M 6	55
933-M6x60	933-M6x60 ES	M 6	60
933-M6x65	933-M6x65 ES	M 6	65
933-M6x70	933-M6x70 ES	M 6	70
d=M 8; k=5.3; s=13			
933-M8x12	933-M8x12 ES	M 8	12
933-M8x16	933-M8x16 ES	M 8	16
933-M8x20	933-M8x20 ES	M 8	20
933-M8x25	933-M8x25 ES	M 8	25
933-M8x30	933-M8x30 ES	M 8	30
933-M8x35	933-M8x35 ES	M 8	35
933-M8x40	933-M8x40 ES	M 8	40
933-M8x45	933-M8x45 ES	M 8	45
933-M8x50	933-M8x50 ES	M 8	50
933-M8x55	933-M8x55 ES	M 8	55
933-M8x60	933-M8x60 ES	M 8	60
933-M8x65	933-M8x65 ES	M 8	65
933-M8x70	933-M8x70 ES	M 8	70
933-M8x80	933-M8x80 ES	M 8	80
d=M 10; k=6.4; s=17 (ISO:16)			
933-M10x20	933-M10x20 ES	M 10	20
933-M10x25	933-M10x25 ES	M 10	25
933-M10x30	933-M10x30 ES	M 10	30
933-M10x35	933-M10x35 ES	M 10	35
933-M10x40	933-M10x40 ES	M 10	40
933-M10x45	933-M10x45 ES	M 10	45
933-M10x50	933-M10x50 ES	M 10	50

Type zinc-plated steel 8.8	Type stainless steel A2 (INOX)	d	l
933-M10x55	933-M10x55 ES	M 10	55
933-M10x60	933-M10x60 ES	M 10	60
933-M10x65	933-M10x65 ES	M 10	65
933-M10x70	933-M10x70 ES	M 10	70
933-M10x80	933-M10x80 ES	M 10	80
933-M10x90	933-M10x90 ES	M 10	90
933-M10x100	933-M10x100 ES	M 10	100
d=M 12; k=7.5; s=19 (ISO:18)			
933-M12x20	933-M12x20 ES	M 12	20
933-M12x25	933-M12x25 ES	M 12	25
933-M12x30	933-M12x30 ES	M 12	30
933-M12x35	933-M12x35 ES	M 12	35
933-M12x40	933-M12x40 ES	M 12	40
933-M12x45	933-M12x45 ES	M 12	45
933-M12x50	933-M12x50 ES	M 12	50
933-M12x55	933-M12x55 ES	M 12	55
933-M12x60	933-M12x60 ES	M 12	60
933-M12x65	933-M12x65 ES	M 12	65
933-M12x70	933-M12x70 ES	M 12	70
933-M12x80	933-M12x80 ES	M 12	80
933-M12x90	933-M12x90 ES	M 12	90
933-M12x100	933-M12x100 ES	M 12	100
933-M12x120	933-M12x120 ES	M 12	120
d=M 14; k=8.8; s=22			
933-M14x20	933-M14x20 ES	M 14	20
933-M14x25	933-M14x25 ES	M 14	25
933-M14x30	933-M14x30 ES	M 14	30
933-M14x35	933-M14x35 ES	M 14	35
933-M14x40	933-M14x40 ES	M 14	40
933-M14x45	933-M14x45 ES	M 14	45
933-M14x50	933-M14x50 ES	M 14	50
933-M14x55	933-M14x55 ES	M 14	55
933-M14x60	933-M14x60 ES	M 14	60
933-M14x65	933-M14x65 ES	M 14	65
933-M14x70	933-M14x70 ES	M 14	70
933-M14x80	933-M14x80 ES	M 14	80
933-M14x90	933-M14x90 ES	M 14	90
933-M14x100	933-M14x100 ES	M 14	100
933-M14x120	933-M14x120 ES	M 14	120
d=M 16; k=10; s=24			
933-M16x25	933-M16x25 ES	M 16	25
933-M16x30	933-M16x30 ES	M 16	30
933-M16x35	933-M16x35 ES	M 16	35
933-M16x40	933-M16x40 ES	M 16	40
933-M16x45	933-M16x45 ES	M 16	45
933-M16x50	933-M16x50 ES	M 16	50
933-M16x55	933-M16x55 ES	M 16	55
933-M16x60	933-M16x60 ES	M 16	60
933-M16x65	933-M16x65 ES	M 16	65
933-M16x70	933-M16x70 ES	M 16	70
933-M16x80	933-M16x80 ES	M 16	80
933-M16x90	933-M16x90 ES	M 16	90
933-M16x100	933-M16x100 ES	M 16	100
933-M16x120	933-M16x120 ES	M 16	120
d=M 20; k=12.5; s=30			
933-M20x30	933-M20x30 ES	M 20	30
933-M20x35	933-M20x35 ES	M 20	35
933-M20x40	933-M20x40 ES	M 20	40
933-M20x45	933-M20x45 ES	M 20	45
933-M20x50	933-M20x50 ES	M 20	50
933-M20x55	933-M20x55 ES	M 20	55
933-M20x60	933-M20x60 ES	M 20	60
933-M20x65	933-M20x65 ES	M 20	65
933-M20x70	933-M20x70 ES	M 20	70
933-M20x80	933-M20x80 ES	M 20	80
933-M20x90	933-M20x90 ES	M 20	90
933-M20x100	933-M20x100 ES	M 20	100
933-M20x120	933-M20x120 ES	M 20	120

☞ Ordering example of other threads and lengths: 933-** x *** **

- 933-** — Standard type
- *** — Required length
- ** — Required threads
- Designation for the options: Stainless steel A4 . . . . . .-ES4A

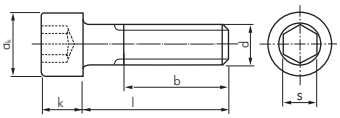
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Socket head cap screws with hexagon sockets — DIN 912/ISO 4762

☞ **Optional:** Strength class 12.9 - **12.9**

Type zinc-plated steel 8.8	Type stainless steel A2 (INOX)	d	l	b
d=M 3; d_k(max)=5.5; k(max)=3; s=2.5				
912-M3x6	912-M3x6 ES	M 3	6	*
912-M3x8	912-M3x8 ES	M 3	8	*
912-M3x10	912-M3x10 ES	M 3	10	*
912-M3x12	912-M3x12 ES	M 3	12	*
912-M3x14	912-M3x14 ES	M 3	14	*
912-M3x16	912-M3x16 ES	M 3	16	*
912-M3x18	---	M 3	18	*
912-M3x20	912-M3x20 ES	M 3	20	*
912-M3x25	912-M3x25 ES	M 3	25	*
912-M3x30	912-M3x30 ES	M 3	30	*
d=M 4; d_k(max)=7; k(max)=4; s=3				
912-M4x6	912-M4x6 ES	M 4	6	*
912-M4x8	912-M4x8 ES	M 4	8	*
912-M4x10	912-M4x10 ES	M 4	10	*
912-M4x12	912-M4x12 ES	M 4	12	*
912-M4x16	912-M4x16 ES	M 4	16	*
912-M4x20	912-M4x20 ES	M 4	20	*
912-M4x25	912-M4x25 ES	M 4	25	*
912-M4x30	912-M4x30 ES	M 4	30	*
912-M4x35	912-M4x35 ES	M 4	35	20
912-M4x40	912-M4x40 ES	M 4	40	20
912-M4x45	912-M4x45 ES	M 4	45	20
912-M4x50	912-M4x50 ES	M 4	50	20
d=M 5; d_k(max)=8.5; k(max)=5; s=4				
912-M5x10	912-M5x10 ES	M 5	10	*
912-M5x12	912-M5x12 ES	M 5	12	*
912-M5x16	912-M5x16 ES	M 5	16	*
912-M5x20	912-M5x20 ES	M 5	20	*
912-M5x25	912-M5x25 ES	M 5	25	*
912-M5x30	912-M5x30 ES	M 5	30	*
912-M5x35	912-M5x35 ES	M 5	35	22
912-M5x40	912-M5x40 ES	M 5	40	22
912-M5x45	912-M5x45 ES	M 5	45	22
912-M5x50	912-M5x50 ES	M 5	50	22
912-M5x55	912-M5x55 ES	M 5	55	22
912-M5x60	912-M5x60 ES	M 5	60	22
912-M5x70	912-M5x70 ES	M 5	70	22
d=M 6; d_k(max)=10; k(max)=6; s=5				
912-M6x10	912-M6x10 ES	M 6	10	*
912-M6x12	912-M6x12 ES	M 6	12	*
912-M6x16	912-M6x16 ES	M 6	16	*
912-M6x20	912-M6x20 ES	M 6	20	*
912-M6x25	912-M6x25 ES	M 6	25	*
912-M6x30	912-M6x30 ES	M 6	30	*
912-M6x35	912-M6x35 ES	M 6	35	24
912-M6x40	912-M6x40 ES	M 6	40	24
912-M6x45	912-M6x45 ES	M 6	45	24
912-M6x50	912-M6x50 ES	M 6	50	24
912-M6x55	912-M6x55 ES	M 6	55	24
912-M6x60	912-M6x60 ES	M 6	60	24
912-M6x65	912-M6x65 ES	M 6	65	24
912-M6x70	912-M6x70 ES	M 6	70	24
912-M6x75	912-M6x75 ES	M 6	75	24
912-M6x80	912-M6x80 ES	M 6	80	24
912-M6x90	912-M6x90 ES	M 6	90	24
912-M6x100	912-M6x100 ES	M 6	100	24
d=M 8; d_k(max)=13; k(max)=8; s=6				
912-M8x12	912-M8x12 ES	M 8	12	*
912-M8x16	912-M8x16 ES	M 8	16	*
912-M8x20	912-M8x20 ES	M 8	20	*
912-M8x25	912-M8x25 ES	M 8	25	*
912-M8x30	912-M8x30 ES	M 8	30	*
912-M8x35	912-M8x35 ES	M 8	35	*
912-M8x40	912-M8x40 ES	M 8	40	28
912-M8x45	912-M8x45 ES	M 8	45	28
912-M8x50	912-M8x50 ES	M 8	50	28
912-M8x55	912-M8x55 ES	M 8	55	28
912-M8x60	912-M8x60 ES	M 8	60	28
912-M8x65	912-M8x65 ES	M 8	65	28
912-M8x70	912-M8x70 ES	M 8	70	28
912-M8x80	912-M8x80 ES	M 8	80	28
912-M8x90	912-M8x90 ES	M 8	90	28
912-M8x100	912-M8x100 ES	M 8	100	28
912-M8x120	912-M8x120 ES	M 8	120	28

Type zinc-plated steel 8.8	Type stainless steel A2 (INOX)	d	l	b
d=M 10; d_k(max)=16; k(max)=10; s=8				
912-M10x20	912-M10x20 ES	M 10	20	*
912-M10x25	912-M10x25 ES	M 10	25	*
912-M10x30	912-M10x30 ES	M 10	30	*
912-M10x35	912-M10x35 ES	M 10	35	*
912-M10x40	912-M10x40 ES	M 10	40	*
912-M10x45	912-M10x45 ES	M 10	45	32
912-M10x50	912-M10x50 ES	M 10	50	32
912-M10x55	912-M10x55 ES	M 10	55	32
912-M10x60	912-M10x60 ES	M 10	60	32
912-M10x65	912-M10x65 ES	M 10	65	32
912-M10x70	912-M10x70 ES	M 10	70	32
912-M10x80	912-M10x80 ES	M 10	80	32
912-M10x90	912-M10x90 ES	M 10	90	32
912-M10x100	912-M10x100 ES	M 10	100	32
912-M10x120	912-M10x120 ES	M 10	120	32
912-M10x140	912-M10x140 ES	M 10	140	32
912-M10x160	912-M10x160 ES	M 10	160	32
912-M10x180	912-M10x180 ES	M 10	180	32
d=M 12; d_k(max)=18; k(max)=12; s=10				
912-M12x20	912-M12x20 ES	M 12	20	*
912-M12x25	912-M12x25 ES	M 12	25	*
912-M12x30	912-M12x30 ES	M 12	30	*
912-M12x35	912-M12x35 ES	M 12	35	*
912-M12x40	912-M12x40 ES	M 12	40	*
912-M12x45	912-M12x45 ES	M 12	45	*
912-M12x50	912-M12x50 ES	M 12	50	*
912-M12x55	912-M12x55 ES	M 12	55	36
912-M12x60	912-M12x60 ES	M 12	60	36
912-M12x65	912-M12x65 ES	M 12	65	36
912-M12x70	912-M12x70 ES	M 12	70	36
912-M12x80	912-M12x80 ES	M 12	80	36
912-M12x90	912-M12x90 ES	M 12	90	36
912-M12x100	912-M12x100 ES	M 12	100	36
912-M12x120	912-M12x120 ES	M 12	120	36
912-M12x140	912-M12x140 ES	M 12	140	36
912-M12x160	912-M12x160 ES	M 12	160	36
912-M12x180	912-M12x180 ES	M 12	180	36
d=M 14; d_k(max)=21; k(max)=14; s=12				
912-M14x20	912-M14x20 ES	M 14	20	*
912-M14x25	912-M14x25 ES	M 14	25	*
912-M14x30	912-M14x30 ES	M 14	30	*
912-M14x35	912-M14x35 ES	M 14	35	*
912-M14x40	912-M14x40 ES	M 14	40	*
912-M14x45	912-M14x45 ES	M 14	45	*
912-M14x50	912-M14x50 ES	M 14	50	*
912-M14x55	912-M14x55 ES	M 14	55	*
912-M14x60	912-M14x60 ES	M 14	60	40
912-M14x65	912-M14x65 ES	M 14	65	40
912-M14x70	912-M14x70 ES	M 14	70	40
912-M14x80	912-M14x80 ES	M 14	80	40
912-M14x90	912-M14x90 ES	M 14	90	40
912-M14x100	912-M14x100 ES	M 14	100	40
912-M14x120	912-M14x120 ES	M 14	120	40
912-M14x140	912-M14x140 ES	M 14	140	40
912-M14x160	---	M 14	160	40
d=M 16; d_k(max)=24; k(max)=16; s=14				
912-M16x25	912-M16x25 ES	M 16	25	*
912-M16x30	912-M16x30 ES	M 16	30	*
912-M16x35	912-M16x35 ES	M 16	35	*
912-M16x40	912-M16x40 ES	M 16	40	*
912-M16x45	912-M16x45 ES	M 16	45	*
912-M16x50	912-M16x50 ES	M 16	50	*
912-M16x55	912-M16x55 ES	M 16	55	*
912-M16x60	912-M16x60 ES	M 16	60	*
912-M16x65	912-M16x65 ES	M 16	65	44
912-M16x70	912-M16x70 ES	M 16	70	44
912-M16x80	912-M16x80 ES	M 16	80	44
912-M16x90	912-M16x90 ES	M 16	90	44
912-M16x100	912-M16x100 ES	M 16	100	44
912-M16x130	912-M16x130 ES	M 16	130	44
d=M 20; d_k(max)=30; k(max)=20; s=17				
912-M20x30	912-M20x30 ES	M 20	30	*
912-M20x35	912-M20x35 ES	M 20	35	*
912-M20x40	912-M20x40 ES	M 20	40	*



☞ **Order example:** 912-M3 x 6 ****

Standard type

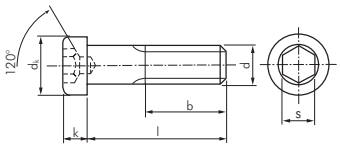
Designation for the options:
Strength class
12.9 . . . . . **12.9**

More sizes can be found in our Online Shop.

