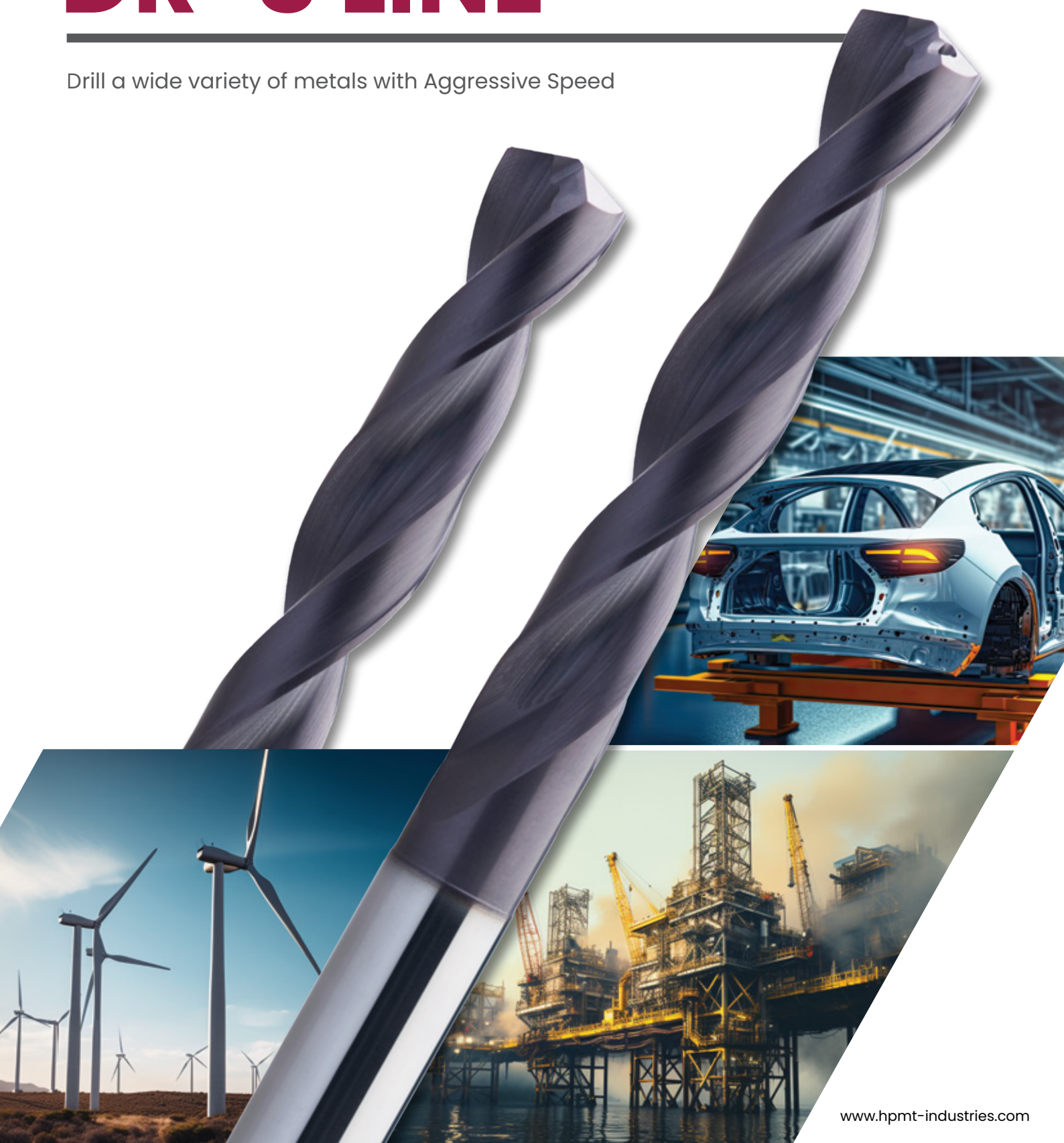


DR-S LINE

Drill a wide variety of metals with Aggressive Speed



DRILLS

	EDP No.	Type	Z	Diameter Range	Page
	W08	DR-S Twist Drill - 3 x Ø	2	1 - 20	7-10
	W09	DR-S Twist Drill - 5 x Ø	2	1 - 20	11-14
	W10	DR-S Oil Feed Twist Drill - 3 x Ø	2	1 - 20	17-20
	W11	DR-S Oil Feed Twist Drill - 5 x Ø	2	1 - 20	21-24
	W12	DR-S Oil Feed Twist Drill - 8 x Ø	2	3 - 20	27-29

INTRODUCTION



The DR-S series with advanced high feed technology and its tough tool strength geometry is designed to bring you premium features at cost-effective rates for a more durable tool life. This can only mean a higher output for better profitability.

Wider Chip Pocket

Enhances and smoother chip evacuation

Straight Edge Profile

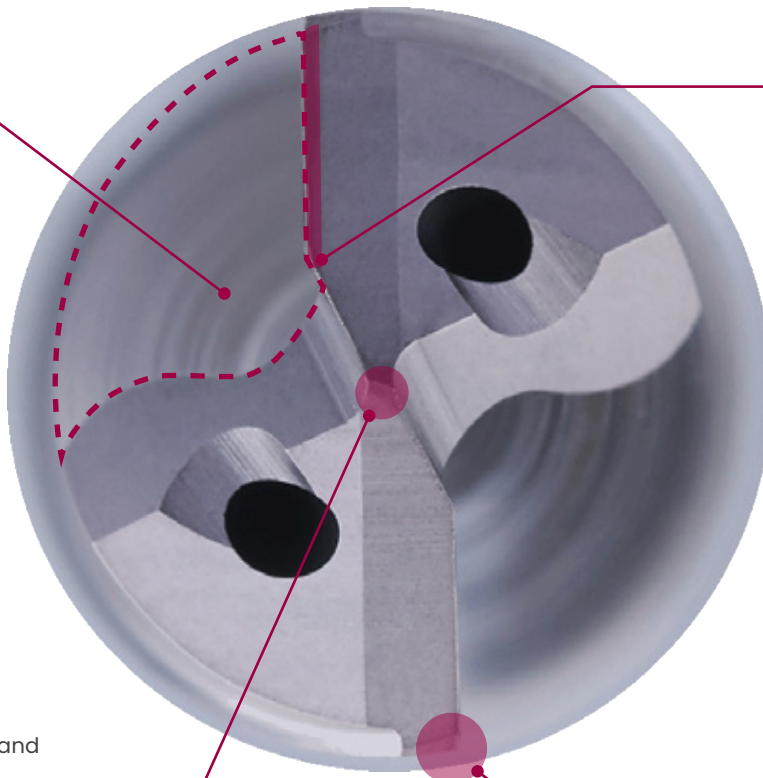
Shorter chip and reinforced cutting edge

Bigger K-Value

Suitable for higher feed rate and enhances tool durability

Corner Edge Chamfer

Ideal for cast iron and better surface finishing



Suitable for Material



Applicable in Various Industries



Aerospace



Automotive

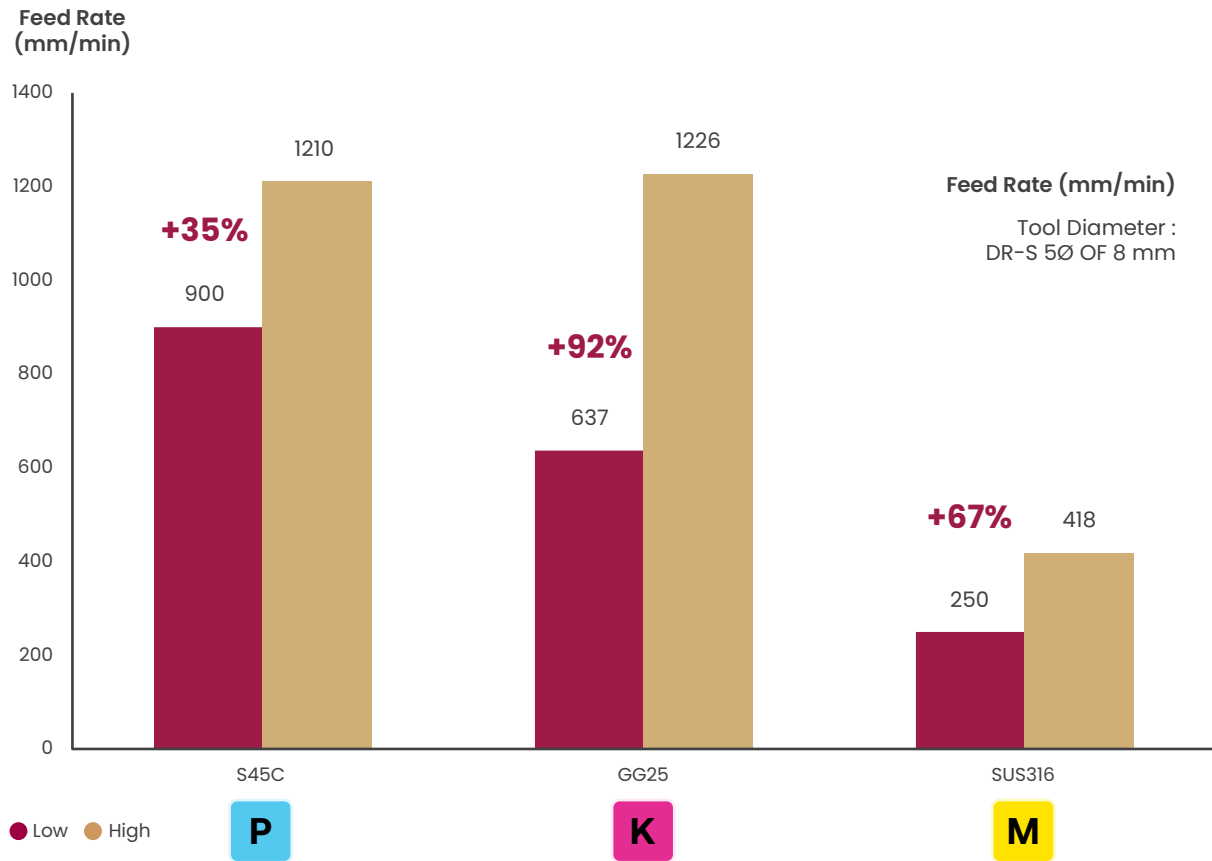


Medical



Oil & Gas

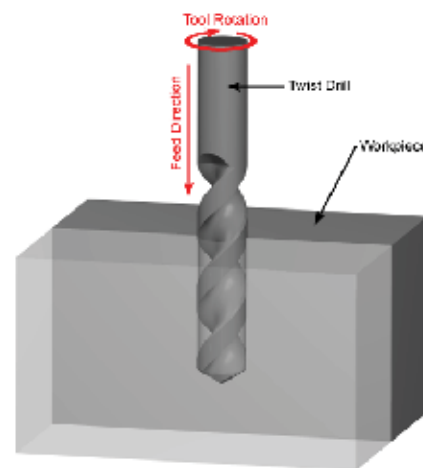
DR-S make for aggressive cutting parameter



Drill Test Report on Cast Iron GG25

WORK PIECES & TOOL
Material: Cast Iron GG25
Hardness: 22 HRC
Tool Diameter: DR-S 5Ø OF 8 mm

CUTTING CONDITION
Cutting Speed: S = 3185 rpm (Vc = 80 m/min)
Feed Rate: F = 637 mm/min (0.20 mm/rev)
Depth, Ap: 42 mm
Coolant: Internal Through Coolant
Machine: Makino S33



Operation Type : Drilling

After 600 Holes (30m)

