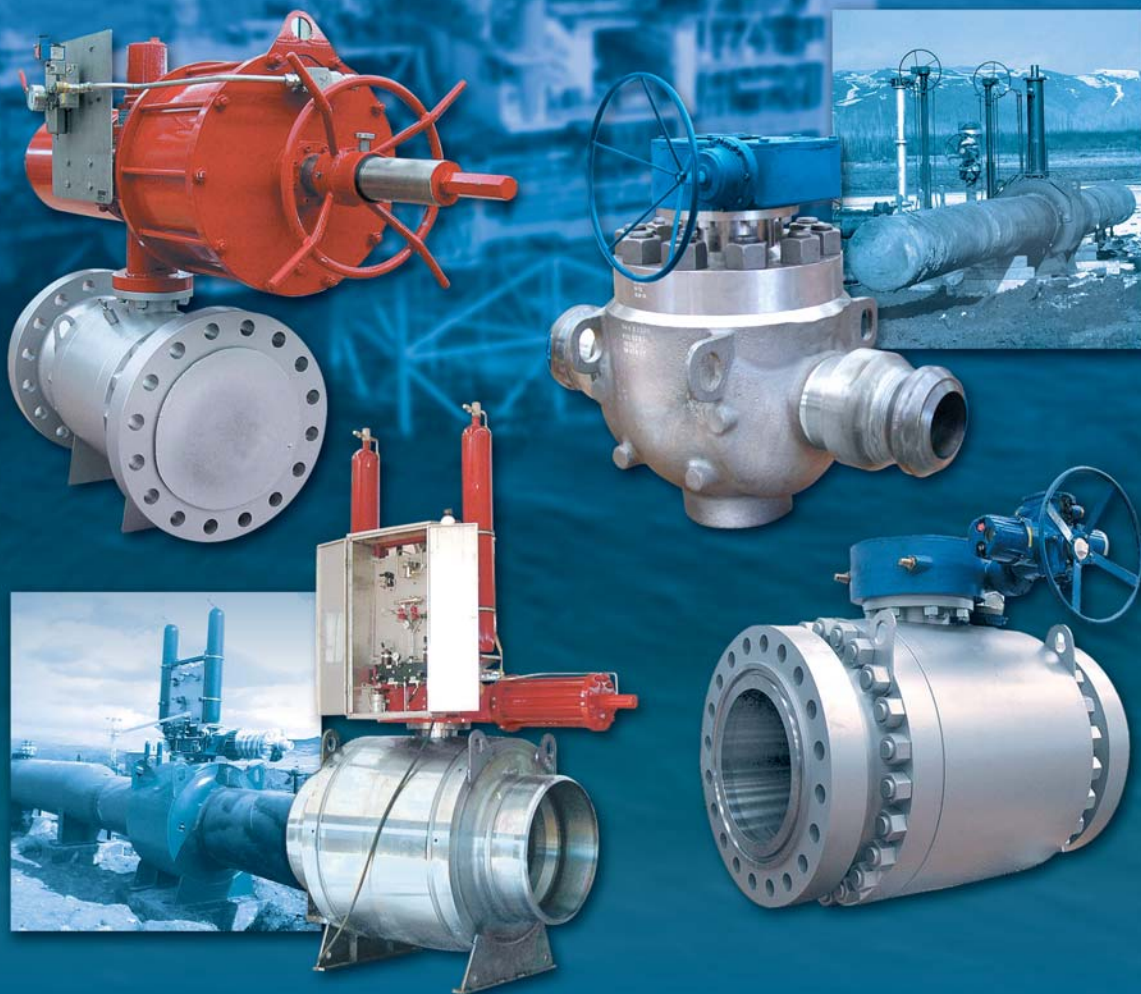


Valbort

A Flowserve company

API 6D & 6A **Trunnion-mounted ball valves**

• Bolted body side-entry • Welded body • Top-entry



API 6D pressure range:
ASME 150–2500

API 6A pressure range:
ASME 2000–15000

Sizes: 1–64"
(25–1600 mm)

PROFILE

Valbart Srl was founded in 2003 under the name Velan Italy. Since then, the company has witnessed tremendous growth and has been recognized as the fastest growing firm in its sector. The highly ambitious decision of a management buy-out taken by the President, Mr. Roberto Bartolena and his team of executives in 2008 led to the acquisition of all shares previously owned by Velan Inc. and a change of name to Valbart Srl. Following a span of two successful years, Valbart Srl became a part of the Flowserve Group in 2010 and transitioned into being a Flowserve company.

Valbart Srl specializes in designing and manufacturing API 6A and API 6D Trunnion Mounted ball and API 6D Gate Valves and is driven by constant innovation to increase its existing range of products. Apart from being one of the leading suppliers of TMBV, Valbart Srl is also recognized for its production of Trunnion Mounted Control Ball Valves, Cryogenic Valves, Depressurizing Plus Valves, DBB Valves and Rising Stem Friction Free Ball Valves.

The technical know-how, design and experience in producing TMBV's are Valbart's strongest assets. The company continuously improves and builds on these assets. The employment of highly talented and experienced professionals in key technical management positions is proof of the Company's commitment to a continuous improvement. With a highly equipped facility distributed in four buildings with a total internal area of 18,000 sqm (194,000 sq. ft), Valbart Srl aims at continuing to produce and provide valves of the highest quality and with a growth reflecting the one experienced so far

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VALBART'S TEAM



From left to right, Roberto Bartolena (President), Claudio Conti (Vice President, Sales & Marketing), Fabio Sanvito (Order Adm. Manager), Paolo Palella (Managing Director), Nicola Rossi (Chief Financial Officer).

PRODUCT RANGE

PRODUCT RANGE	API 6D				API 6A				
	SIZE (in/mm) – PRESSURE RANGE				SIZE (in/mm) – PRESSURE RANGE ⁽¹⁾				
	ASME 150–600	ASME 900	ASME 1500	ASME 2500	API 2000	API 3000	API 5000	API 10000	API 15000

SIDE-ENTRY - Mod. VB2 /VB3

Standard	1–64 25–1600	1–56 25–1400	1–40 25–1000	1–32 25–800	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300
Low temperature -46°C / -50°F	1–64 25–1600	1–56 25–1400	1–40 25–1000	1–32 25–800	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300
Cryogenic -47°C to -196°C / -52°F to -320°F	1–36 25–900	1–36 25–900	1–24 25–600	1–12 25–400	N/A	N/A	N/A	N/A	N/A
Sub sea	1–64 25–1600	1–56 25–1400	1–40 25–1000	1–32 25–800	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300
Underground	1–64 25–1600	1–56 25–1400	1–40 25–1000	1–32 25–800	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300
High temperature 280°C to 450°C / 536°F to 842°F	1–36 25–900	1–36 25–900	1–24 25–600	1–12 25–400	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300
Underground - low temperature -46°C / -50°F	1–64 25–1600	1–56 25–1400	1–40 25–1000	1–32 25–800	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300

WELDED BODY - Mod. VW1

Standard	2–64 50–1600	2–36 50–900	2–16 50–400	N/A
Low temperature -46°C / -50°F	2–64 50–1600	2–36 50–900	2–16 50–400	N/A
Sub sea	2–64 50–1600	2–36 50–900	2–16 50–400	N/A
Underground	2–64 50–1600	2–36 50–900	2–16 50–400	N/A
Underground - low temperature -46°C / -50°F	2–64 50–1600	2–36 50–900	2–16 50–400	N/A

TOP-ENTRY - Mod. VT1

Standard	2–56 50–1400	2–48 50–1200	2–30 50–750	2–16 50–400	1–8 25–200	1–8 25–200	1–8 25–200	1–8 25–200	N/A
Low temperature -46°C / -50°F	2–56 50–1400	2–48 50–1200	2–30 50–750	2–16 50–400	1–8 25–200	1–8 25–200	1–8 25–200	1–8 25–200	N/A
Cryogenic -47°C to -196°C / -52 to -320°F	2–36 50–900	2–36 50–900	2–24 50–600	2–12 50–300	N/A	N/A	N/A	N/A	N/A
Sub sea	2–56 50–1400	2–48 50–1200	2–30 50–750	2–16 50–400	1–8 25–200	1–8 25–200	1–8 25–200	1–8 25–200	N/A
Underground	2–56 50–1400	2–48 50–1200	2–30 50–750	2–16 50–400	1–8 25–200	1–8 25–200	1–8 25–200	1–8 25–200	N/A
High temperature 280°C to 450°C / 536°F to 842°F	2–36 50–900	2–36 50–900	2–24 50–600	2–12 50–300	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	N/A
Underground - low temperature -46°C / -50°F	2–56 50–1400	2–48 50–1200	2–30 50–750	2–16 50–400	1–8 25–200	1–8 25–200	1–8 25–200	1–8 25–200	N/A

(1) The API designation is the actual working pressure in psi.

VALBART SRL MANUFACTURING CAPABILITIES



Valves assembled in Valve Automation Center



48 inch Class 600 valve with Electrohydraulic actuator

VALBART SRL

Valbart Srl, located in Mezzago (Milan), Italy, is a world leader in industrial valve manufacturing, and a group of professional engineers with long standing experience in ball valve design and manufacturing, led by Roberto Bartolena, President of Valbart Srl.

Roberto has spent over 40 years in the valve industry in various positions of management with several leading valve companies, some of which he started himself.

VALBART SRL R&D DEPARTMENT

Valbart Srl’s R&D facilities provide the company with extensive testing capabilities such as qualification tests to determine reliability and service life under critical operating conditions and pressure testing in accordance with the ASME code as well as the other industry standards (see page 32 for details).



Testing facilities for valves up to 64 inch (1600 mm).

IN-HOUSE CAPABILITIES

Valbart Srl has a machining shop and a welding shop in house. The welding facility is equipped with hi-tech SAW robots operated by fully qualified welders. The NDT examinations of the weld bevels and beams are carried out by our qualified QC personnel using our own ultrasonic, magnetic particle, and dye penetrant equipment. Valbart Srl also plans to build a radiographic facility.

CERTIFICATION AND APPROVALS

Valbart Srl’s quality program is fully compliant with the industry’s most stringent standards.

Valbart Srl holds all major approvals, including ISO 9001:2000, PED, API 6D, API 6A, API 6D SS, SIL 3, and TA-Luft.



INVENTORY OF FINISHED COMPONENTS

Valbart Srl has an inventory of finished components stored in our workshop facility that are fully identified with a code number. The storage area will keep expanding along with our company’s growth.



Valbart Srl’s continuously expanding inventory.

ENGINEERED SOLUTIONS



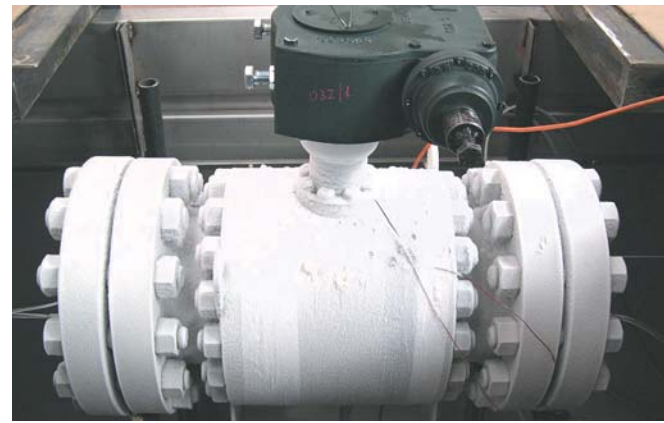
Hyperbaric testing.

Valbart Srl has a strong Engineering Design Group with extensive experience in critical applications and hands-on expertise using advanced software and technology that meet the most demanding performance requirements.

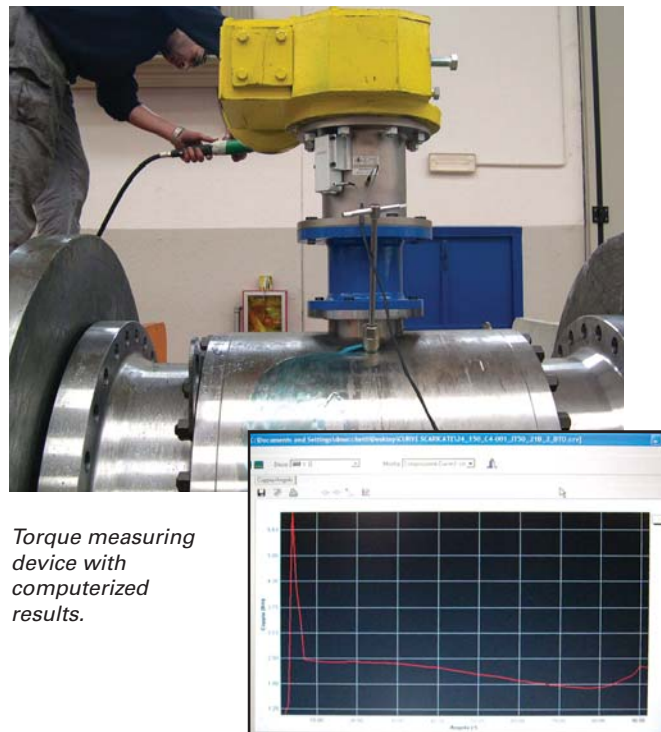
Our R&D and testing facilities enable us to run the most comprehensive testing programs and accommodate valves up to 64" (1600 mm) in diameter and 40 tons in weight. In addition, given our proximity to major university and testing laboratories, we're well positioned to handle any extremely specialized tests – such as the hyperbaric test for sub-sea valves – that cannot be done in house.



High Pressure System for Gas Testing



Cryogenic testing on an 8" (20 mm) class 300 valve.



Torque measuring device with computerized results.



High Temperature Valve Testing

MACHINERY AND EQUIPMENT

Valbart Srl's production equipment uses the latest automation technology and is specially engineered to meet the requirements of advanced large valve manufacturing.

This includes large CNC horizontal and vertical boring mills with tool changers, NC lathes, and NC machining centers for valve bodies and parts. Valbar Srl has qualified procedures, welders, and welding operators for all major weld processes.

The production testing equipment is designed to safely and efficiently test 100% of the current production of low- and high-pressure valves in strict accordance with industry codes and standards, as well as customer-imposed criteria.



Horizontal (foreground) and vertical (background) lathes.



SAW Welding Robot applying weld overlay on valve closure



SAW robot welding a 36" Class 600 Valve



A horizontal boring mill in operation.



Boring machine.



Machining center.

Valbart's standard trunnion-mounted ball valves offer increased value by incorporating advanced design features.

TRUNNION-MOUNTED BALL

The ball is fixed and the seat rings are floating, free to move along the valve axis.

Side load generated by the pressure acting on the ball is absorbed by bearings.

At low pressure, the seat sealing action is achieved by the thrust of the springs acting on the seat rings.

As the pressure increases, the fluid pressure pushes the seat rings against the ball.

INDEPENDENT BALL AND STEM

The ball and stem are independent to minimize the effect of the side thrust generated by the pressure acting on the ball.

BALL SEAT ALIGNMENT

Mechanical stops ensure control over ball rotation.

EMERGENCY SEALANT INJECTION

Each valve is supplied complete with emergency sealant injection feature located between the upper O-rings and the graphite gasket.

An emergency sealant injection feature on seats is available upon request only, for 6" full port and larger.

Emergency grease injection features are not available on low-and high-temperature valves.

STEM SEALING

Two O-rings and one graphite gasket ensure the stem seal.

The graphite gasket can be replaced while the valve is under pressure and with the ball in any position. First, release any pressure that may exist between the upper O-ring and the graphite gasket through the grease injection fitting hole and then remove the adaptor plate.

The O-rings can be replaced with the valve in fully open or fully closed position by removing the stem cover (after having released all the pressure in the body cavity).

BODY SEALING

The double sealing action of O-rings and graphite gaskets in all the static joints of the body components ensures zero leakage and the Fire Safe feature.

Lip-seal rings and/or graphite gaskets can be used for special service.

ANTI-BLOWOUT STEM

Stem is retained by the stem cover (other designs available on request).

ANTI-STATIC DESIGN

The electrical conductance continuity between all the metallic components is guaranteed and certified.

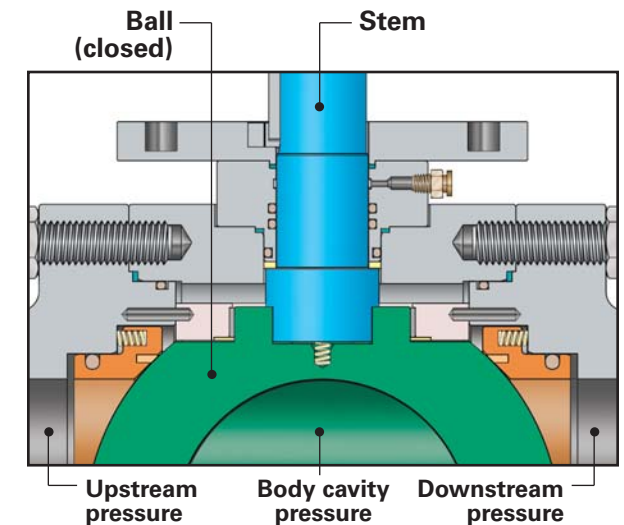
FLOATING SELF-RELIEVING SEAT RINGS

Two independent floating seat rings assure the bi-directional tightness of the valve. The seats are carefully designed to minimize the torque required to operate the valves without losing sealing power, which is assured from zero differential pressure to the valve's maximum rated pressure.