* threaded to approaching the head

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Socket head cap screws with hexagon sockets (low head) — DIN 6912



INOX

Type zinc-plated steel 8.8	Type stainless steel A2 (INOX)	d	l	b
d=M 4; d_k=7; k=2.8; s=3				
6912-M4x10	6912-M4x10 ES	M 4	10	*
6912-M4x12	6912-M4x12 ES	M 4	12	*
6912-M4x16	6912-M4x16 ES	M 4	16	14
6912-M4x20	6912-M4x20 ES	M 4	20	14
6912-M4x25	6912-M4x25 ES	M 4	25	14
6912-M4x30	6912-M4x30 ES	M 4	30	14
6912-M4x35	6912-M4x35 ES	M 4	35	14
d=M 5; d_k=8.5; k=3.5; s=4				
6912-M5x10	6912-M5x10 ES	M 5	10	*
6912-M5x12	6912-M5x12 ES	M 5	12	*
6912-M5x16	6912-M5x16 ES	M 5	16	*
6912-M5x20	6912-M5x20 ES	M 5	20	*
6912-M5x25	6912-M5x25 ES	M 5	25	16
6912-M5x30	6912-M5x30 ES	M 5	30	16
6912-M5x35	6912-M5x35 ES	M 5	35	16
6912-M5x40	6912-M5x40 ES	M 5	40	16
6912-M5x50	6912-M5x50 ES	M 5	50	16
d=M 6; d_k=10; k=4; s=5				
6912-M6x16	6912-M6x16 ES	M 6	16	*
6912-M6x20	6912-M6x20 ES	M 6	20	*
6912-M6x25	6912-M6x25 ES	M 6	25	18
6912-M6x30	6912-M6x30 ES	M 6	30	18
6912-M6x35	6912-M6x35 ES	M 6	35	18
6912-M6x40	6912-M6x40 ES	M 6	40	18
6912-M6x50	6912-M6x50 ES	M 6	50	18
6912-M6x60	6912-M6x60 ES	M 6	60	18
d=M 8; d_k=13; k=5; s=6				
6912-M8x20	6912-M8x20 ES	M 8	20	*
6912-M8x25	6912-M8x25 ES	M 8	25	*
6912-M8x30	6912-M8x30 ES	M 8	30	22
6912-M8x35	6912-M8x35 ES	M 8	35	22
6912-M8x40	6912-M8x40 ES	M 8	40	22
6912-M8x50	6912-M8x50 ES	M 8	50	22
6912-M8x60	6912-M8x60 ES	M 8	60	22
6912-M8x70	6912-M8x70 ES	M 8	70	22
6912-M8x80	6912-M8x80 ES	M 8	80	22

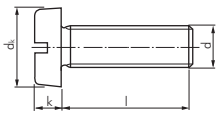
Type zinc-plated steel 8.8	Type stainless steel A2 (INOX)	d	l	b
d=M 10; d_k=16; k=6.5; s=8				
6912-M10x25	6912-M10x25 ES	M 10	25	*
6912-M10x30	6912-M10x30 ES	M 10	30	*
6912-M10x35	6912-M10x35 ES	M 10	35	26
6912-M10x40	6912-M10x40 ES	M 10	40	26
6912-M10x50	6912-M10x50 ES	M 10	50	26
6912-M10x60	6912-M10x60 ES	M 10	60	26
6912-M10x70	6912-M10x70 ES	M 10	70	26
6912-M10x80	6912-M10x80 ES	M 10	80	26
d=M 12; d_k=18; k=7.5; s=10				
6912-M12x25	6912-M12x25 ES	M 12	25	*
6912-M12x30	6912-M12x30 ES	M 12	30	*
6912-M12x35	6912-M12x35 ES	M 12	35	*
6912-M12x40	6912-M12x40 ES	M 12	40	*
6912-M12x50	6912-M12x50 ES	M 12	50	30
6912-M12x60	6912-M12x60 ES	M 12	60	30
6912-M12x70	6912-M12x70 ES	M 12	70	30
6912-M12x80	6912-M12x80 ES	M 12	80	30
d=M 14; d_k=21; k=8.5; s=12				
6912-M14x30	---	M 14	30	*
6912-M14x35	---	M 14	35	*
6912-M14x40	---	M 14	40	*
6912-M14x50	---	M 14	50	*
6912-M14x60	---	M 14	60	34
6912-M14x70	---	M 14	70	34
d=M 16; d_k=24; k=10; s=14				
6912-M16x30	6912-M16x30 ES	M 16	30	*
6912-M16x35	6912-M16x35 ES	M 16	35	*
6912-M16x40	6912-M16x40 ES	M 16	40	*
6912-M16x50	6912-M16x50 ES	M 16	50	*
6912-M16x60	6912-M16x60 ES	M 16	60	38
6912-M16x70	6912-M16x70 ES	M 16	70	38
6912-M16x80	6912-M16x80 ES	M 16	80	38

* threaded to approaching the head

☞ Ordering example of other threads and lengths: 6912-**x***

Standard type — Required length — Required threads

Socket head cap screws with slots — DIN 84/ISO 1207



INOX

Type zinc-plated steel 4.8	Type stainless steel A2 (INOX)	d	l
d=M 3; d_k=5.5; k=2.0			
84-M3x10	84-M3x10 ES	M 3	10
84-M3x20	84-M3x20 ES	M 3	20
84-M3x30	84-M3x30 ES	M 3	30
84-M3x40	84-M3x40 ES	M 3	40
d=M 4; d_k=7; k=2.6			
84-M4x10	84-M4x10 ES	M 4	10
84-M4x20	84-M4x20 ES	M 4	20
84-M4x30	84-M4x30 ES	M 4	30
84-M4x40	84-M4x40 ES	M 4	40
84-M4x50	84-M4x50 ES	M 4	50

Type zinc-plated steel 8.8	Type stainless steel A2 (INOX)	d	l
d=M 5; d_k=8.5; k=3.3			
84-M5x10	84-M5x10 ES	M 5	10
84-M5x20	84-M5x20 ES	M 5	20
84-M5x30	84-M5x30 ES	M 5	30
84-M5x40	84-M5x40 ES	M 5	40
84-M5x50	84-M5x50 ES	M 5	50
84-M5x60	84-M5x60 ES	M 5	60
d=M 6; d_k=10; k=3.9			
84-M6x10	84-M6x10 ES	M 6	10
84-M6x20	84-M6x20 ES	M 6	20
84-M6x30	84-M6x30 ES	M 6	30
84-M6x40	84-M6x40 ES	M 6	40
84-M6x50	84-M6x50 ES	M 6	50
84-M6x60	84-M6x60 ES	M 6	60

☞ Ordering example of other threads and lengths: 84-**x***

Standard type — Required length — Required threads

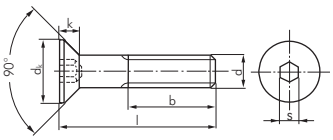
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

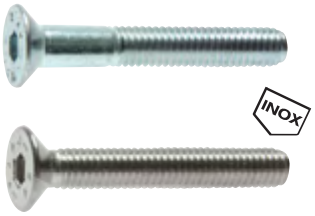
Flat-head screws with hexagon sockets — DIN 7991/ISO 10642

Type zinc-plated steel 8.8	Type stainless steel A2*	d	l	b (min)
d=M 3; d_k=6; k=1.7; s=2				
7991-M3x10	7991-M3x10 ES	M 3	10	*
7991-M3x20	7991-M3x20 ES	M 3	20	*
7991-M3x30	7991-M3x30 ES	M 3	30	12
d=M 4; d_k=8 (ISO:9); k=2.3 (ISO:2.5); s=2.5				
7991-M4x10	7991-M4x10 ES	M 4	10	*
7991-M4x20	7991-M4x20 ES	M 4	20	14
7991-M4x30	7991-M4x30 ES	M 4	30	14
d=M 5; d_k=10 (ISO:11.5); k=2.8 (ISO:3.1); s=3				
7991-M5x16	7991-M5x16 ES	M 5	16	*
7991-M5x20	7991-M5x20 ES	M 5	20	16
7991-M5x30	7991-M5x30 ES	M 5	30	16
7991-M5x40	7991-M5x40 ES	M 5	40	16
7991-M5x50	7991-M5x50 ES	M 5	50	16
d=M 6; d_k=12 (ISO:13.4); k=3.3 (ISO:3.7); s=4				
7991-M6x10	7991-M6x10 ES	M 6	10	*
7991-M6x16	7991-M6x16 ES	M 6	16	*
7991-M6x20	7991-M6x20 ES	M 6	20	18
7991-M6x30	7991-M6x30 ES	M 6	30	18
7991-M6x40	7991-M6x40 ES	M 6	40	18
7991-M6x50	7991-M6x50 ES	M 6	50	18
7991-M6x60	7991-M6x60 ES	M 6	60	18

Type zinc-plated steel 8.8	Type stainless steel A2*	d	l	b (min)
d=M 8; d_k=16 (ISO:17.9); k=4.4 (ISO:5.0); s=5				
7991-M8x20	7991-M8x20 ES	M 8	20	*
7991-M8x25	7991-M8x25 ES	M 8	25	22
7991-M8x30	7991-M8x30 ES	M 8	30	22
7991-M8x35	7991-M8x35 ES	M 8	35	22
7991-M8x40	7991-M8x40 ES	M 8	40	22
7991-M8x50	7991-M8x50 ES	M 8	50	22
7991-M8x60	7991-M8x60 ES	M 8	60	22
7991-M8x70	7991-M8x70 ES	M 8	70	22
d=M 10; d_k=20 (ISO:22.4); k=5.5 (ISO:6.2); s=6				
7991-M10x20	7991-M10x20 ES	M 10	20	*
7991-M10x30	7991-M10x30 ES	M 10	30	26
7991-M10x40	7991-M10x40 ES	M 10	40	26
7991-M10x50	7991-M10x50 ES	M 10	50	26
7991-M10x60	7991-M10x60 ES	M 10	60	26
7991-M10x70	7991-M10x70 ES	M 10	70	26

* threaded to approaching the head





* threaded to approaching the head

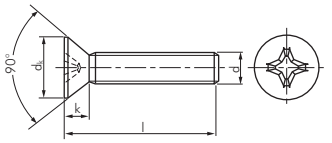
☞ Ordering example of other threads and lengths: 7991-**x***

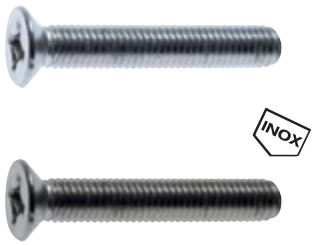
Standard type | Required threads | Required length

Flat-head screws with cross recesses — DIN 965/ISO 7046

Type zinc-plated steel 4.8	Type stainless steel A2	d	l
d=M 3; d_k=5.6; k=1.65; cross recess=PH 1			
965-M3x10	965-M3x10 ES	M 3	10
965-M3x20	965-M3x20 ES	M 3	20
965-M3x30	965-M3x30 ES	M 3	30
d=M 4; d_k=7.5; k=2.2; cross recess=PH 2			
965-M4x10	965-M4x10 ES	M 4	10
965-M4x20	965-M4x20 ES	M 4	20
965-M4x30	965-M4x30 ES	M 4	30
965-M4x40	965-M4x40 ES	M 4	40
d=M 5; d_k=9.2; k=2.5; cross recess=PH 2			
965-M5x10	965-M5x10 ES	M 5	10
965-M5x20	965-M5x20 ES	M 5	20
965-M5x30	965-M5x30 ES	M 5	30
965-M5x40	965-M5x40 ES	M 5	40
965-M5x50	965-M5x50 ES	M 5	50
965-M5x60	965-M5x60 ES	M 5	60

Type zinc-plated steel 8.8	Type stainless steel A2	d	l
d=M 6; d_k=11; k=3; cross recess=PH 3			
965-M6x10	965-M6x10 ES	M 6	10
965-M6x20	965-M6x20 ES	M 6	20
965-M6x30	965-M6x30 ES	M 6	30
965-M6x40	965-M6x40 ES	M 6	40
965-M6x50	965-M6x50 ES	M 6	50
965-M6x60	965-M6x60 ES	M 6	60
d=M 8; d_k=14.5; k=4; cross recess=PH 4			
965-M8x20	965-M8x20 ES	M 8	20
965-M8x30	965-M8x30 ES	M 8	30
965-M8x40	965-M8x40 ES	M 8	40
965-M8x50	965-M8x50 ES	M 8	50





☞ Ordering example of other threads and lengths: 965-**x***

Standard type | Required threads | Required length

Multibox hexagon socket screws DIN 912

Description: This multi-box contains 260 hexagon socket screws, M 5 to M 10, in zinc-plated steel.

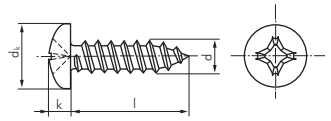
✓ **Advantages:** For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

☞ **Info:** Hexagon socket screws can be found on page 623

Type	Content
MULTIBOX 912	60 screws M 5 (10 - 20 - 30 mm) 80 screws M 6 (20 - 25 - 30 - 40 mm) 80 screws M 8 (20 - 25 - 30 - 40 mm) 40 screws M 10 (30 - 40 mm)

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Button head tapping screws with cross recesses — DIN 7981 C/ISO 7049



INOX

☞ Ordering example of other diameters and lengths: 7981C-**x***

- Standard type
- Required diameter
- Required length

Type steel harde-ned & zinc-plated	Type stainless steel A2 (INOX)	d	l
d=2.9; d_k=5.6; k(max)=2.2; cross recess=1 (PH 1)			
7981C-2,9x6,5	7981C-2,9x6,5 ES	2.9	6.5
7981C-2,9x9,5	7981C-2,9x9,5 ES	2.9	9.5
7981C-2,9x13	7981C-2,9x13 ES	2.9	13
7981C-2,9x16	7981C-2,9x16 ES	2.9	16
7981C-2,9x19	7981C-2,9x19 ES	2.9	19
7981C-2,9x22	7981C-2,9x22 ES	2.9	22
7981C-2,9x25	7981C-2,9x25 ES	2.9	25
d=3.5; d_k=6.9; k(max)=2.6; cross recess=2 (PH 2)			
7981C-3,5x6,5	7981C-3,5x6,5 ES	3.5	6.5
7981C-3,5x9,5	7981C-3,5x9,5 ES	3.5	9.5
7981C-3,5x13	7981C-3,5x13 ES	3.5	13
7981C-3,5x16	7981C-3,5x16 ES	3.5	16
7981C-3,5x19	7981C-3,5x19 ES	3.5	19
7981C-3,5x22	7981C-3,5x22 ES	3.5	22
7981C-3,5x25	7981C-3,5x25 ES	3.5	25
7981C-3,5x32	7981C-3,5x32 ES	3.5	32
7981C-3,5x38	---	3.5	38
d=3.9; d_k=7.5; k(max)=2.8; cross recess=2 (PH 2)			
7981C-3,9x9,5	7981C-3,9x9,5 ES	3.9	9.5
7981C-3,9x13	7981C-3,9x13 ES	3.9	13
7981C-3,9x16	7981C-3,9x16 ES	3.9	16
7981C-3,9x19	7981C-3,9x19 ES	3.9	19
7981C-3,9x22	7981C-3,9x22 ES	3.9	22
7981C-3,9x25	7981C-3,9x25 ES	3.9	25
7981C-3,9x32	7981C-3,9x32 ES	3.9	32
7981C-3,9x38	7981C-3,9x38 ES	3.9	38
7981C-3,9x45	7981C-3,9x45 ES	3.9	45
7981C-3,9x50	7981C-3,9x50 ES	3.9	50
d=4.2; d_k=8.2; k(max)=3.05; cross recess=2 (PH 2)			
7981C-4,2x9,5	7981C-4,2x9,5 ES	4.2	9.5
7981C-4,2x13	7981C-4,2x13 ES	4.2	13
7981C-4,2x16	7981C-4,2x16 ES	4.2	16
7981C-4,2x19	7981C-4,2x19 ES	4.2	19
7981C-4,2x22	7981C-4,2x22 ES	4.2	22
7981C-4,2x25	7981C-4,2x25 ES	4.2	25
7981C-4,2x32	7981C-4,2x32 ES	4.2	32
7981C-4,2x38	7981C-4,2x38 ES	4.2	38
7981C-4,2x45	7981C-4,2x45 ES	4.2	45
7981C-4,2x50	7981C-4,2x50 ES	4.2	50
7981C-4,2x60	7981C-4,2x60 ES	4.2	60
7981C-4,2x70	7981C-4,2x70 ES	4.2	70