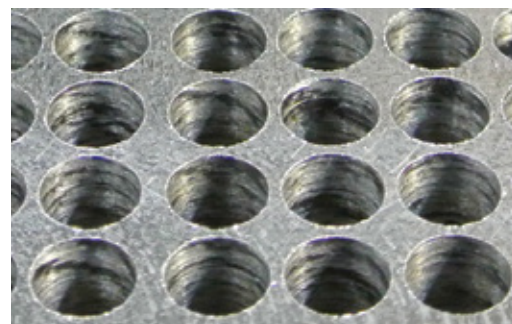
STANDARD DRILL



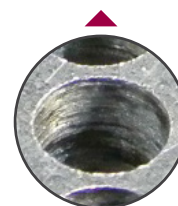
Surface Roughness =
4.821 μm



DR-S DRILL

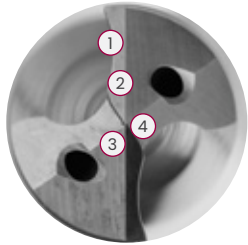


Surface Roughness =
4.770 μm



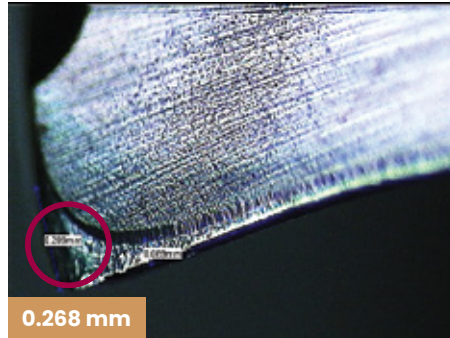
Better Surface Finishing

Standard Drill Vs DR-S Drill

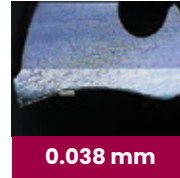


STANDARD DRILL

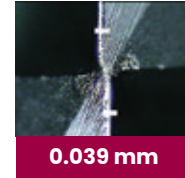
1. Corner Edge



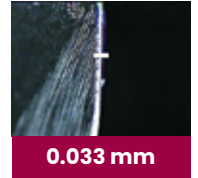
2. Flank



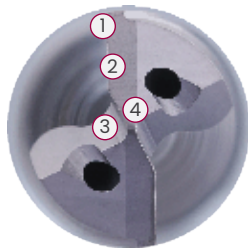
3. Point



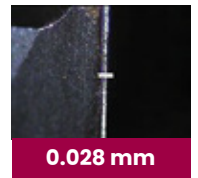
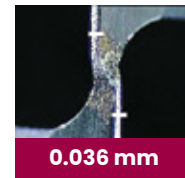
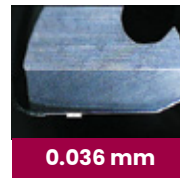
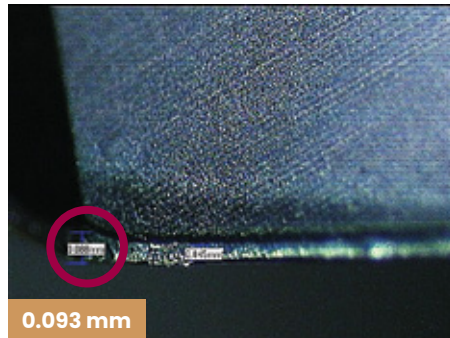
4. Chisel Edge



- Shorter Tool Life than DR-S
- Not Suitable for High Feeds

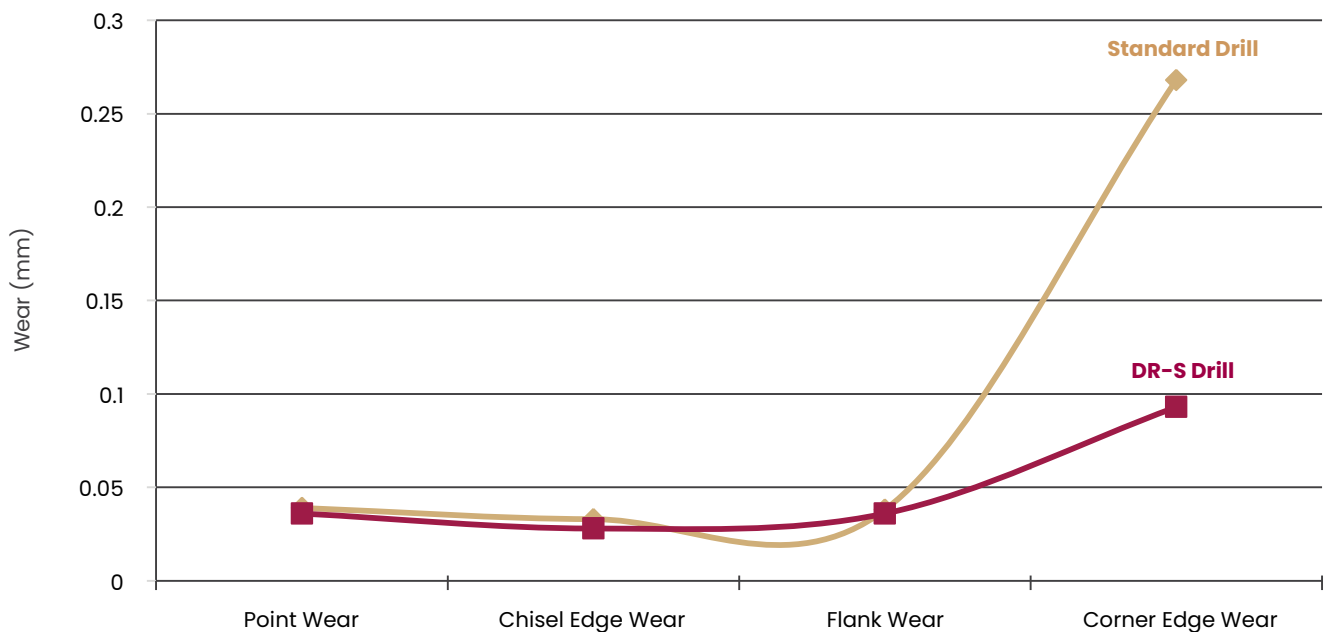


DR-S DRILL



- Chamfer for Edge Protection
- Provides Extended Tool Life
- Enables Higher Feeds

Wear Comparison After 600 Holes (30m)



Disclaimer :
Wear Comparison After 600 Holes (30m) Graph are based on cutting condition on page 3

W08



Wider Chip Pocket

- Enhances and smoother chip evacuation



Straight Edge Profile

- Shorter chip and reinforced cutting edge



Bigger K-Value

- Suitable for higher feed rate and enhances tool durability



Corner Edge Chamfer

- Ideal for cast iron and better surface finishing



W08

3 X D

W09

5 X D

W10

3 X D
with
Oil Hole

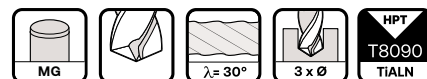
W11

5 X D
with
Oil Hole

W12

8 X D
with
Oil Hole

W08 DR-S Twist Drill – 3 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W08 0100 *	1	4	7	33	45	3	●
W08 0110 *	1.1		7	33	45	3	●
W08 0120 *	1.2		7	33	45	3	●
W08 0130 *	1.3		7	33	45	3	●
W08 0140 *	1.4		7	33	45	3	●
W08 0150 *	1.5	10	13	35	50	3	●
W08 0160 *	1.6		13	35	50	3	●
W08 0170 *	1.7		13	35	50	3	●
W08 0180 *	1.8		13	35	50	3	●
W08 0190 *	1.9		13	35	50	3	●
W08 0200 *	2	14	17	36	55	3	●
W08 0210 *	2.1		17	36	55	3	●
W08 0220 *	2.2		17	36	55	3	●
W08 0230 *	2.3		17	36	55	3	●
W08 0240 *	2.4		17	36	55	3	●
W08 0250 *	2.5		17	36	55	3	●
W08 0260 *	2.6		17	36	55	3	●
W08 0270 *	2.7		17	36	55	3	●
W08 0280 *	2.8		17	36	55	3	●
W08 0290 *	2.9		17	36	55	3	●
W08 0300 *	3		20	36	62	6	●
W08 0310 *	3.1		20	36	62	6	●
W08 0320 *	3.2		20	36	62	6	●
W08 0330 *	3.3		20	36	62	6	●
W08 0340 *	3.4		20	36	62	6	●
W08 0350 *	3.5		20	36	62	6	●
W08 0360 *	3.6		20	36	62	6	●
W08 0370 *	3.7		20	36	62	6	●
W08 0380 *	3.8	17	24	36	66	6	●
W08 0390 *	3.9		24	36	66	6	●
W08 0400 *	4		24	36	66	6	●
W08 0410 *	4.1		24	36	66	6	●
W08 0420 *	4.2		24	36	66	6	●
W08 0430 *	4.3		24	36	66	6	●
W08 0440 *	4.4		24	36	66	6	●
W08 0450 *	4.5		24	36	66	6	●
W08 0460 *	4.6		24	36	66	6	●
W08 0470 *	4.7		24	36	66	6	●

* - DIN 6535

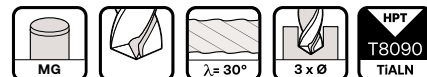
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有存库
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无存库

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W08 DR-S Twist Drill – 3 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W08 0480 *	4.8	20	28	36	66	6	●
W08 0490 *	4.9		28	36	66	6	●
W08 0500 *	5		28	36	66	6	●
W08 0510 *	5.1		28	36	66	6	●
W08 0520 *	5.2		28	36	66	6	●
W08 0530 *	5.3		28	36	66	6	●
W08 0540 *	5.4		28	36	66	6	●
W08 0550 *	5.5		28	36	66	6	●
W08 0560 *	5.6		28	36	66	6	●
W08 0570 *	5.7		28	36	66	6	●
W08 0580 *	5.8		28	36	66	6	●
W08 0590 *	5.9		28	36	66	6	●
W08 0600 *	6	24	28	36	66	6	●
W08 0610 *	6.1		34	36	79	8	●
W08 0620 *	6.2		34	36	79	8	●
W08 0630 *	6.3		34	36	79	8	●
W08 0640 *	6.4		34	36	79	8	●
W08 0650 *	6.5		34	36	79	8	●
W08 0660 *	6.6		34	36	79	8	●
W08 0670 *	6.7		34	36	79	8	●
W08 0680 *	6.8	29	34	36	79	8	●
W08 0690 *	6.9		34	36	79	8	●
W08 0700 *	7		34	36	79	8	●
W08 0710 *	7.1		41	36	79	8	●
W08 0720 *	7.2		41	36	79	8	●
W08 0730 *	7.3		41	36	79	8	●
W08 0740 *	7.4		41	36	79	8	●
W08 0750 *	7.5		41	36	79	8	●
W08 0760 *	7.6		41	36	79	8	●
W08 0770 *	7.7		41	36	79	8	●
W08 0780 *	7.8		41	36	79	8	●
W08 0790 *	7.9		41	36	79	8	●
W08 0800 *	8		41	36	79	8	●

* - DIN 6535

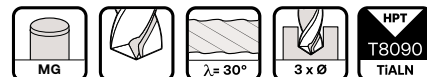
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有库存
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无库存

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W08 DR-S Twist Drill – 3 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W08 0810 *	8.1	35	47	40	89	10	●
W08 0820 *	8.2		47	40	89	10	●
W08 0830 *	8.3		47	40	89	10	●
W08 0840 *	8.4		47	40	89	10	●
W08 0850 *	8.5		47	40	89	10	●
W08 0860 *	8.6		47	40	89	10	●
W08 0870 *	8.7		47	40	89	10	●
W08 0880 *	8.8		47	40	89	10	●
W08 0890 *	8.9		47	40	89	10	●
W08 0900 *	9		47	40	89	10	●
W08 0910 *	9.1		47	40	89	10	●
W08 0920 *	9.2		47	40	89	10	●
W08 0930 *	9.3		47	40	89	10	●
W08 0940 *	9.4		47	40	89	10	●
W08 0950 *	9.5		47	40	89	10	●
W08 0960 *	9.6		47	40	89	10	●
W08 0970 *	9.7		47	40	89	10	●
W08 0980 *	9.8		47	40	89	10	●
W08 0990 *	9.9		47	40	89	10	●
W08 1000 *	10		47	40	89	10	●
W08 1010 *	10.1	40	55	45	102	12	●
W08 1020 *	10.2		55	45	102	12	●
W08 1030 *	10.3		55	45	102	12	○
W08 1040 *	10.4		55	45	102	12	●
W08 1050 *	10.5		55	45	102	12	●
W08 1060 *	10.6		55	45	102	12	●
W08 1070 *	10.7		55	45	102	12	●
W08 1080 *	10.8		55	45	102	12	●
W08 1090 *	10.9		55	45	102	12	●
W08 1100 *	11		55	45	102	12	●
W08 1110 *	11.1		55	45	102	12	●
W08 1120 *	11.2		55	45	102	12	●
W08 1140 *	11.4		55	45	102	12	●
W08 1150 *	11.5		55	45	102	12	●
W08 1160 *	11.6		55	45	102	12	●
W08 1170 *	11.7		55	45	102	12	●
W08 1180 *	11.8		55	45	102	12	●
W08 1190 *	11.9		55	45	102	12	●
W08 1200 *	12		55	45	102	12	●