Self-relieving seats are supplied as a standard feature. Double piston or combination seats (self-relieving/upstream, double piston/down-stream) can be supplied upon request.

LOW EMISSION VALVES

Accurate machining of stem and bonnet sealing surfaces ensures compliance with the most severe pollution-control regulations.



DOUBLE BLOCK AND BLEED

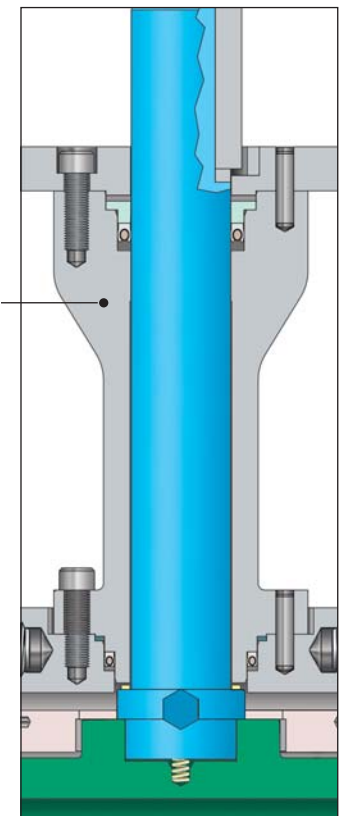
All Valbart Srl trunnion-mounted ball valves are designed and manufactured to seal off both seats at the same time and allow bleeding of the entrapped cavity pressure (DBB) with the ball in the closed position.

Both seats hold their respective pressures independent of the body cavity pressure. The double block and bleed feature makes it possible to do such things as flush the valve under pressure and verify that the seats are sealing properly.

EXTENDED BONNET

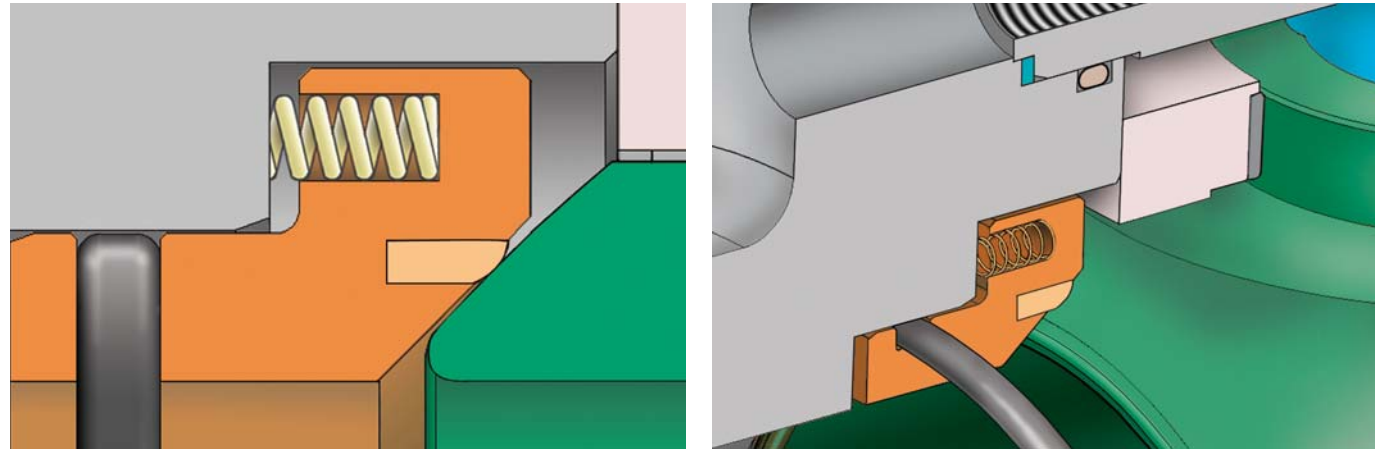
Valve designs are available with extended bonnets for applications in extreme temperature service.

Extended bonnets are recommended for service at temperatures below -50°C (-58°F) or above 220°C (428°F).

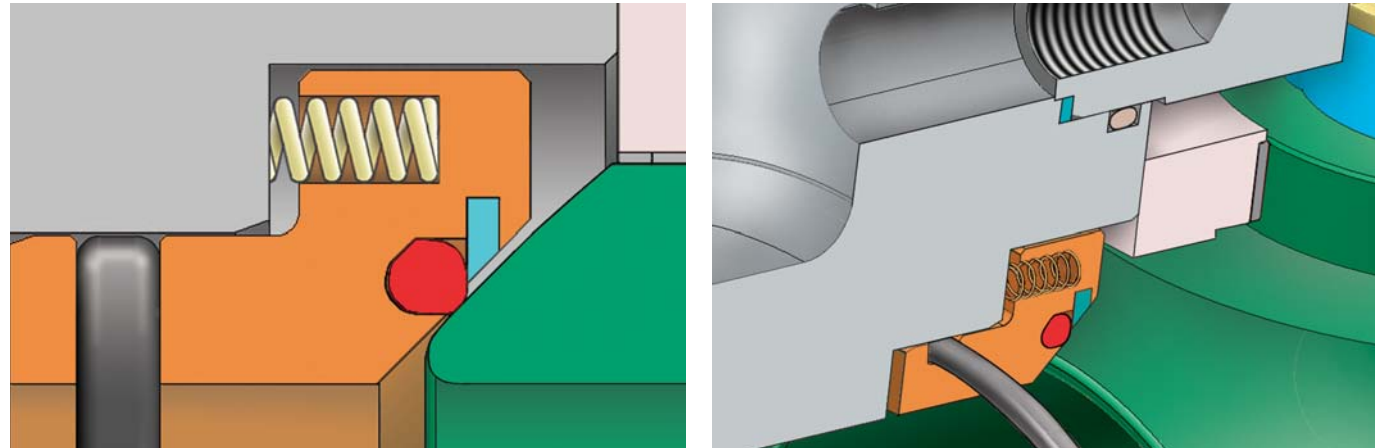


SOFT-SEATED VALVES (PRIMARY METAL, SECONDARY SOFT)

In valves designed for standard service, a resilient material is inserted into the metal seat holder to provide a soft seating action in addition to the metal to metal seating between the ball and the seat rings.



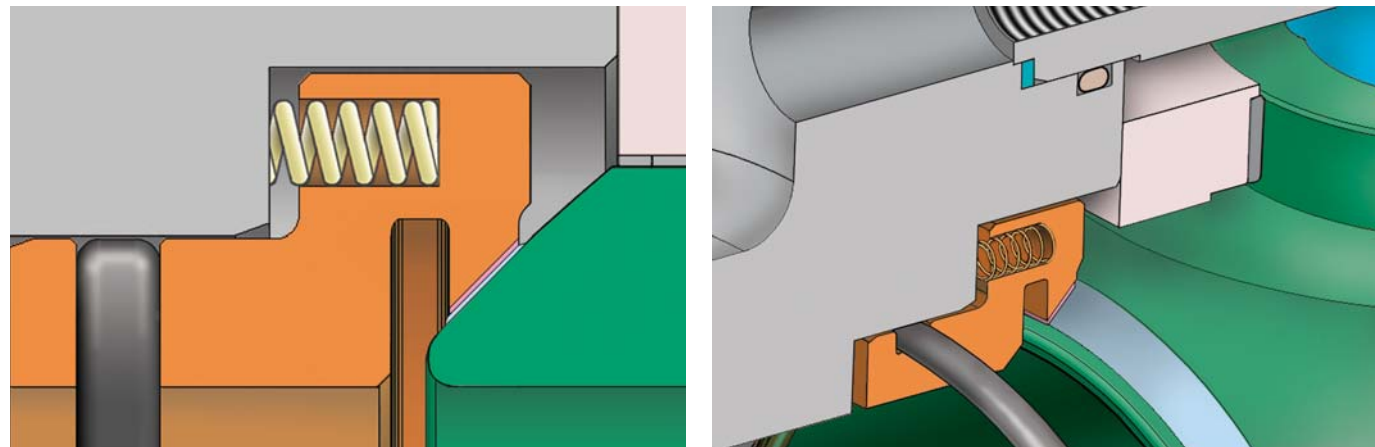
All sizes and pressure class.



6" and larger – ASME class 150–600 only

METAL-SEATED VALVES

Valves designed for abrasive service or for operation in temperatures that prohibit the use of a resilient material have seating action provided by the metal-to-metal contact between the ball and the seat rings. Seating faces are hardfaced.

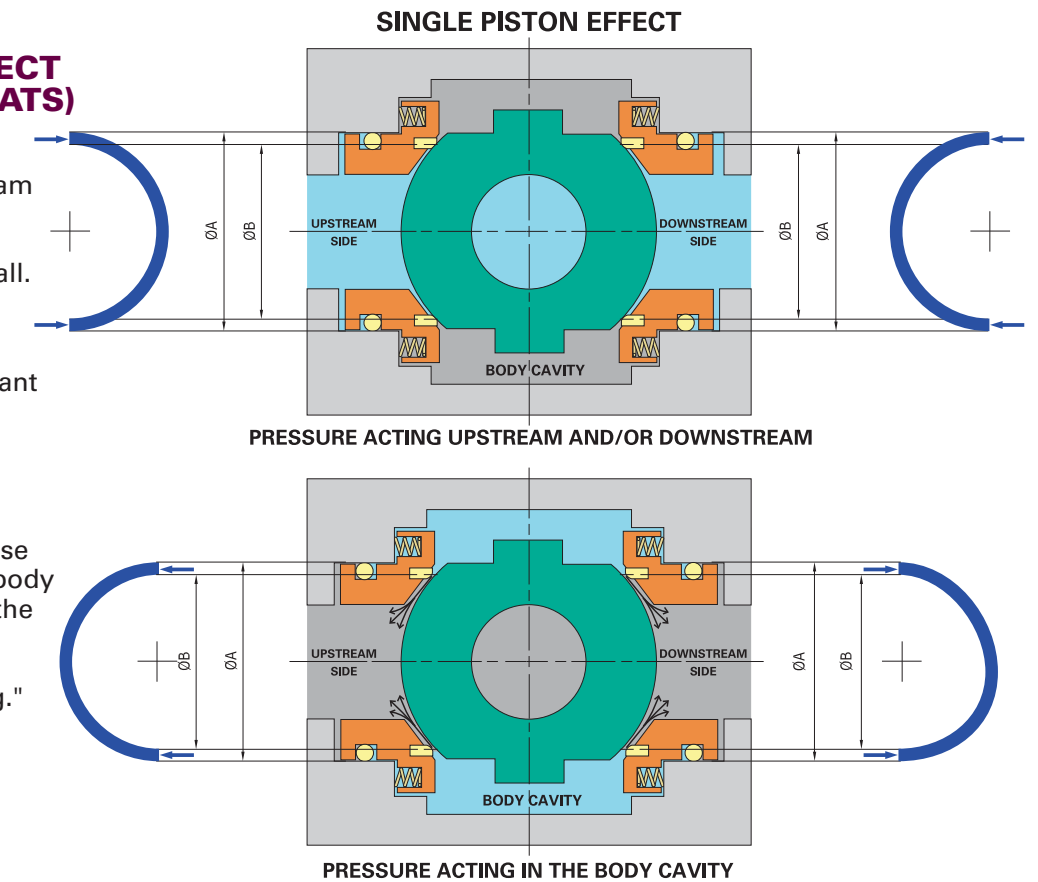


STANDARD SINGLE PISTON EFFECT (SELF-RELIEVING SEATS)

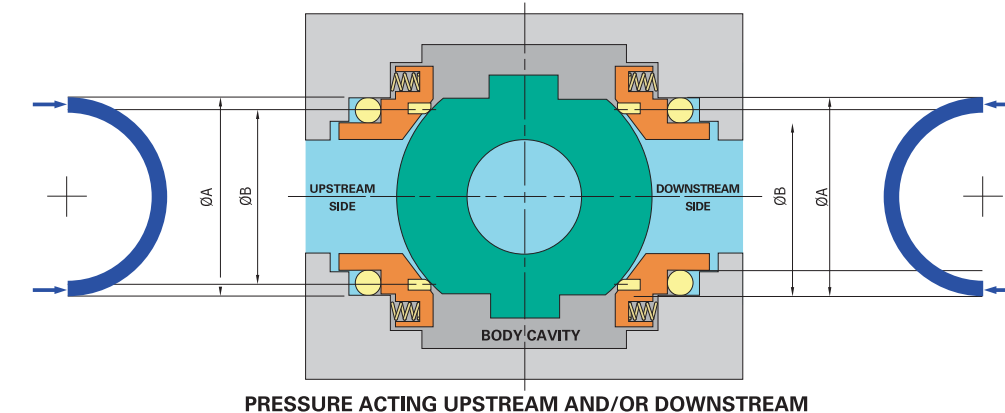
Fluid pressure, both upstream and downstream, creates a resultant thrust that pushes the seat rings against the ball.

Fluid pressure acting in the body cavity creates a resultant thrust that pushes the seat rings away from the ball.

The single piston design permits the automatic release of any overpressure in the body cavity when the valve is in the fully open or fully closed position. Consequently, the seat rings are "self-relieving."

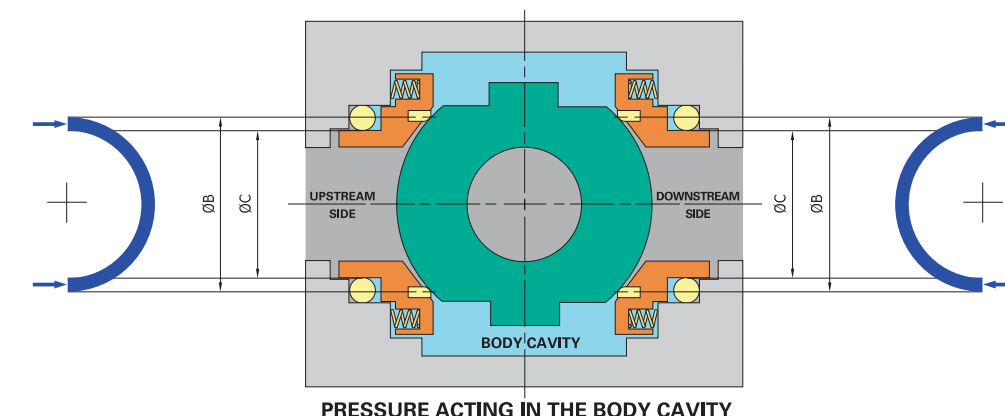


DOUBLE PISTON EFFECT



OPTIONAL DOUBLE PISTON EFFECT

Fluid pressure, both upstream and downstream as well as in the body cavity, creates a resultant thrust that pushes the seat rings towards the ball.



Valves with double piston effect seat rings require a relief valve to reduce the build-up of overpressure in the body cavity.

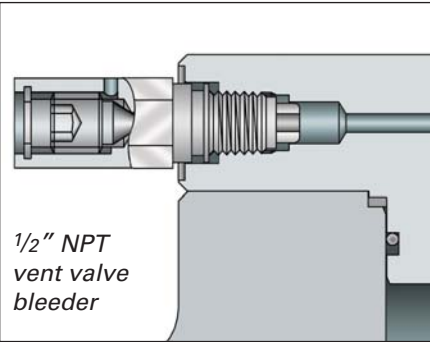
VALBART TRUNNION-MOUNTED

BALL VALVE DESIGN FEATURES

EXTENDED STEM

Valves installed underground or in remote locations can be operated with an optional extended stem.

All the drain, vent, and emergency sealant connections can be operated using extended connecting pipes firmly attached to the stem protective cover.



VENT VALVE AND DRAIN PLUG

Each valve 6" and larger is supplied complete with a 1/2" NPT vent valve located in the upper part of the body and complete with a drain plug located in the lower part of the body.

ACTUATION

Hand-operated valves are supplied either with a lever or gear operator.

The use of a wrench is limited to valves equal to or smaller than:

- 4" – Class 150
- 3" – Class 600
- 2" – Class 1500
- 1" – Class 2500
- 4" – Class 300
- 3" – Class 900

Actuated valves can be supplied with:

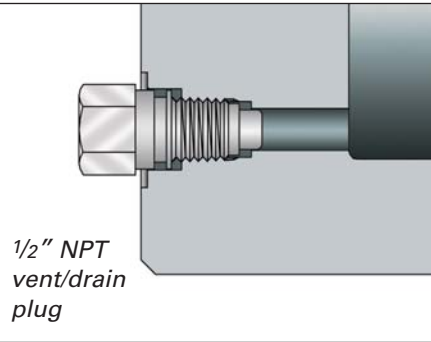
- Electric actuators
- Pneumatic actuators
- Hydraulic actuators
- Gas over oil actuators for ESDV, SDV, BDV, MOV, GOV, and HIPPS services

MOUNTING OPERATORS VALVE AUTOMATION CENTER

Operator mounting should be made at the Valbart Srl Valve Automation Center before shipment. If the operators will be assembled on site, the mounting will be made before installing the valves in line, following Valbart Srl instructions.

Mounting of operators on valves already installed in line is not recommended and will be performed only under the supervision of Valbart Srl.

Operator mounting flanges are in accordance with ISO 5211-FF.



Each valve 6 x 4" and smaller is supplied complete with a 1/2" NPT vent/drain valve located in the lower part of the body.