Type steel harde-ned & zinc-plated	Type stainless steel A2 (INOX)	d	l
d=4.8; d_k=9.5; k(max)=3.55; cross recess=2 (PH 2)			
7981C-4,8x9,5	7981C-4,8x9,5 ES	4.8	9.5
7981C-4,8x13	7981C-4,8x13 ES	4.8	13
7981C-4,8x16	7981C-4,8x16 ES	4.8	16
7981C-4,8x19	7981C-4,8x19 ES	4.8	19
7981C-4,8x22	7981C-4,8x22 ES	4.8	22
7981C-4,8x25	7981C-4,8x25 ES	4.8	25
7981C-4,8x32	7981C-4,8x32 ES	4.8	32
7981C-4,8x38	7981C-4,8x38 ES	4.8	38
7981C-4,8x45	7981C-4,8x45 ES	4.8	45
7981C-4,8x50	7981C-4,8x50 ES	4.8	50
7981C-4,8x60	7981C-4,8x60 ES	4.8	60
7981C-4,8x70	7981C-4,8x70 ES	4.8	70
7981C-4,8x80	7981C-4,8x80 ES	4.8	80
d=5.5; d_k=10.8; k(max)=3.95; cross recess=3 (PH 3)			
7981C-5,5x13	7981C-5,5x13 ES	5.5	13
7981C-5,5x16	7981C-5,5x16 ES	5.5	16
7981C-5,5x19	7981C-5,5x19 ES	5.5	19
7981C-5,5x22	7981C-5,5x22 ES	5.5	22
7981C-5,5x25	7981C-5,5x25 ES	5.5	25
7981C-5,5x32	7981C-5,5x32 ES	5.5	32
7981C-5,5x38	7981C-5,5x38 ES	5.5	38
7981C-5,5x45	7981C-5,5x45 ES	5.5	45
7981C-5,5x50	7981C-5,5x50 ES	5.5	50
7981C-5,5x60	7981C-5,5x60 ES	5.5	60
7981C-5,5x70	7981C-5,5x70 ES	5.5	70
7981C-5,5x80	7981C-5,5x80 ES	5.5	80
d=6.3; d_k=12.5; k(max)=4.55; cross recess=3 (PH 3)			
7981C-6,3x13	7981C-6,3x13 ES	6.3	13
7981C-6,3x16	7981C-6,3x16 ES	6.3	16
7981C-6,3x19	7981C-6,3x19 ES	6.3	19
7981C-6,3x22	7981C-6,3x22 ES	6.3	22
7981C-6,3x25	7981C-6,3x25 ES	6.3	25
7981C-6,3x32	7981C-6,3x32 ES	6.3	32
7981C-6,3x38	7981C-6,3x38 ES	6.3	38
7981C-6,3x45	7981C-6,3x45 ES	6.3	45
7981C-6,3x50	7981C-6,3x50 ES	6.3	50
7981C-6,3x60	7981C-6,3x60 ES	6.3	60
7981C-6,3x70	7981C-6,3x70 ES	6.3	70

Multibox button head tapping screws DIN 7981C

Description: This multi-box contains 1450 button head tapping screws, 2.9 to 4.8 mm, in zinc-plated steel.

✓ **Advantages:** For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

☞ **Info:** Tapping screws can be found on page 626

Type	Content
MULTIBOX 7981C	100 screws DIN 7981C 2.9 mm (9.5 mm) 300 screws DIN 7981C 3.5 mm (13 - 16 - 19 mm) 350 screws DIN 7981C 3.9 mm (9.5 - 13 - 16 - 19 mm) 400 screws DIN 7981C 4.2 mm (9.5 - 13 - 16 - 19 - 25 mm) 300 screws DIN 7981C 4.8 mm (13 - 16 - 19 -22 - 32 mm)

Multibox button head drilling screws DIN 7504M

Description: This multi-box contains 900 button head drilling screws, 3.5 to 4.8 mm, in zinc-plated steel.

✓ **Advantages:** For ease of transport and clear arrangement, up to 4 of these multi-boxes can be stowed in the practical multi-box container type MULTIBOX P 1 C.

☞ **Info:** Drilling screws can be found on page 629

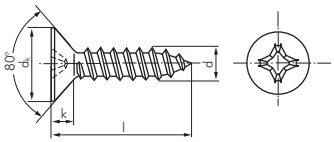
Type	Content
MULTIBOX 7504M	200 screws DIN 7504M 3.5 mm (9.5 - 13 - 16 - 19 mm) 200 screws DIN 7504M 3.9 mm (13 - 16 - 19 - 25 mm) 250 screws DIN 7504M 4.2 mm (13 - 16 - 19 - 22 - 25 mm) 250 screws DIN 7504M 4.8 mm (13 - 16 - 19 - 22 - 25 mm)

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Countersunk tapping screws with cross recesses — DIN 7982 C/ISO 7050

Type steel harde-ned & zinc-plated	Type stainless steel A2 (INOX)	d	l
d=2.9; d_k=5.6; k(max)=1.7; cross recess=1 (PH 1)			
7982C-2,9x6,5	7982C-2,9x6,5 ES	2.9	6.5
7982C-2,9x9,5	7982C-2,9x9,5 ES	2.9	9.5
7982C-2,9x13	7982C-2,9x13 ES	2.9	13
7982C-2,9x16	7982C-2,9x16 ES	2.9	16
7982C-2,9x19	7982C-2,9x19 ES	2.9	19
7982C-2,9x22	7982C-2,9x22 ES	2.9	22
7982C-2,9x25	7982C-2,9x25 ES	2.9	25
d=3.5; d_k=6.8; k(max)=2.1; cross recess=2 (PH 2)			
7982C-3,5x6,5	---	3.5	6.5
7982C-3,5x9,5	7982C-3,5x9,5 ES	3.5	9.5
7982C-3,5x13	7982C-3,5x13 ES	3.5	13
7982C-3,5x16	7982C-3,5x16 ES	3.5	16
7982C-3,5x19	7982C-3,5x19 ES	3.5	19
7982C-3,5x22	7982C-3,5x22 ES	3.5	22
7982C-3,5x25	7982C-3,5x25 ES	3.5	25
7982C-3,5x32	7982C-3,5x32 ES	3.5	32
7982C-3,5x38	---	3.5	38
d=3.9; d_k=7.5; k(max)=2.3; cross recess=2 (PH 2)			
7982C-3,9x9,5	7982C-3,9x9,5 ES	3.9	9.5
7982C-3,9x13	7982C-3,9x13 ES	3.9	13
7982C-3,9x16	7982C-3,9x16 ES	3.9	16
7982C-3,9x19	7982C-3,9x19 ES	3.9	19
7982C-3,9x22	7982C-3,9x22 ES	3.9	22
7982C-3,9x25	7982C-3,9x25 ES	3.9	25
7982C-3,9x32	7982C-3,9x32 ES	3.9	32
7982C-3,9x38	7982C-3,9x38 ES	3.9	38
7982C-3,9x45	7982C-3,9x45 ES	3.9	45
7982C-3,9x50	7982C-3,9x50 ES	3.9	50
d=4.2; d_k=8.1; k(max)=2.5; cross recess=2 (PH 2)			
7982C-4,2x9,5	7982C-4,2x9,5 ES	4.2	9.5
7982C-4,2x13	7982C-4,2x13 ES	4.2	13
7982C-4,2x16	7982C-4,2x16 ES	4.2	16
7982C-4,2x19	7982C-4,2x19 ES	4.2	19
7982C-4,2x22	7982C-4,2x22 ES	4.2	22
7982C-4,2x25	7982C-4,2x25 ES	4.2	25
7982C-4,2x32	7982C-4,2x32 ES	4.2	32
7982C-4,2x38	7982C-4,2x38 ES	4.2	38
7982C-4,2x45	7982C-4,2x45 ES	4.2	45
7982C-4,2x50	7982C-4,2x50 ES	4.2	50

Type steel harde-ned & zinc-plated	Type stainless steel A2 (INOX)	d	l
d=4.8; d_k=9.5; k(max)=3; cross recess=2 (PH 2)			
7982C-4,8x9,5	7982C-4,8x9,5 ES	4.8	9.5
7982C-4,8x13	7982C-4,8x13 ES	4.8	13
7982C-4,8x16	7982C-4,8x16 ES	4.8	16
7982C-4,8x19	7982C-4,8x19 ES	4.8	19
7982C-4,8x22	7982C-4,8x22 ES	4.8	22
7982C-4,8x25	7982C-4,8x25 ES	4.8	25
7982C-4,8x32	7982C-4,8x32 ES	4.8	32
7982C-4,8x38	7982C-4,8x38 ES	4.8	38
7982C-4,8x45	7982C-4,8x45 ES	4.8	45
7982C-4,8x50	7982C-4,8x50 ES	4.8	50
7982C-4,8x60	7982C-4,8x60 ES	4.8	60
7982C-4,8x70	7982C-4,8x70 ES	4.8	70
7982C-4,8x80	7982C-4,8x80 ES	4.8	80
d=5.5; d_k=10.8; k(max)=3.4; cross recess=3 (PH 3)			
7982C-5,5x13	7982C-5,5x13 ES	5.5	13
7982C-5,5x16	7982C-5,5x16 ES	5.5	16
7982C-5,5x19	7982C-5,5x19 ES	5.5	19
7982C-5,5x22	7982C-5,5x22 ES	5.5	22
7982C-5,5x25	7982C-5,5x25 ES	5.5	25
7982C-5,5x32	7982C-5,5x32 ES	5.5	32
7982C-5,5x38	7982C-5,5x38 ES	5.5	38
7982C-5,5x45	7982C-5,5x45 ES	5.5	45
7982C-5,5x50	7982C-5,5x50 ES	5.5	50
7982C-5,5x60	7982C-5,5x60 ES	5.5	60
7982C-5,5x70	7982C-5,5x70 ES	5.5	70
7982C-5,5x80	7982C-5,5x80 ES	5.5	80
d=6.3; d_k=12.4; k(max)=3.8; cross recess=3 (PH 3)			
7982C-6,3x13	7982C-6,3x13 ES	6.3	13
7982C-6,3x16	7982C-6,3x16 ES	6.3	16
7982C-6,3x19	7982C-6,3x19 ES	6.3	19
7982C-6,3x22	7982C-6,3x22 ES	6.3	22
7982C-6,3x25	7982C-6,3x25 ES	6.3	25
7982C-6,3x32	7982C-6,3x32 ES	6.3	32
7982C-6,3x38	7982C-6,3x38 ES	6.3	38
7982C-6,3x45	7982C-6,3x45 ES	6.3	45
7982C-6,3x50	7982C-6,3x50 ES	6.3	50
7982C-6,3x60	7982C-6,3x60 ES	6.3	60
7982C-6,3x70	7982C-6,3x70 ES	6.3	70
7982C-6,3x80	7982C-6,3x80 ES	6.3	80



Ordering example of other diameters and lengths: 7982C-**x***

- Standard type
- Required diameter
- Required length

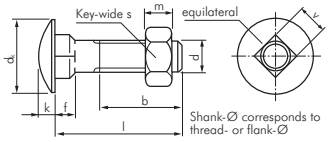
Cup square screws and hex nuts — DIN 603 (Mu)/ISO 8677

Type zinc-plated st. 3.6/4.6	Type stainless st. A2 (without nut) (INOX)	d	l	b
d=M 5; d_k=13; f=4; k=3.3; s=8; v=5				
603-M5x16	603-M5x16 ES	M 5	16	*
603-M5x20	603-M5x20 ES	M 5	20	*
603-M5x25	603-M5x25 ES	M 5	25	*
603-M5x30	603-M5x30 ES	M 5	30	16
603-M5x35	603-M5x35 ES	M 5	35	16
603-M5x40	603-M5x40 ES	M 5	40	16
603-M5x45	603-M5x45 ES	M 5	45	16
603-M5x50	603-M5x50 ES	M 5	50	16
d=M 6; d_k=16; f=4; k=3.5; s=10; v=6				
603-M6x16	603-M6x16 ES	M 6	16	*
603-M6x20	603-M6x20 ES	M 6	20	*
603-M6x25	603-M6x25 ES	M 6	25	*
603-M6x30	603-M6x30 ES	M 6	30	18
603-M6x35	603-M6x35 ES	M 6	35	18
603-M6x40	603-M6x40 ES	M 6	40	18
603-M6x45	603-M6x45 ES	M 6	45	18
603-M6x50	603-M6x50 ES	M 6	50	18
603-M6x60	603-M6x60 ES	M 6	60	18
603-M6x70	603-M6x70 ES	M 6	70	18
603-M6x80	603-M6x80 ES	M 6	80	18
603-M6x90	603-M6x90 ES	M 6	90	18
603-M6x100	603-M6x100 ES	M 6	100	18

* threaded to approaching the head

Type zinc-plated st. 3.6/4.6	Type stainless st. A2 (without nut) (INOX)	d	l	b
d=M 8; d_k=20; f=5; k=4.5; s=13; v=8				
603-M8x20	603-M8x20 ES	M 8	20	*
603-M8x25	603-M8x25 ES	M 8	25	*
603-M8x30	603-M8x30 ES	M 8	30	*
603-M8x35	603-M8x35 ES	M 8	35	22
603-M8x40	603-M8x40 ES	M 8	40	22
603-M8x45	603-M8x45 ES	M 8	45	22
603-M8x50	603-M8x50 ES	M 8	50	22
603-M8x60	603-M8x60 ES	M 8	60	22
603-M8x70	603-M8x70 ES	M 8	70	22
603-M8x80	603-M8x80 ES	M 8	80	22
603-M8x90	603-M8x90 ES	M 8	90	22
603-M8x100	603-M8x100 ES	M 8	100	22
d=M 10; d_k=24; f=6; k=5; s=17 (ISO:16); v=10				
603-M10x30	603-M10x30 ES	M 10	30	*
603-M10x35	603-M10x35 ES	M 10	35	*
603-M10x40	603-M10x40 ES	M 10	40	26
603-M10x45	603-M10x45 ES	M 10	45	26
603-M10x50	603-M10x50 ES	M 10	50	26
603-M10x60	603-M10x60 ES	M 10	60	26
603-M10x70	603-M10x70 ES	M 10	70	26
603-M10x80	603-M10x80 ES	M 10	80	26
603-M10x90	603-M10x90 ES	M 10	90	26
603-M10x100	603-M10x100 ES	M 10	100	26

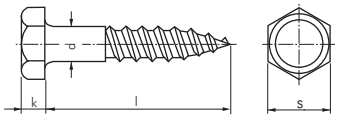
* threaded to approaching the head



Ordering example of other threads and lengths: 603-**x***

- Standard type
- Required threads
- Required length

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.