* - DIN 6535

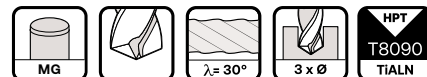
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有库存
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无库存

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W08 DR-S Twist Drill – 3 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W08 1250 *	12.5	43	60	45	107	14	●
W08 1270 *	12.7		60	45	107	14	●
W08 1300 *	13		60	45	107	14	●
W08 1350 *	13.5		60	45	107	14	●
W08 1370 *	13.7		60	45	107	14	●
W08 1380 *	13.8		60	45	107	14	○
W08 1400 *	14		60	45	107	14	●
W08 1450 *	14.5	45	65	48	115	16	●
W08 1500 *	15		65	48	115	16	●
W08 1550 *	15.5		65	48	115	16	●
W08 1600 *	16		65	48	115	16	●
W08 1650 *	16.5	51	73	48	123	18	●
W08 1700 *	17		73	48	123	18	●
W08 1750 *	17.5		73	48	123	18	●
W08 1800 *	18		73	48	123	18	●
W08 1850 *	18.5	55	79	50	131	20	●
W08 1900 *	19		79	50	131	20	●
W08 1950 *	19.5		79	50	131	20	●
W08 2000 *	20		79	50	131	20	●

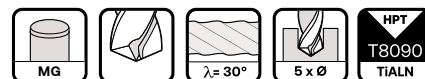
* - DIN 6535

● Ex Stock	ab Lager	De Stock	Da Magazzino	有存库
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无存库

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W09 DR-S Twist Drill – 5 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W09 0100 *	1	5	8	33	55	3	○
W09 0110 *	1.1	9	12	33	55	3	○
W09 0120 *	1.2		12	33	55	3	○
W09 0130 *	1.3		12	33	55	3	○
W09 0140 *	1.4		12	33	55	3	○
W09 0150 *	1.5	13	16	35	55	3	○
W09 0160 *	1.6		16	35	55	3	○
W09 0170 *	1.7		16	35	55	3	○
W09 0180 *	1.8		16	35	55	3	○
W09 0190 *	1.9		16	35	55	3	○
W09 0200 *	2	16	19	36	57	3	○
W09 0210 *	2.1		19	36	57	3	○
W09 0220 *	2.2		19	36	57	3	○
W09 0230 *	2.3		19	36	57	3	○
W09 0240 *	2.4		19	36	57	3	○
W09 0250 *	2.5		19	36	57	3	○
W09 0260 *	2.6		19	36	57	3	○
W09 0270 *	2.7		19	36	57	3	○
W09 0280 *	2.8		19	36	57	3	○
W09 0290 *	2.9		19	36	57	3	○
W09 0300 *	3	23	28	36	66	6	●
W09 0310 *	3.1		28	36	66	6	●
W09 0320 *	3.2		28	36	66	6	●
W09 0330 *	3.3		28	36	66	6	●
W09 0340 *	3.4		28	36	66	6	●
W09 0350 *	3.5		28	36	66	6	●
W09 0360 *	3.6		28	36	66	6	●
W09 0370 *	3.7		28	36	66	6	●
W09 0380 *	3.8	29	36	36	74	6	●
W09 0390 *	3.9		36	36	74	6	●
W09 0400 *	4		36	36	74	6	●
W09 0410 *	4.1		36	36	74	6	●
W09 0420 *	4.2		36	36	74	6	●
W09 0430 *	4.3		36	36	74	6	●
W09 0440 *	4.4		36	36	74	6	●
W09 0450 *	4.5		36	36	74	6	●
W09 0460 *	4.6		36	36	74	6	●
W09 0470 *	4.7		36	36	74	6	●

* - DIN 6535

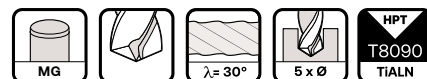
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有库存
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无库存

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W09 DR-S Twist Drill – 5 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W09 0480 *	4.8	35	44	36	82	6	●
W09 0490 *	4.9		44	36	82	6	●
W09 0500 *	5		44	36	82	6	●
W09 0510 *	5.1		44	36	82	6	●
W09 0520 *	5.2		44	36	82	6	●
W09 0530 *	5.3		44	36	82	6	●
W09 0540 *	5.4		44	36	82	6	●
W09 0550 *	5.5		44	36	82	6	●
W09 0560 *	5.6		44	36	82	6	●
W09 0570 *	5.7		44	36	82	6	●
W09 0580 *	5.8		44	36	82	6	●
W09 0590 *	5.9		44	36	82	6	●
W09 0600 *	6	43	44	36	82	6	●
W09 0610 *	6.1		53	36	91	8	●
W09 0620 *	6.2		53	36	91	8	●
W09 0630 *	6.3		53	36	91	8	●
W09 0640 *	6.4		53	36	91	8	●
W09 0650 *	6.5		53	36	91	8	●
W09 0660 *	6.6		53	36	91	8	●
W09 0670 *	6.7		53	36	91	8	●
W09 0680 *	6.8		53	36	91	8	●
W09 0690 *	6.9		53	36	91	8	●
W09 0700 *	7		53	36	91	8	●
W09 0710 *	7.1		53	36	91	8	●
W09 0720 *	7.2		53	36	91	8	●
W09 0730 *	7.3		53	36	91	8	●
W09 0740 *	7.4		53	36	91	8	●
W09 0750 *	7.5		53	36	91	8	●
W09 0760 *	7.6		53	36	91	8	●
W09 0770 *	7.7		53	36	91	8	●
W09 0780 *	7.8		53	36	91	8	●
W09 0790 *	7.9		53	36	91	8	●
W09 0800 *	8		53	36	91	8	●

* - DIN 6535

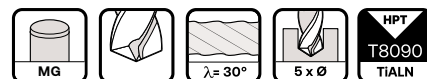
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有存库
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无存库

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W09 DR-S Twist Drill – 5 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W09 0810 *	8.1	49	61	40	103	10	●
W09 0820 *	8.2		61	40	103	10	●
W09 0830 *	8.3		61	40	103	10	●
W09 0840 *	8.4		61	40	103	10	●
W09 0850 *	8.5		61	40	103	10	●
W09 0860 *	8.6		61	40	103	10	●
W09 0870 *	8.7		61	40	103	10	●
W09 0880 *	8.8		61	40	103	10	●
W09 0890 *	8.9		61	40	103	10	●
W09 0900 *	9		61	40	103	10	●
W09 0910 *	9.1		61	40	103	10	●
W09 0920 *	9.2		61	40	103	10	●
W09 0930 *	9.3		61	40	103	10	●
W09 0940 *	9.4		61	40	103	10	●
W09 0950 *	9.5		61	40	103	10	●
W09 0960 *	9.6		61	40	103	10	●
W09 0970 *	9.7		61	40	103	10	●
W09 0980 *	9.8		61	40	103	10	●
W09 0990 *	9.9		61	40	103	10	●
W09 1000 *	10		61	40	103	10	●
W09 1020 *	10.2	56	71	45	118	12	●
W09 1030 *	10.3		71	45	118	12	○
W09 1050 *	10.5		71	45	118	12	●
W09 1080 *	10.8		71	45	118	12	●
W09 1100 *	11		71	45	118	12	●
W09 1120 *	11.2		71	45	118	12	●
W09 1130 *	11.3		71	45	118	12	●
W09 1150 *	11.5		71	45	118	12	●
W09 1180 *	11.8		71	45	118	12	●
W09 1200 *	12		71	45	118	12	●

* - DIN 6535

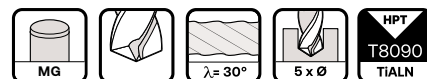
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有存库
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无存库

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W09 DR-S Twist Drill – 5 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W09 1220 *	12.2	60	77	45	124	14	●
W09 1250 *	12.5		77	45	124	14	●
W09 1270 *	12.7		77	45	124	14	●
W09 1280 *	12.8		77	45	124	14	●
W09 1300 *	13		77	45	124	14	●
W09 1330 *	13.3		77	45	124	14	●
W09 1350 *	13.5		77	45	124	14	●
W09 1370 *	13.7		77	45	124	14	●
W09 1380 *	13.8		77	45	124	14	●
W09 1400 *	14		77	45	124	14	●
W09 1450 *	14.5	63	83	48	133	16	●
W09 1500 *	15		83	48	133	16	●
W09 1550 *	15.5		83	48	133	16	●
W09 1600 *	16		83	48	133	16	●
W09 1650 *	16.5	71	93	48	143	18	●
W09 1700 *	17		93	48	143	18	●
W09 1750 *	17.5		93	48	143	18	●
W09 1800 *	18		93	48	143	18	●
W09 1850 *	18.5	77	101	50	153	20	●
W09 1900 *	19		101	50	153	20	●
W09 1950 *	19.5		101	50	153	20	●
W09 2000 *	20		101	50	153	20	●

* - DIN 6535

● Ex Stock	ab Lager	De Stock	Da Magazzino	有库存
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无库存

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					



DR-S Twist Drill, 3 x Ø & 5 x Ø External Coolant, 2 Flutes - W08, W09

Aggressive	N						K				S	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Grey Cast Iron		Ductile Cast Iron		Titanium Alloy	
Properties	Si < 9%		Si ≥ 9%		-		-		-		-	
	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
D												
1		0.017		0.018		0.016		0.018		0.016		0.013
1.5		0.026		0.026		0.024		0.027		0.024		0.019
2		0.035		0.035		0.032		0.035		0.032		0.025
2.5		0.043		0.044		0.040		0.044		0.040		0.031
3		0.058		0.063		0.062		0.070		0.052		0.037
4		0.081		0.087		0.085		0.095		0.073		0.055
5		0.104		0.111		0.110		0.120		0.096		0.069
6		0.128		0.138		0.136		0.145		0.119		0.086
7		0.155		0.164		0.165		0.170		0.144		0.100
8		0.183		0.194		0.194		0.200		0.171		0.130
9	130	0.211	110	0.222	100	0.224	70	0.226	50	0.200	25	0.144
10		0.241		0.254		0.257		0.252		0.230		0.175
11		0.272		0.287		0.290		0.282		0.263		0.175
12		0.300		0.321		0.318		0.308		0.296		0.200
13		0.322		0.339		0.339		0.333		0.314		0.200
14		0.335		0.357		0.361		0.359		0.332		0.233
15		0.349		0.368		0.378		0.371		0.348		0.233
16		0.365		0.391		0.393		0.405		0.365		0.260
17		0.374		0.409		0.399		0.428		0.379		0.260
18		0.383		0.412		0.418		0.447		0.393		0.260
19		0.394		0.429		0.426		0.469		0.406		0.260
20		0.406		0.432		0.430		0.463		0.417		0.300



DR-S Twist Drill, 3 x Ø & 5 x Ø External Coolant, 2 Flutes - W08, W09

Aggressive	P						M				S	
Working Material	Carbon Steel		Alloy Steel		Prehardened Steel		Stainless Steel		Stainless Steel		Nickel Alloy	
Properties	-		520 < Rm < 1200		-		High Machinability		Low Machinability		-	
	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
D												
1		0.017		0.016		0.014		0.015		0.014		0.009
1.5		0.026		0.024		0.022		0.022		0.021		0.016
2		0.035		0.031		0.029		0.029		0.028		0.025
2.5		0.043		0.039		0.036		0.036		0.035		0.035
3		0.072		0.061		0.060		0.049		0.042		0.036
4		0.100		0.085		0.083		0.069		0.061		0.056
5		0.128		0.111		0.107		0.088		0.074		0.069
6		0.157		0.138		0.132		0.109		0.095		0.082
7		0.188		0.166		0.157		0.132		0.113		0.090
8		0.221		0.197		0.184		0.156		0.136		0.125
9		0.250		0.230		0.212		0.173		0.146		0.125
10	80	0.285	70	0.264	50	0.241	40	0.208	35	0.167	20	0.143
11		0.319		0.300		0.272		0.233		0.182		0.167
12		0.361		0.338		0.303		0.255		0.200		0.167
13		0.385		0.357		0.323		0.280		0.222		0.200
14		0.413		0.375		0.342		0.270		0.250		0.200
15		0.422		0.391		0.360		0.300		0.238		0.200
16		0.457		0.406		0.377		0.325		0.271		0.250
17		0.475		0.419		0.394		0.313		0.271		0.250
18		0.489		0.431		0.409		0.313		0.257		0.250
19		0.511		0.442		0.423		0.343		0.300		0.250
20		0.529		0.452		0.437		0.329		0.283		0.225