ENDS

Valve ends can be manufactured to several configurations to comply with customer requests, such as:

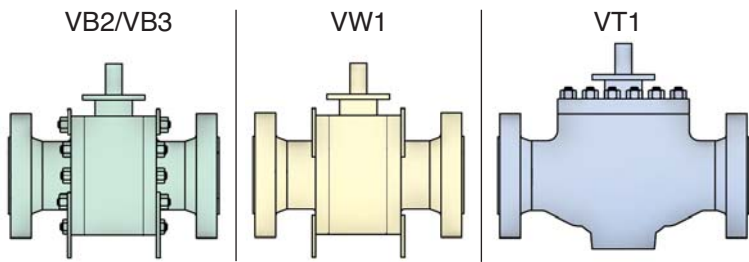
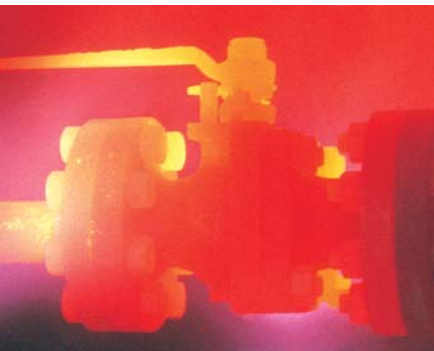
Flanged RF or RTJ to ASME B16.5 up to 24" (MSS SP-44 for 22") and B16.47A for 26" and larger. Other type of flanges are available upon request.

Butt-weld ends to ASME B16.25. Others types of weld ends are available upon request.

Hub ends for clamped connections are available as per customer specification.

FIRE SAFE

Valbart trunnion-mounted ball valves are designed and certified Fire Safe to API 6FA, API 607, and ISO 10497.



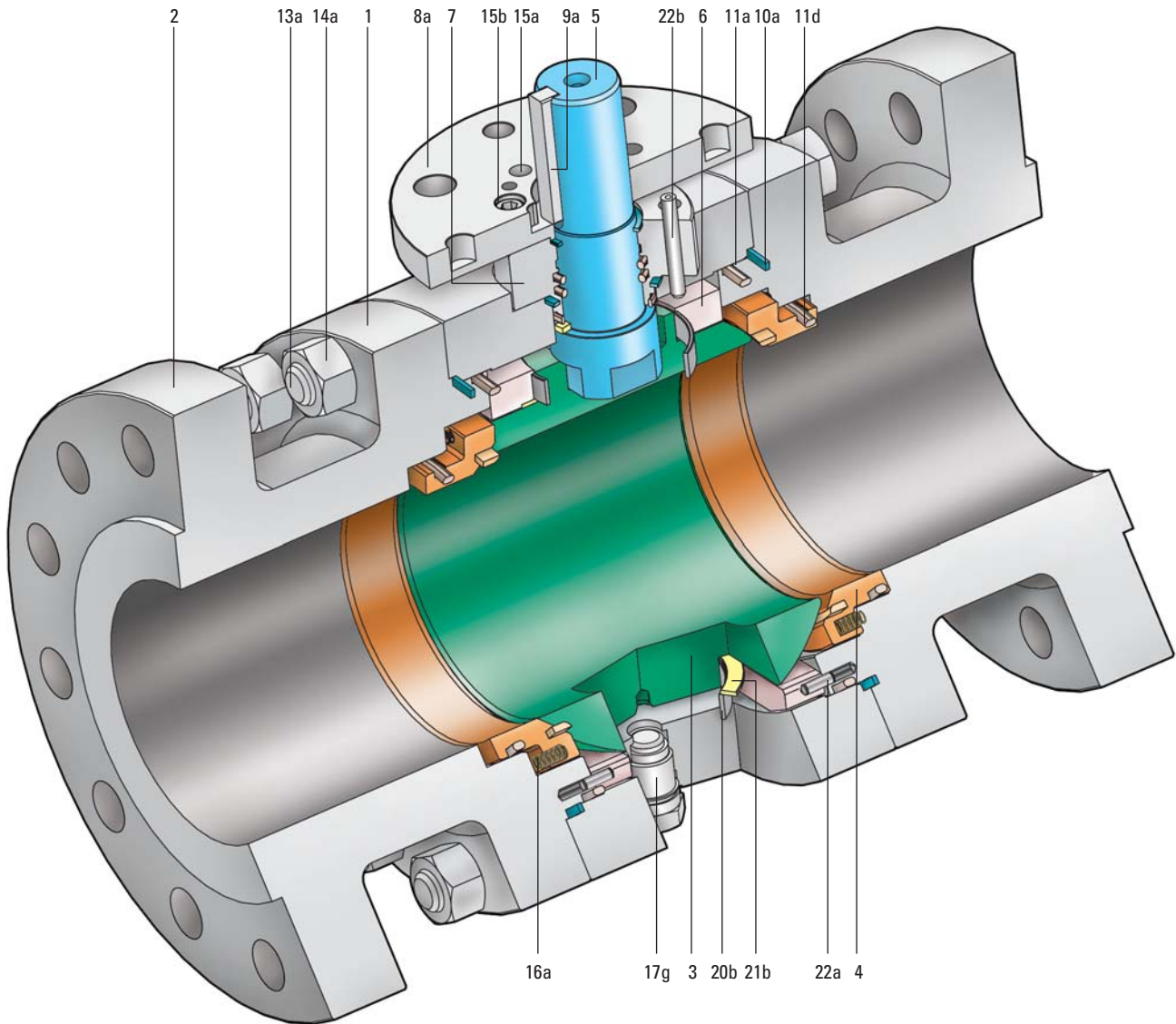
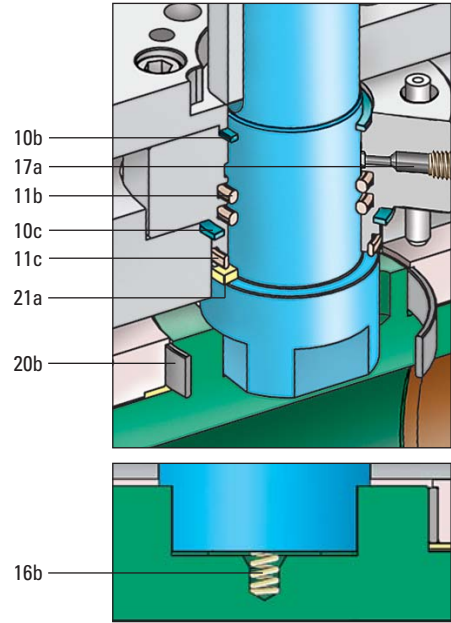
FEATURES	SIDE-ENTRY	WELDED BODY	TOP-ENTRY
Trunnion-mounted	Standard	Standard	Standard
Independent stem and ball	Standard	Standard	Standard
Independent floating seats	Standard	Standard	Standard
Primary soft seat - secondary metal seat	Standard	Standard	Standard
Primary metal seat - secondary soft seat	On request	On request	On request
Metal-to-metal seat	On request	N/A	On request
Self relieving seats	Standard	Standard	Standard
Single piston seat effect	Standard	Standard	Standard
Double piston seat effect	On request	On request	On request
Combination (self relieving/double piston) seats	On request	On request	On request
API 6A or API 6D design and construction	As required	As required	As required
Face-to-face dimensions to API 6D and ANSI B16.10	Standard	Standard	Standard
Fire safe design to API 6FA - API 607 - BS 6755 part 2	Standard	Standard	Standard
Full, reduced or venturi port	As required	As required	As required
Flanged ends - welded ends - hub ends	As required	As required	As required
Transition pups for welded end valves	On request	On request	On request
Antistatic	Standard	Standard	Standard
Anti-blowout stem	Standard	Standard	Standard
Double block and bleed	As required	As required	As required
Possibility to check seat integrity in line with ball in open or closed position	Standard	Standard	Standard
Double body seals	Standard	Not required	Standard
Triple stem seals	Standard	Standard	Standard
Drain plug	Standard	Standard	Standard
Drain valve	On request	On request	On request
Vent valve (on 6" and larger)	Standard	Standard	Standard
Emergency sealant injection on stem	Standard	Standard	Standard
Emergency sealant injection on seats (on 6" and larger)	On request	On request	On request
Seat pocket overlay	On request	On request	On request
Seals area overlay	On request	On request	On request
Wetted parts overlay	On request	On request	On request
Body internal lining	On request	N/A	On request
Extended stem for underground installation	As required	As required	As required
Extended bonnet for low or high temperature	As required	N/A	As required
Locking device	On request	On Request	On request
Lifting lugs	Standard On 6" and larger	Standard On 6" and larger	Standard On 6" and larger
Supporting feet	Standard On 6" and larger	Standard On 6" and larger	Standard On 6" and larger
Manual or motorized operation	As required	As required	As required
In-line maintenance	N/A	N/A	Yes
On site maintenance	Yes	N/A On stem & ancillaries only	Yes

Note: Other features are available on request.

BOLTED BODY SIDE-ENTRY 6" AND LARGER - Mod VB3

PARTS LIST			
1	Body	14a	Body/closure nut
2	Closure	15a	Stem cover/body socket screw ⁽²⁾
3	Ball	15b	Operator flange/body socket screw
4	Seat	15d	Stop seat socket screw ^{(1)/(2)}
5	Stem	16a	Seat spring
6	Bearing retainer	16b	Antistatic spring
7	Stem cover	17a	Stem greaser
8a	Operator flange	17e	Vent bleeder valve ⁽²⁾
9a	Stem key	17g	Drain plug
10a	Body gasket	20b	Ball bushing
10b	Stem gasket	21a	Stem thrust washer
10c	Stem cover gasket	21b	Ball thrust washer
11a	Body O-ring	22a	Bearing retainer pin
11b	Stem O-ring	22b	Operator flange/body pin
11c	Stem cover O-ring	23a	Lifting lug ⁽²⁾
11d	Seat O-ring	23b	Valve support ⁽²⁾
13a	Body/closure stud	24a	Stop seat washer ^{(1)/(2)}

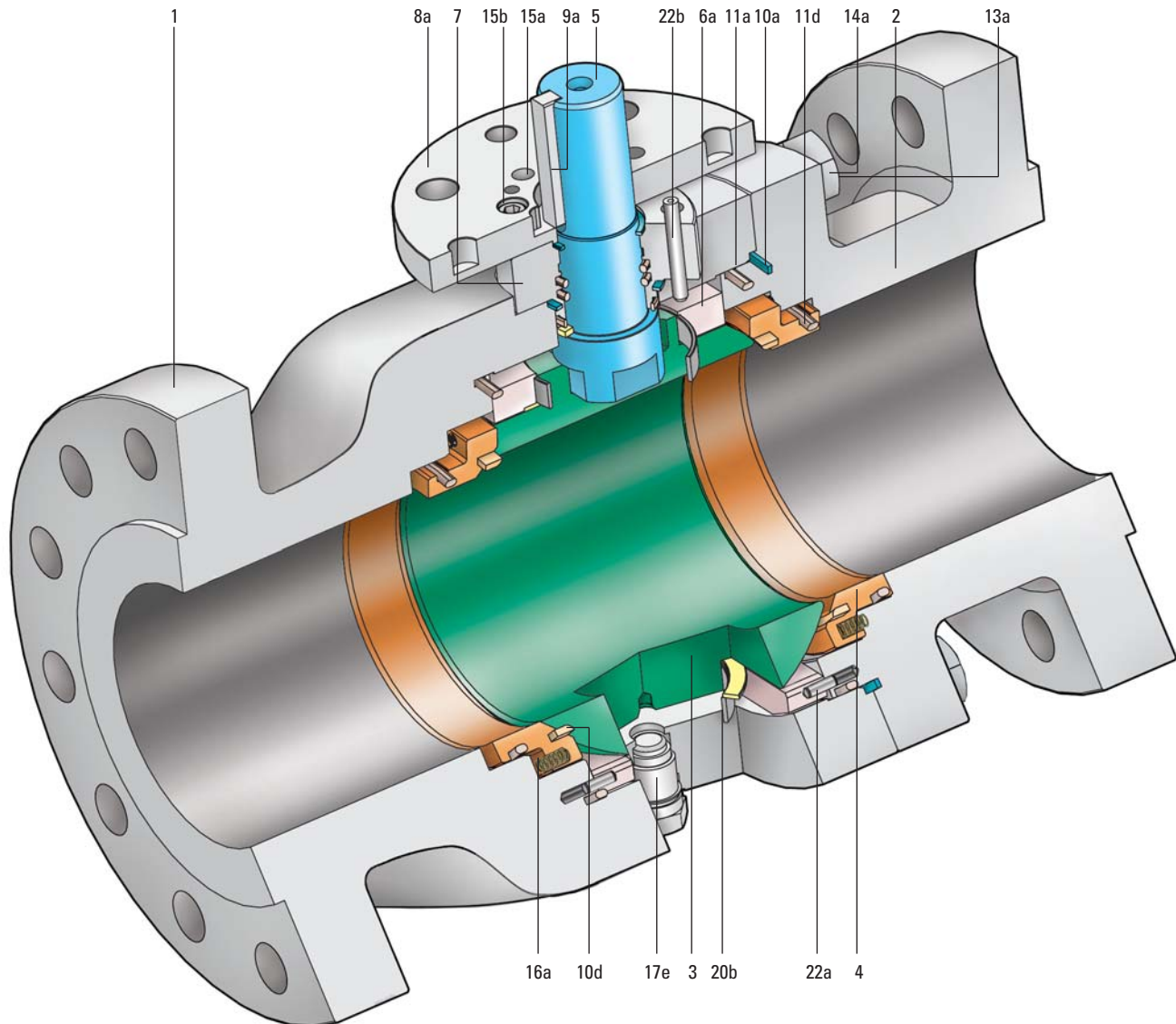
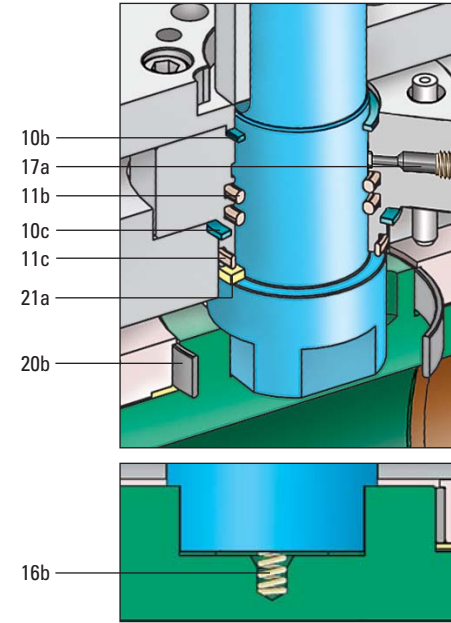
(1) Only for DN > 8" (2) Not visible in drawing below .



BOLTED BODY SIDE-ENTRY 4" AND SMALLER - Mod VB2

PARTS LIST			
1	Body	11c	Stem cover O-ring
2	Closure	11d	Seat O-ring
3	Ball	13a	Body/closure stud ⁽¹⁾
4	Seat	14a	Body/closure nut
5	Stem	15a	Stem cover/body socket screw ⁽¹⁾
6a	Trunnion	15b	Operator flange/body socket screw
7	Stem cover	16a	Seat spring
8a	Operator flange	16b	Antistatic spring
9a	Stem key	17a	Stem greaser
10a	Body gasket	17e	Vent bleeder valve
10b	Stem gasket	20b	Ball bushing
10d	Seat gasket	21a	Stem thrust washer
11a	Body O-ring	22a	Bearing retainer pin
11b	Stem O-ring	22b	Operator flange/body pin

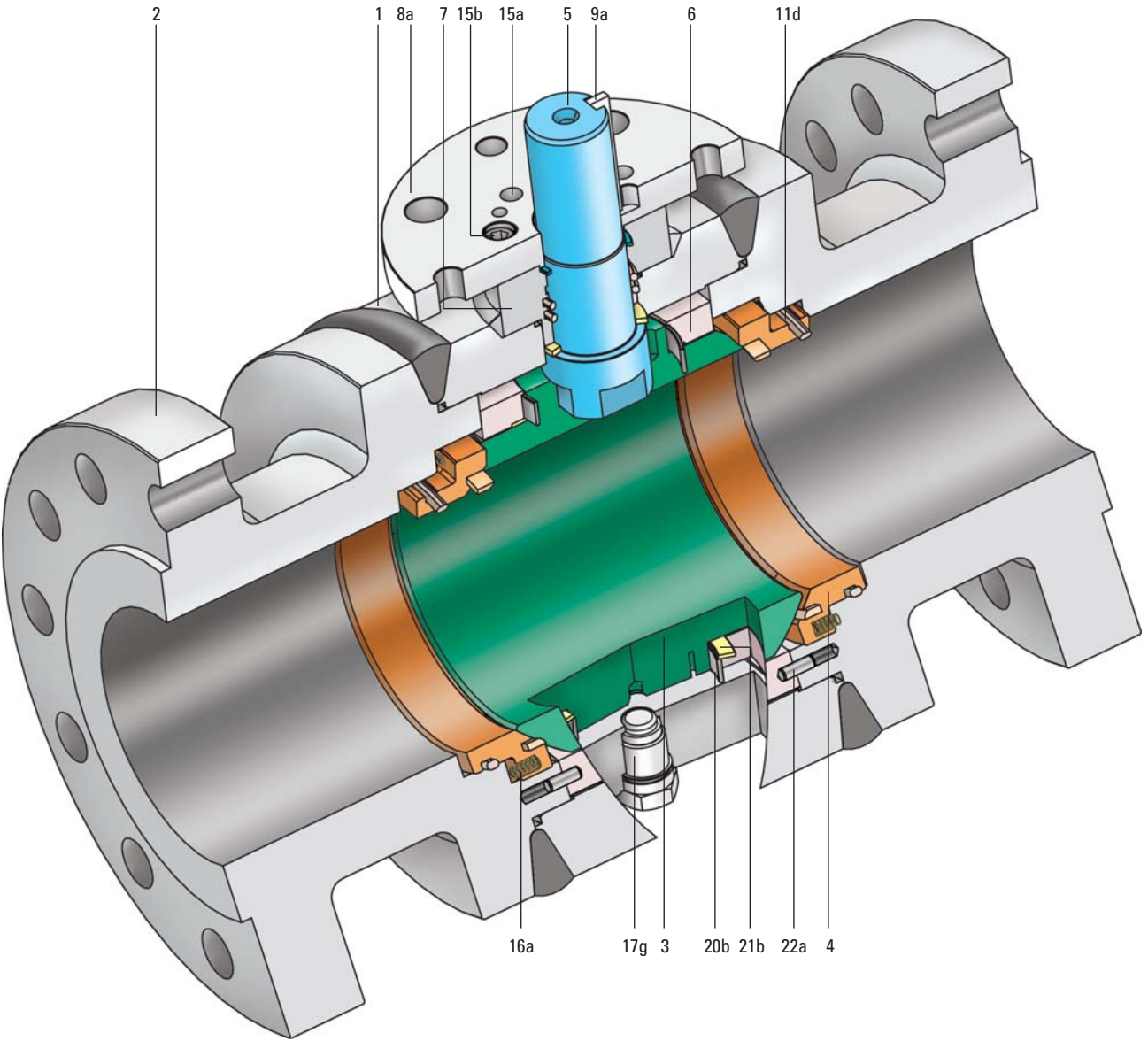
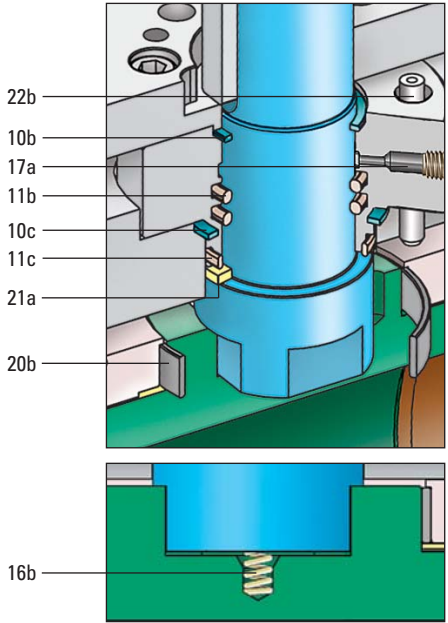
(1) Not visible in drawing below .