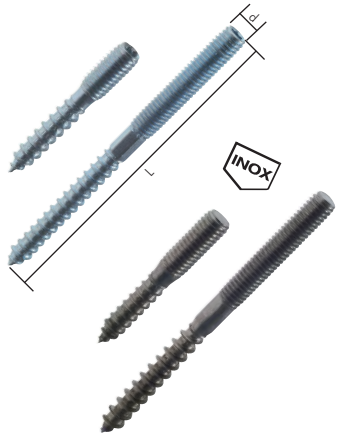
Hexagonal head wood screws — DIN 571

Type zinc-plated steel	Type stainless steel A2	d	l
d=5; k=3.5; s=8			
571-5x30	571-5x30 ES	5	30
571-5x40	571-5x40 ES	5	40
571-5x50	571-5x50 ES	5	50
571-5x60	571-5x60 ES	5	60
d=6; k=4; s=10			
571-6x20	---	6	20
571-6x25	571-6x25 ES	6	25
571-6x30	571-6x30 ES	6	30
571-6x35	571-6x35 ES	6	35
571-6x40	571-6x40 ES	6	40
571-6x50	571-6x50 ES	6	50
571-6x60	571-6x60 ES	6	60
571-6x70	571-6x70 ES	6	70
571-6x80	571-6x80 ES	6	80
571-6x90	571-6x90 ES	6	90
571-6x100	571-6x100 ES	6	100
571-6x120	571-6x120 ES	6	120
d=8; k=5.5; s=13			
571-8x30	571-8x30 ES	8	30
571-8x40	571-8x40 ES	8	40
571-8x50	571-8x50 ES	8	50
571-8x60	571-8x60 ES	8	60
571-8x70	571-8x70 ES	8	70
571-8x80	571-8x80 ES	8	80
571-8x90	571-8x90 ES	8	90
571-8x100	571-8x100 ES	8	100
571-8x120	571-8x120 ES	8	120
571-8x130	571-8x130 ES	8	130
571-8x140	571-8x140 ES	8	140
571-8x150	571-8x150 ES	8	150
571-8x160	571-8x160 ES	8	160
571-8x180	571-8x180 ES	8	180

Type zinc-plated steel	Type stainless steel A2	d	l
d=10; k=7; s=17			
571-10x30	---	10	30
571-10x40	571-10x40 ES	10	40
571-10x50	571-10x50 ES	10	50
571-10x60	571-10x60 ES	10	60
571-10x70	571-10x70 ES	10	70
571-10x80	571-10x80 ES	10	80
571-10x90	571-10x90 ES	10	90
571-10x100	571-10x100 ES	10	100
571-10x120	571-10x120 ES	10	120
571-10x130	571-10x130 ES	10	130
571-10x140	571-10x140 ES	10	140
571-10x150	571-10x150 ES	10	150
571-10x160	571-10x160 ES	10	160
571-10x180	571-10x180 ES	10	180
571-10x200	571-10x200 ES	10	200
d=12; k=8; s=19			
571-12x40	---	12	40
571-12x50	571-12x50 ES	12	50
571-12x60	571-12x60 ES	12	60
571-12x70	571-12x70 ES	12	70
571-12x80	571-12x80 ES	12	80
571-12x90	571-12x90 ES	12	90
571-12x100	571-12x100 ES	12	100
571-12x120	571-12x120 ES	12	120
571-12x130	571-12x130 ES	12	130
571-12x140	571-12x140 ES	12	140
571-12x150	571-12x150 ES	12	150
571-12x160	571-12x160 ES	12	160
571-12x180	571-12x180 ES	12	180
571-12x200	571-12x200 ES	12	200

☞ Ordering example of other diameters and lengths: 571-**x***

Standard type — Required diameter — Required length



Hanger bolts

Information: Only zinc-plated steel version provided with TORX drive

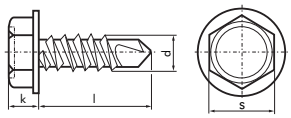
Type steel zinc-plated (TORX)	Type stainless steel A2	d	L	Type suitable dowel
STS 6x50	STS 6x50 ES	M 6	50	DUBEL SX8x40
STS 8x50	STS 8x50 ES	M 8	50	DUBEL SX10x50
STS 8x60	STS 8x60 ES	M 8	60	DUBEL SX10x50
STS 8x80	STS 8x80 ES	M 8	80	DUBEL SX10x50
STS 8x100	STS 8x100 ES	M 8	100	DUBEL SX10x50
STS 8x120	STS 8x120 ES	M 8	120	DUBEL SX10x50
STS 8x140	STS 8x140 ES	M 8	140	DUBEL SX10x50
STS 10x50	---	M 10	50	DUBEL SX12x60
STS 10x80	STS 10x80 ES	M 10	80	DUBEL SX12x60
STS 10x100	STS 10x100 ES	M 10	100	DUBEL SX12x60
STS 10x120	STS 10x120 ES	M 10	120	DUBEL SX12x60
STS 10x140	STS 10x140 ES	M 10	140	DUBEL SX12x60

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

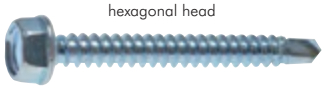
Drilling screws — DIN 7504/ISO 15480/ISO 15481

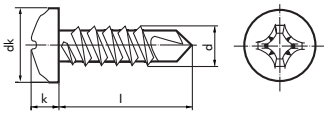
Material: Steel hardened, zinc-plated

Type hexagonal head (shape K) DIN 7504/ISO 15480	Type button head (shape M) DIN 7504/ISO 15481	d	l
	d=2.9; d_k=5.6; k(max)=2.2		
---	7504M-2,9x9,5	2.9	9.5
---	7504M-2,9x13	2.9	13
---	7504M-2,9x16	2.9	16
d=3.5; s=5.5; k(max)=3.45	d=3.5; d_k=6.9; k(max)=2.6		
7504K-3,5x9,5	7504M-3,5x9,5	3.5	9.5
7504K-3,5x13	7504M-3,5x13	3.5	13
7504K-3,5x16	7504M-3,5x16	3.5	16
7504K-3,5x19	7504M-3,5x19	3.5	19
7504k-3.5x25	7504M-3,5x25	3.5	25
d=3.9; s=5.5; k(max)=3.45	d=3.9; d_k=7.5; k(max)=2.8		
7504K-3,9x13	7504M-3,9x13	3.9	13
7504K-3,9x16	7504M-3,9x16	3.9	16
7504K-3,9x19	7504M-3,9x19	3.9	19
---	7504M-3,9x22	3.9	22
7504K-3,9x25	7504M-3,9x25	3.9	25
d=4.2; s=7; k(max)=4.25	d=4.2; d_k=8.2; k(max)=3.05		
7504K-4,2x13	7504M-4,2x13	4.2	13
7504K-4,2x16	7504M-4,2x16	4.2	16
7504K-4,2x19	7504M-4,2x19	4.2	19
---	7504M-4,2x22	4.2	22
7504K-4,2x25	7504M-4,2x25	4.2	25
7504K-4,2x32	7504M-4,2x32	4.2	32
---	7504M-4,2x38	4.2	38
d=4.8; s=8; k(max)=4.45	d=4.8; d_k=9.5; k(max)=3.55		
7504K-4,8x13	7504M-4,8x13	4.8	13
7504K-4,8x16	7504M-4,8x16	4.8	16
7504K-4,8x19	7504M-4,8x19	4.8	19
---	7504M-4,8x22	4.8	22
7504K-4,8x25	7504M-4,8x25	4.8	25
7504K-4,8x32	7504M-4,8x32	4.8	32
7504K-4,8x38	7504M-4,8x38	4.8	38
7504K-4,8x45	7504M-4,8x45	4.8	45
7504K-4,8x50	7504M-4,8x50	4.8	50
d=5.5; s=8; k(max)=5.45	d=5.5; d_k=10.8; k(max)=3.95		
7504K-5,5x19	7504M-5,5x19	5.5	19
7504K-5,5x25	7504M-5,5x25	5.5	25
7504K-5,5x32	7504M-5,5x32	5.5	32
7504K-5,5x38	7504M-5,5x38	5.5	38
7504K-5,5x45	7504M-5,5x45	5.5	45
7504K-5,5x50	7504M-5,5x50	5.5	50
d=6.3; s=10; k(max)=6.45			
7504K-6,3x19	---	6.3	19
7504K-6,3x25	---	6.3	25
7504K-6,3x32	---	6.3	32
7504K-6,3x38	---	6.3	38
7504K-6,3x45	---	6.3	45
7504K-6,3x50	---	6.3	50

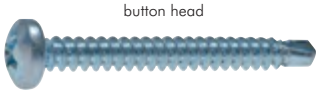


hexagonal head

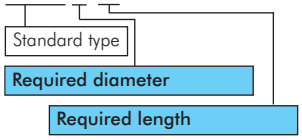




button head



Ordering example of other diameters and lengths:
7504M-**x***



Dustpans and hand sweepers on page 584

Cables can be found on page 643

OKS Cleaner and service products from page 564

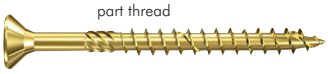
Manual tools can be found in the Online Shop

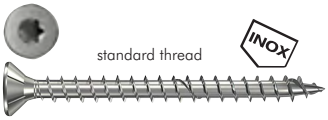
All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

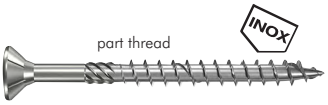
DoP: 0045 | CE 11 | ETA -11/0027 | EAD DP 15-13-0118-06.03

Particle board countersunk screws with TORX drives

fischer







Type zinc-pl. steel yellow chromated	Type stainless steel A2 (INOX)	d	l
d=3; TORX size=T 10(ISZ 10)			
SPAN 3x12 TX*	SPAN 3x12 TX ES*	3	12
SPAN 3x16 TX*	SPAN 3x16 TX ES*	3	16
SPAN 3x20 TX*	SPAN 3x20 TX ES*	3	20
SPAN 3x25 TX*	SPAN 3x25 TX ES*	3	25
SPAN 3x30 TX*	SPAN 3x30 TX ES*	3	30
SPAN 3x35 TX	SPAN 3x35 TX ES*	3	35
SPAN 3x40 TX	---	3	40
d=3.5; TORX size=T 15(ISZ 15)			
SPAN 3.5x16 TX*	SPAN 3.5x16 TX ES*	3.5	16
SPAN 3.5x20 TX*	SPAN 3.5x20 TX ES*	3.5	20
SPAN 3.5x25 TX*	SPAN 3.5x25 TX ES*	3.5	25
SPAN 3.5x30 TX	SPAN 3.5x30 TX ES*	3.5	30
SPAN 3.5x35 TX	SPAN 3.5x35 TX ES	3.5	35
SPAN 3.5x40 TX	SPAN 3.5x40 TX ES	3.5	40
SPAN 3.5x45 TX	---	3.5	45
SPAN 3.5x50 TX	---	3.5	50
d=4; TORX size=T 20(ISZ 20)			
SPAN 4x16 TX*	---	4	16
SPAN 4x20 TX*	SPAN 4x20 TX ES*	4	20
SPAN 4x25 TX*	SPAN 4x25 TX ES*	4	25
SPAN 4x30 TX	SPAN 4x30 TX ES*	4	30
SPAN 4x35 TX	SPAN 4x35 TX ES*	4	35
SPAN 4x40 TX	SPAN 4x40 TX ES	4	40
SPAN 4x45 TX	SPAN 4x45 TX ES	4	45
SPAN 4x50 TX	---	4	50
SPAN 4x60 TX	---	4	60
SPAN 4x70 TX	---	4	70

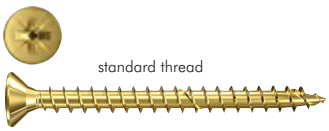
* supplied with full thread, all others are supplied with part thread

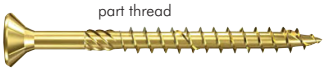
Type zinc-pl. steel yellow chromated	Type stainless steel A2 (INOX)	d	l
d=4.5; TORX size=T 20(ISZ 20)			
SPAN 4.5x30 TX*	SPAN 4.5x30 TX ES*	4.5	30
SPAN 4.5x35 TX	SPAN 4.5x35 TX ES*	4.5	35
SPAN 4.5x40 TX	SPAN 4.5x40 TX ES	4.5	40
SPAN 4.5x45 TX	SPAN 4.5x45 TX ES	4.5	45
SPAN 4.5x50 TX	SPAN 4.5x50 TX ES	4.5	50
SPAN 4.5x60 TX	SPAN 4.5x60 TX ES	4.5	60
SPAN 4.5x70 TX	SPAN 4.5x70 TX ES	4.5	70
SPAN 4.5x80 TX	---	4.5	80
d=5,TORX size=T 20(ISZ 20)			
SPAN 5x30 TX*	SPAN 5x30 TX ES*	5	30
SPAN 5x35 TX*	SPAN 5x35 TX ES*	5	35
SPAN 5x40 TX	SPAN 5x40 TX ES	5	40
SPAN 5x45 TX	SPAN 5x45 TX ES	5	45
SPAN 5x50 TX	SPAN 5x50 TX ES	5	50
SPAN 5x60 TX	SPAN 5x60 TX ES	5	60
SPAN 5x70 TX	SPAN 5x70 TX ES	5	70
SPAN 5x80 TX	SPAN 5x80 TX ES	5	80
SPAN 5x90 TX	---	5	90
SPAN 5x100 TX	SPAN 5x100 TX ES	5	100
SPAN 5x120 TX	SPAN 5x120 TX ES	5	120
d=6, TORX size=T 30(ISZ 30)			
SPAN 6x50 TX	SPAN 6x50 TX ES	6	50
SPAN 6x60 TX	SPAN 6x60 TX ES	6	60
SPAN 6x70 TX	SPAN 6x70 TX ES	6	70
SPAN 6x80 TX	SPAN 6x80 TX ES	6	80
SPAN 6x90 TX	SPAN 6x90 TX ES	6	90
SPAN 6x100 TX	SPAN 6x100 TX ES	6	100
SPAN 6x120 TX	SPAN 6x120 TX ES	6	120
SPAN 6x140 TX	SPAN 6x140 TX ES	6	140
SPAN 6x160 TX	SPAN 6x160 TX ES	6	160
SPAN 6x180 TX	---	6	180
SPAN 6x200 TX	---	6	200