DR-S Twist Drill, 3 x Ø & 5 x Ø External Coolant, 2 Flutes - W08, W09

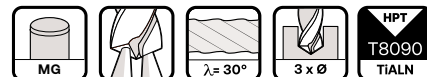
Conventional	N						K				S	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Grey Cast Iron		Ductile Cast Iron		Titanium Alloy	
Properties	Si < 9%		Si ≥ 9%		-		-		-		-	
	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
1	100	0.015	90	0.016	80	0.014	60	0.016	40	0.014	20	0.012
1.5		0.023		0.023		0.021		0.023		0.021		0.017
2		0.030		0.030		0.028		0.030		0.028		0.022
2.5		0.037		0.038		0.034		0.038		0.034		0.027
3		0.055		0.062		0.060		0.061		0.039		0.032
4		0.077		0.085		0.082		0.083		0.055		0.050
5		0.100		0.109		0.106		0.104		0.072		0.062
6		0.124		0.135		0.131		0.126		0.089		0.073
7		0.149		0.161		0.158		0.149		0.108		0.090
8		0.177		0.190		0.187		0.174		0.128		0.113
9		0.204		0.218		0.215		0.197		0.150		0.113
10		0.235		0.249		0.246		0.219		0.172		0.143
11		0.266		0.281		0.278		0.246		0.196		0.167
12		0.300		0.314		0.306		0.268		0.221		0.167
13		0.319		0.332		0.326		0.290		0.235		0.200
14		0.329		0.350		0.347		0.313		0.248		0.200
15		0.350		0.360		0.363		0.324		0.261		0.200
16		0.363		0.383		0.377		0.353		0.273		0.250
17		0.369		0.401		0.383		0.373		0.284		0.250
18		0.385		0.403		0.401		0.389		0.294		0.250
19		0.388		0.421		0.409		0.408		0.304		0.250
20		0.408		0.423		0.413		0.403		0.313		0.225



DR-S Twist Drill, 3 x Ø & 5 x Ø External Coolant, 2 Flutes - W08, W09

Conventional	P						M				S	
Working Material	Carbon Steel		Alloy Steel		Prehardened Steel		Stainless Steel		Stainless Steel		Nickel Alloy	
Properties	-		520 < Rm < 1200		-		High Machinability		Low Machinability		-	
	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
1	60	0.015	50	0.014	40	0.012	30	0.013	30	0.012	15	0.008
1.5		0.023		0.021		0.019		0.019		0.018		0.014
2		0.030		0.027		0.025		0.025		0.024		0.022
2.5		0.037		0.034		0.031		0.031		0.030		0.030
3		0.060		0.055		0.040		0.044		0.041		0.023
4		0.084		0.076		0.055		0.063		0.060		0.040
5		0.110		0.099		0.071		0.075		0.075		0.050
6		0.135		0.124		0.088		0.100		0.093		0.057
7		0.162		0.149		0.105		0.114		0.108		0.083
8		0.194		0.177		0.123		0.142		0.140		0.100
9		0.221		0.206		0.142		0.155		0.156		0.100
10		0.254		0.237		0.161		0.180		0.188		0.150
11		0.283		0.269		0.182		0.200		0.188		0.150
12		0.318		0.303		0.203		0.225		0.214		0.150
13		0.345		0.320		0.216		0.225		0.214		0.200
14		0.358		0.336		0.229		0.257		0.250		0.200
15		0.394		0.351		0.240		0.243		0.233		0.200
16		0.406		0.364		0.252		0.283		0.280		0.167
17		0.427		0.376		0.263		0.283		0.280		0.167
18		0.420		0.387		0.274		0.267		0.260		0.167
19		0.443		0.397		0.283		0.267		0.260		0.167
20		0.462		0.406		0.292		0.300		0.300		0.200

W10 DR-S Oil Feed Twist Drill – 3 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W10 0100 *	1	4	7	33	45	3	○
W10 0110 *	1.1		7	33	45	3	○
W10 0120 *	1.2		7	33	45	3	○
W10 0130 *	1.3		7	33	45	3	○
W10 0140 *	1.4		7	33	45	3	○
W10 0150 *	1.5	10	13	35	50	3	○
W10 0160 *	1.6		13	35	50	3	○
W10 0170 *	1.7		13	35	50	3	○
W10 0180 *	1.8		13	35	50	3	○
W10 0190 *	1.9		13	35	50	3	○
W10 0200 *	2	14	17	36	55	3	○
W10 0210 *	2.1		17	36	55	3	○
W10 0220 *	2.2		17	36	55	3	○
W10 0230 *	2.3		17	36	55	3	○
W10 0240 *	2.4		17	36	55	3	○
W10 0250 *	2.5		17	36	55	3	○
W10 0260 *	2.6		17	36	55	3	○
W10 0270 *	2.7		17	36	55	3	○
W10 0280 *	2.8		17	36	55	3	○
W10 0290 *	2.9		17	36	55	3	○
W10 0300 *	3	17	20	36	62	6	●
W10 0310 *	3.1		20	36	62	6	●
W10 0320 *	3.2		20	36	62	6	●
W10 0330 *	3.3		20	36	62	6	●
W10 0340 *	3.4		20	36	62	6	●
W10 0350 *	3.5		20	36	62	6	●
W10 0360 *	3.6		20	36	62	6	●
W10 0370 *	3.7		20	36	62	6	●
W10 0380 *	3.8		24	36	66	6	●
W10 0390 *	3.9		24	36	66	6	●
W10 0400 *	4	17	24	36	66	6	●
W10 0410 *	4.1		24	36	66	6	●
W10 0420 *	4.2		24	36	66	6	●
W10 0430 *	4.3		24	36	66	6	●
W10 0440 *	4.4		24	36	66	6	●
W10 0450 *	4.5		24	36	66	6	●
W10 0460 *	4.6		24	36	66	6	●
W10 0470 *	4.7		24	36	66	6	●

* - DIN 6535

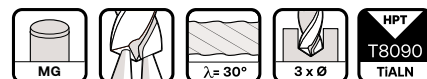
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有库存
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无库存

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W10 DR-S Oil Feed Twist Drill – 3 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W10 0480 *	4.8	20	28	36	66	6	●
W10 0490 *	4.9		28	36	66	6	●
W10 0500 *	5		28	36	66	6	●
W10 0510 *	5.1		28	36	66	6	●
W10 0520 *	5.2		28	36	66	6	●
W10 0530 *	5.3		28	36	66	6	●
W10 0540 *	5.4		28	36	66	6	●
W10 0550 *	5.5		28	36	66	6	●
W10 0560 *	5.6		28	36	66	6	●
W10 0570 *	5.7		28	36	66	6	●
W10 0580 *	5.8		28	36	66	6	●
W10 0590 *	5.9		28	36	66	6	●
W10 0600 *	6		28	36	66	6	●
W10 0610 *	6.1	24	34	36	79	8	●
W10 0620 *	6.2		34	36	79	8	●
W10 0630 *	6.3		34	36	79	8	●
W10 0640 *	6.4		34	36	79	8	●
W10 0650 *	6.5		34	36	79	8	●
W10 0660 *	6.6		34	36	79	8	●
W10 0670 *	6.7		34	36	79	8	●
W10 0680 *	6.8		34	36	79	8	●
W10 0690 *	6.9		34	36	79	8	●
W10 0700 *	7		34	36	79	8	●
W10 0710 *	7.1	29	41	36	79	8	●
W10 0720 *	7.2		41	36	79	8	●
W10 0730 *	7.3		41	36	79	8	●
W10 0740 *	7.4		41	36	79	8	●
W10 0750 *	7.5		41	36	79	8	●
W10 0760 *	7.6		41	36	79	8	●
W10 0770 *	7.7		41	36	79	8	●
W10 0780 *	7.8		41	36	79	8	●
W10 0790 *	7.9		41	36	79	8	●
W10 0800 *	8		41	36	79	8	●

* - DIN 6535

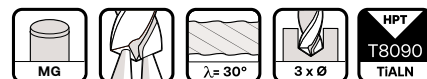
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有存库
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无存库

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W10 DR-S Oil Feed Twist Drill – 3 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W10 0810 *	8.1	35	47	40	89	10	●
W10 0820 *	8.2		47	40	89	10	●
W10 0830 *	8.3		47	40	89	10	●
W10 0840 *	8.4		47	40	89	10	●
W10 0850 *	8.5		47	40	89	10	●
W10 0860 *	8.6		47	40	89	10	●
W10 0870 *	8.7		47	40	89	10	●
W10 0880 *	8.8		47	40	89	10	●
W10 0890 *	8.9		47	40	89	10	●
W10 0900 *	9		47	40	89	10	●
W10 0910 *	9.1		47	40	89	10	●
W10 0920 *	9.2		47	40	89	10	●
W10 0930 *	9.3		47	40	89	10	●
W10 0940 *	9.4		47	40	89	10	●
W10 0950 *	9.5		47	40	89	10	●
W10 0960 *	9.6		47	40	89	10	●
W10 0970 *	9.7		47	40	89	10	●
W10 0980 *	9.8		47	40	89	10	●
W10 0990 *	9.9		47	40	89	10	●
W10 1000 *	10		47	40	89	10	●
W10 1020 *	10.2	40	55	45	102	12	●
W10 1030 *	10.3		55	45	102	12	○
W10 1050 *	10.5		55	45	102	12	●
W10 1080 *	10.8		55	45	102	12	●
W10 1100 *	11		55	45	102	12	●
W10 1120 *	11.2		55	45	102	12	●
W10 1130 *	11.3		55	45	102	12	●
W10 1150 *	11.5		55	45	102	12	●
W10 1180 *	11.8		55	45	102	12	●
W10 1200 *	12		55	45	102	12	●

* - DIN 6535

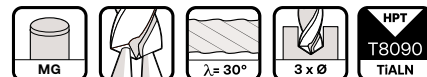
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	Germany	France	Italy	China
● Ex Stock	ab Lager	De Stock	Da Magazzino	有库存
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无库存

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W10 DR-S Oil Feed Twist Drill – 3 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W10 1220 *	12.2	43	60	45	107	14	●
W10 1250 *	12.5		60	45	107	14	●
W10 1270 *	12.7		60	45	107	14	●
W10 1280 *	12.8		60	45	107	14	●
W10 1300 *	13		60	45	107	14	●
W10 1330 *	13.3		60	45	107	14	●
W10 1350 *	13.5		60	45	107	14	●
W10 1370 *	13.7		60	45	107	14	●
W10 1380 *	13.8		60	45	107	14	○
W10 1400 *	14		60	45	107	14	●
W10 1450 *	14.5	45	65	48	115	16	●
W10 1500 *	15		65	48	115	16	●
W10 1530 *	15.3		65	48	115	16	●
W10 1550 *	15.5		65	48	115	16	●
W10 1580 *	15.8		65	48	115	16	●
W10 1600 *	16		65	48	115	16	●
W10 1650 *	16.5	51	73	48	123	18	●
W10 1700 *	17		73	48	123	18	●
W10 1750 *	17.5		73	48	123	18	●
W10 1800 *	18		73	48	123	18	●
W10 1850 *	18.5	55	79	50	131	20	●
W10 1900 *	19		79	50	131	20	●
W10 1950 *	19.5		79	50	131	20	●
W10 2000 *	20		79	50	131	20	●

* - DIN 6535

● Ex Stock	ab Lager	De Stock	Da Magazzino	有存庫
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无存庫