WELDED BODY - Mod VW1

PARTS LIST			
1	Body	15b	Operator flange/body socket screw
2	Closure	15d	Stop seat socket screw ^{(1)/(2)}
3	Ball	16a	Seat spring
4	Seat	16b	Antistatic spring
5	Stem	17a	Stem greaser
6	Bearing retainer	17e	Vent bleeder valve
7	Stem cover	17g	Drain plug
8a	Operator flange	20b	Ball bushing
9a	Stem key	21a	Stem thrust washer
10b	Stem gasket	21b	Ball thrust washer
10c	Stem cover gasket	22a	Bearing retainer pin
11b	Stem O-ring	22b	Operator flange/body pin
11c	Stem cover O-ring	23a	Lifting lug ⁽²⁾
11d	Seat O-ring	23b	Valve support ⁽²⁾
15a	Stem cover/body socket screw ⁽²⁾	24a	Stop seat washer ^{(1)/(2)}

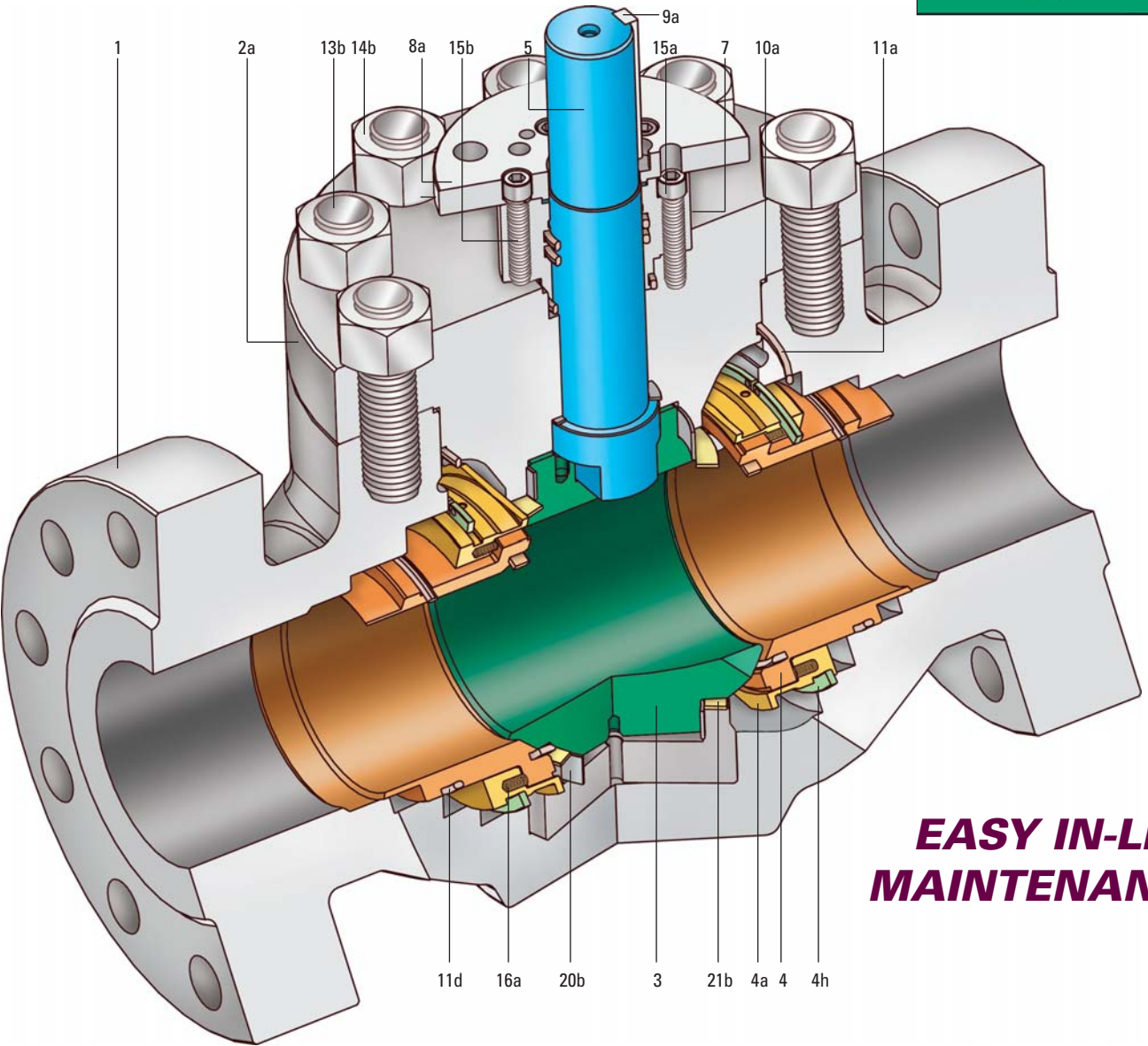
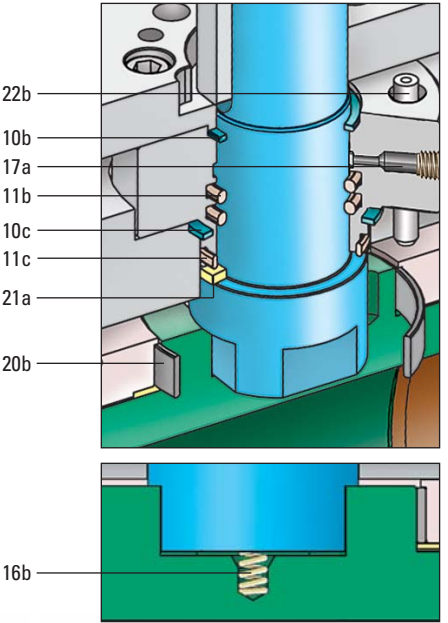
(1) Only for DN > 8" (2) Not visible in drawing below .



TOP-ENTRY - Mod VT1

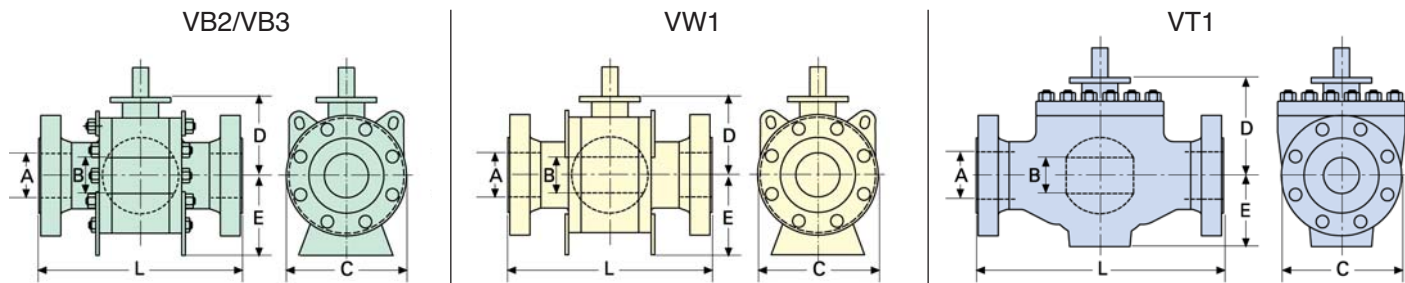
PARTS LIST			
1	Body	11c	Stem cover O-ring
2a	Bonnet	11d	Seat O-ring
3	Ball	13b	Body/bonnet stud
4	Seat	14b	Body/bonnet nut
4a	Spring holder ring	15a	Stem cover/body socket screw
4h	Retaining ring	15b	Operator flange/body socket screw
5	Stem	16a	Seat spring
7	Stem cover	16b	Antistatic spring
8a	Operator flange	17a	Stem greaser
9a	Stem key	17e	Vent bleeder valve ⁽¹⁾
10a	Body gasket	17g	Drain plug ⁽¹⁾
10b	Stem gasket	20b	Ball bushing
10c	Stem cover gasket	21a	Stem thrust washer
11a	Body O-ring	21b	Ball thrust washer
11b	Stem O-ring	22b	Operator flange/body pin

(1) Not visible in drawing below .



EASY IN-LINE
MAINTENANCE

DIMENSIONS AND WEIGHTS

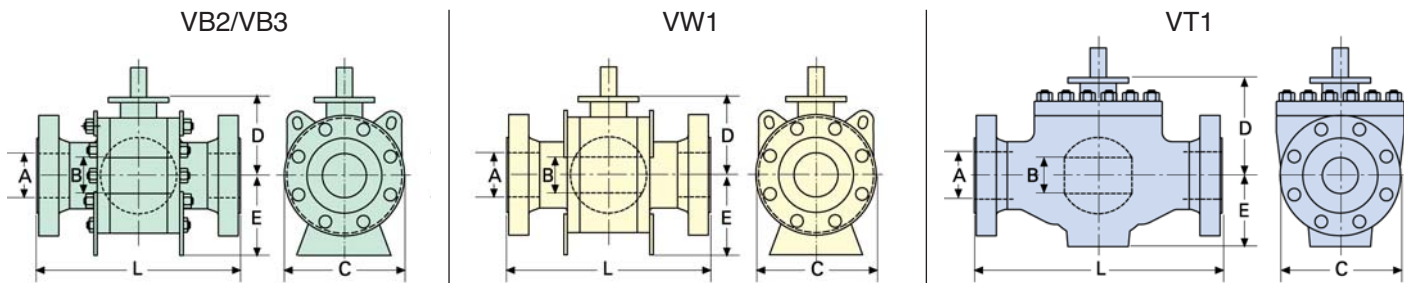


ASME CLASS 150 FULL BORE

ALL TYPES			SIDE-ENTRY						WELDED BODY						TOP-ENTRY					
SIZE in/mm	A	B	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*
2 50	1.93 49	1.93 49	7.00 178	8.50 216	6.02 153	4.17 106	4.02 102	59 27	7 178	8.5 216	6.02 153	4.17 106	4.02 102	(1)	11.5 292	11.5 292	7.09 180	8.15 207	3.35 85	66 30
3 80	2.91 74	2.91 74	8.00 203	11.13 283	7.52 191	6.18 157	4.96 126	119 54	8 203	11.13 283	7.52 191	6.18 157	4.96 126	(1)	14 356	14 356	9.06 230	8.78 223	4.49 114	125.4 57
4 100	3.94 100	3.94 100	9 229	12 305	9.13 232	7.80 198	6.42 163	196 89	9 229	12 305	9.13 232	7.80 198	6.42 163	(1)	17 432	17 432	11.10 282	11.02 280	5.51 140	220 100
6 150	5.91 150	5.91 150	15.5 394	18 457	12.09 307	9.72 247	7.36 187	352 160	15.5 394	18 457	12.09 307	9.72 247	7.36 187	(1)	22 559	22 559	12.72 323	10.83 275	8.62 219	473 215
8 200	7.91 201	7.91 201	18 457	20.5 521	15.43 392	11.02 280	8.82 224	557 253	18 457	20.5 521	15.43 392	11.02 280	8.82 224	(1)	26 660	26 660	15.94 405	12.64 321	10.43 265	895.4 407
10 250	9.92 252	9.92 252	21 533	22 559	18.31 465	12.60 320	10.94 278	851 387	21 533	22 559	18.31 465	12.60 320	10.94 278	(1)	31 787	31 787	19.29 490	13.98 355	12.40 315	1232 560
12 300	11.93 303	11.93 303	24 610	25 635	21.38 543	13.27 337	12.05 306	1230 559	24 610	25 635	21.38 543	13.27 337	12.05 306	(1)	33 838	33 838	22.24 565	18.50 470	15.94 405	1562 710
14 350	13.15 334	13.15 334	27 686	30 762	23.94 608	14.72 374	13.15 334	1672 760	27 686	30 762	23.94 608	14.72 374	13.15 334	(1)	35 889	35 889	25.98 660	17.91 455	17.01 432	1672 760
16 400	15.16 385	15.16 385	30 762	33 838	26.57 675	16.06 408	14.09 358	2244 1020	30 762	33 838	26.57 675	16.06 408	14.09 358	(1)	39 991	39 991	27.56 700	18.11 460	17.76 451	2420 1100
18 450	17.17 436	17.17 436	34 864	36 914	25.00 635	17.28 439	15.35 390	2673 1215	34 864	36 914	25.00 635	17.28 439	15.35 390	(1)	43 1092	43 1092	29.41 747	19.80 472	18.58 472	3326.4 1512
20 500	19.17 487	19.17 487	36 914	39 991	33.43 849	19.37 492	17.09 434	3945 1793	36 914	39 991	33.43 849	19.37 492	17.09 434	(1)	47 1194	47 1194	33.43 849	22.05 560	22.05 560	4246 1930
22 550	21.18 538	21.18 538	40 991	43 1092	36.81 935	20.79 477	18.78 477	5190 2359	40 991	43 1092	36.81 935	20.79 528	18.78 477	(1)	51 1296	51 1296	36.81 935	22.24 565	23.27 591	6050 2750
24 600	23.19 589	23.19 589	42 1067	45 1143	39.57 1005	23.15 588	20.59 523	6818 3099	42 1067	45 1143	39.57 1005	23.15 588	20.59 523	(1)	55 1397	55 1397	39.57 1005	24.02 610	23.62 600	7040 3200
26 650	24.92 633	24.92 633	45 1143	49 1245	41.97 1066	24.69 627	22.20 564	8107 3685	45 1143	49 1245	41.97 1066	24.69 627	22.20 564	(1)	57 1448	57 1448	41.97 1066	26.38 670	24.88 632	8360 3800
28 700	26.93 684	26.93 684	49 1244	53 1347	44.72 1136	25.35 644	25.91 658	9878 4490	49 1244	53 1347	44.72 1136	25.35 644	25.91 658	(1)	61 1549	61 1549	44.72 1136	27.95 730	27.95 710	10120 4600
30 750	28.94 735	28.94 735	51 1295	55 1397	38.78 985	27.20 691	27.72 704	11473 5215	51 1295	55 1397	38.78 985	27.20 691	27.72 704	(1)	65 1651	65 1651	49.57 1259	31.50 800	31.10 790	12386 5630
32 800	30.67 779	30.67 779	54 1371	60 1524	51.18 1300	29.21 742	29.37 746	14960 6800	54 1371	60 1524	51.18 1300	29.21 742	29.37 746	(1)	70 1778	70 1778	51.18 1300	33.31 846	32.68 830	15587 7085
34 850	32.68 830	32.68 830	58 1473	64 1626	53.94 1370	29.88 759	30.43 773	17160 7800	58 1473	64 1626	53.94 1370	29.88 759	30.43 773	(1)	76 1930	76 1930	55.12 1400	34.25 870	34.65 880	17160 7800
36 900	34.41 874	34.41 874	60 1524	68 1728	56.30 1430	31.97 812	31.77 807	19360 8800	60 1524	68 1728	56.30 1430	31.97 812	31.77 807	(1)	82 2083	82 2083	56.61 1438	36.81 935	36.73 933	20020 9100
40 1000	38.43 976	38.43 976	69 1753	77 1956	62.80 1595	35.43 900	35.35 898	27632 12560	69 1753	77 1956	62.80 1595	35.43 900	35.35 898	(1)	92 2337	92 2337	64.96 1650	39.84 1012	40.55 1030	28138 12790
42 1050	40.16 1020	40.16 1020	70.47 1790	82 2083	64.96 1650	37.13 943	36.89 937	31416 14280	70.47 1790	82 2083	64.96 1650	37.13 943	36.89 937	(1)	96 2437	96 2437	66.93 1700	42.13 1070	41.93 1065	33220 15100
48 1200	45.91 1166	45.91 1166	78.54 1995	94 2388	75.59 1920	43.19 1097	41.97 1066	48180 21900	78.54 1995	94 2388	75.59 1920	43.19 1097	41.97 1066	(1)	100 2540	100 2540	76.77 1950	46.85 1190	48.43 1230	49720 22600
56 1400	53.54 1360	53.54 1360	97.99 2489	97.99 2489	88.98 2260	51.26 1302	49.33 1253	70520 34100	97.99 2489	97.99 2489	88.98 2260	51.26 1302	49.33 1253	(1)	TBA TBA	TBA TBA	TBA TBA	TBA TBA	TBA TBA	TBA TBA

* Weight figures are relevant to flanged end valves.
(1) Please consult the factory.
Note: For dimensions and weights in larger sizes consult the factory.
Dimensions C, D, E, and weights are subject to change without notice.
Face-to-face dimensions not listed in industry standards are subject to change without notice.