DoP: 0045 | CE 11 | ETA -11/0027 | EAD DP 15-13-0118-06.03

Particle board countersunk screws with pozidriv cross recess drives

fischer





Type zinc-pl. steel yellow chromated	d	l
d=3; cross recess=1 (PZ 1)		
SPAN 3x12 KS*	3	12
SPAN 3x16 KS*	3	16
SPAN 3x20 KS*	3	20
SPAN 3x25 KS*	3	25
SPAN 3x30 KS*	3	30
SPAN 3x35 KS	3	35
SPAN 3x40 KS	3	40
d=3.5; cross recess=2 (PZ 2)		
SPAN 3.5x16 KS*	3.5	16
SPAN 3.5x20 KS*	3.5	20
SPAN 3.5x25 KS*	3.5	25
SPAN 3.5x30 KS*	3.5	30
SPAN 3.5x35 KS*	3.5	35
SPAN 3.5x40 KS	3.5	40
SPAN 3.5x45 KS	3.5	45
SPAN 3.5x50 KS	3.5	50
d=4; cross recess=2 (PZ 2)		
SPAN 4x12 KS*	4	12
SPAN 4x16 KS*	4	16
SPAN 4x20 KS*	4	20
SPAN 4x25 KS*	4	25
SPAN 4x30 KS*	4	30
SPAN 4x35 KS	4	35
SPAN 4x40 KS	4	40
SPAN 4x45 KS	4	45
SPAN 4x50 KS	4	50
SPAN 4x60 KS	4	60
SPAN 4x70 KS	4	70
d=4.5; cross recess=2 (PZ 2)		
SPAN 4.5x16 KS*	4.5	16
SPAN 4.5x20 KS*	4.5	20
SPAN 4.5x25 KS*	4.5	25
SPAN 4.5x30 KS*	4.5	30

* supplied with full thread, all others are supplied with part thread

Type zinc-pl. steel yellow chromated	d	l
SPAN 4.5x35 KS	4.5	35
SPAN 4.5x40 KS	4.5	40
SPAN 4.5x45 KS	4.5	45
SPAN 4.5x50 KS	4.5	50
SPAN 4.5x60 KS	4.5	60
SPAN 4.5x70 KS	4.5	70
SPAN 4.5x80 KS	4.5	80
d=5; cross recess=2 (PZ 2)		
SPAN 5x20 KS*	5	20
SPAN 5x25 KS*	5	25
SPAN 5x30 KS*	5	30
SPAN 5x35 KS*	5	35
SPAN 5x40 KS	5	40
SPAN 5x45 KS	5	45
SPAN 5x50 KS	5	50
SPAN 5x60 KS	5	60
SPAN 5x70 KS	5	70
SPAN 5x80 KS	5	80
SPAN 5x90 KS	5	90
SPAN 5x100 KS	5	100
SPAN 5x120 KS	5	120
d=6; cross recess=3 (PZ 3)		
SPAN 6x40 KS	6	40
SPAN 6x45 KS	6	45
SPAN 6x50 KS	6	50
SPAN 6x60 KS	6	60
SPAN 6x70 KS	6	70
SPAN 6x80 KS	6	80
SPAN 6x100 KS	6	100
SPAN 6x120 KS	6	120
SPAN 6x140 KS	6	140
SPAN 6x160 KS	6	160
SPAN 6x180 KS	6	180
SPAN 6x200 KS	6	200

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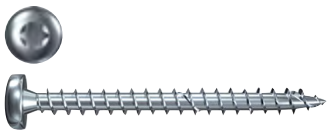
Particle board half-round head screws (pan head) with TORX drives fischer

DoP: 0045 | 11 ETA -11/0027 | EAD DP 15-13-0118-06.03



Type zinc-plated steel, white	d	l
d=3; TORX size=T 10(ISZ 10)		
SPAN 3x12 HR TX	3	12
SPAN 3x16 HR TX	3	16
SPAN 3x20 HR TX	3	20
SPAN 3x25 HR TX	3	25
SPAN 3x30 HR TX	3	30
d=3.5; TORX size=T 15(ISZ 15)		
SPAN 3.5x12 HR TX	3.5	12
SPAN 3.5x16 HR TX	3.5	16
SPAN 3.5x20 HR TX	3.5	20
SPAN 3.5x25 HR TX	3.5	25
SPAN 3.5x30 HR TX	3.5	30
SPAN 3.5x35 HR TX	3.5	35
d=4; TORX size=T 20(ISZ 20)		
SPAN 4x16 HR TX	4	16
SPAN 4x20 HR TX	4	20
SPAN 4x25 HR TX	4	25
SPAN 4x30 HR TX	4	30
SPAN 4x35 HR TX	4	35
SPAN 4x40 HR TX	4	40
SPAN 4x45 HR TX	4	45
SPAN 4x50 HR TX	4	50

Type zinc-plated steel, white	d	l
d=4.5; TORX size=T 20(ISZ 20)		
SPAN 4.5x16 HR TX	4.5	16
SPAN 4.5x20 HR TX	4.5	20
SPAN 4.5x25 HR TX	4.5	25
SPAN 4.5x30 HR TX	4.5	30
SPAN 4.5x35 HR TX	4.5	35
SPAN 4.5x40 HR TX	4.5	40
SPAN 4.5x45 HR TX	4.5	45
SPAN 4.5x50 HR TX	4.5	50
d=5; TORX size=T 20(ISZ 20)		
SPAN 5x20 HR TX	5	20
SPAN 5x25 HR TX	5	25
SPAN 5x30 HR TX	5	30
SPAN 5x35 HR TX	5	35
SPAN 5x40 HR TX	5	40
SPAN 5x50 HR TX	5	50
SPAN 5x60 HR TX	5	60
SPAN 5x70 HR TX	5	70
SPAN 5x80 HR TX	5	80

Nails/wire pins with countersunk head shape B — DIN EN 10230-1 (DIN 1151)

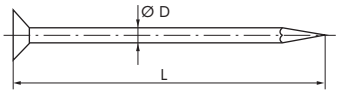
Description: Steel wire nails for general use in the construction industry (grade level 2). Not suited for mechanical nailing.
Supply volume: 1 piece corresponds to one carton with the specified fill weight

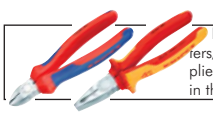
Type plain steel	Type steel hot-dip galvanised	Ø D	L	Fill weight *
1151-1.8x35	1151-1.8x35 V	1.8	35	2.5 kg (approx. 3289 pcs.)
1151-2.0x40	1151-2.0x40 V	2.0	40	2.5 kg (approx. 2500 pcs.)
1151-2.2x45	---	2.2	45	2.5 kg (approx. 1923 pcs.)
1151-2.2x50	1151-2.2x50 V	2.2	50	2.5 kg (approx. 1563 pcs.)
1151-2.5x55	---	2.5	55	2.5 kg (approx. 1087 pcs.)
1151-2.5x60	1151-2.5x60 V	2.5	60	2.5 kg (approx. 1000 pcs.)
1151-2.8x65	1151-2.8x65 V	2.8	65	2.5 kg (approx. 781 pcs.)
1151-3.1x65	---	3.1	65	2.5 kg (approx. 625 pcs.)
1151-3.1x70	1151-3.1x70 V	3.1	70	2.5 kg (approx. 581 pcs.)
1151-3.1x80	1151-3.1x80 V	3.1	80	2.5 kg (approx. 510 pcs.)
1151-3.4x80	---	3.4	80	2.5 kg (approx. 431 pcs.)
1151-3.4x90	1151-3.4x90 V	3.4	90	5.0 kg (approx. 746 pcs.)
1151-3.8x100	1151-3.8x100 V	3.8	100	5.0 kg (approx. 531 pcs.)
1151-4.2x100	---	4.2	100	5.0 kg (approx. 443 pcs.)
1151-4.2x110	---	4.2	110	5.0 kg (approx. 403 pcs.)
1151-4.2x120	1151-4.2x120 V	4.2	120	5.0 kg (approx. 370 pcs.)
1151-4.6x130	1151-4.6x130 V	4.6	130	5.0 kg (approx. 282 pcs.)
1151-5.5x140	---	5.5	140	5.0 kg (aprox.186 pc.)
1151-5.5x145	1151-5.5x145 V	5.5	145	5.0 kg (approx. 184 pcs.)
1151-5.5x160	1151-5.5x160 V	5.5	160	5.0 kg (approx. 137 pcs.)
1151-6.0x180	1151-6.0x180 V	6.0	180	5.0 kg (approx. 117 pcs.)
1151-7.0x210	1151-7.0x210 V	7.0	210	5.0 kg (approx. 74 pcs.)
1151-7.6x230	1151-7.6x230 V	7.6	230	5.0 kg (approx. 58 pcs.)
1151-7.6x260	1151-7.6x260 V	7.6	260	5.0 kg (approx. 51 pcs.)
1151-8.8x260	1151-8.8x260 V	8.8	260	5.0 kg (approx. 38 pcs.)
1151-8.8x290	1151-8.8x290 V	8.8	290	5.0 kg (approx. 33 pcs.)
1151-9.4x310	---	9.4	310	5.0 kg (approx. 29 pcs.)

* details in brackets apply to type plain steel. The quantities are slightly lower for the type steel hot-dip galvanised.

type plain steel

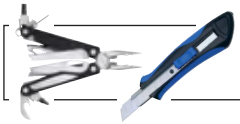
type steel, hot-dip galvanised





Diagonal cutters/combination pliers can be found in the Online Shop

Manual tools can be found in the Online Shop

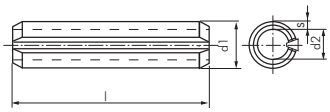


Knives on page 595

Blast guns and blasting abrasives on page 535

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Spring pins, heavy duty — DIN 1481/ISO 8752



Ordering example of other diameters and lengths:
1481-**x***

- Standard type
- Required diameter
- Required length

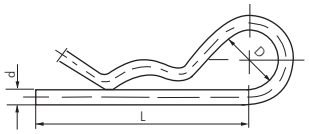
Type plain steel	Type stainless steel A2 (INOX)	Nominal Ø	l
Nominal Ø=3; d1*=3.3; d2*=2.1; s=0.6			
1481-3x10	1481-3x10 ES	3	10
1481-3x16	1481-3x16 ES	3	16
1481-3x20	1481-3x20 ES	3	20
1481-3x26	1481-3x26 ES	3	26
1481-3x30	1481-3x30 ES	3	30
1481-3x36	1481-3x36 ES	3	36
1481-3x40	1481-3x40 ES	3	40
Nominal Ø=4; d1*=4.4; d2*=2.8; s=0.8			
1481-4x10	1481-4x10 ES	4	10
1481-4x16	1481-4x16 ES	4	16
1481-4x20	1481-4x20 ES	4	20
1481-4x26	1481-4x26 ES	4	26
1481-4x30	1481-4x30 ES	4	30
1481-4x36	1481-4x36 ES	4	36
1481-4x40	1481-4x40 ES	4	40
1481-4x45	1481-4x45 ES	4	45
1481-4x50	1481-4x50 ES	4	50
Nominal Ø=5; d1*=5.4; d2*=3.4; s=1			
1481-5x10	1481-5x10 ES	5	10
1481-5x16	1481-5x16 ES	5	16
1481-5x20	1481-5x20 ES	5	20
1481-5x26	1481-5x26 ES	5	26
1481-5x30	1481-5x30 ES	5	30
1481-5x36	1481-5x36 ES	5	36
1481-5x40	1481-5x40 ES	5	40
1481-5x45	1481-5x45 ES	5	45
1481-5x50	1481-5x50 ES	5	50

* before installation

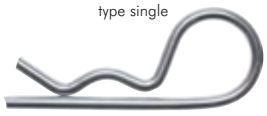
Type plain steel	Type stainless steel A2 (INOX)	Nominal Ø	l
Nominal Ø=6; d1*=6.4; d2*=4; s=1.2			
1481-6x10	1481-6x10 ES	6	10
1481-6x16	1481-6x16 ES	6	16
1481-6x20	1481-6x20 ES	6	20
1481-6x26	1481-6x26 ES	6	26
1481-6x30	1481-6x30 ES	6	30
1481-6x36	1481-6x36 ES	6	36
1481-6x40	1481-6x40 ES	6	40
1481-6x45	1481-6x45 ES	6	45
1481-6x50	1481-6x50 ES	6	50
1481-6x60	1481-6x60 ES	6	60
Nominal Ø=8; d1*=8.5; d2*=5.5; s=1.5			
1481-8x10	1481-8x10 ES	8	10
1481-8x16	1481-8x16 ES	8	16
1481-8x20	1481-8x20 ES	8	20
1481-8x26	1481-8x26 ES	8	26
1481-8x30	1481-8x30 ES	8	30
1481-8x36	1481-8x36 ES	8	36
1481-8x40	1481-8x40 ES	8	40
1481-8x45	1481-8x45 ES	8	45
1481-8x50	1481-8x50 ES	8	50
1481-8x60	1481-8x60 ES	8	60

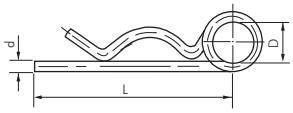
* before installation

Safety cotter pins — similar to DIN 11024

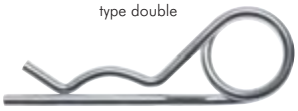


type single





type double



Type zinc-plated steel	d	L	D	For shaft Ø
Single				
12024-1-2	2	50	10	9 to 14
12024-1-3	3	60	18	10 to 16
12024-1-4	4	60	20	16 to 20
12024-1-5	5	85	24	20 to 28
12024-1-6	6	105	30	28 to 40
Double				
12024-2-2	2	50	10	8 to 14
12024-2-3	3	62	16	14 to 20
12024-2-4	4	78	23	17 to 24
12024-2-5	5	92	26	18 to 30
12024-2-6	6	120	30	24 to 36

Spring cotter assortments

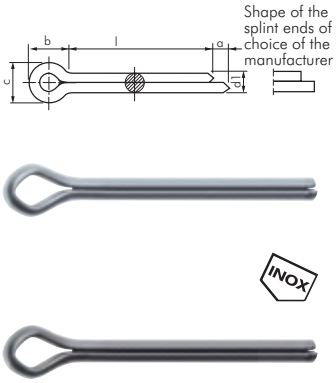
Type	Content	
FEDERSTECK SORTI	356	(2 - 2.5 - 3 - 4 - 5 - 6 - 7 mm)

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

Cotter pins — DIN 94/ISO 1234

Type zinc-plated steel	Type stainless steel A2 (INOX)	Nominal Ø d1	l
d1=2; a(max)=2.5; b=4; c(max)=3.6			
94-2x10	94-2x10 ES	2	10
94-2x12	94-2x12 ES	2	12
94-2x16	94-2x16 ES	2	16
94-2x20	94-2x20 ES	2	20
94-2x25	94-2x25 ES	2	25
94-2x32	94-2x32 ES	2	32
d1=2.5; a(max)=2.5; b=5; c(max)=4.6			
94-2.5x16	94-2.5x16 ES	2.5	16
94-2.5x20	94-2.5x20 ES	2.5	20
94-2.5x25	94-2.5x25 ES	2.5	25
94-2.5x32	94-2.5x32 ES	2.5	32
d1=3.2; a(max)=3.2; b=6.4; c(max)=5.8			
94-3.2x16	94-3.2x16 ES	3.2	16
94-3.2x20	94-3.2x20 ES	3.2	20
94-3.2x25	94-3.2x25 ES	3.2	25
94-3.2x32	94-3.2x32 ES	3.2	32
94-3.2x36	94-3.2x36 ES	3.2	36
94-3.2x40	94-3.2x40 ES	3.2	40
94-3.2x50	---	3.2	50