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W11 0100 *	1	5	8	33	55	3	●
W11 0110 *	1.1	9	12	33	55	3	●
W11 0120 *	1.2		12	33	55	3	●
W11 0130 *	1.3		12	33	55	3	●
W11 0140 *	1.4		12	33	55	3	●
W11 0150 *	1.5	13	16	35	55	3	●
W11 0160 *	1.6		16	35	55	3	●
W11 0170 *	1.7		16	35	55	3	●
W11 0180 *	1.8		16	35	55	3	●
W11 0190 *	1.9	16	16	35	55	3	●
W11 0200 *	2		19	36	57	3	●
W11 0210 *	2.1		19	36	57	3	●
W11 0220 *	2.2		19	36	57	3	●
W11 0230 *	2.3		19	36	57	3	●
W11 0240 *	2.4		19	36	57	3	●
W11 0250 *	2.5		19	36	57	3	●
W11 0260 *	2.6		19	36	57	3	●
W11 0270 *	2.7		19	36	57	3	●
W11 0280 *	2.8		19	36	57	3	●
W11 0290 *	2.9	23	19	36	57	3	●
W11 0300 *	3		28	36	66	6	●
W11 0310 *	3.1		28	36	66	6	●
W11 0320 *	3.2		28	36	66	6	●
W11 0330 *	3.3		28	36	66	6	●
W11 0340 *	3.4		28	36	66	6	●
W11 0350 *	3.5		28	36	66	6	●
W11 0360 *	3.6		28	36	66	6	●
W11 0370 *	3.7	29	28	36	66	6	●
W11 0380 *	3.8		36	36	74	6	●
W11 0390 *	3.9		36	36	74	6	●
W11 0400 *	4		36	36	74	6	●
W11 0410 *	4.1		36	36	74	6	●
W11 0420 *	4.2		36	36	74	6	●
W11 0430 *	4.3		36	36	74	6	●
W11 0440 *	4.4		36	36	74	6	●
W11 0450 *	4.5		36	36	74	6	●
W11 0460 *	4.6		36	36	74	6	●
W11 0470 *	4.7		36	36	74	6	●

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● Ex Stock	ab Lager	De Stock	Da Magazzino	有库存
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无库存

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W11 0480 *	4.8	35	44	36	82	6	●
W11 0490 *	4.9		44	36	82	6	●
W11 0500 *	5		44	36	82	6	●
W11 0510 *	5.1		44	36	82	6	●
W11 0520 *	5.2		44	36	82	6	●
W11 0530 *	5.3		44	36	82	6	●
W11 0540 *	5.4		44	36	82	6	●
W11 0550 *	5.5		44	36	82	6	●
W11 0560 *	5.6		44	36	82	6	●
W11 0570 *	5.7		44	36	82	6	●
W11 0580 *	5.8		44	36	82	6	●
W11 0590 *	5.9		44	36	82	6	●
W11 0600 *	6		44	36	82	6	●
W11 0610 *	6.1	43	53	36	91	8	●
W11 0620 *	6.2		53	36	91	8	●
W11 0630 *	6.3		53	36	91	8	●
W11 0640 *	6.4		53	36	91	8	●
W11 0650 *	6.5		53	36	91	8	●
W11 0660 *	6.6		53	36	91	8	●
W11 0670 *	6.7		53	36	91	8	●
W11 0680 *	6.8		53	36	91	8	●
W11 0690 *	6.9		53	36	91	8	●
W11 0700 *	7		53	36	91	8	●
W11 0710 *	7.1		53	36	91	8	●
W11 0720 *	7.2		53	36	91	8	●
W11 0730 *	7.3		53	36	91	8	●
W11 0740 *	7.4		53	36	91	8	●
W11 0750 *	7.5		53	36	91	8	●
W11 0760 *	7.6		53	36	91	8	●
W11 0770 *	7.7		53	36	91	8	●
W11 0780 *	7.8		53	36	91	8	●
W11 0790 *	7.9		53	36	91	8	●
W11 0800 *	8		53	36	91	8	●

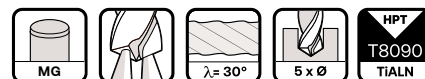
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有库存
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无库存

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W11 0810 *	8.1	49	61	40	103	10	●
W11 0820 *	8.2		61	40	103	10	●
W11 0830 *	8.3		61	40	103	10	●
W11 0840 *	8.4		61	40	103	10	●
W11 0850 *	8.5		61	40	103	10	●
W11 0860 *	8.6		61	40	103	10	●
W11 0870 *	8.7		61	40	103	10	●
W11 0880 *	8.8		61	40	103	10	●
W11 0890 *	8.9		61	40	103	10	●
W11 0900 *	9		61	40	103	10	●
W11 0910 *	9.1		61	40	103	10	●
W11 0920 *	9.2		61	40	103	10	●
W11 0930 *	9.3		61	40	103	10	●
W11 0940 *	9.4		61	40	103	10	●
W11 0950 *	9.5		61	40	103	10	●
W11 0960 *	9.6		61	40	103	10	●
W11 0970 *	9.7		61	40	103	10	●
W11 0980 *	9.8		61	40	103	10	●
W11 0990 *	9.9		61	40	103	10	●
W11 1000 *	10		61	40	103	10	●
W11 1010 *	10.1	56	71	45	118	12	●
W11 1020 *	10.2		71	45	118	12	●
W11 1030 *	10.3		71	45	118	12	○
W11 1040 *	10.4		71	45	118	12	●
W11 1050 *	10.5		71	45	118	12	●
W11 1060 *	10.6		71	45	118	12	●
W11 1070 *	10.7		71	45	118	12	●
W11 1080 *	10.8		71	45	118	12	●
W11 1090 *	10.9		71	45	118	12	●
W11 1100 *	11		71	45	118	12	●
W11 1110 *	11.1		71	45	118	12	●
W11 1120 *	11.2		71	45	118	12	●
W11 1130 *	11.3		71	45	118	12	●
W11 1140 *	11.4		71	45	118	12	●
W11 1150 *	11.5		71	45	118	12	●
W11 1160 *	11.6		71	45	118	12	●
W11 1170 *	11.7		71	45	118	12	●
W11 1180 *	11.8		71	45	118	12	●
W11 1190 *	11.9		71	45	118	12	●
W11 1200 *	12		71	45	118	12	●

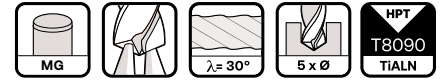
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有存庫
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无存庫

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W11 1210 *	12.1	60	77	45	124	14	●
W11 1220 *	12.2		77	45	124	14	●
W11 1230 *	12.3		77	45	124	14	●
W11 1240 *	12.4		77	45	124	14	●
W11 1250 *	12.5		77	45	124	14	●
W11 1260 *	12.6		77	45	124	14	●
W11 1270 *	12.7		77	45	124	14	●
W11 1280 *	12.8		77	45	124	14	●
W11 1290 *	12.9		77	45	124	14	●
W11 1300 *	13		77	45	124	14	●
W11 1320 *	13.2		77	45	124	14	●
W11 1330 *	13.3		77	45	124	14	●
W11 1350 *	13.5		77	45	124	14	●
W11 1360 *	13.6		77	45	124	14	●
W11 1370 *	13.7		77	45	124	14	●
W11 1380 *	13.8		77	45	124	14	●
W11 1390 *	13.9		77	45	124	14	●
W11 1400 *	14		77	45	124	14	●
W11 1420 *	14.2	63	83	48	133	16	●
W11 1450 *	14.5		83	48	133	16	●
W11 1500 *	15		83	48	133	16	●
W11 1520 *	15.2		83	48	133	16	●
W11 1530 *	15.3		83	48	133	16	●
W11 1550 *	15.5		83	48	133	16	●
W11 1580 *	15.8		83	48	133	16	●
W11 1590 *	15.9		83	48	133	16	○
W11 1600 *	16		83	48	133	16	●
W11 1650 *	16.5	71	93	48	143	18	●
W11 1700 *	17		93	48	143	18	●
W11 1750 *	17.5		93	48	143	18	●
W11 1800 *	18	77	93	48	143	18	●
W11 1850 *	18.5		101	50	153	20	●
W11 1900 *	19		101	50	153	20	●
W11 1950 *	19.5		101	50	153	20	●
W11 2000 *	20		101	50	153	20	●

* - DIN 6535

● Ex Stock	ab Lager	De Stock	Da Magazzino	有存库
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无存库

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					



DR-S Oil Feed Twist Drill, 3 x Ø & 5 x Ø Internal Coolant, 2 Flutes - W10, W11

Aggressive	N						K				S	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Grey Cast Iron		Ductile Cast Iron		Titanium Alloy	
Properties	Si < 9%		Si ≥ 9%		-		-		-		-	
	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
D												
1		0.017		0.018		0.016		0.018		0.016		0.014
1.5		0.026		0.026		0.024		0.027		0.024		0.019
2		0.035		0.035		0.032		0.035		0.032		0.025
2.5		0.043		0.044		0.040		0.044		0.040		0.031
3		0.076		0.073		0.077		0.073		0.071		0.047
4		0.107		0.102		0.107		0.104		0.099		0.066
5		0.140		0.134		0.139		0.136		0.128		0.085
6		0.176		0.169		0.172		0.172		0.160		0.105
7		0.216		0.204		0.206		0.211		0.194		0.126
8		0.256		0.244		0.245		0.252		0.230		0.156
9		0.301		0.287		0.281		0.297		0.268		0.173
10	145	0.347	125	0.327	115	0.324	85	0.344	65	0.308	30	0.208
11		0.397		0.377		0.369		0.394		0.351		0.233
12		0.446		0.424		0.408		0.447		0.395		0.255
13		0.471		0.450		0.434		0.472		0.415		0.280
14		0.486		0.461		0.452		0.495		0.433		0.270
15		0.505		0.483		0.472		0.517		0.449		0.289
16		0.516		0.500		0.499		0.537		0.463		0.313
17		0.522		0.505		0.513		0.554		0.475		0.313
18		0.536		0.526		0.531		0.570		0.485		0.300
19		0.544		0.532		0.548		0.585		0.494		0.329
20		0.540		0.525		0.549		0.597		0.500		0.314



DR-S Oil Feed Twist Drill, 3 x Ø & 5 x Ø Internal Coolant, 2 Flutes - W10, W11

Aggressive	P						M				S	
Working Material	Carbon Steel		Alloy Steel		Prehardened Steel		Stainless Steel		Stainless Steel		Nickel Alloy	
Properties	-		520 < Rm < 1200		-		High Machinability		Low Machinability		-	
	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
D												
1		0.017		0.016		0.014		0.015		0.014		0.009
1.5		0.026		0.024		0.022		0.022		0.021		0.016
2		0.035		0.031		0.029		0.029		0.028		0.025
2.5		0.043		0.039		0.036		0.036		0.035		0.035
3		0.063		0.068		0.080		0.048		0.054		0.026
4		0.090		0.098		0.110		0.067		0.075		0.039
5		0.119		0.132		0.143		0.085		0.094		0.048
6		0.151		0.171		0.178		0.106		0.115		0.058
7		0.185		0.214		0.215		0.125		0.135		0.075
8		0.222		0.261		0.253		0.150		0.160		0.086
9		0.262		0.312		0.294		0.168		0.178		0.092
10	90	0.304	80	0.368	65	0.337	60	0.190	40	0.206	20	0.108
11		0.349		0.427		0.382		0.217		0.220		0.118
12		0.396		0.491		0.429		0.250		0.236		0.130
13		0.417		0.503		0.457		0.267		0.254		0.133
14		0.437		0.511		0.484		0.279		0.275		0.150
15		0.454		0.515		0.509		0.292		0.291		0.150
16		0.470		0.514		0.534		0.317		0.320		0.157
17		0.484		0.509		0.557		0.308		0.320		0.157
18		0.496		0.499		0.578		0.336		0.344		0.157
19		0.506		0.485		0.599		0.327		0.344		0.183
20		0.514		0.466		0.618		0.350		0.375		0.183