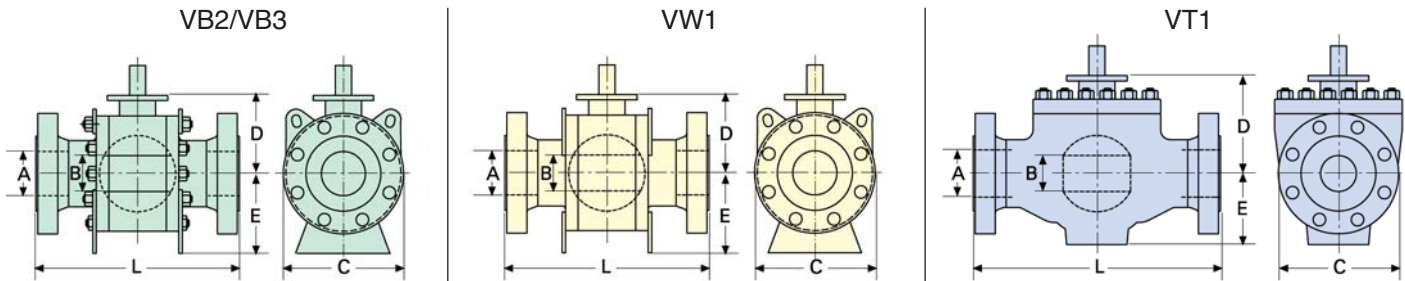
DIMENSIONS AND WEIGHTS



ASME CLASS 150 REDUCED BORE

ALL TYPES			SIDE-ENTRY						WELDED BODY						TOP-ENTRY					
SIZE in/mm	A	B	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*
2 × 1½ 50 × 40	1.93 49	1.50 38	7 178	8.5 216	5.98 152	3.70 94	3.86 98	55 25	7 178	8.5 216	5.98 152	3.70 94	3.86 98	(1)	11.50 292	11.50 292	6.89 175	8.15 207	3.35 85	55 25
3 × 2 80 × 50	2.91 74	1.93 49	11.13 203	3.03 283	7.52 191	4.17 106	3.94 100	66 30	11.13 203	3.03 283	7.52 191	4.17 106	3.94 100	(1)	14.02 356	14.02 356	7.52 191	8.27 210	3.43 87	74.8 34
4 × 3 100 × 80	3.94 100	2.91 74	12 229	4.02 305	9.02 229	6.06 154	5.00 127	132 60	12 229	4.02 305	9.02 229	6.06 154	5.00 127	(1)	17.01 432	17.01 432	9.06 230	8.86 225	4.33 110	154 70
6 × 4 150 × 100	5.91 150	3.94 100	15.5 394	18 457	10.98 279	7.80 198	6.42 163	220 100	15.5 394	18 457	10.98 279	7.80 198	6.42 163	(1)	22.01 559	22.01 559	10.98 279	10.63 270	5.63 143	286 130
8 × 6 200 × 150	7.91 201	5.91 150	18 457	20.5 521	13.50 343	9.92 252	7.36 187	407 185	18 457	20.5 521	13.50 343	9.92 252	7.36 187	(1)	25.98 660	25.98 660	13.50 343	10.83 275	8.46 215	550 250
10 × 8 250 × 200	9.92 252	7.91 201	21 533	22 559	15.98 406	11.02 280	8.74 222	640 291	21 533	22 559	15.98 406	11.02 280	8.74 222	(1)	30.98 787	30.98 787	15.98 406	12.60 320	10.31 262	1001 455
12 × 10 300 × 250	11.93 303	9.92 252	24 610	25 635	19.02 483	12.72 323	11.02 280	1016 462	24 610	25 635	19.02 483	12.72 323	11.02 280	(1)	32.99 838	32.99 838	19.09 485	13.98 355	12.20 310	1067 485
14 × 10 350 × 250	13.15 334	9.92 252	27 686	30 762	21.06 535	12.76 324	10.83 275	1140 518	27 686	30 762	21.06 535	12.76 324	10.83 275	(1)	35.00 889	35.00 889	21.06 535	13.98 355	12.20 310	1463 665
14 × 12 350 × 300	13.15 334	11.93 303	27 686	30 762	21.06 535	13.46 342	11.81 300	1342 610	27 686	30 762	21.06 535	13.46 342	11.81 300	(1)	35.00 889	35.00 889	21.06 535	18.70 475	15.55 395	1738 790
16 × 12 400 × 300	15.16 385	11.93 303	30 762	33 838	23.43 595	13.62 346	11.93 303	1536 698	30 762	33 838	23.43 595	13.62 346	11.93 303	(1)	39.02 991	39.02 991	23.43 595	18.70 475	15.55 395	2068 940
16 × 14 400 × 350	15.16 385	13.15 334	30 762	33 838	23.43 595	14.57 370	13.19 335	1804 820	30 762	33 838	23.43 595	14.57 370	13.19 335	(1)	39.02 991	39.02 991	25.98 660	17.72 450	16.93 430	1997.6 908
18 × 16 450 × 400	17.17 436	15.16 385	34 864	36 914	25.00 635	16.34 415	13.70 348	2332 1060	34 864	36 914	25.00 635	16.34 415	13.70 348	(1)	42.99 1092	42.99 1092	27.56 700	18.11 460	17.72 450	2745.6 1248
20 × 16 500 × 400	19.17 487	15.16 385	36 914	39 991	27.56 700	16.34 415	13.78 350	2420 1100	36 914	39 991	27.56 700	16.34 415	13.78 350	(1)	47.01 1194	47.01 1194	27.56 700	18.11 460	17.72 450	3392.4 1542
20 × 18 500 × 450	19.17 487	17.17 436	36 914	39 991	27.56 700	17.28 439	15.35 390	2618 1190	36 914	39 991	27.56 700	17.28 439	15.35 390	(1)	47.01 1194	47.01 1194	29.33 745	19.49 495	18.50 470	3828 1740
24 × 20 600 × 500	23.19 589	19.17 487	42 1067	45 1143	32.09 815	19.29 490	17.13 435	4334 1970	42 1067	45 1143	32.09 815	19.29 490	17.13 435	(1)	55.00 1397	55.00 1397	34.25 870	21.65 550	22.83 580	5231.6 2378
30 × 24 750 × 600	28.94 735	23.19 589	51 1295	55 1397	38.78 985	23.15 588	20.28 515	7150 3250	51 1295	55 1397	38.78 985	23.15 588	20.28 515	(1)	65.00 1651	65.00 1651	40.16 1020	23.23 590	23.31 592	8817.6 4008
36 × 30	34.41	28.94	60	68	46.06	27.17	27.56	13891	60	68	46.06	27.17	27.56	(1)	82.01	82.01	49.21	31.30	30.12	15505.6

DIMENSIONS AND WEIGHTS

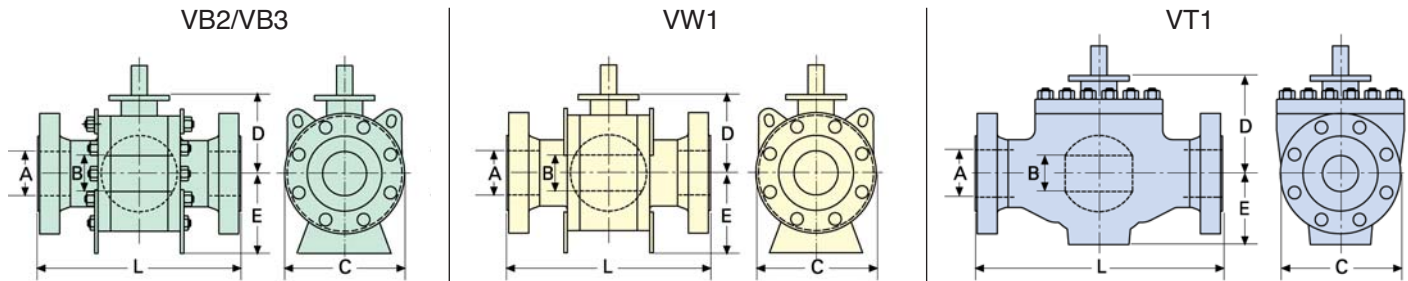


ASME CLASS 300 FULL BORE

ALL TYPES			SIDE-ENTRY						WELDED BODY						TOP-ENTRY					
SIZE in/mm	A	B	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*
2 50	1.93 49	1.93 49	8.5 216	8.5 216	6.5 165	3.9 100	3.7 95	59 27	8.5 216	8.5 216	6.5 165	3.9 100	3.7 95	(1)	11.50 292	11.50 292	7.28 185	8.31 211	3.54 90	79 36
3 80	2.91 74	2.91 74	11.1 283	11.1 283	8.3 210	5.9 150	4.7 120	121 55	11.1 283	11.1 283	8.3 210	5.9 150	4.7 120	(1)	14.02 356	14.02 356	9.25 235	8.90 226	4.69 119	139 63
4 100	3.94 100	3.94 100	12.0 305	12.0 305	10.0 254	7.9 200	6.3 160	202 92	12.0 305	12.0 305	10.0 254	7.9 200	6.3 160	(1)	17.01 432	17.01 432	11.30 287	11.26 286	5.71 145	233 106
6 150	5.91 150	5.91 150	15.9 403	18.0 457	12.5 318	9.6 245	7.9 200	400 182	15.9 403	18.0 457	12.5 318	9.6 245	7.9 200	(1)	22.01 559	22.01 559	12.99 330	11.10 282	8.82 224	486 221
8 200	7.91 201	7.91 201	19.8 502	20.5 521	15.2 385	10.8 275	9.1 230	612 278	19.8 502	20.5 521	15.2 385	10.8 275	9.1 230	(1)	25.98 660	25.98 660	16.14 410	12.80 325	10.63 270	906 412
10 250	9.92 252	9.92 252	22.4 568	22.0 559	18.5 470	13.0 330	11.6 295	1100 500	22.4 568	22.0 559	18.5 470	13.0 330	11.6 295	(1)	30.98 787	30.98 787	19.69 500	14.17 360	12.60 320	1245 566
12 300	11.93 303	11.93 303	25.5 648	25.0 635	21.3 540	14.0 355	13.0 330	1613 733	25.5 648	25.0 635	21.3 540	14.0 355	13.0 330	(1)	32.99 838	32.99 838	22.44 570	18.70 475	16.14 410	1573 715
14 350	13.15 334	13.15 334	30.0 762	30.0 762	24.8 630	15.4 390	13.6 345	2264 1029	30.0 762	30.0 762	24.8 630	15.4 390	13.6 345	(1)	35.00 889	35.00 889	26.18 665	18.11 460	17.20 437	1685 766
16 400	15.16 385	15.16 385	33.0 838	33.0 838	27.3 693	16.9 430	15.4 390	3120 1418	33.0 838	33.0 838	27.3 693	16.9 430	15.4 390	(1)	39.02 991	39.02 991	27.83 707	18.31 465	17.95 456	2433 1106
18 450	17.17 436	17.17 436	36.0 914	36.0 914	30.3 770	17.9 455	16.1 410	3502 1592	36.0 914	36.0 914	30.3 770	17.9 455	16.1 410	(1)	42.99 1092	42.99 1092	29.61 752	20.00 508	18.78 477	3342 1519
20 500	19.17 487	19.17 487	39.0 991	39.0 991	33.5 850	19.7 500	18.3 465	4829 2195	39.0 991	39.0 991	33.5 850	19.7 500	18.3 465	(1)	47.01 1194	47.01 1194	33.66 855	22.24 565	22.24 565	4259 1936
22 550	21.18 538	21.18 538	43.0 1092	43.0 1092	37.0 940	20.7 525	18.9 480	6134 2788	43.0 1092	43.0 1092	37.0 940	20.7 525	18.9 480	(1)	51.02 1296	51.02 1296	37.09 942	22.52 572	23.46 596	6063 2756
24 600	23.19 589	23.19 589	45.0 1143	45.0 1143	40.2 1020	23.2 590	21.5 545	7612 3460	45.0 1143	45.0 1143	40.2 1020	23.2 590	21.5 545	(1)	55.00 1397	55.00 1397	39.76 1010	24.29 617	23.82 605	7058 3208
26 650	24.92 633	24.92 633	49.0 1245	49.0 1245	42.5 1080	24.8 630	22.8 580	10252 4660	49.0 1245	49.0 1245	42.5 1080	24.8 630	22.8 580	(1)	57.01 1448	57.01 1448	42.20 1072	26.69 678	25.08 637	8378 3808
28 700	26.93 684	26.93 684	53.0 1346	53.0 1346	45.3 1150	25.2 640	26.2 665	12694 5770	53.0 1346	53.0 1346	45.3 1150	25.2 640	26.2 665	(1)	60.98 1549	60.98 1549	44.92 1141	29.06 738	28.15 715	10135 4607
30 750	28.94 735	28.94 735	55.0 1397	55.0 1397	48.6 1235	27.6 700	28.7 730	14498 6590	55.0 1397	55.0 1397	48.6 1235	27.6 700	28.7 730	(1)	65.00 1651	65.00 1651	49.80 1265	31.93 811	31.30 795	12404 5638
32 800	30.67 779	30.67 779	60.0 1524	60.0 1524	52.0 1320	29.3 745	30.1 765	17450 7932	60.0 1524	60.0 1524	52.0 1320	29.3 745	30.1 765	(1)	70.00 1778	70.00 1778	51.65 1312	33.46 850	32.87 835	15602 7092
34 850	32.68 830	32.68 830	64.0 1626	64.0 1626	54.7 1390	29.9 760	31.5 800	19888 9040	64.0 1626	64.0 1626	54.7 1390	29.9 760	31.5 800	(1)	75.98 1930	75.98 1930	55.43 1408	34.53 877	34.84 885	17184 7811
36 900	34.41 874	34.41 874	68.0 1727	68.0 1727	56.9 1445	31.7 805	32.5 825	22205 10093	68.0 1727	68.0 1727	56.9 1445	31.7 805	32.5 825	(1)	82.01 2083	82.01 2083	56.89 1445	37.09 942	36.93 938	20046 9112
40 1000	38.43 976	38.43 976	77.0 1956	77.0 1956	63.8 1620	35.4 900	36.2 920	30305 13775	77.0 1956	77.0 1956	63.8 1620	35.4 900	36.2 920	(1)	92.01 2337	92.01 2337	65.47 1663	40.16 1020	40.79 1036	28156 12798
42 1050	40.16 1020	40.16 1020	82.0 2083	82.0 2083	66.3 1685	38.1 968	37.4 950	35431 16105	82.0 2083	82.0 2083	66.3 1685	38.1 968	37.4 950	(1)	95.94 2437	95.94 2437	67.52 1715	42.56 1081	42.13 1070	33249 15113
48 1200	45.91 1166	45.91 1166	85.4 2170	85.4 2170	57.5 1460	43.3 1100	43.3 1100	52932 24060	85.4 2170	85.4 2170	57.5 1460	43.3 1100	43.3 1100	(1)	100.00 2540	100.00 2540	77.36 1965	47.28 1201	48.66 1236	49751 22614
56 1400	53.54 1360	53.54 1360	108.0 2743	108.0 2743	89.6 2275	50.6 1285	50.0 1270	83941 38155	108.0 2743	108.0 2743	89.6 2275	50.6 1285	50.0 1270	(1)	(1)	(1)	(1)	(1)	(1)	(1)

* Weight figures are relevant to flanged end valves.
(1) Please consult the factory.
Note: For dimensions and weights in larger sizes consult the factory.
Dimensions C, D, E, and weights are subject to change without notice.
Face-to-face dimensions not listed in industry standards are subject to change without notice.