Type zinc-plated steel	Type stainless steel A2 (INOX)	Nom. Ø d1	l
d1=4; a(max)=4; b=8; c(max)=7.4			
94-4x20	94-4x20 ES	4	20
94-4x25	94-4x25 ES	4	25
94-4x32	94-4x32 ES	4	32
94-4x36	94-4x36 ES	4	36
94-4x40	94-4x40 ES	4	40
94-4x50	94-4x50 ES	4	50
d1=5; a(max)=4; b=10; c(max)=9.2			
94-5x25	---	5	25
94-5x32	94-5x32 ES	5	32
94-5x36	94-5x36 ES	5	36
94-5x40	94-5x40 ES	5	40
94-5x50	94-5x50 ES	5	50
94-5x63	94-5x63 ES	5	63
94-5x71	---	5	71
d1=6.3; a(max)=4; b=12.6; c(max)=11.8			
94-6.3x32	94-6.3x32 ES	6.3	32
94-6.3x36	94-6.3x36 ES	6.3	36
94-6.3x40	94-6.3x40 ES	6.3	40
94-6.3x50	94-6.3x50 ES	6.3	50



☞ Ordering example of other diameters and lengths: 94-**x***

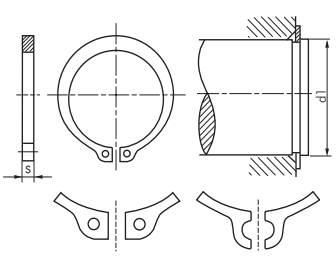
Standard type | Required diameter | Required length

Safety rings A (for shafts) — DIN 471

Type steel phosphatised	Type stainless steel* (INOX)	Shaft Ø d1	s
471-4	471-4 ES	4	0.4
471-5	471-5 ES	5	0.6
471-6	471-6 ES	6	0.7
471-8	471-8 ES	8	0.8
471-10	471-10 ES	10	1
471-12	471-12 ES	12	1
471-13	---	13	1
471-14	471-14 ES	14	1
471-15	471-15 ES	15	1
471-16	471-16 ES	16	1
471-17	471-17 ES	17	1
471-18	471-18 ES	18	1.2
471-20	471-20 ES	20	1.2

Type steel phosphatised	Type stainless steel* (INOX)	Shaft Ø d1	s
471-22	471-22 ES	22	1.2
471-24	471-24 ES	24	1.2
471-25	471-25 ES	25	1.2
471-26	471-26 ES	26	1.2
471-28	471-28 ES	28	1.5
471-30	471-30 ES	30	1.5
471-32	471-32 ES	32	1.5
471-34	471-34 ES	34	1.5
471-35	471-35 ES	35	1.5
471-36	---	36	1.75
471-38	---	38	1.75
471-40	471-40 ES	40	1.75

* similar to DIN 471



Eye shape for shaft-Ø 4 to 8 mm

☞ Ordering example of other diameters: 471-**

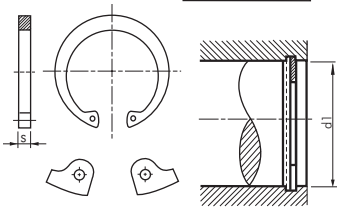
Standard type | Required diameter

Safety rings I (for boreholes) — DIN 472

Type steel phosphatised	Type stainless steel* (INOX)	Drill Ø d1	s
472-8	472-8 ES	8	0.8
472-10	472-10 ES	10	1
472-12	472-12 ES	12	1
472-14	472-14 ES	14	1
472-15	472-15 ES	15	1
472-16	472-16 ES	16	1
472-17	472-17 ES	17	1
472-18	---	18	1
472-19	---	19	1
472-20	472-20 ES	20	1

Type steel phosphatised	Type stainless steel* (INOX)	Drill Ø d1	s
472-22	472-22 ES	22	1
472-24	472-24 ES	24	1.2
472-25	472-25 ES	25	1.2
472-26	472-26 ES	26	1.2
472-28	472-28 ES	28	1.2
472-30	472-30 ES	30	1.2
472-32	472-32 ES	32	1.2
472-35	472-35 ES	35	1.5
472-36	472-36 ES	36	1.5
472-40	472-40 ES	40	1.75

* similar to DIN 472



☞ Ordering example of other diameters: 472-**

Standard type | Required diameter

Safety rings assortments

Type	Content	Dimensions
SIRI SORTI A 330	330 pieces	Outer rings assorted 11 - 51 mm (for shafts)
SIRI SORTI I 330	330 pieces	Inner rings assorted 11 - 51 mm (for boreholes)
SIRI SORTI IA 330	330 pieces	Inner/outer rings assorted 12 - 50 mm

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

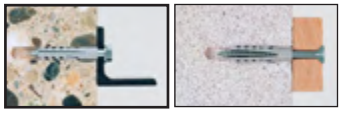
Dowel recommendations

Good = o Optimal = +	Concrete	Solid brick	Solid sand lime brick	Solid light concrete brick	Full plasterboard	Aerated concrete	honeycomb brick	Perforated sand lime brick	Hollow light concrete brick	Plasterboard	Particle board
S dowel	o	o	o	o	o	o					
SX dowel	+	+	+	+	+	+	+	o	o		
UX dowel	o	o	o	o	o	o	o	o	o	o	o
FMD dowel	+	+	+	+	+	+	o	o	o		
N hammer fix	o	o	o	o	o	o	o	o	o		
GK/GKM dowel										+	
FAZ II HDY duty anchor	+										
FAZ II K HDY duty anchor	+										

MADE IN GERMANY

S dowels (nylon) - classic

Application: Concrete and solid brick wall materials are not suited for honeycomb bricks. Dowels must be placed flush into the carrying underground.
Screws that can be used: Wood or chipboard screws



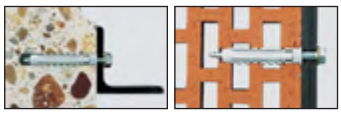
Type	Drill Ø	Min. hole depth	Screws Ø	Amount
DUBEL S5	5	35	3-4	100 packs
DUBEL S6	6	40	4-5	100 packs
DUBEL S8	8	55	4.5-6	100 packs
DUBEL S10	10	70	6-8	50 packs
DUBEL S12	12	80	8-10	25 packs
DUBEL S14	14	90	10-12	20 packs

MADE IN GERMANY

SX dowels (nylon) - the new standard

Application: Concrete and solid brick wall materials, honeycomb brick, aerated concrete. Dowels must be placed flush into the carrying underground.
Screws that can be used: Wood or chipboard screws

with rim



without rim

Type	Drill Ø	Min. hole depth	Screws Ø	Amount
With rim				
DUBEL SX5x25	5	35	3-4	100 packs
DUBEL SX6x30	6	40	4-5	100 packs
DUBEL SX8x40	8	50	4.5-6	100 packs
DUBEL SX10x50	10	70	6-8	50 packs
DUBEL SX12x60	12	80	8-10	25 packs
DUBEL SX14x70	14	90	10-12	20 packs
Without rim				
DUBEL SX6x50 OR	6	60	4-5	100 packs
DUBEL SX8x65 OR	8	75	4.5-6	50 packs
DUBEL SX10x80 OR	10	95	6-8	25 packs

MADE IN GERMANY

UX dowels (nylon) - universal extra

Application: Concrete and solid brick wall materials, honeycomb brick, aerated concrete, plaster, particle boards, etc. For wall assembly, the dowel must be placed flush in the carrying underground; for manifold assembly, please observe minimum board thickness.
Screws that can be used: Wood or chipboard screws

without rim

with rim

Type	Drill Ø	Min. hole depth	Min. board thickness	Screws Ø	Amount
Without rim					
DUBEL UX5x30	5	40	9.5	3-4	100 packs
DUBEL UX6x35	6	45	9.5	4-5	100 packs
DUBEL UX6x50	6	60	9.5	4-5	100 packs
DUBEL UX8x50	8	60	9.5	4.5-6	100 packs
DUBEL UX10x60	10	75	12.5	6-8	50 packs
DUBEL UX12x70	12	85	---*	8-10	25 packs
DUBEL UX14x75	14	95	---*	10-12	20 packs
With rim					
DUBEL UX5x30 R	5	40	9.5	3-4	100 packs
DUBEL UX6x35 R	6	45	9.5	4-5	100 packs
DUBEL UX6x50 R	6	60	9.5	4-5	100 packs
DUBEL UX8x50 R	8	60	9.5	4.5-6	100 packs
DUBEL UX10x60 R	10	75	12.5	6-8	50 packs

* not suitable for manifold assembly

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Dowel assortments

Type	Dowel types	Content
DUBEL SORTI SX	SX and UX dowels	60 pcs. SX 6x30 – 50 pcs. SX 8x40 – 20 pcs. SX 10x50 – 60 pcs. UX 5x30 R – 40 pcs. UX 6x50 R – 50 pcs. UX 8x50 R – 10 pcs. UX 10x60 R
DUBEL SORTI S6	S dowel	100 pcs. S 6 – 100 pcs. S 8 – 25 pcs. S 10

type DUBEL SORTI SX

type DUBEL SORTI S6

FIXtainer boxes (assortment and empty boxes)

Description: Fixtainer boxes are equipped with carrier handles, transparent covers and removable dividers. FIXtainers can be securely attached to and stacked on top of one another using the click system. They are compatible with the Sortimo L-Boxx system.

Type	Description
FISCHER FIX BOX	Empty box without contents: can be used as a storage box for packed lunches, collection box for small parts, utensils, tools, toys, etc.
FISCHER FIX SX	"SX dowel box": 120 pcs. dowel SX 6x30 – 60 pcs. dowel SX 8x40 – 30 pcs. dowel SX 10x50
FISCHER FIX SXS	"SX dowel and screw box": 60 pcs. dowels SX 6x30 and countersunk head screws 4.5x40 – 30 pcs. dowels SX 8x40 and countersunk head screws 5x60 – 15 pcs. dowels SX 10x50 and countersunk head screws 6x85
FISCHER FIX UNI 1	"All-in-one box": 50 SX 6x30 dowels and 4.5x40 countersunk head screws - 50 UX 6x35 R universal dowels 4.5x60 countersunk head screws - 25 GK plasterboard dowels incl. screw-in tool - 15 GKM metal plasterboard dowels

type FISCHER FIX BOX

type FISCHER FIX SX

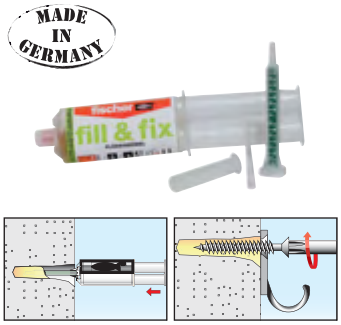
type FISCHER FIX SXS

type FISCHER FIX UNI 1

Liquid fixing - the problem solver

Application: Solvent free polyurethane based injection compound. It is injected into a hole, expands there into the defined volume and cures at room temperature in around 2 to 5 minutes. It is suitable for anchoring fixing elements, to fill and repair broken boreholes or as a repair compound for wood based materials. You can screw screws and eyelets etc. of diameters between 2 to 6 mm into and out of the hardened compound, just as you can with wood. Temperature resistant from -10°C to max. +40°C. Ideal for renovation work and wood repairs, compatible with all building materials (new and old).

Type	Description
DUBEL FILLFIX	Complete set sufficient for min. 4 boreholes Ø 10 mm and 50 mm deep consisting of: 1 x resealable cartridge (25 ml injection compound) 2 x mix nozzles 2 x extension tube (for filling small and deep holes) 4 x injection anchor sleeves (for perforated or board materials)



FMD dowel metal expansion bolts

Application: Concrete and solid brick wall materials, honeycomb brick, aerated concrete. Meets the technical regulation for gas pipes. Dowels must be placed flush into the carrying underground.
Screws that can be used: Wood or chipboard screws

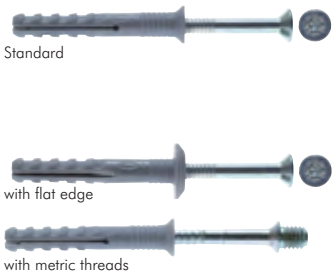
Type	Drill Ø[1]	Min. hole depth	Screws Ø	Amount
DUBEL FMD6x32	6-7	38	5-6	100 packs
DUBEL FMD8x38	10	46	6-8	100 packs
DUBEL FMD8x60	10-12	68	6-8	50 packs

[1] the drill Ø must be matched to the building material burst strength. The higher the burst strength, the bigger the drill Ø

All data are considered to be unbinding reference values. We accept no liability for data selection that is not confirmed in writing. Pressure data refer, if not otherwise indicated, to liquids of Group II at +20°C.

N hammer fix (nylon) with preassembled nails

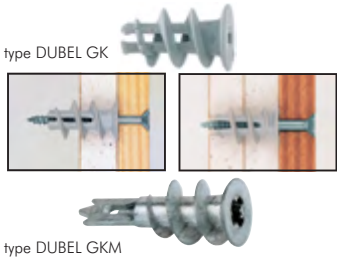
Application: Concrete and solid brick wall materials, honeycomb brick, aerated concrete. The hammer fix is used to quickly and rationally fasten wooden slats, frames, cable channels, and foils. For this purpose the dowel is simply hammered in. The cross recess allows a subsequent loosening of the nail for adjustment.



Type	Drill Ø	Min. hole depth (for through hole installation)	Min. anchoring depth	Dowel length	Max. usable length	Amount
Standard (countersunk head)						
DUBEL N5x30/5S	5	45	25	30	5	100 packs
DUBEL N5x50/25S	5	65	25	50	25	100 packs
DUBEL N6x40/10S	6	55	30	40	10	100 packs
DUBEL N6x60/30S	6	75	30	60	30	100 packs
DUBEL N6x80/50S	6	95	30	80	50	100 packs
DUBEL N8x80/40S	8	95	40	80	40	100 packs
DUBEL N8x100/60S	8	115	40	100	60	100 packs
DUBEL N8x120/80S	8	135	40	120	80	100 packs
With flat edge (mushroom head Ø type: N5 = 9 mm, type: N6 = 13 mm)						
DUBEL N5x30/5P	5	45	25	30	5	100 packs
DUBEL N6x40/7P	6	55	30	40	7	100 packs
Nail with metric male thread M6x7 (e.g. for tube clip fastener)						
DUBEL N6x40/10M6	6	55	30	40	10	50 packs

GK plasterboard dowels

Application: Plasterboard; there is only limited space available behind them. Metallic version is also suitable for fibre-reinforced gypsum boards.