DR-S Oil Feed Twist Drill, 3 x Ø & 5 x Ø Internal Coolant, 2 Flutes - W10, W11

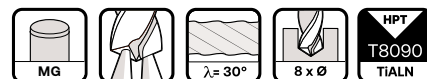
Conventional	N						K				S	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Grey Cast Iron		Ductile Cast Iron		Titanium Alloy	
Properties	Si < 9%		Si ≥ 9%		-		-		-		-	
D	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
1		0.015		0.016		0.014		0.016		0.014		0.012
1.5		0.023		0.023		0.021		0.023		0.021		0.017
2		0.030		0.030		0.028		0.030		0.028		0.022
2.5		0.037		0.038		0.034		0.038		0.034		0.027
3		0.069		0.065		0.079		0.077		0.070		0.046
4		0.097		0.091		0.109		0.109		0.097		0.067
5		0.127		0.120		0.141		0.143		0.125		0.080
6		0.159		0.150		0.176		0.181		0.157		0.108
7		0.195		0.184		0.212		0.222		0.190		0.118
8		0.232		0.216		0.250		0.265		0.225		0.156
9		0.273		0.254		0.290		0.312		0.263		0.175
10	120	0.314	100	0.292	90	0.332	70	0.361	50	0.302	25	0.188
11		0.359		0.334		0.376		0.414		0.344		0.214
12		0.406		0.370		0.422		0.469		0.387		0.250
13		0.431		0.400		0.446		0.496		0.407		0.250
14		0.451		0.417		0.469		0.520		0.424		0.250
15		0.475		0.437		0.491		0.543		0.440		0.300
16		0.492		0.460		0.510		0.564		0.454		0.280
17		0.511		0.474		0.529		0.582		0.466		0.280
18		0.521		0.489		0.545		0.599		0.475		0.350
19		0.532		0.506		0.560		0.614		0.484		0.350
20		0.541		0.522		0.573		0.627		0.490		0.325



DR-S Oil Feed Twist Drill, 3 x Ø & 5 x Ø Internal Coolant, 2 Flutes - W10, W11

Conventional	P						M				S	
Working Material	Carbon Steel		Alloy Steel		Prehardened Steel		Stainless Steel		Stainless Steel		Nickel Alloy	
Properties	-		520 < Rm < 1200		-		High Machinability		Low Machinability		-	
D	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
1		0.015		0.014		0.012		0.013		0.012		0.008
1.5		0.023		0.021		0.019		0.019		0.018		0.014
2		0.030		0.027		0.025		0.025		0.024		0.022
2.5		0.037		0.034		0.031		0.031		0.030		0.030
3		0.069		0.065		0.073		0.039		0.044		0.038
4		0.099		0.095		0.100		0.057		0.067		0.058
5		0.131		0.128		0.130		0.074		0.080		0.070
6		0.166		0.166		0.162		0.089		0.100		0.088
7		0.204		0.208		0.196		0.113		0.121		0.100
8		0.244		0.253		0.230		0.129		0.142		0.133
9		0.288		0.303		0.268		0.146		0.164		0.133
10	70	0.334	60	0.357	50	0.307	50	0.158	35	0.180	15	0.160
11		0.384		0.414		0.348		0.182		0.211		0.160
12		0.436		0.476		0.390		0.200		0.225		0.200
13		0.459		0.488		0.416		0.222		0.225		0.200
14		0.481		0.496		0.440		0.250		0.257		0.200
15		0.499		0.499		0.463		0.238		0.243		0.200
16		0.517		0.498		0.486		0.271		0.283		0.267
17		0.532		0.493		0.507		0.271		0.283		0.267
18		0.546		0.484		0.526		0.257		0.267		0.267
19		0.557		0.471		0.545		0.300		0.267		0.267
20		0.565		0.452		0.562		0.283		0.300		0.233

W12 DR-S Oil Feed Twist Drill – 8 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W12 0300 *	3	32	40	36	85	6	●
W12 0310 *	3.1		40	36	85	6	●
W12 0320 *	3.2		40	36	85	6	●
W12 0330 *	3.3		40	36	85	6	●
W12 0340 *	3.4		40	36	85	6	●
W12 0350 *	3.5		40	36	85	6	●
W12 0360 *	3.6	36	40	36	85	6	●
W12 0370 *	3.7		40	36	85	6	●
W12 0380 *	3.8		40	36	85	6	●
W12 0390 *	3.9		40	36	85	6	●
W12 0400 *	4	38	46	36	85	6	●
W12 0410 *	4.1		46	36	85	6	●
W12 0420 *	4.2		46	36	85	6	●
W12 0430 *	4.3	40	46	36	97	6	●
W12 0440 *	4.4		46	36	97	6	○
W12 0450 *	4.5	44	46	36	97	6	●
W12 0460 *	4.6		46	36	97	6	●
W12 0470 *	4.7		46	36	97	6	●
W12 0480 *	4.8		46	36	97	6	●
W12 0490 *	4.9		46	36	97	6	○
W12 0500 *	5	48	57	36	97	6	●
W12 0510 *	5.1		57	36	97	6	●
W12 0520 *	5.2		57	36	97	6	●
W12 0530 *	5.3		57	36	97	6	●
W12 0540 *	5.4		57	36	97	6	○
W12 0550 *	5.5		57	36	97	6	●
W12 0560 *	5.6		57	36	97	6	●
W12 0570 *	5.7		57	36	97	6	●
W12 0580 *	5.8		57	36	97	6	●
W12 0590 *	5.9		57	36	97	6	●
W12 0600 *	6		57	36	97	6	●

* - DIN 6535

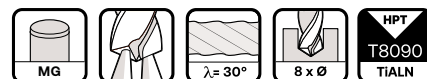
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有存库
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无存库

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W12 DR-S Oil Feed Twist Drill – 8 x Ø, 2 Flutes



Order Number	D	l1	l2	l3	L	d2 h6	Availability
W12 0610 *	6.1	64	76	36	116	8	●
W12 0620 *	6.2		76	36	116	8	●
W12 0630 *	6.3		76	36	116	8	●
W12 0640 *	6.4		76	36	116	8	●
W12 0650 *	6.5		76	36	116	8	●
W12 0660 *	6.6		76	36	116	8	●
W12 0670 *	6.7		76	36	116	8	●
W12 0680 *	6.8		76	36	116	8	●
W12 0690 *	6.9		76	36	116	8	●
W12 0700 *	7		76	36	116	8	●
W12 0710 *	7.1		76	36	116	8	●
W12 0720 *	7.2		76	36	116	8	●
W12 0730 *	7.3		76	36	116	8	●
W12 0740 *	7.4		76	36	116	8	●
W12 0750 *	7.5		76	36	116	8	●
W12 0760 *	7.6		76	36	116	8	○
W12 0770 *	7.7		76	36	116	8	●
W12 0780 *	7.8		76	36	116	8	●
W12 0790 *	7.9		76	36	116	8	●
W12 0800 *	8		76	36	116	8	●
W12 0810 *	8.1	80	95	40	142	10	●
W12 0820 *	8.2		95	40	142	10	●
W12 0830 *	8.3		95	40	142	10	●
W12 0840 *	8.4		95	40	142	10	○
W12 0850 *	8.5		95	40	142	10	●
W12 0860 *	8.6		95	40	142	10	●
W12 0870 *	8.7		95	40	142	10	●
W12 0880 *	8.8		95	40	142	10	●
W12 0890 *	8.9		95	40	142	10	○
W12 0900 *	9		95	40	142	10	●
W12 0910 *	9.1		95	40	142	10	●
W12 0920 *	9.2		95	40	142	10	●
W12 0930 *	9.3		95	40	142	10	●
W12 0940 *	9.4		95	40	142	10	○
W12 0950 *	9.5		95	40	142	10	●
W12 0960 *	9.6		95	40	142	10	●
W12 0970 *	9.7		95	40	142	10	○
W12 0980 *	9.8		95	40	142	10	●
W12 0990 *	9.9		95	40	142	10	○
W12 1000 *	10		95	40	142	10	●

* - DIN 6535

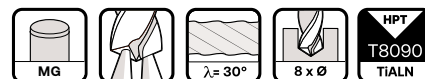
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● Ex Stock	ab Lager	De Stock	Da Magazzino	有库存
○ Upon Request	auf Anfrage	à la demande	Su ordinazione	无库存

Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					

W12 DR-S Oil Feed Twist Drill – 8 x Ø, 2 Flutes



Order Number	D	11	12	13	L	d2 h6	Availability
W12 1020 *	10.2	96	114	45	163	12	●
W12 1030 *	10.3		114	45	163	12	○
W12 1050 *	10.5		114	45	163	12	●
W12 1080 *	10.8		114	45	163	12	●
W12 1100 *	11		114	45	163	12	●
W12 1120 *	11.2		114	45	163	12	●
W12 1130 *	11.3		114	45	163	12	●
W12 1150 *	11.5		114	45	163	12	●
W12 1180 *	11.8		114	45	163	12	●
W12 1200 *	12		114	45	163	12	●
W12 1220 *	12.2	112	133	45	182	14	●
W12 1250 *	12.5		133	45	182	14	●
W12 1270 *	12.7		133	45	182	14	○
W12 1280 *	12.8		133	45	182	14	○
W12 1300 *	13		133	45	182	14	●
W12 1330 *	13.3		133	45	182	14	○
W12 1350 *	13.5		133	45	182	14	●
W12 1370 *	13.7		133	45	182	14	○
W12 1380 *	13.8		133	45	182	14	○
W12 1400 *	14		133	45	182	14	●
W12 1450 *	14.5	128	152	48	204	16	●
W12 1500 *	15		152	48	204	16	●
W12 1530 *	15.3		152	48	204	16	○
W12 1550 *	15.5		152	48	204	16	●
W12 1580 *	15.8		152	48	204	16	○
W12 1600 *	16		152	48	204	16	●
W12 1650 *	16.5	144	171	48	222	18	○
W12 1700 *	17		171	48	222	18	○
W12 1750 *	17.5		171	48	222	18	○
W12 1800 *	18		171	48	222	18	○
W12 1850 *	18.5	160	190	50	243	20	○
W12 1900 *	19		190	50	243	20	○
W12 1950 *	19.5		190	50	243	20	○
W12 2000 *	20		190	50	243	20	○

* - DIN 6535

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Material Group | Materialgruppe | Groupe Matière | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
○	○	○	●	●	●	●	●	○	○	●	●					



DR-S Oil Feed Twist Drill, 8 x Ø Internal Coolant, 2 Flutes - W12

Aggressive	N						K				S	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Grey Cast Iron		Ductile Cast Iron		Titanium Alloy	
Properties	Si < 9%		Si ≥ 9%		-		-		-		-	
D	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
3		0.064		0.059		0.064		0.059		0.058		0.037
4		0.090		0.083		0.089		0.084		0.082		0.054
5		0.117		0.109		0.116		0.110		0.103		0.065
6		0.148		0.138		0.145		0.141		0.131		0.084
7		0.179		0.166		0.173		0.173		0.161		0.106
8		0.214		0.199		0.203		0.206		0.189		0.129
9		0.252		0.231		0.235		0.242		0.222		0.138
10		0.290		0.266		0.273		0.277		0.255		0.158
11		0.329		0.307		0.302		0.320		0.281		0.182
12	260	0.375	190	0.343	160	0.340	120	0.366	90	0.325	35	0.200
13		0.392		0.362		0.360		0.377		0.330		0.222
14		0.403		0.375		0.376		0.396		0.348		0.238
15		0.416		0.388		0.400		0.419		0.365		0.225
16		0.431		0.405		0.416		0.438		0.383		0.257
17		0.441		0.411		0.433		0.443		0.394		0.257
18		0.450		0.424		0.438		0.450		0.406		0.243
19		0.450		0.431		0.456		0.462		0.388		0.267
20		0.450		0.426		0.462		0.470		0.400		0.250



DR-S Oil Feed Twist Drill, 8 x Ø Internal Coolant, 2 Flutes - W12

Aggressive	P						M				S	
Working Material	Carbon Steel		Alloy Steel		Prehardened Steel		Stainless Steel		Stainless Steel		Nickel Alloy	
Properties	-		520 < Rm < 1200		-		High Machinability		Low Machinability		-	
D	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
3		0.051		0.056		0.066		0.041		0.047		0.022
4		0.073		0.083		0.091		0.055		0.066		0.033
5		0.097		0.111		0.117		0.072		0.081		0.040
6		0.124		0.141		0.143		0.089		0.100		0.050
7		0.151		0.178		0.173		0.109		0.116		0.057
8		0.182		0.220		0.209		0.125		0.138		0.067
9		0.211		0.258		0.240		0.144		0.147		0.073
10		0.248		0.309		0.272		0.169		0.177		0.090
11		0.282		0.359		0.319		0.180		0.192		0.100
12	150	0.325	100	0.407	55	0.353	50	0.200	40	0.209	30	0.113
13		0.338		0.416		0.371		0.215		0.230		0.100
14		0.349		0.426		0.385		0.225		0.230		0.114
15		0.369		0.418		0.417		0.245		0.244		0.114
16		0.387		0.430		0.445		0.270		0.275		0.133
17		0.383		0.426		0.436		0.260		0.275		0.133
18		0.400		0.417		0.470		0.289		0.275		0.133
19		0.400		0.406		0.460		0.278		0.314		0.133
20		0.421		0.394		0.511		0.313		0.300		0.160