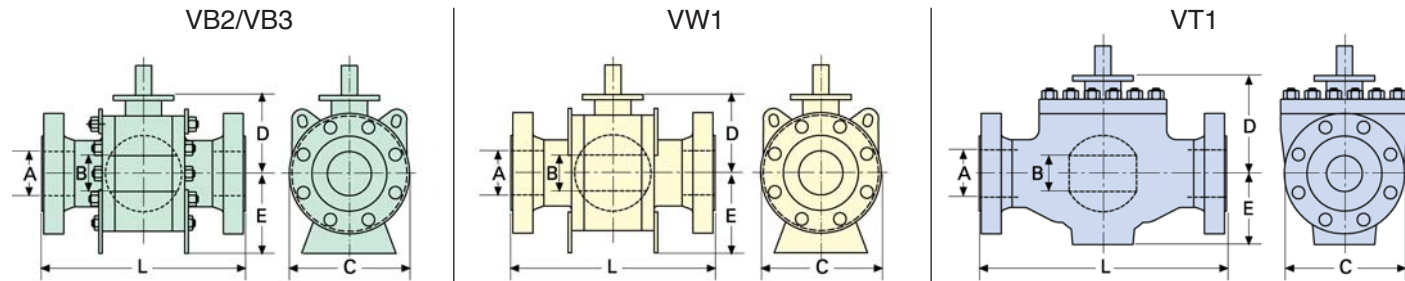
DIMENSIONS AND WEIGHTS



ASME CLASS 300 REDUCED BORE

ALL TYPES			SIDE-ENTRY							WELDED BODY						TOP-ENTRY					
SIZE in/mm	A	B	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	
2 × 1½ 50 × 40	1.93 49	1.50 38	8.5 216	8.5 216	6.5 165	3.7 94	3.9 100	55 25	8.5 216	8.5 216	6.5 165	3.7 94	3.9 100	(1)	11.5 292	11.5 292	7.0 178	8.1 206	3.1 80	57.2 26	
3 × 2 80 × 50	2.91 74	1.93 49	11.1 283	11.1 283	8.3 210	3.9 100	3.7 95	70.4 32	11.1 283	11.1 283	8.3 210	3.9 100	3.7 95	(1)	14.0 356	14.0 356	8.3 210	8.3 211	3.5 90	92.4 42	
4 × 3 100 × 80	3.94 100	2.91 74	12.0 305	12.0 305	10.0 254	5.9 150	4.7 120	136.4 62	12.0 305	12.0 305	10.0 254	5.9 150	4.7 120	(1)	17.0 432	17.0 432	10.0 254	8.9 226	4.7 119	180.4 82	
6 × 4 150 × 100	5.91 150	3.94 100	15.9 403	18.0 457	12.5 318	7.9 200	6.3 160	253 115	15.9 403	18.0 457	12.5 318	7.9 200	6.3 160	(1)	22.0 559	22.0 559	12.5 318	11.3 286	5.7 145	354.2 161	
8 × 6 200 × 150	7.91 201	5.91 150	19.8 502	20.5 521	15.0 381	9.6 245	7.9 200	481.8 219	19.8 502	20.5 521	15.0 381	9.6 245	7.9 200	(1)	26.0 660	26.0 660	15.0 381	11.1 282	8.8 224	627 285	
10 × 8 250 × 200	9.92 252	7.91 201	22.4 568	22.0 559	17.5 445	10.8 275	9.1 230	642.4 292	22.4 568	22.0 559	17.5 445	10.8 275	9.1 230	(1)	31.0 787	31.0 787	17.5 445	12.8 325	10.6 270	1179.2 536	
12 × 10 300 × 250	11.93 303	9.92 252	25.5 648	25.0 635	20.5 520	13.0 330	11.6 295	1306.8 594	25.5 648	25.0 635	20.5 520	13.0 330	11.6 295	(1)	33.0 838	33.0 838	20.5 520	14.2 360	12.6 320	1258.4 572	
14 × 10 350 × 250	13.15 334	9.92 252	30.0 762	30.0 762	23.0 585	13.0 330	11.6 295	1414.6 643	30.0 762	30.0 762	23.0 585	13.0 330	11.6 295	(1)	35.0 889	35.0 889	20.5 520	14.2 360	12.6 320	1718.2 781	
14 × 12 350 × 300	13.15 334	11.93 303	30.0 762	30.0 762	23.0 585	14.0 355	13.0 330	1795.2 816	30.0 762	30.0 762	23.0 585	14.0 355	13.0 330	(1)	35.0 889	35.0 889	23.0 585	18.7 475	16.1 410	2015.2 916	
16 × 12 400 × 300	15.16 385	11.93 303	33.0 838	33.0 838	25.6 650	14.0 355	13.0 330	2123 965	33.0 838	33.0 838	25.6 650	14.0 355	13.0 330	(1)	39.0 991	39.0 991	25.6 650	18.7 475	16.1 410	2402.4 1092	
16 × 14 400 × 350	15.16 385	13.15 334	33.0 838	33.0 838	25.6 650	15.4 390	13.6 345	2475 1125	33.0 838	33.0 838	25.6 650	15.4 390	13.6 345	(1)	39.0 991	39.0 991	26.2 665	18.1 460	17.2 437	2409 1095	
18 × 16 450 × 400	17.17 436	15.16 385	36.0 914	36.0 914	28.0 710	16.9 430	15.4 390	3504.6 1593	36.0 914	36.0 914	28.0 710	16.9 430	15.4 390	(1)	43.0 1092	43.0 1092	28.0 710	18.3 465	18.0 456	3216.4 1462	
20 × 16 500 × 400	19.17 487	15.16 385	39.0 991	39.0 991	30.5 775	16.9 430	15.4 390	3658.6 1663	39.0 991	39.0 991	30.5 775	16.9 430	15.4 390	(1)	47.0 1194	47.0 1194	30.5 775	18.3 465	18.0 456	3979.8 1809	
20 × 18 500 × 450	19.17 487	17.17 436	39.0 991	39.0 991	30.5 775	17.9 455	16.1 410	3942.4 1792	39.0 991	39.0 991	30.5 775	17.9 455	16.1 410	(1)	47.0 1194	47.0 1194	30.5 775	20.0 508	18.8 477	4450.6 2023	
24 × 20 600 × 500	23.19 589	19.17 487	45.0 1143	45.0 1143	36.0 915	19.7 500	18.3 465	5854.2 2661	45.0 1143	45.0 1143	36.0 915	19.7 500	18.3 465	(1)	55.0 1397	55.0 1397	36.0 915	22.2 565	22.2 565	6102.8 2774	
30 × 24 750 × 600	28.94 735	23.19 589	55.0 1397	55.0 1397	42.9 1090	23.2 590	21.5 545	9864.8 4484	55.0 1397	55.0 1397	42.9 1090	23.2 590	21.5 545	(1)	65.0 1651	65.0 1651	42.9 1090	24.3 617	23.8 605	10263 4665	
36 × 30	34.41	28.94	68.0	68.0	50.0	27.6	28.7	18002.6	68.0	68.0	50.0	27.6	28.7	(1)	82.0	82.0	50.0	31.9	31.9	18255.6	

DIMENSIONS AND WEIGHTS



ASME CLASS 600 FULL BORE

ALL TYPES			SIDE-ENTRY							WELDED BODY							TOP-ENTRY						
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*
2 50	1.93 49	1.93 49	11.5 292	11.63 295	11.5 292	6.5 165	4.0 102	3.9 98	68 31	11.5 292	11.63 295	11.5 292	6.5 165	4.0 102	3.9 98	(1)	11.50 292	11.63 295	11.50 292	7.48 190	8.46 215	3.74 95	90 41
3 80	2.91 74	2.91 74	14.0 356	14.13 359	14.0 356	8.3 210	6.5 165	5.0 128	136 62	14.0 356	14.13 359	14.0 356	8.3 210	6.5 165	5.0 128	(1)	14.02 356	14.13 359	14.02 356	9.45 240	9.13 232	4.88 124	147 67
4 100	3.94 100	3.94 100	17.0 432	17.13 435	17.0 432	10.7 273	8.3 210	6.3 160	249 113	17.0 432	17.13 435	17.0 432	10.7 273	8.3 210	6.3 160	(1)	17.01 432	17.13 435	17.01 432	11.42 290	11.57 294	5.91 150	242 110
6 150	5.91 150	5.91 150	22.0 559	22.13 562	22.0 559	14.0 356	9.8 250	7.9 200	557 253	22.0 559	22.13 562	22.0 559	14.0 356	9.8 250	7.9 200	(1)	22.01 559	22.13 562	22.01 559	13.19 335	11.30 287	5.08 129	497 226
8 200	7.91 201	7.91 201	26.0 660	26.13 664	26.0 660	16.5 419	11.3 288	10.0 255	1067 485	26.0 660	26.13 664	26.0 660	16.5 419	11.3 288	10.0 255	(1)	25.98 660	26.13 664	25.98 660	16.34 415	12.76 324	10.83 275	917 417
10 250	9.92 252	9.92 252	31.0 787	31.13 791	31.0 787	20.1 510	13.0 330	12.1 308	1668 758	31.0 787	31.13 791	31.0 787	20.1 510	13.0 330	12.1 308	(1)	30.98 787	31.13 791	30.98 787	19.88 505	14.37 365	12.80 325	1254 570
12 300	11.93 303	11.93 303	33.0 838	33.13 841	33.0 838	22.6 575	14.9 378	13.7 348	2347 1067	33.0 838	33.13 841	33.0 838	22.6 575	14.9 378	13.7 348	(1)	32.99 838	33.13 841	32.99 838	22.64 575	18.90 480	16.34 415	1584 720
14 350	13.15 334	13.15 334	35.0 889	35.13 892	35.0 889	24.7 628	15.5 394	14.2 360	2383 1083	35.0 889	35.13 892	35.0 889	24.7 628	15.5 394	14.2 360	(1)	35.00 889	35.13 892	35.00 889	26.38 670	18.31 465	17.40 442	1694 770
16 400	15.16 385	15.16 385	39.0 991	39.13 994	39.0 991	27.6 700	16.9 430	16.1 410	3355 1525	39.0 991	39.13 994	39.0 991	27.6 700	16.9 430	16.1 410	(1)	39.02 991	39.13 994	39.02 991	28.03 712	18.50 470	18.15 461	2446 1112
18 450	17.17 436	17.17 436	43.0 1092	43.13 1095	43.0 1092	30.5 774	18.4 467	16.9 430	4609 2095	43.0 1092	43.13 1095	43.0 1092	30.5 774	18.4 467	16.9 430	(1)	42.99 1092	43.13 1095	42.99 1092	29.80 757	20.16 512	18.98 482	3351 1523
20 500	19.17 487	19.17 487	47.0 1194	47.25 1200	47.0 1194	34.1 865	19.7 500	19.4 492	5804 2638	47.0 1194	47.25 1200	47.0 1194	34.1 865	19.7 500	19.4 492	(1)	47.01 1194	47.25 1200	47.01 1194	33.86 860	22.44 570	22.44 570	4268 1940
22 550	21.18 538	21.18 538	51.0 1296	51.38 1305	51.0 1296	37.4 950	19.9 505	19.9 505	8331 3787	51.0 1296	51.38 1305	51.0 1296	37.4 950	19.9 505	19.9 505	(1)	51.02 1296	51.38 1305	51.02 1296	37.28 947	22.76 578	23.70 602	6072 2760
24 600	23.19 589	23.19 589	55.0 1397	55.38 1406	55.0 1397	40.5 1028	23.4 594	22.4 570	10419 4736	55.0 1397	55.38 1406	55.0 1397	40.5 1028	23.4 594	22.4 570	(1)	55.00 1397	55.38 1406	55.00 1397	39.96 1015	24.49 622	24.02 610	7069 3213
26 650	24.92 633	24.92 633	57.0 1448	57.50 1460	57.0 1448	40.0 1015	24.8 630	24.3 618	12423 5647	57.0 1448	57.50 1460	57.0 1448	40.0 1015	24.8 630	24.3 618	(1)	57.01 1448	57.50 1460	57.01 1448	42.44 1078	26.85 682	25.20 640	8389 3813
28 700	26.93 684	26.93 684	61.0 1549	61.50 1562	61.0 1549	46.1 1172	26.2 665	27.2 692	14868 6758	61.0 1549	61.50 1562	61.0 1549	46.1 1172	26.2 665	27.2 692	(1)	60.98 1549	61.50 1562	60.98 1549	45.12 1146	29.21 742	28.43 722	10146 4612
30 750	28.94 735	28.94 735	66.3 1684	66.50 1697	66.3 1684	50.8 1290	29.2 741	31.5 800	18429 8377	66.3 1684	66.50 1697	66.3 1684	50.8 1290	29.2 741	31.5 800	(1)	66.30 1684	66.50 1697	66.30 1684	50.00 1270	32.17 817	31.65 804	12408 5640
32 800	30.67 779	30.67 779	70.0 1778	70.72 1794	70.0 1778	52.4 1330	29.8 756	31.7 804	21424 9738	70.0 1778	70.72 1794	70.0 1778	52.4 1330	29.8 756	31.7 804	(1)	70.00 1778	70.72 1794	70.00 1778	51.85 1317	33.66 855	33.07 840	15627 7103
34 850	32.68 830	32.68 830	76.0 1930	76.52 1946	76.0 1930	55.1 1400	30.8 782	32.2 817	24939 11336	76.0 1930	76.52 1946	76.0 1930	55.1 1400	30.8 782	32.2 817	(1)	75.98 1930	76.52 1946	75.98 1930	56.02 1423	35.16 893	35.04 890	17208 7822
36 900	34.41 874	34.41 874	82.0 2083	82.63 2098	82.0 2083	60.9 1546	34.2 869	37.2 945	29256 13298	82.0 2083	82.63 2098	82.0 2083	60.9 1546	34.2 869	37.2 945	(1)	82.01 2083	82.63 2098	82.01 2083	57.09 1450	37.28 947	37.17 944	20060 9118
40 1000	38.43 976	38.43 976	81.9 2080	85.43 2170	85.4 2170	64.8 1645	36.1 916	38.6 980	40337 18335	81.9 2080	85.43 2170	85.4 2170	64.8 1645	36.1 916	38.6 980	(1)	85.43 2170	85.43 2170	85.43 2170	65.67 1668	40.35 1025	40.98 1041	28171 12805
42 1050	40.16 1020	40.16 1020	85.6 2175	85.63 2175	85.6 2175	70.7 1795	39.2 995	43.7 1110	46983 21356	85.6 2175	85.63 2175	85.6 2175	70.7 1795	39.2 995	43.7 1110	(1)	85.63 2175	85.63 2175	85.63 2175	67.72 1720	42.76 1086	42.32 1075	33260 15118
48 1200	45.91 1166	45.91 1166	95.9 2435	95.87 2435	95.9 2435	81.5 2070	44.6 1132	49.8 1265	68629 31195	95.9 2435	95.87 2435	95.9 2435	81.5 2070	44.6 1132	49.8 1265	(1)	95.87 2435	95.87 2435	95.87 2435	77.56 1970	59.29 1506	48.82 1240	49762 22619
56 1400	53.54 1360	53.54 1360	106.7 2710	106.69 2710	106.7 2710	94.1 2390	50.8 1290	57.1 1450	104463 47483	106.7 2710	106.69 2710	106.7 2710	94.1 2390	50.8 1290	57.1 1450	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

* Weight figures are relevant to flanged end valves.

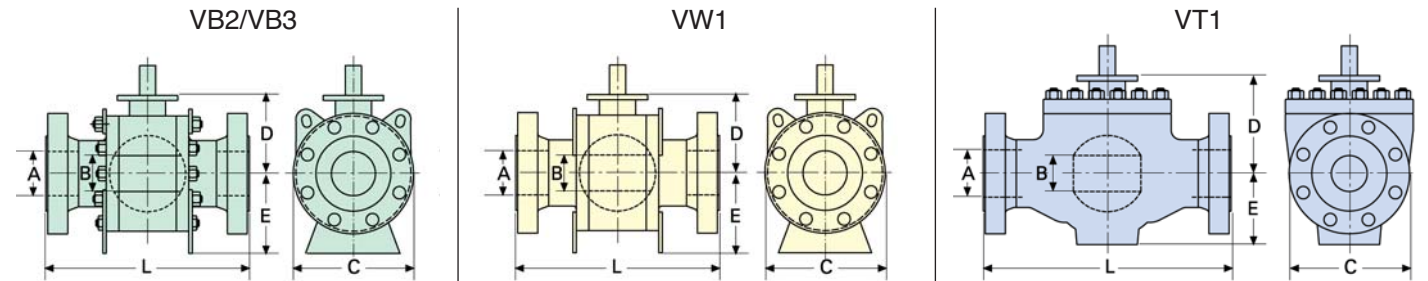
(1) Please consult the factory.

Note: For dimensions and weights in larger sizes consult the factory.

Dimensions C, D, E, and weights are subject to change without notice.

Face-to-face dimensions not listed in industry standards are subject to change without notice.