Advantages:
- As opposed to the UX universal dowel that spreads apart behind the plaster board, this dowel forms a positive connection into the plaster board
- Plastic dowels are supplied with a screw-in tool
- Metal dowels can be screwed into the plaster board using a simple bit, no separate assembly tool is needed

Screws that can be used: Wood or chipboard screws

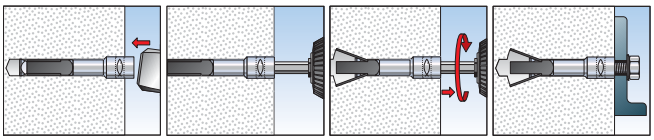
Type fischer	Material	Min. installation dimension (plaster board plus clearance)	Screws Ø	Amount
DUBEL GK	Nylon	25	4-5	100 packs
DUBEL GKM	metal	35	4-5	100 packs

FPX aerated concrete anchors

Application: Female thread anchor for aerated concrete

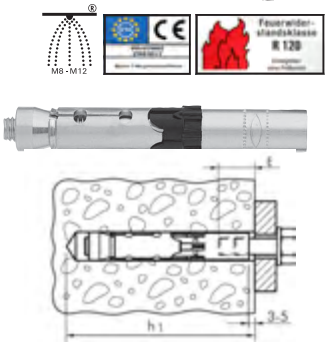
Advantages:
- Extremely easy to install
- Safe, even, effortless assembly
- Fewer points of attachment (quadruple spread ensures high tensile and traverse loading)
- Use for safety relevant mountings (ETA approval)

Type	Drill Ø	Min. hole depth (h_1)	Dowel length	Min. anchoring depth (h_{ef})	Screw-in depth	Thread female	Amount
DUBEL FPX M6-I	10	95	75	70	10 - 15	M 6	25 packs
DUBEL FPX M8-I	10	95	75	70	8 - 15	M 8	25 packs
DUBEL FPX M10-I	10	95	75	70	10 - 15	M 10	25 packs
DUBEL FPX M12-I	10	95	75	70	12 - 15	M 12	25 packs

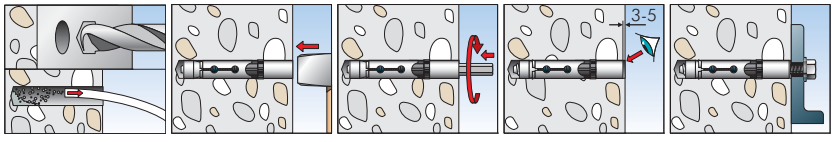


FH II - high performance anchors with female threads

Application: For mounting heavy loads in cracked concrete (tensile area) and cracked concrete (pressure zone). Female thread for standard screws and threaded bars. With visual setting control, the setting operation without a torque wrench is approval-compliant. Flush disassembly, and possible reuse of the attachment point (optimum flexibility).



Type zinc-plated steel	Type stainless steel A4 (INOX)	Drill Ø (d0)	Min. hole depth for pre-position installation (h1)	Dowel length	Screw-in depth (E)	Thread female	Packing unit
DUBEL FH 12/M6 i	DUBEL FH 12/M6 i ES	12	85	77.5	16 - 25	M 6	25
DUBEL FH 12/M8 i	DUBEL FH 12/M8 i ES	12	85	77.5	18 - 25	M 8	25
DUBEL FH 15/M10 i	DUBEL FH 15/M10 i ES	15	95	90.0	15 - 25	M 10	25
DUBEL FH 15/M12 i	DUBEL FH 15/M12 i ES	15	95	90.0	17 - 25	M 12	20



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FAZ II K - heavy duty anchor bolts (short versions)

fischer

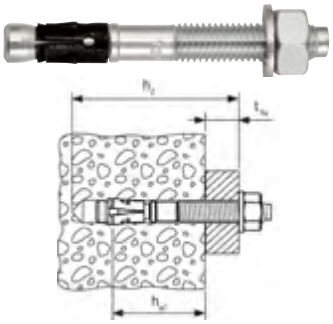
MADE IN GERMANY

NEU

Application: Short bolts with a reduced anchoring depth is the most cost-effective option for a wide variety of applications, such as the mounting of cable runs and façade substructures. For mounting heavy loads in cracked concrete (tensile area) and non-cracked concrete (pressure zone).
The FAZ II K is suitable for pre-positioned and through hole installation.
Recommended torque during anchoring: Ø 10: 45 Nm, Ø 12: 60 Nm

Advantages:
- The properties of the K version are key in minimising drilling effort and hammer blows when driving the bolt anchors in, which produces savings in terms of effort and assembly time.
- The shallow hole depth of the K version enables quicker assembly and reduces the number of reinforcement strikes.

Type **zinc-plated steel**	Type INOX **Stainless steel A4**	Drill Ø	Min. hole depth for through hole installation (h_2)	Min. anchoring depth (h_{ef})	Anchor rod	Max. usable length (t_{fix})	Thread
DUBEL FAZ 10/10 K	DUBEL FAZ 10/10 K ES	10	65	40	75	10	M10 x 33
DUBEL FAZ 10/20 K	DUBEL FAZ 10/20 K ES	10	75	40	85	20	M10 x 43
DUBEL FAZ 12/10 K	DUBEL FAZ 12/10 K ES	12	80	50	90	10	M12 x 41
DUBEL FAZ 12/20 K	DUBEL FAZ 12/20 K ES	12	90	50	100	20	M12 x 51



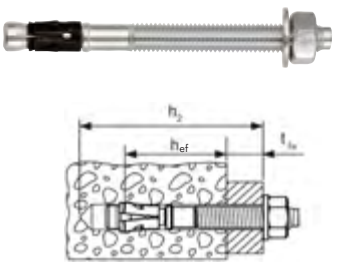
FAZ II - heavy duty anchor bolts

fischer

MADE IN GERMANY

Application: for mounting heavy loads in cracked concrete (tensile area) and cracked concrete (pressure zone). Recommended torque during anchoring: Ø 8: 20 Nm, Ø 10: 45 Nm, Ø 12: 60 Nm, Ø 16: 110 Nm, Ø 20: 200 Nm, Ø 24: 270 Nm

Type **zinc-plated steel**	Type INOX NEU **stainless steel A4**	Drill Ø	Min. hole depth (for through hole installation) (h_2)	Min. anchoring depth (h_{ef})	Anchor rod	Max. usable length (t_{fix})	Thread
DUBEL FAZ 8/10	DUBEL FAZ 8/10 ES	8	65	45	75	10	M8 x 38
DUBEL FAZ 8/30	DUBEL FAZ 8/30 ES	8	85	45	95	30	M8 x 58
DUBEL FAZ 8/50	DUBEL FAZ 8/50 ES	8	105	45	115	50	M8 x 78
DUBEL FAZ 8/100	---	8	155	45	165	100	M8 x 128
DUBEL FAZ 8/160	---	8	215	45	225	160	M8 x 100
DUBEL FAZ 10/10	DUBEL FAZ 10/10 ES	10	85	60	95	10	M10 x 53
DUBEL FAZ 10/20	DUBEL FAZ 10/20 ES	10	95	60	105	20	M10 x 63
DUBEL FAZ 10/30	DUBEL FAZ 10/30 ES	10	105	60	115	30	M10 x 73
DUBEL FAZ 10/50	DUBEL FAZ 10/50 ES	10	125	60	135	50	M10 x 93
DUBEL FAZ 10/80	---	10	155	60	165	80	M10 x 123
DUBEL FAZ 10/100	---	10	175	60	185	100	M10 x 143
---	DUBEL FAZ 10/100 ES	10	175	60	185	100	M10 x 100
DUBEL FAZ 10/160	---	10	235	60	245	160	M10 x 193
---	DUBEL FAZ 10/160 ES	10	235	60	245	160	M10 x 100
DUBEL FAZ 12/10	DUBEL FAZ 12/10 ES	12	100	70	110	10	M12 x 61
DUBEL FAZ 12/20	DUBEL FAZ 12/20 ES	12	110	70	120	20	M12 x 71
DUBEL FAZ 12/30	DUBEL FAZ 12/30 ES	12	120	70	130	30	M12 x 81
DUBEL FAZ 12/50	DUBEL FAZ 12/50 ES	12	140	70	150	50	M12 x 101
DUBEL FAZ 12/80	---	12	170	70	180	80	M12 x 131
DUBEL FAZ 12/100	DUBEL FAZ 12/100 ES	12	190	70	200	100	M12 x 151
DUBEL FAZ 12/160	---	12	250	70	260	160	M12 x 186
---	DUBEL FAZ 12/160 ES	12	250	70	260	160	M12 x 100
DUBEL FAZ 12/200	---	12	290	70	300	200	M12 x 186
DUBEL FAZ 16/5	DUBEL FAZ 16/5 ES	16	115	85	128	5	M16 x 64
DUBEL FAZ 16/25	DUBEL FAZ 16/25 ES	16	135	85	148	25	M16 x 84
DUBEL FAZ 16/50	DUBEL FAZ 16/50 ES	16	160	85	173	50	M16 x 109
DUBEL FAZ 16/100	DUBEL FAZ 16/100 ES	16	210	85	223	100	M16 x 159
DUBEL FAZ 16/160	---	16	270	85	283	160	M16 x 189
DUBEL FAZ 16/200	---	16	310	85	323	200	M16 x 189
DUBEL FAZ 16/250	---	16	360	85	373	250	M16 x 100
DUBEL FAZ 16/300	---	16	410	85	423	300	M16 x 100
DUBEL FAZ 20/30	DUBEL FAZ 20/30 ES	20	155	100	172	30	M20 x 54
DUBEL FAZ 20/60	DUBEL FAZ 20/60 ES	20	185	100	202	60	M20 x 84
DUBEL FAZ 20/160	---	20	285	100	302	160	M20 x 100
DUBEL FAZ 24/30	DUBEL FAZ 24/30 ES	24	185	100	205	30	M24 x 58
DUBEL FAZ 24/60	DUBEL FAZ 24/60 ES	24	215	100	235	60	M24 x 88



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Injection mortars

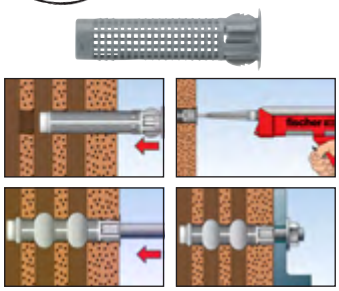
Type	Description	Type replacement mix nozzle (10 packs)
FISCHER M 300T	Styrene-free, rapid-hardening assembling mortar (contains vinyl ester mortar) for applications in brickwork and non-cracked concrete. A vast variety of applications in practically all building materials are regulated by several approvals (e.g. DIBt) guaranteeing maximum safety. Supply volume: 300 ml standard cartridge incl. 2 mix nozzles	FISCHER FIS MIX R
FISCHER FIS SB 390S	Injection system on vinyl-hybrid basis, two-component cartridge, for application in cracked and non-cracked concrete and natural stone with dense micro-structure. Supply volume: 390 ml dual-chamber cartridge incl. 2 mix nozzles	

type FISCHER M 300T

type FISCHER FIS SB 390S

Anchor sleeves for injection mortars

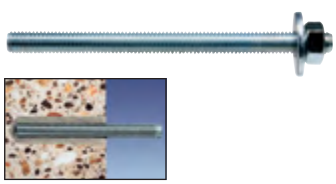
Application: Anchor sleeves were used in order to anchor threaded bars using injection mortar also in the hole materials. The anchor sleeve is especially coordinated for the Fischer injection mortar, therefore only small mortar quantity (reduced up to 80%) is required. With the centring wing of the anchor sleeve, the anchor rod is securely centred in the borehole, and an even load distribution is ensured.



Type	Drill Ø	Min. hole depth	Min. depth of anchoring	Capacity (scale parts)	For threaded bars	Amount
FISCHER FISH 1250K	12	60	50	5	M6-M8	50 packs
FISCHER FISH 1285K	12	95	85	10	M6-M8	50 packs
FISCHER FISH 1685K	16	95	85	12	M8-M10	50 packs
FISCHER FISH 16130K	16	140	130	15	M8-M10	20 packs
FISCHER FISH 2085K	20	95	85	15	M12-M16	20 packs
FISCHER FISH 20130K	20	140	130	25	M12-M16	20 packs
FISCHER FISH 20200K	20	210	200	40	M12-M16	20 packs

Threaded bars for injection mortars

Application: The threaded bars cut to length are used in conjunction with the injection mortar, and where applicable, anchor sleeves for fixing sockets, rails, shelves, consoles, railings, scaffolding or facades. In conjunction with the injection mortar FIS VS... this threaded bar has an approval from the construction supervision. Can be used in non-cracked concrete, brickwork (where applicable use anchor sleeves) and aerated concrete.



Type **zinc-plated steel**	Type **stainless steel A4** (INOX)	Drill Ø	Anchoring depth	Max. usable length*	Dimension
FI FISA M6x75**	---	8	50	17 (-)	M 6 x 75
FI FISA M6x85	---	8	50	27 (2)	M 6 x 85
FI FISA M8x90	---	10	60	19 (4)	M 8 x 90
FI FISA M8x110	---	10	60	39 (24)	M 8 x 110
FI FISA M8x130	---	10	60	59 (44)	M 8 x 130
FI FISA M10x110	FI FISA M10x110 ES	12	60	37 (22)	M 10 x 110
FI FISA M10x130	FI FISA M10x130 ES	12	60	57 (42)	M 10 x 130
FI FISA M10x150	FI FISA M10x150 ES	12	60	77 (62)	M 10 x 150
FI FISA M10x200	FI FISA M10x200 ES	12	60	127 (112)	M 10 x 200
FI FISA M12x140	---	14	70	54 (49)	M 12 x 140
FI FISA M12x160	FI FISA M12x160 ES	14	70	74 (69)	M 12 x 160
FI FISA M16x175	---	18	80	75 (55)	M 16 x 175
FI FISA M16x200	---	18	80	100 (84)	M 16 x 200

* values in brackets apply for brickwork or aerated concrete. The anchoring depth there is 75 mm.
** for fixing in the brickwork, please use anchor sleeves FISCHER FISH 1250 K

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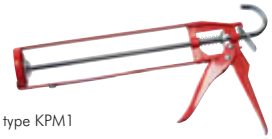
Adhesives and sealants

Type fischer	Type alternative*	Colour	Description
Adhesive sealants			
FISCHER MK	---	White	**Mounting adhesive "MK"** dispersion adhesive for adhesive applications indoors. Hardens by water evaporation. At least one of the components to be glued must have a suction function. Packing: 310 ml cartridge temperature range: -20°C to max. +70°C
FISCHER KK	---	Beige	**Construction adhesive "KK"** on the PUR basis for adhesive applications outdoors and indoors. Hardening is carried out under the influence of air humidity. At least one of the components to be glued must have a suction function. Packing: 310 ml cartridge temperature range: -40°C to max. +110°C
FISCHER KD	KLEDI STRONG	White	**Multi-adhesive and sealing compound "KD"** with MS polymer base for adhesive and sealing applications. Complies with EN 15651-1: F-EXT-INT-20HM (facade element exterior/interior), EN 15651-3: S-XS1 (sanitation) and EN 15651-4: PW-INT (interior floors). Hardening is carried out under the influence of air humidity. At least one of the components to be glued must have a suction function. Packing: 290 ml cartridge temperature range: -50°C to max. +200°C
Silicone and acrylic sealant			
FISCHER DSSA-TR	---	Transparent	**Sanitary silicone "DSSA"** is a vinegar cross-linking single component silicone (acetate). Complies with EN 15651-1: F-EXT-INT-CC-20LM (facade elements exterior/interior) and EN 15651-3: S-XS1 (sanitation). It is well-suited for expansion, movement and connecting joints inside and outside. The anti-fungal effect makes it ideal for use in wet areas (bathroom, kitchen, WC). The acid cross-linking can cause corrosion in sensitive materials (e.g. natural stone, zinc, steel, mirrors, etc.) Packing: 310 ml cartridge temperature range: -50°C to max. +200°C
FISCHER DSSA-W	---	White	
FISCHER DSSA-GR	---	Grey/ Manhattan	
FISCHER DBSA-TR	KLEDI SIL-TR	Transparent	**Construction silicone "DBSA"** is a neutral cross-linking, universal use single component silicone (alkoxy). Complies with EN 15651-1: F-EXT-INT-CC-25LM (facade element exterior/interior), EN 15651-2: G-CC (glazings, cold climate zones) and EN 15651-3: S-XS1 (sanitation). It is well-suited for caulking plastic, wooden and metal windows, for sealing connecting and expansion joints in the construction industry, and for sealing elements in machinery, container and apparatus engineering. It does not cause corrosion due to its neutral cross-linking and is odourless. Also suitable for use with acrylic glass. Packing: 310 ml cartridge Temperature range: -40°C to max. +120°C
FISCHER DBSA-W	KLEDI SIL-W	White	
FISCHER DBSA-GR	KLEDI SIL-GR	Concrete grey	
FISCHER DA-W	---	White	**Acrylic sealant "DA"** is a single-component acrylic dispersion sealing compound that hardens when the water evaporates. Complies with EN 15651-1: F-EXT-INT-7,5 (facade elements exterior/interior). It is well-suited for cracks in interior and exterior walls, cracks in brickwork and other solid building material, joints around doors and windows (preferably on the building interior) with reduced movement. The sealing compound is paint-compatible, can be painted over and can be used with painter tools. Packing: 310 ml cartridge Temperature range: -20°C to max. +75°C

* similar properties (technical data, see page 925a)

Cartridge guns

Type	Description	Used for
KPM1	Skeleton gun, stable metal version	310 ml standard cartridges
KPM2	Dispensing gun, very stable metal version	310 ml standard cartridges
KPM3	Dispensing gun, closed version	310 ml standard cartridges and 400 ml bags
KPM4	Dispensing gun, very stable metal version	310 ml standard cartridges and 390 ml dual cartridges
FIS DM S	Dispensing gun, professional version	310 ml standard cartridges and 390 ml dual cartridges
97002	Pneumatic Loctite dispensing gun, can be regulated and metered.	310 ml standard cartridges



type KPM1

type KPM2

type KPM4

type FIS DM S

type 97002

type KPM3

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Stickers/Shipping packages

Test stickers and notched pliers

Delivered as: The test stickers are supplied on a sheet of paper for every 10 pieces. The test sticker is produced using document sheet (destructible foil). It cannot be transferred and is difficult to remove.