DR-S Oil Feed Twist Drill, 8 x Ø Internal Coolant, 2 Flutes - W12

Conventional	N						K				S	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Grey Cast Iron		Ductile Cast Iron		Titanium Alloy	
Properties	Si < 9%		Si ≥ 9%		-		-		-		-	
D	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
3	200	0.060	175	0.053	135	0.066	75	0.062	55	0.058	20	0.041
4		0.084		0.075		0.090		0.087		0.084		0.056
5		0.110		0.097		0.117		0.115		0.105		0.069
6		0.138		0.125		0.146		0.148		0.130		0.082
7		0.170		0.150		0.175		0.181		0.163		0.100
8		0.201		0.180		0.207		0.214		0.192		0.138
9		0.237		0.211		0.241		0.256		0.226		0.138
10		0.272		0.241		0.277		0.293		0.256		0.157
11		0.312		0.275		0.306		0.330		0.288		0.200
12		0.346		0.309		0.350		0.382		0.329		0.200
13		0.369		0.328		0.360		0.397		0.341		0.240
14		0.380		0.340		0.386		0.415		0.357		0.240
15		0.391		0.347		0.403		0.438		0.385		0.220
16		0.408		0.363		0.423		0.453		0.382		0.275
17		0.424		0.382		0.428		0.439		0.363		0.245
18		0.436		0.397		0.452		0.455		0.385		0.245
19		0.449		0.401		0.460		0.474		0.371		0.245
20		0.462		0.418		0.468		0.502		0.397		0.228

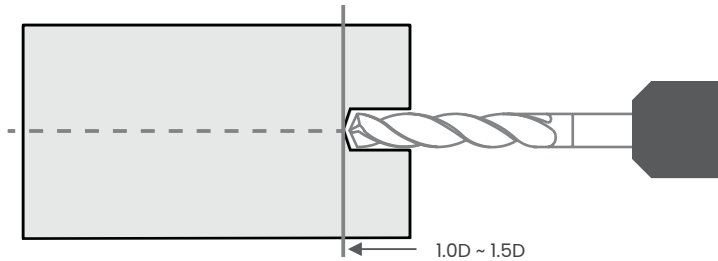


DR-S Oil Feed Twist Drill, 8 x Ø Internal Coolant, 2 Flutes - W12

Conventional	P						M				S	
Working Material	Carbon Steel		Alloy Steel		Prehardened Steel		Stainless Steel		Stainless Steel		Nickel Alloy	
Properties	-		520 < Rm < 1200		-		High Machinability		Low Machinability		-	
D	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn	Vc	fn
3	95	0.057	70	0.052	35	0.059	30	0.038	25	0.044	15	0.038
4		0.081		0.079		0.086		0.050		0.060		0.050
5		0.109		0.105		0.112		0.065		0.075		0.060
6		0.139		0.134		0.134		0.081		0.086		0.075
7		0.169		0.169		0.163		0.100		0.108		0.086
8		0.204		0.208		0.186		0.108		0.130		0.100
9		0.235		0.246		0.226		0.127		0.144		0.100
10		0.277		0.291		0.250		0.150		0.163		0.120
11		0.316		0.340		0.294		0.156		0.163		0.120
12		0.361		0.387		0.323		0.188		0.186		0.175
13		0.378		0.395		0.349		0.188		0.186		0.150
14		0.398		0.400		0.363		0.200		0.217		0.150
15		0.411		0.403		0.387		0.200		0.200		0.150
16		0.434		0.400		0.400		0.233		0.240		0.200
17		0.428		0.370		0.390		0.222		0.238		0.187
18		0.441		0.372		0.380		0.210		0.224		0.187
19		0.451		0.373		0.443		0.210		0.224		0.187
20		0.438		0.338		0.420		0.238		0.263		0.163

Drilling on Standard Through Hole

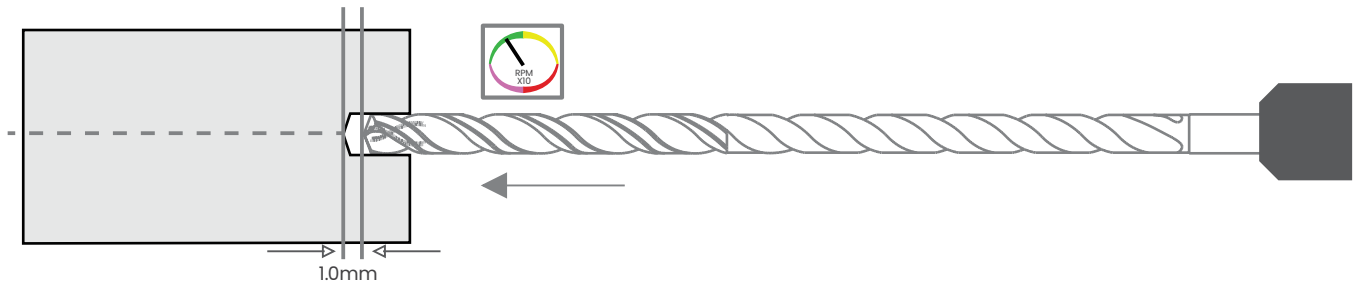
1



Develop pilot bore

- Using a 3xD pilot drill (DR-S) with point angle 140° and tolerance m7 (4 - 25 micron > Ø deep hole drill)
- Drilling pilot bore depth with minimum of 1 to 1.5D

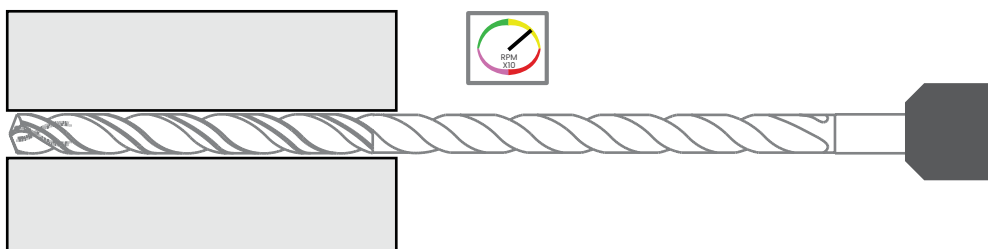
2



Enter according to pilot bore

- Enter without coolant until approximately 1mm before the end of pilot bore
- Approximately 300 rpm and feed rate of 500 mm/min
- Then start high pressure coolant

3

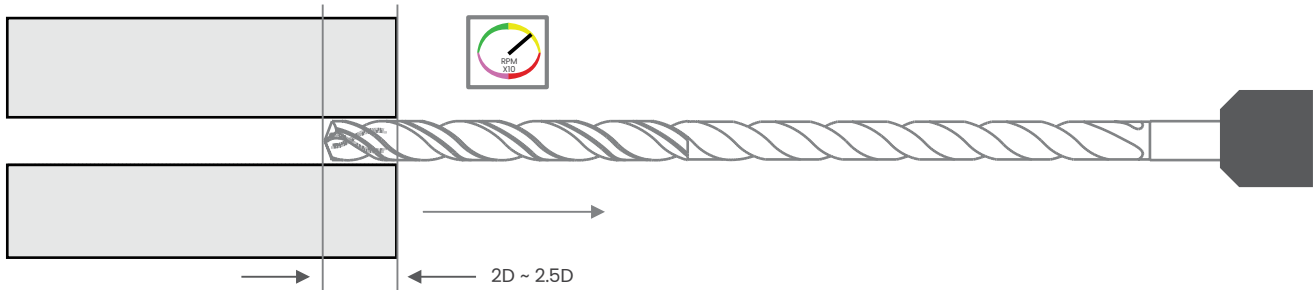


Deep drilling process

- Load higher spindle speed (V_c) and feed rate (f) as recommended
- Drill continuously to the full hole depth without chip-removal / peck-drilling cycles
- For through holes, reduce the feed rate by 30% approximately 1mm before completing the hole

Drilling on Standard Through Hole

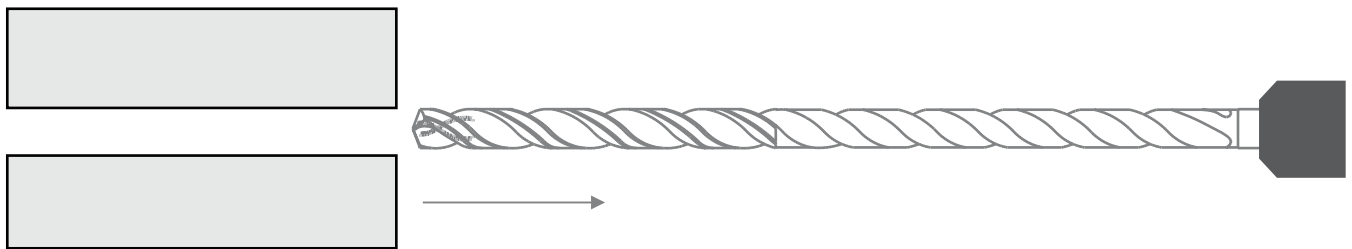
4



Withdrawal

- Switch off the coolant supply
- Withdraw the long drills after drilling to the full hole depth
- Maintain the existing spindle (V_c) and double the feed rate (f)
- Withdraw to approximately $2 - 2.5 \times D$ into the pilot bore

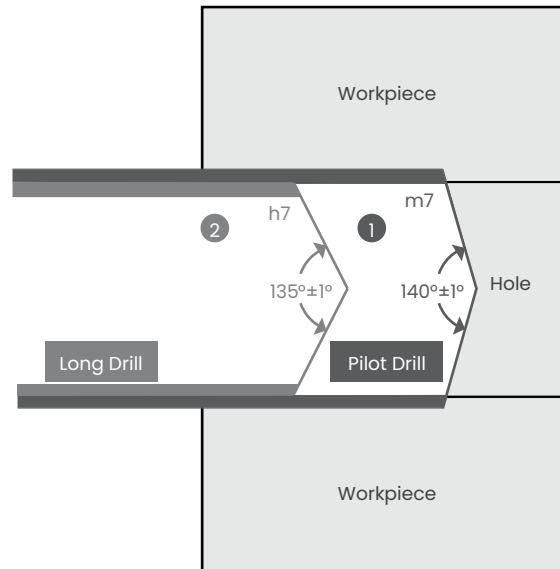
5



Discharge from the bore

- Retract at a low, constant speed for the

Drilling on Standard Through Hole



1. Pilot Bore

Please use the corresponding drill with internal coolant supply and the same nominal diameter for the pilot bore.
Pilot Drill Series I **DR-S (140° I D(m7))**

Tolerance consideration for m7 in μm

Diameter	Tolerance, μm
$\leq \varnothing 3$	+2 ~ +12
$\varnothing 4 - \varnothing 6$	+4 ~ +16
$\varnothing 7 - \varnothing 10$	+6 ~ +21

2. Deep Hole Bore (12xD – 30xD)

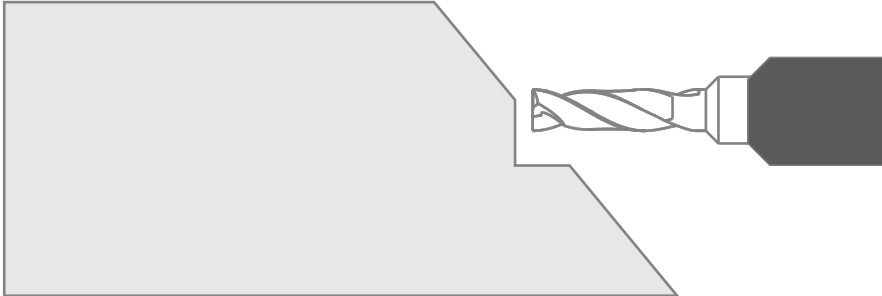
Please use the corresponding drill with internal coolant supply and the same nominal diameter for the deep hole bore.
Long Drill Series I **DR-LX (135° I D(h7))**

Tolerance consideration for h7 in μm

Diameter	Tolerance, μm
$\leq \varnothing 3$	0 ~ -10
$\varnothing 4 - \varnothing 6$	0 ~ -12
$\varnothing 7 - \varnothing 10$	0 ~ -15