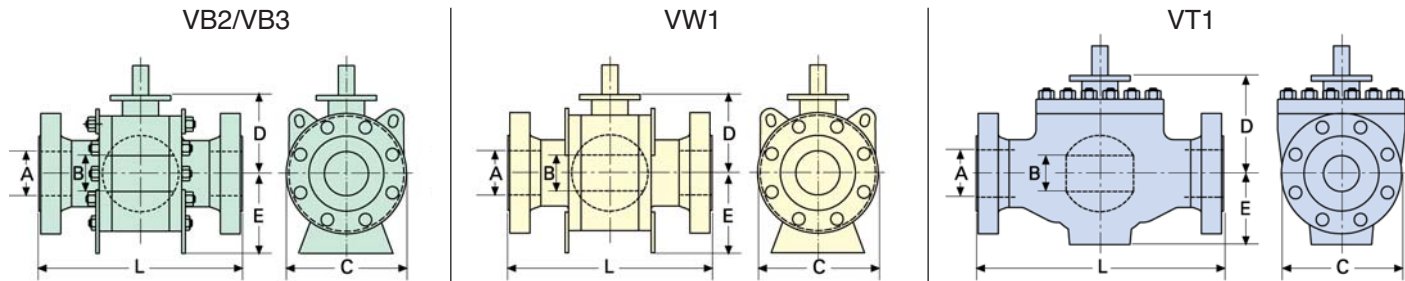
DIMENSIONS AND WEIGHTS



ASME CLASS 600 REDUCED BORE

ALL TYPES			SIDE-ENTRY							WELDED BODY								TOP-ENTRY						
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg	
2 × 1½ 50 × 40	1.93 49	1.50 38	11.5 292	11.63 295	11.5 292	6.5 165	3.7 95	4.0 102	68 31	11.5 292	11.63 295	11.5 292	6.5 165	3.7 95	4.0 102	(1)	14.5 368	11.63 295	14.5 368	7.0 178	8.3 210	3.3 85	75 34	
3 × 2 80 × 50	2.91 74	1.93 49	14.0 356	14.13 359	14.0 356	8.3 210	4.0 102	3.9 98	86 39	14.0 356	14.13 359	14.0 356	8.3 210	4.0 102	3.9 98	(1)	14.0 356	14.13 359	14.0 356	8.3 210	8.5 215	3.7 95	101 46	
4 × 3 100 × 80	3.94 100	2.91 74	17.0 432	17.13 436	17.0 432	10.7 273	6.5 165	5.0 128	172 78	17.0 432	17.13 436	17.0 432	10.7 273	6.5 165	5.0 128	(1)	17.0 432	17.13 436	17.0 432	10.7 273	9.1 232	4.9 124	207 94	
6 × 4 150 × 100	5.91 150	3.94 100	22.0 559	22.13 562	22.0 559	14.0 356	8.3 210	6.3 160	330 150	22.0 559	22.13 562	22.0 559	14.0 356	8.3 210	6.3 160	(1)	22.0 559	22.13 562	22.0 559	14.0 356	11.6 294	5.9 150	180 82	
8 × 6 200 × 150	7.91 201	5.91 150	26.0 660	26.13 664	26.0 660	16.5 419	9.8 250	7.9 200	642 292	26.0 660	26.13 664	26.0 660	16.5 419	9.8 250	7.9 200	(1)	26.0 660	26.13 664	26.0 660	16.5 419	11.3 287	5.1 129	699.6 318	
10 × 8 250 × 200	9.92 252	7.91 201	31.0 787	31.13 791	31.0 787	20.1 510	11.3 288	10.0 255	1210 550	31.0 787	31.13 791	31.0 787	20.1 510	11.3 288	10.0 255	(1)	31.0 787	31.13 791	31.0 787	20.1 510	12.8 324	10.8 275	1320 600	
12 × 10 300 × 250	11.93 303	9.92 252	33.0 838	33.13 841	33.0 838	22.0 560	13.0 330	12.1 308	1784 811	33.0 838	33.13 841	33.0 838	22.0 560	13.0 330	12.1 308	(1)	33.0 838	33.13 841	33.0 838	22.0 560	14.4 365	12.8 325	1582 719	
14 × 10 350 × 250	13.15 334	9.92 252	35.0 889	35.13 892	35.0 889	23.8 605	13.0 330	12.1 308	2006 912	35.0 889	35.13 892	35.0 889	23.8 605	13.0 330	12.1 308	(1)	35.0 889	35.13 892	35.0 889	23.8 605	14.4 365	12.8 325	2180 991	
14 × 12 350 × 300	13.15 334	11.93 303	35.0 889	35.13 892	35.0 889	23.8 605	14.9 378	13.7 348	2519 1145	35.0 889	35.13 892	35.0 889	23.8 605	14.9 378	13.7 348	(1)	35.0 889	35.13 892	35.0 889	23.8 605	18.9 480	16.3 415	2620 1191	
16 × 12 400 × 300	15.16 385	11.93 303	39.0 991	39.13 994	39.0 991	27.0 685	14.9 378	13.7 348	2966 1348	39.0 991	39.13 994	39.0 991	27.0 685	14.9 378	13.7 348	(1)	39.0 991	39.13 994	39.0 991	27.0 685	18.9 480	16.3 415	3104 1411	
16 × 14 400 × 350	15.16 385	13.15 334	35.0 889	39.13 994	35.0 889	24.7 628	15.5 394	14.2 360	2383 1083	35.0 889	39.13 994	35.0 889	24.7 628	15.5 394	14.2 360	(1)	39.0 991	39.13 994	39.0 991	27.0 685	18.3 465	17.4 442	3029 1377	
18 × 16 450 × 400	17.17 436	15.16 385	43.0 1092	43.13 1095	43.0 1092	29.3 745	16.9 430	16.1 410	3696 1680	43.0 1092	43.13 1095	43.0 1092	29.3 745	16.9 430	16.1 410	(1)	43.0 1092	43.13 1095	43.0 1092	29.3 745	18.5 470	18.1 461	4083 1856	
20 × 16 500 × 400	19.17 487	15.16 385	47.0 1194	47.25 1200	47.0 1194	32.1 815	16.9 430	16.1 410	4587 2085	47.0 1194	47.25 1200	47.0 1194	32.1 815	16.9 430	16.1 410	(1)	47.0 1194	47.25 1200	47.0 1194	32.1 815	18.5 470	18.1 461	6371 2896	
20 × 18 500 × 450	19.17 487	17.17 436	47.0 1194	47.25 1200	47.0 1194	32.1 815	18.4 467	16.9 430	5225 2375	47.0 1194	47.25 1200	47.0 1194	32.1 815	18.4 467	16.9 430	(1)	47.0 1194	47.25 1200	47.0 1194	32.1 815	20.2 512	19.0 482	5755 2616	
24 × 20 600 × 500	23.19 589	19.17 487	55.0 1397	55.38 1406	55.0 1397	37.0 940	19.7 500	19.4 492	7146 3248	55.0 1397	55.38 1406	55.0 1397	37.0 940	19.7 500	19.4 492	(1)	55.0 1397	55.38 1406	55.0 1397	37.0 940	27.4 570	22.4 500	7740 3518	
30 × 24 750 × 600	28.94 735	23.19 589	66.3 1684	65.50 1697	66.3 1684	44.5 1130	23.4 594	22.4 570	12690 5768	66.3 1684	65.50 1697	66.3 1684	44.5 1130	23.4 594	22.4 570	(1)	66.3 1684	65.50 1697	66.3 1684	44.5 1130	24.5 622	24.0 610	13130 5968	
36 × 30 900 × 750	34.41 874	28.94 735	82.0 2083	82.63 2098	82.0 2083	51.8 1315	27.9 708	29.6 751	22827 10376	82.0 2083	82.63 2098	82.0 2083	51.8 1315	27.9 708	29.6 751	(1)	82.0 2083	82.63 2098	82.0 2083	51.8 1315	32.2 817	31.7 804	23258 10572	

DIMENSIONS AND WEIGHTS

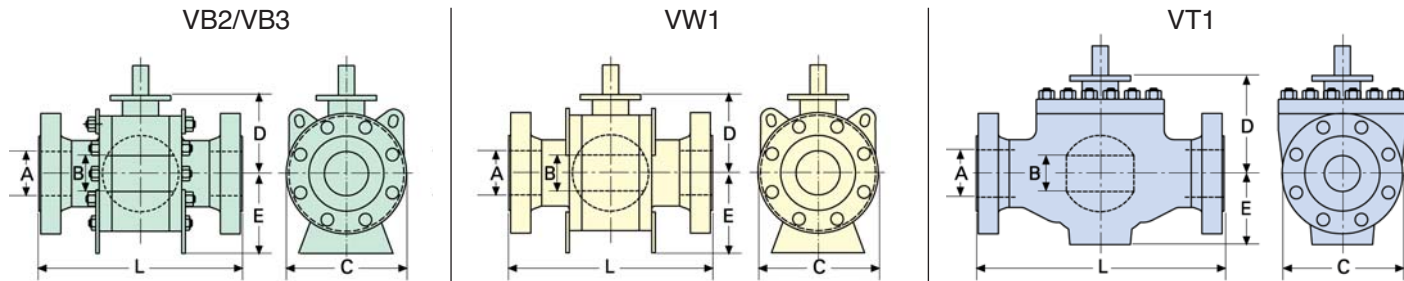


ASME CLASS 900 FULL BORE

ALL TYPES			SIDE-ENTRY							WELDED BODY							TOP-ENTRY						
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*
2 50	1.93 49	1.93 49	14.49 368	14.61 371	14.49 368	8.50 216	4.09 104	4.06 103	106 48	14.49 368	14.61 371	14.49 368	8.50 216	4.09 104	4.06 103	(1)	14.49 368	14.61 371	14.49 368	8.50 216	8.35 212	3.35 85	114 52
3 80	2.91 74	2.91 74	15.00 381	15.12 384	15.00 381	9.49 241	6.42 163	5.20 132	121 55	15.00 381	15.12 384	15.00 381	9.49 241	6.42 163	5.20 132	(1)	15.00 381	15.12 384	15.00 381	9.49 241	8.94 227	4.45 113	242 110
4 100	3.94 100	3.94 100	17.99 457	18.11 460	17.99 457	11.50 292	8.31 169	6.65 145	319 145	17.99 457	18.11 460	17.99 457	11.50 292	8.31 211	6.65 169	(1)	17.99 457	18.11 460	17.99 457	11.50 292	10.91 277	5.67 144	440 200
6 150	5.91 150	5.91 150	24.02 610	24.13 613	24.02 610	15.00 381	10.20 259	8.39 213	792 360	24.02 610	24.13 613	24.02 610	15.00 381	10.20 259	8.39 213	(1)	24.02 610	24.13 613	24.02 610	15.00 381	11.14 283	13.11 333	946 430
8 200	7.91 201	7.91 201	29.02 737	29.13 740	29.02 737	18.50 470	11.69 297	10.39 264	1276 580	29.02 737	29.13 740	29.02 737	18.50 470	11.69 297	10.39 264	(1)	29.02 737	29.13 740	29.02 737	18.50 470	13.15 334	10.79 274	1760 800
10 250	9.92 252	9.92 252	32.99 838	33.11 841	32.99 838	21.46 545	13.46 342	13.11 333	2222 1010	32.99 838	33.11 841	32.99 838	21.46 545	13.46 342	13.11 333	(1)	32.99 838	33.11 841	32.99 838	21.46 545	14.96 380	12.60 320	2200 1000
12 300	11.93 303	11.93 303	37.99 965	38.11 968	37.99 965	24.02 610	15.12 384	14.92 379	3322 1510	37.99 965	38.11 968	37.99 965	24.02 610	15.12 384	14.92 379	(1)	37.99 965	38.11 968	37.99 965	24.02 610	19.96 507	16.46 418	2860 1300
14 350	12.68 322	12.68 322	40.51 1029	40.87 1038	40.51 1029	25.20 640	15.67 398	14.49 368	3190 1450	40.51 1029	40.87 1038	40.51 1029	25.20 640	15.67 398	14.49 368	(1)	40.51 1029	40.87 1038	40.51 1029	25.20 640	20.47 520	17.44 443	3729 1695
16 400	14.69 373	14.69 373	44.49 1130	44.88 1140	44.49 1130	27.95 710	17.17 436	17.20 437	4730 2150	44.49 1130	44.88 1140	44.49 1130	27.95 710	17.17 436	17.20 437	(1)	44.49 1130	44.88 1140	44.49 1130	27.95 710	21.18 538	18.19 462	5632 2560
18 450	16.65 423	16.65 423	47.99 1219	48.50 1232	47.99 1219	31.50 800	19.06 484	19.57 497	6204 2820	47.99 1219	48.50 1232	47.99 1219	31.50 800	19.06 484	19.57 497	(1)	47.99 1219	48.50 1232	47.99 1219	31.50 800	22.83 580	19.17 487	7480 3400
20 500	18.54 471	18.54 471	52.01 1321	52.48 1333	52.01 1321	35.04 890	20.94 532	19.80 503	9240 4200	52.01 1321	52.48 1333	52.01 1321	35.04 890	20.94 532	19.80 503	(1)	52.01 1321	52.48 1333	52.01 1321	35.04 890	24.61 625	23.82 605	9680 4400
24 600	22.44 570	22.44 570	60.98 1549	61.73 1568	60.98 1549	41.69 1059	24.29 617	24.92 633	14960 6800	60.98 1549	61.73 1568	60.98 1549	41.69 1059	24.29 617	24.92 633	(1)	60.98 1549	61.73 1568	60.98 1549	41.69 1059	27.17 690	24.61 625	15840 7200
28 700	26.18 665	26.18 665	69.02 1753	69.88 1775	69.02 1753	48.58 1234	26.54 674	27.80 706	21780 9900	69.02 1753	69.88 1775	69.02 1753	48.58 1234	26.54 674	27.80 706	(1)	69.02 1753	69.88 1775	69.02 1753	48.58 1234	32.28 820	28.46 723	22880 10400
30 750	28.03 712	28.03 712	74.02 1880	74.88 1902	74.02 1880	51.18 1300	28.46 723	30.59 777	26796 12180	74.02 1880	74.88 1902	74.02 1880	51.18 1300	28.46 723	30.59 777	(1)	74.02 1880	74.88 1902	74.02 1880	51.18 1300	34.65 880	31.50 800	28325 12875
32 800	29.92 760	29.92 760	80.00 2032	80.87 2054	80.00 2032	53.43 1357	30.87 784	31.85 809	26004 11820	80.00 2032	80.87 2054	80.00 2032	53.43 1357	30.87 784	31.85 809	(1)	80.00 2032	80.87 2054	80.00 2032	53.43 1357	36.93 938	34.25 870	35090 15950
34 850	31.81 808	31.81 808	85.00 2159	86.14 2188	85.00 2159	57.80 1468	31.77 807	33.54 852	37840 17200	85.00 2159	86.14 2188	85.00 2159	57.80 1468	31.77 807	33.54 852	(1)	85.00 2159	86.14 2188	85.00 2159	57.80 1468	38.66 982	36.22 920	38500 17500
36 900	33.66 855	33.66 855	90.00 2286	91.14 2315	90.00 2286	60.31 1532	33.39 848	35.35 898	41580 18900	90.00 2286	91.14 2315	90.00 2286	60.31 1532	33.39 848	35.35 898	(1)	90.00 2286	91.14 2315	90.00 2286	60.31 1532	41.34 1050	38.98 990	45320 20600

* Weight figures are relevant to flanged end valves.
(1) Please consult the factory.
Note: For dimensions and weights in larger sizes consult the factory.
Dimensions C, D, E, and weights are subject to change without notice.
Face-to-face dimensions not listed in industry standards are subject to change without notice.