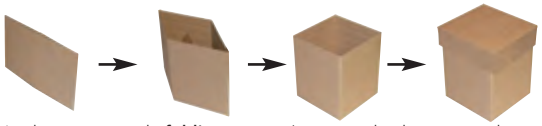
Type	Time interval
Test stickers, sheet of 10 pcs	
PRUFPL 19 G	2019 to 2024
PRUFPL 20 G	2020 to 2025
PRUFPL 21 G	2021 to 2026
PRUFPL 22 G	2022 to 2027
Notched pliers	
PRUFPL KZ	Notched pliers (triangular) for test stickers

Shipping boxes

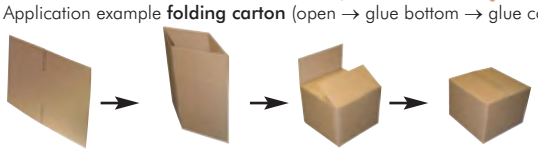
Advantage: German quality products

Type **cardboard**	Type **cover**	Dimensions	Version	Quality (VDW)	Packing unit
KARTON A	KARTON A DECKEL	180 x 180 x 214	Automatic bottom (requires cover)	Carton: Double fluted, Cover: Single fluted (1.2)	10 pcs
KARTON B	KARTON B DECKEL	325 x 230 x 279	Automatic bottom (requires cover)	Carton: Double fluted, Cover: Single fluted (1.2)	10 pcs
KARTON C	---	495 x 298 x 205	Folding carton	Double fluted (2.5)	10 pcs
KARTON D	---	385 x 385 x 290	Folding carton	Double fluted (2.7)	10 pcs
KARTON E	---	705 x 400 x 410	Folding carton	Double fluted (2.7)	10 pcs
KARTON F	---	900 x 250 x 250	Folding carton	Double fluted (2.2)	10 pcs
KARTON G	---	1185 x 385 x 475	Folding carton	Double fluted (2.5)	10 pcs
KARTON H	---	785 x 785 x 275	Folding carton	Double fluted (2.5)	10 pcs
KARTON I	---	585 x 585 x 575	Folding carton	Double fluted (2.5)	10 pcs

Application example **automatic bottom carton** (open → place cover → finished)



Application example **folding carton** (open → glue bottom → glue cover → finished)



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Bubble wrap

Sealed Air

Advantage: The only bubble wrap with a special long-term sealing of the bubbles. A barrier layer of polyamide minimizes air loss from the bubbles, so that even after long-term storage, optimum product protection is still guaranteed.

Type	Format	Packing unit
Roller goods AirCap® (barrier layer bubble wrap)		
LUPO 50x100	50 cm x 100 m	3 pcs
LUPO 75x100	75 cm x 100 m	2 pcs
LUPO 100x100	100 cm x 100 m	1 pcs
Dispenser box BUBBLE PAK®		
LUPO BOX	30 cm x 50 m (perforated every 50 cm)	1 pcs

Bucket

Type	Volume	Version
BEH EIMER 12 PE	12 l	Made of high-quality PE recycled material, zinc-plated metal bracket and litre scale, TÜV/GS tested
BEH EIMER 20 PE	20 l	
BEH EIMER 12 ST	12 l	Made of zinc-plated steel sheet, zinc-plated bracket

12 l bucket

12 l zinc-plated

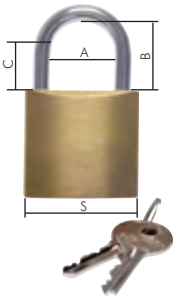
20 l bucket

Cylinder padlocks

Materials: Housing: Brass, bracket: Steel (hardened), internal parts: Steel
Supply volume: Cylinder padlock with 2 keys
☞ **Optional:** Simultaneous locking* with closure A **-GSA**, NEU simultaneous locking* with closure B **-GSB** NEU

Type standard	B	C	Type high bracket NEU	B	C	S	Bracket thickness Ø	A
VHS 20	12	7	VHS 20 H	24	20	20	3.5	10
VHS 30	17	10	VHS 30 H	40	32	30	5.0	16
VHS 40	24	15	VHS 40 H	63	53	40	6.0	23
VHS 50	30	18	---	---	---	50	8.0	29
VHS 60	36	20	---	---	---	60	10.0	36

* every lock with the same item number can be opened with the same key.

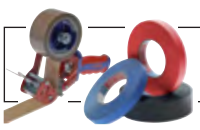


☞ **Order example:** VHS 20- **

Standard type

Designation for the options:
Simultaneous locking with closure A . .-GSA NEU
Simultaneous locking with closure B . .-GSB NEU

Cleaning technology on page 582


tesa® adhesive technology from page 585

PE canister of 1-20 litre on page 576

Funnel and measuring cans on page 576

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★★★☆☆

MADE IN GERMANY

Comfort ball point pen LOOX

Schneider

Description: Retractable ball point pen with soft, anti-slip soft-grip-zone for maximum writing convenience. The stable metallic clip and the robust plastic components impart it a long working life. With wear-resistant stainless steel point, document quality.

Type	Letter colour	VPE
PEN LOOX-SCHW	Black ●	20
PEN LOOX-BLAU	Blue ●	20

MADE IN GERMANY

Paint markers MAXX

Schneider

Description: The paint marker covers almost all the surfaces like a varnish. The marking is water-resistant, light-resistant and resistant to many etching agents and rinsing procedures.

Type	Tip type	Available letter colours
PEN 271-**	Round tip 1-2 mm	Black, white, yellow, green, blue, red ● ○ ● ● ● ●
PEN 270-**	Round tip 1-3 mm	Black, white, yellow, green, blue, red ● ○ ● ● ● ●

☞ **Order example:** PEN 271-**

Standard type

Order suffix colour:
- ● Black . . . . . -SCHW
- ○ White . . . . . -WEISS
- ● Yellow . . . . . -GELB
- ● Green . . . . . -GRUN
- ● Blue . . . . . -BLAU
- ● Red . . . . . -ROT

MADE IN GERMANY

Cap off

Permanent marker

Schneider

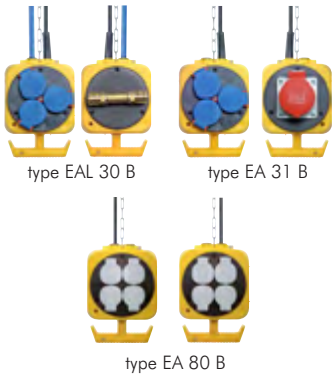
Description: Suitable for virtually all surfaces, low odour, quick drying, light resistant, smudge-proof, water-resistant, and can remain open 2-3 days thanks to cap-off ink. Newly developed head point cannot be pressed in even when writing with heavy pressure, practical clip cap.

Type plastic shaft	Type aluminium shaft	Tip type	Available letter colours	VPE
PEN 130-**	PEN 230-**	Round tip 1-3 mm	black, blue, red ● ● ●	10
PEN 133-**	PEN 233-**	Wedge point 1-5 mm	black, blue, red ● ● ●	10
PEN 250-**		Wedge point 2-7 mm	black, blue, red ● ● ●	1
PEN 280-**		Wedge point 4-12 mm	black, blue, red ● ● ●	1

☞ **Order example:** PEN 130-**

Standard type

Order suffix colour:
- ● Black . . . . . -SCHW
- ● Blue . . . . . -BLAU
- ● Red . . . . . -ROT



type EAL 30 B

type EA 31 B

type EA 80 B

Power modules with air and power supply

Suitable: Power modules for supplying compressed air and power to the workplace.
Supply volume: Housing made from plastic, 3 m link chain, 5 m cable or 5 m hose and cable
Protection class: IP 44

Type	Compressed air sockets	Schuko sockets (CEE 7/3 F) 230V/16A	CEE 400V/16A
EAL 30 B	2 x coupling socket	3 pieces	---
EA 31 B	---	3 pieces	1 piece
EA 80 B*	---	8 pieces	---
Replacement chain			
EA 30-3	Chain length 3 m		

* not IP 44

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Multiple socket strips for interior applications — IP 20

Description: Plastic housing with Schuko sockets 230V AC (CEE 7/3 F) in 45° arrangement with child safety, max. loading capacity: 16 A/3500 W, TÜV & GS tested
Connecting line: PVC cable 3 x 1.5 mm² (cable quality: H05VV-F 3G1.5)

Type **black**	Type **white**	Number of sockets	Cable length
Eco (hardware store quality, especially economical)			
MSL 3 SCHWARZ ECO	MSL 3 WEISS ECO	3	1.4 m
MSL 6 SCHWARZ ECO	MSL 6 WEISS ECO	6	1.4 m
Standard without switch			
MSL 3 SCHWARZ	MSL 3 WEISS	3	1.5 m
MSL 6 SCHWARZ	MSL 6 WEISS	6	1.5 m
Standard with illuminated switch			
MSL 3 SCHWARZ S	MSL 3 WEISS S	3	1.5 m
MSL 6 SCHWARZ S	MSL 6 WEISS S	6	3.0 m
Premium with illuminated switch (special plastic, integrated cable bracket, hanging and mounting fixture)			
MSL 4 SCHWARZ P	MSL 4 WEISS P	4	1.8 m
MSL 6 SCHWARZ P	MSL 6 WEISS P	6	3.0 m
MSL 8 SCHWARZ P	MSL 8 WEISS P	8	3.0 m
MSL 10 SCHWARZ P	MSL 10 WEISS P	10	3.0 m

Eco

standard with illuminated switch

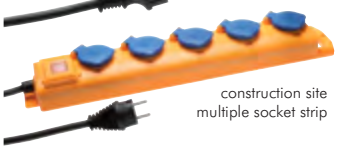
Premium

Multiple socket strips for interior & exterior applications — IP 44/IP 54

Description: Stable plastic housing for continuous use outside, with hinged lid provided, splash water-resistant Schuko sockets 230V AC (CEE 7/3 F) in 45° arrangement, with screw fixture for mounting, max. load carrying capacity: 16 A/3500 W, TÜV & GS tested
Connecting line: Robust, oil resistant rubber neoprene cable 3 x 1.5 mm² (cable quality: H07RN-F 3G1.5)

Type	Number of sockets	Cable length
Outdoor multiple outlets IP 44		
MSL 4 OUTDOOR	4	2 m
MSL 6 OUTDOOR	6	2 m
Construction site multiple outlets IP54 with child safety, impact and fracture resistant plastic housing, illuminated switch and stable bracket for hanging or fastening		
MSL 5 BAU	5	2 m

outdoor


construction site multiple socket strip

Extension cable for interior applications — IP 20

Description: Quality plastic extension cable, with Schuko plug 230V AC (CEE 7/4 F) and socket (CEE 7/3 F), with child safety, TÜV & GS tested
Max. loading capacity: 16 A/3600 W
Cable quality: PVC cable 3 x 1,5 mm² (H05VV-F 3G1.5)

Type **black**	Type **white**	Cable length
VLK 3 SCHWARZ	VLK 3 WEISS	3 m
VLK 5 SCHWARZ	VLK 5 WEISS	5 m
VLK 10 SCHWARZ	VLK 10 WEISS	10 m

Construction site extension cable for interior & exterior applications — IP 44

Description: Oil-resistant rubber neoprene cable, with robust Schuko plug 230V AC (CEE 7/4 F) and socket (CEE 7/3 F) with protection cap (type CEE: with CEE plug 400V/16A and coupling with end cap), TÜV & GS tested
Max. loading capacity: 16 A/3600 W (type CEE & CEE BAU: 16 A/11 kW)
Cable quality: H07RN-F 3G1.5 (type CEE: H07RN-F 5G1.5, type CEE BAU: H07RN-F 5G2.5)

Type **black (230V AC)**	Type **red (230V AC)**	Type **CEE (400V/16A)**	Type **CEE BAU (400V/16A)**	Cable length
VLK 10 SCHWARZ BAU	VLK 10 ROT BAU	VLK 10 CEE	VLK 10 CEE BAU	10 m
VLK 25 SCHWARZ BAU	VLK 25 ROT BAU	---	---	25 m
---	---	VLK 30 CEE	---	30 m

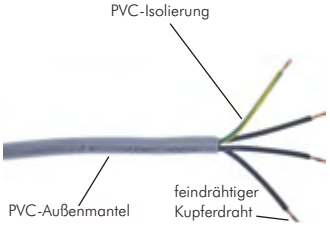
230V AC

CEE

Control cable, flexible — YSLY-JZ

Description: PVC control cable, according to VDE 0250, 0271, 0281, 0293, grey PVC outer sheath, continuous figure imprint on the wires in accordance with VDE 0293, protective earthing conductor green/yellow, PVC wire insulation
Suitable: As a connection line for tool machines, production lines, control devices, control consoles, in plant engineering, power plants, in heating and air-conditioning technologies, in cooling systems, in office machinery and data processing systems. Installation in dry, moist and wet rooms, however not outside. Mostly resistant to oils, greases and chemicals.
Operating voltage: Max. 500 V
Temperature range: -20°C to +80°C (fixed wired), -5°C to max. +80°C (moveable wired)
Roll length: 50 m

Type **0.75 mm²**	Type **1.5 mm²**	Type **2.5 mm²**	Wire count*
FLEX 3x0,75	FLEX 3x1,5	FLEX 3x2,5	3
FLEX 4x0,75	FLEX 4x1,5	FLEX 4x2,5	4
FLEX 5x0,75	FLEX 5x1,5	FLEX 5x2,5	5



* incl. protective earthing conductor

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