Drilling on Irregular Faces or Angles

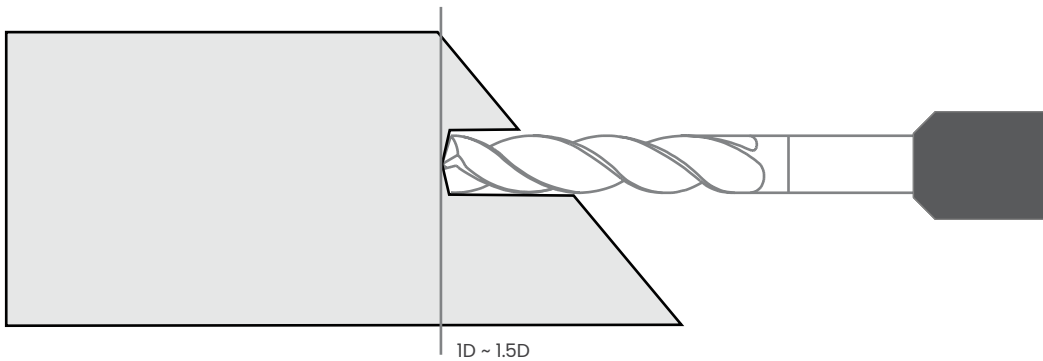
1



Spot Facing

- Create a flat surface on the irregular faces/angles using the **Flat Drill (W15)**
- Machine the spot face to the same width as the required deep hole diameter

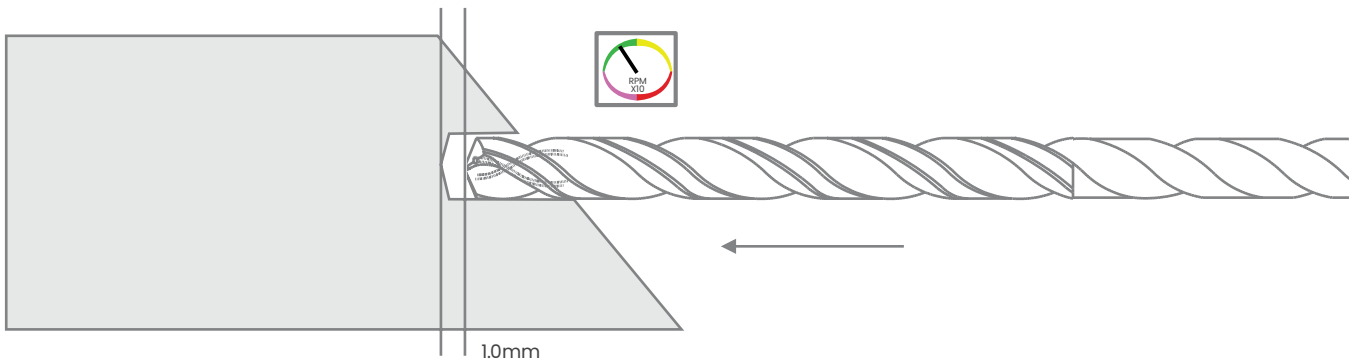
2



Develop pilot bore

- Using a 3xD pilot drill (DR-S) with point angle 140° & tolerance m7 (4 - 25 micron > Ø deep hole drill)
- Drill the pilot bore to a depth of at least 1 - 1.5 x D

3

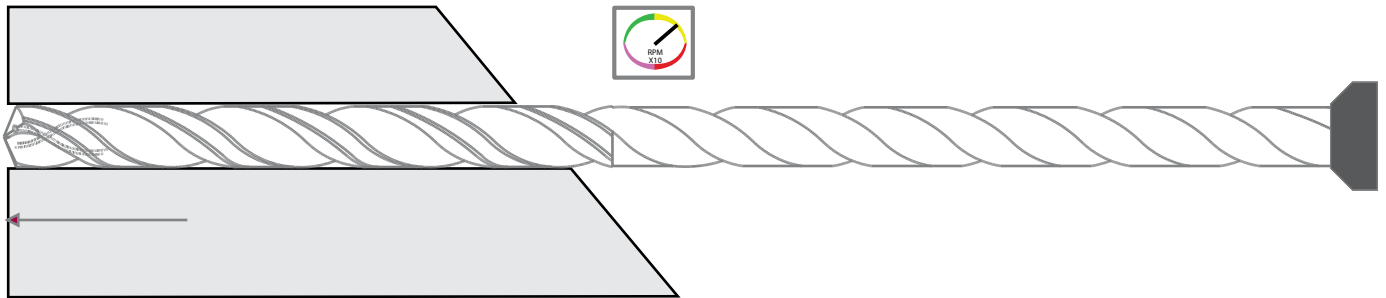


Enter according to pilot bore

- Enter without coolant until approximately 1mm before the end of pilot bore
- Approximately 300 rpm and feed rate of 500 mm/min
- Then start high pressure coolant

Drilling on Irregular Faces or Angles

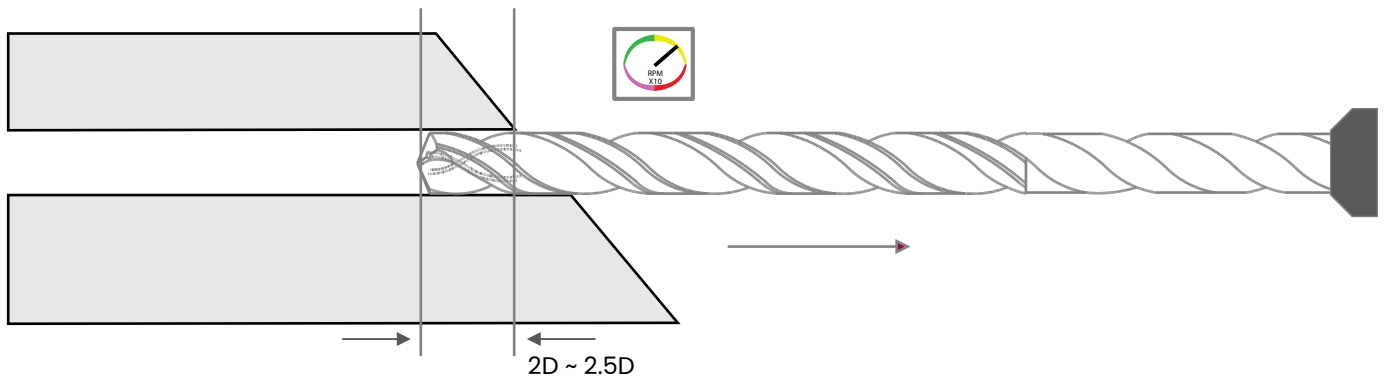
4



Deep drilling process

- Load higher spindle speed (V_c) and feedrate (f) as per recommended
- Continuous drilling upon complete hole depth without chip removal cycles/peck drilling cycles
- For through holes, reduce 30% of feedrate approximate 1mm before complete the hole depth

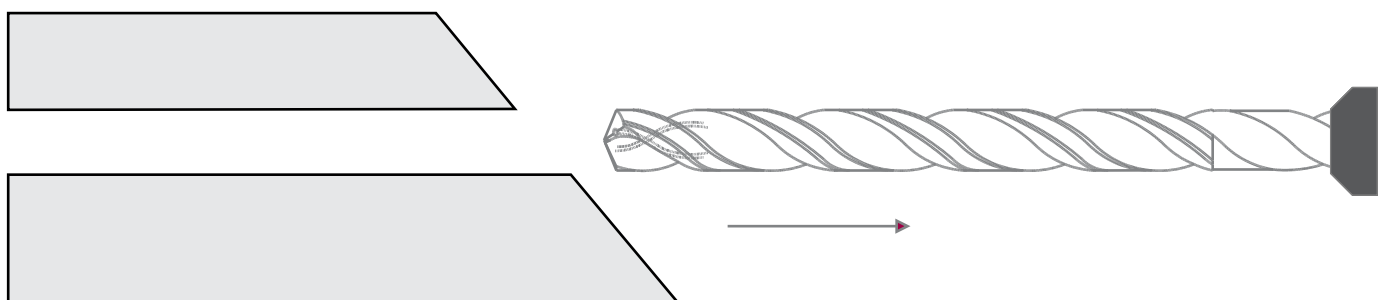
5



Withdrawal

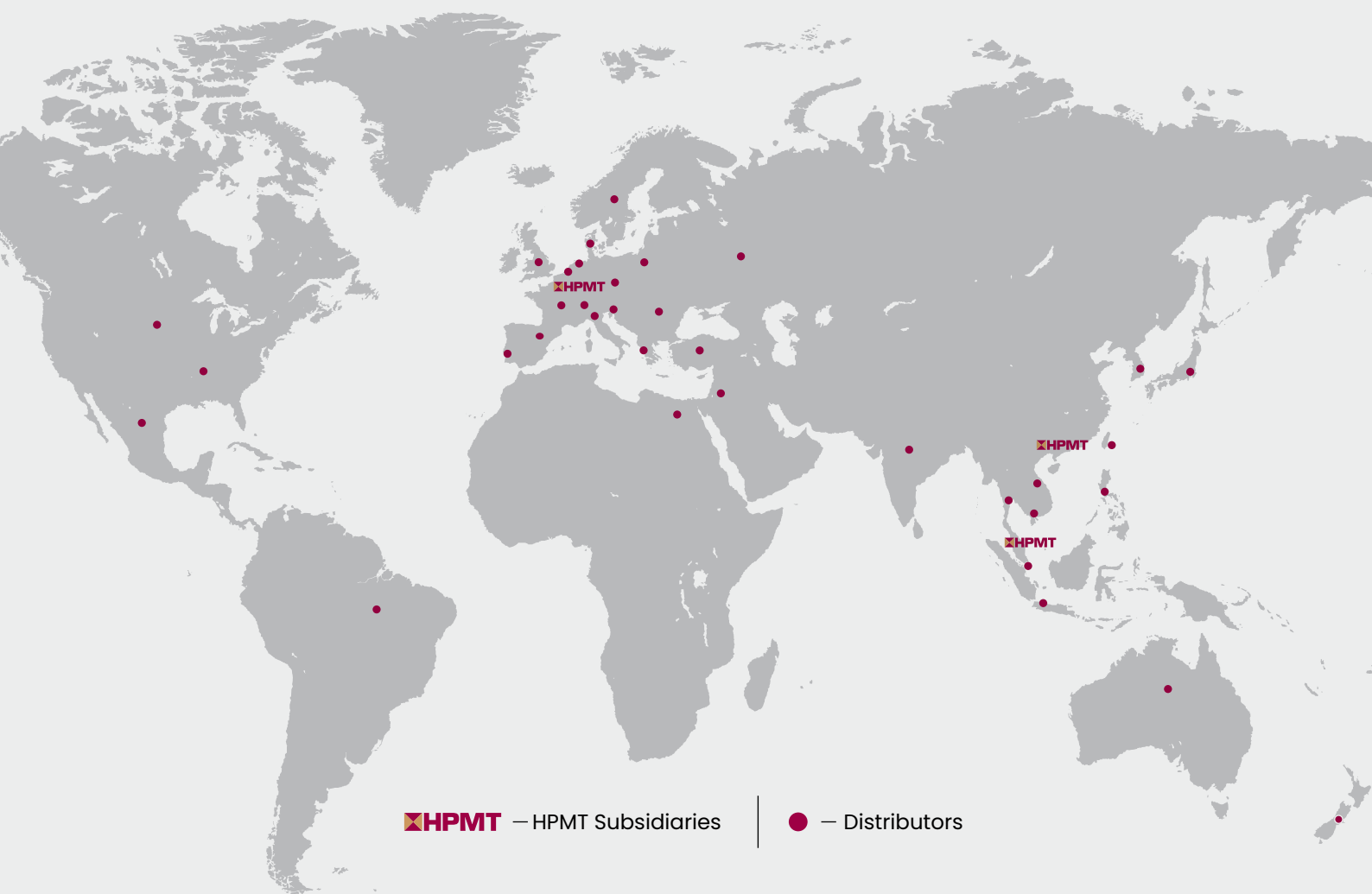
- Switch off coolant supply
- Withdraw the long drills after completed drilling the hole depth
- Existing spindle speed (V_c) and double up the feedrate (f)
- Withdraw towards approximate 2 to 2.5D of the beginning part of pilot bore

6



Discharge from the bore

- Discharge with lower and stationary speed from the remaining part



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