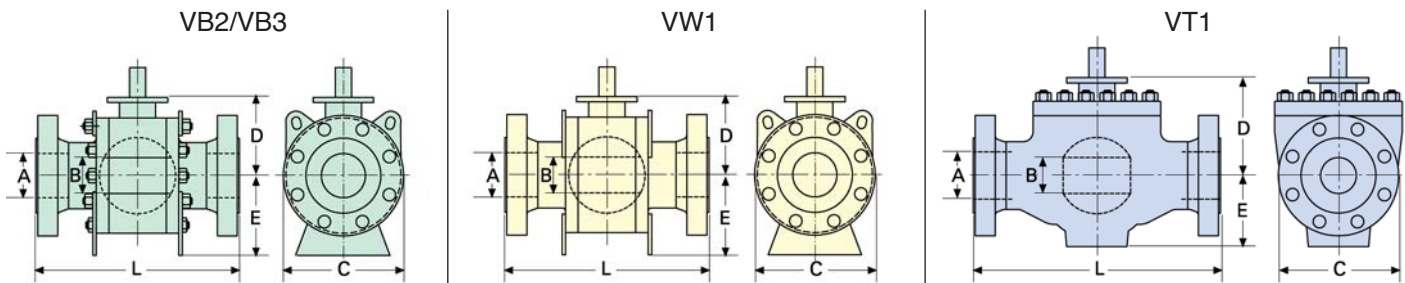
DIMENSIONS AND WEIGHTS



ASME CLASS 900 REDUCED BORE

ALL TYPES			SIDE-ENTRY							WELDED BODY							TOP-ENTRY						
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*
2 × 1½ 50 × 40	1.93 49	1.50 38	14.49 368	14.61 371	14.49 368	8.50 216	4.06 103	4.02 102	90 41	14.49 368	14.61 371	14.49 368	8.50 216	4.06 103	4.02 102	(1)	14.49 368	14.61 371	14.49 368	8.50 216	8.31 211	3.31 84	110 50
3 × 2 80 × 50	2.91 74	1.93 49	15.00 381	15.12 384	15.00 381	9.49 241	4.06 103	4.02 102	114 52	15.00 381	15.12 384	15.00 381	9.49 241	4.06 103	4.02 102	(1)	15.00 381	15.12 384	15.00 381	9.49 241	8.31 211	3.31 84	165 75
4 × 3 100 × 80	3.94 100	2.91 74	17.99 457	18.11 460	17.99 457	11.50 292	6.54 166	5.00 127	209 95	17.99 457	18.11 460	17.99 457	11.50 292	6.54 166	5.00 127	(1)	17.99 457	18.11 460	17.99 457	11.50 292	8.94 227	4.29 109	308 140
6 × 4 150 × 100	5.91 150	3.94 100	24.02 610	24.13 613	24.02 610	15.00 381	8.19 208	6.42 163	451 205	24.02 610	24.13 613	24.02 610	15.00 381	8.19 208	6.42 163	(1)	24.02 610	24.13 613	24.02 610	15.00 381	10.87 276	5.71 145	601 273
8 × 6 200 × 150	7.91 201	5.91 150	29.02 737	29.13 740	29.02 737	18.50 470	10.35 263	8.39 213	968 440	29.02 737	29.13 740	29.02 737	18.50 470	10.35 263	8.39 213	(1)	29.02 737	29.13 740	29.02 737	18.50 470	11.02 280	8.78 223	1206 548
10 × 8 250 × 200	9.92 252	7.91 201	32.99 838	33.11 841	32.99 838	21.46 545	11.57 294	10.59 269	1518 690	32.99 838	33.11 841	32.99 838	21.46 545	11.57 294	10.59 269	(1)	32.99 838	33.11 841	32.99 838	21.46 545	13.35 339	10.67 271	1993 906
12 × 10 300 × 250	11.93 303	9.92 252	37.99 965	38.11 968	37.99 965	24.02 610	13.70 348	12.91 328	2541 1155	37.99 965	38.11 968	37.99 965	24.02 610	13.70 348	12.91 328	(1)	37.99 965	38.11 968	37.99 965	24.02 610	14.96 380	12.76 324	2398 1090
14 × 10 350 × 250	12.68 322	9.92 252	40.51 1029	40.87 1038	40.51 1029	25.20 640	13.70 348	12.91 328	2728 1240	40.51 1029	40.87 1038	40.51 1029	25.20 640	13.70 348	12.91 328	(1)	40.51 1029	40.87 1038	40.51 1029	25.20 640	14.96 380	12.76 324	3289 1495
14 × 12 350 × 300	12.68 322	11.93 303	40.51 1029	40.87 1038	40.51 1029	25.20 640	15.75 400	15.04 382	3597 1635	40.51 1029	40.87 1038	40.51 1029	25.20 640	15.75 400	15.04 382	(1)	40.51 1029	40.87 1038	40.51 1029	25.20 640	20.28 515	16.14 410	3960 1800
16 × 12 400 × 300	14.69 373	11.93 303	44.49 1130	44.88 1140	44.49 1130	27.76 705	15.75 400	15.04 382	3806 1730	44.49 1130	44.88 1140	44.49 1130	27.76 705	15.75 400	15.04 382	(1)	44.49 1130	44.88 1140	44.49 1130	27.76 705	20.28 515	16.14 410	4620 2100
16 × 14 400 × 350	14.69 373	12.68 322	44.49 1130	44.88 1140	44.49 1130	27.56 700	15.83 402	17.32 440	3740 1700	44.49 1130	44.88 1140	44.49 1130	27.76 705	15.83 402	17.32 440	(1)	44.49 1130	44.88 1140	44.49 1130	27.76 705	20.47 520	17.52 445	4400 2000
18 × 16 450 × 400	16.65 423	14.69 373	47.99 1219	48.50 1232	47.99 1219	31.10 790	17.28 439	17.40 442	5368 2440	47.99 1219	48.50 1232	47.99 1219	30.91 785	17.28 439	17.40 442	(1)	47.99 1219	48.50 1232	47.99 1219	30.91 785	21.10 536	18.23 463	6241 2837
20 × 16 500 × 400	18.54 471	14.69 373	52.01 1321	52.48 1333	52.01 1321	31.10 790	17.28 439	17.40 442	6325 2875	52.01 1321	52.48 1333	52.01 1321	33.66 855	17.28 439	17.40 442	(1)	52.01 1321	52.48 1333	52.01 1321	33.66 855	21.10 536	18.23 463	7733 3515
20 × 18 500 × 450	18.54 471	16.65 423	52.01 1321	52.48 1333	52.01 1321	33.66 880	18.90 485	19.09 485	7150 3250	52.01 1321	52.48 1333	52.01 1321	33.66 880	18.90 485	19.09 485	(1)	52.01 1321	52.48 1333	52.01 1321	33.66 880	22.83 580	19.09 485	8525 3875</

DIMENSIONS AND WEIGHTS



ASME CLASS 1500 FULL BORE

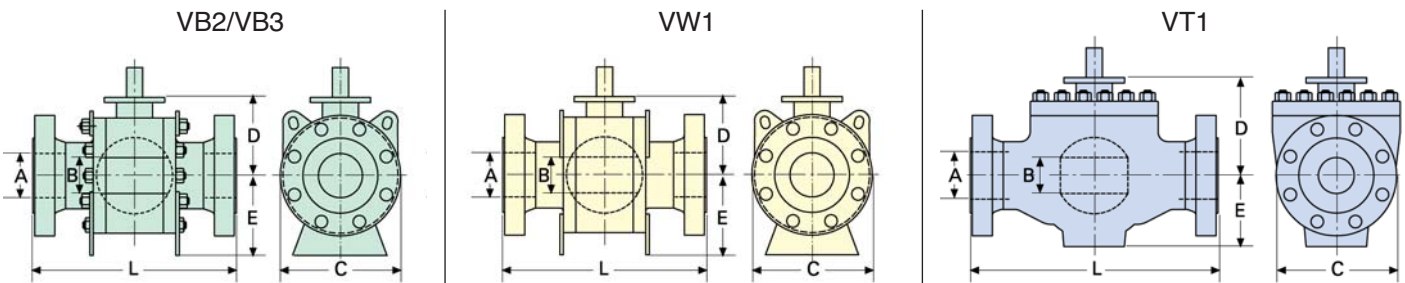
ALL TYPES			SIDE-ENTRY							WELDED BODY							TOP-ENTRY						
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*
2 50	1.93 49	1.93 49	14.49 368	14.61 371	14.49 368	8.50 216	4.17 106	4.09 104	110 50	14.49 368	14.61 371	14.49 368	8.50 216	4.17 106	4.09 104	(1)	14.49 368	14.61 371	14.49 368	8.50 216	8.35 212	3.43 87	123 56
3 80	2.91 74	2.91 74	18.50 470	18.62 473	18.50 470	10.51 267	6.57 167	5.04 128	213 97	18.50 470	18.62 473	18.50 470	10.51 267	6.57 167	5.04 128	(1)	18.50 470	18.62 473	18.50 470	10.51 267	9.29 236	4.65 118	337 153
4 100	3.94 100	3.94 100	21.50 546	21.61 549	21.50 546	12.24 311	7.05 179	6.69 170	436 198	21.50 546	21.61 549	21.50 546	12.24 311	7.05 179	6.69 170	(1)	21.50 546	21.61 549	21.50 546	12.24 311	11.57 294	5.91 150	612 278
6 150	5.67 144	5.67 144	27.76 705	27.99 711	27.76 705	15.51 394	10.24 260	9.17 233	1056 480	27.76 705	27.99 711	27.76 705	15.51 394	10.24 260	9.17 233	(1)	27.76 705	27.99 711	27.76 705	15.51 394	11.93 303	9.29 236	1320 600
8 200	7.56 192	7.56 192	32.76 832	33.11 841	32.76 832	19.02 483	11.97 304	11.42 290	1804 820	32.76 832	33.11 841	32.76 832	19.02 483	11.97 304	11.42 290	(1)	32.76 832	33.11 841	32.76 832	19.02 483	13.94 354	11.22 285	2420 1100
10 250	9.41 239	9.41 239	39.02 991	39.37 1000	39.02 991	23.03 585	14.29 363	13.86 352	3300 1500	39.02 991	39.37 1000	39.02 991	23.03 585	14.29 363	13.86 352	(1)	39.02 991	39.37 1000	39.02 991	23.03 585	15.67 398	13.11 333	3164 1438
12 300	11.30 287	11.30 287	44.49 1130	45.11 1146	44.49 1130	16.42 709	16.42 417	16.73 425	4950 2250	44.49 1130	45.11 1146	44.49 1130	16.42 709	16.42 417	16.73 425	(1)	44.49 1130	45.11 1146	44.49 1130	16.42 709	20.47 520	16.81 427	4437 2017
14 350	12.40 315	12.40 315	49.49 1257	50.24 1276	49.49 1257	30.12 765	17.20 426	16.77 426	6270 2850	49.49 1257	50.24 1276	49.49 1257	30.12 765	17.20 426	16.77 426	(1)	49.49 1257	50.24 1276	49.49 1257	30.12 765	21.65 550	17.95 456	5746 2612
16 400	14.17 360	14.17 360	54.49 1384	55.39 1407	54.49 1384	18.70 848	19.41 475	19.41 493	8954 4070	54.49 1384	55.39 1407	54.49 1384	18.70 848	19.41 475	19.41 493	(1)	54.49 1384	55.39 1407	54.49 1384	18.70 848	22.24 565	19.17 487	8558 3890
18 450	15.94 405	15.94 405	58.15 1477	59.01 1499	60.51 1537	38.58 980	22.17 563	23.94 608	13629 6195	N/A	N/A	N/A	N/A	N/A	N/A	N/A	58.15 1477	59.01 1499	60.51 1537	38.58 980	23.31 592	20.75 527	11220 5100
20 500	17.91 455	17.91 455	65.51 1664	66.38 1686	65.51 1664	39.96 1015	24.29 617	25.39 645	19965 9075	N/A	N/A	N/A	N/A	N/A	N/A	N/A	65.51 1664	66.38 1686	65.51 1664	39.96 1015	25.59 650	24.80 630	14692 6678
24 600	20.87 530	20.87 530	70.15 1782	71.25 1810	80.43 2043	50.91 1293	27.48 698	28.50 724	31416 14280	N/A	N/A	N/A	N/A	N/A	N/A	N/A	70.15 1782	71.25 1810	80.43 2043	50.91 1293	25.98 660	25.20 640	25740 11700

ASME CLASS 2500 FULL BORE

ALL TYPES			SIDE-ENTRY							TOP-ENTRY						
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*
2 50	1.65 42	1.65 42	17.76 451	17.87 454	17.76 451	9.25 235	4.72 120	5.00 127	194 88	17.76 451	17.87 454	17.76 451	9.25 235	8.35 212	3.86 98	264 120
3 80	2.44 62	2.44 62	22.76 578	22.99 584	22.76 578	12.01 305	6.97 177	7.80 198	411 187	22.76 578	22.99 584	22.76 578	12.56 319	9.57 243	4.80 122	541 246
4 100	3.43 87	3.43 87	26.50 673	26.89 683	26.50 673	14.02 356	8.94 227	9.17 233	836 380	26.50 673	26.89 683	26.50 673	14.33 364	11.77 299	6.46 164	1034 470
6 150	5.16 131	5.16 131	35.98 914	36.50 927	35.98 914	19.02 483	10.39 264	9.92 252	1694 770	35.98 914	36.50 927	35.98 914	19.02 483	13.98 355	9.57 243	2061 937
8 200	7.05 179	7.05 179	40.24 1022	40.87 1038	40.24 1022	24.41 620	15.08 383	13.35 339	2985 1357	40.24 1022	40.87 1038	40.24 1022	21.65 550	16.69 424	11.50 292	3102 1410
10 250	8.78 223	8.78 223	50.00 1270	50.87 1292	50.00 1270	29.33 745	17.83 453	16.61 422	4620 2100	50.00 1270	50.87 1292	50.00 1270	26.57 675	19.80 503	13.86 352	5720 2600
12 300	10.43 265	10.43 265	55.98 1422	56.89 1445	55.98 1422	34.25 870	20.47 520	18.98 482	7062 3210	55.98 1422	56.89 1445	55.98 1422	30.12 765	23.15 588	17.17 436	9240 4200

* Weight figures are relevant to flanged end valves.
(1) Please consult the factory.
Note: For dimensions and weights in larger sizes consult the factory.
Dimensions C, D, E, and weights are subject to change without notice.
Face-to-face dimensions not listed in industry standards are subject to change without notice.

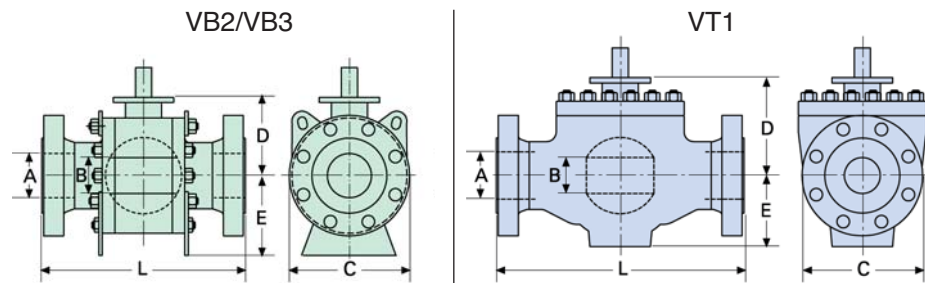
DIMENSIONS AND WEIGHTS



ASME CLASS 1500 REDUCED BORE

ALL TYPES			SIDE-ENTRY							WELDED BODY							TOP-ENTRY						
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*
2 × 1 1/2 50 × 40	1.93 49	1.50 38	14.49 368	14.61 371	14.49 368	8.50 216	4.09 104	4.06 103	90 41	14.49 368	14.61 371	14.49 368	8.50 216	4.09 104	4.06 103	(1)	14.49 368	14.61 371	14.49 368	8.50 216	8.31 211	3.15 80	110 50
3 × 2 80 × 50	2.91 74	1.93 49	18.50 470	18.62 473	18.50 470	10.51 267	4.09 104	4.06 103	150 68	18.50 470	18.62 473	18.50 470	10.51 267	4.09 104	4.06 103	(1)	18.50 470	18.62 473	18.50 470	10.51 267	8.31 211	3.15 80	216 98
4 × 3 100 × 80	3.94 100	2.91 74	21.50 546	21.61 549	21.50 546	12.24 311	6.54 166	5.04 128	268 122	21.50 546	21.61 549	21.50 546	12.24 311	6.54 166	5.04 128	(1)	21.50 546	21.61 549	21.50 546	12.24 311	9.29 236	4.65 118	447 203
6 × 4 150 × 100	5.67 144	3.94 100	27.76 705	27.99 711	27.76 705	15.51 394	8.39 213	6.61 168	627 285	27.76 705	27.99 711	27.76 705	15.51 394	8.39 213	6.61 168	(1)	27.76 705	27.99 711	27.76 705	15.51 394	11.30 287	6.02 153	827 376
8 × 6 200 × 150	7.56 192	5.67 144	32.76 832	33.11 841	32.76 832	19.02 483	10.43 265	9.02 229	1245 566	32.76 832	33.11 841	32.76 832	19.02 483	10.43 265	9.02 229	(1)	32.76 832	33.11 841	32.76 832	19.02 483	11.93 303	9.29 236	1547 703
10 × 8 250 × 200	9.41 239	7.56 192	39.02 991	39.37 1000	39.02 991	23.03 585	11.69 297	11.30 287	2248 1022	39.02 991	39.37 1000	39.02 991	23.03 585	11.69 297	11.30 287	(1)	39.02 991	39.37 1000	39.02 991	23.03 585	13.74 349	11.22 285	2801 1273
12 × 10 300 × 250	11.30 287	9.41 239	44.49 1130	45.12 1146	44.49 1130	16.42 709	14.17 675	13.66 360	3872 1760	44.49 1130	45.12 1146	44.49 1130	16.42 709	14.17 675	13.66 360	(1)	44.49 1130	45.12 1146	44.49 1130	16.42 709	15.91 404	12.99 330	337 1535
14 × 10 350 × 250	12.40 315	9.41 239	49.49 1257	50.24 1276	49.49 1257	29.53 750	14.17 360	13.66 347	4719 2145	49.49 1257	50.24 1276	49.49 1257	29.53 750	14.17 360	13.66 347	(1)	49.49 1257	50.24 1276	49.49 1257	29.53 750	15.91 404	12.99 330	4620 2100
16 × 12 350 × 300	12.40 315	11.30 287	49.49 1257	50.24 1276	49.49 1257	29.53 750	16.69 424	16.61 422	5500 2500	49.49 1257	50.24 1276	49.49 1257	29.53 750	16.69 424	16.61 422	(1)	49.49 1257	50.24 1276	49.49 1257	29.53 750	20.87 530	16.81 427	5936 2698
16 × 12 400 × 300	14.17 360	11.30 287	54.49 1384	55.39 1407	54.49 1384	32.48 825	16.69 424	16.61 422	6160 2800	54.49 1384	55.39 1407	54.49 1384	32.48 825	16.69 424	16.61 422	(1)	54.49 1384	55.39 1407	54.49 1384	32.48 825	20.87 530	16.81 427	7040 3200
16 × 14 400 × 350	14.17 360	12.40 315	54.49 1384	55.39 1407	54.49 1384	32.48 825	17.44 443	16.85 428	7139 3245	54.49 1384	55.39 1407	54.49 1384	32.48 825	17.44 443	16.85 428	(1)	54.49 1384	55.39 1407	54.49 1384	32.48 825	21.26 540	17.91 455	6820 3100
18 × 16 450 × 400	15.94 405	14.17 360	58.15 1477	59.01 1499	60.51 1537	36.06 916	19.06 484	19.76 502	10934 4970	N/A	N/A	N/A	N/A	N/A	N/A	N/A	58.15 1477	59.01 1499	60.51 1537	36.06 916	21.93 557	19.41 493	9240 4200
20 × 16 500 × 400	17.91 455	14.17 360	65.51 1664	66.38 1686	65.51 1664	38.78 985	19.06 484	19.76 502	11297 5135	N/A	N/A	N/A	N/A	N/A	N/A	N/A	65.51 1664	66.38 1686	65.51 1664	38.78 985	21.93 557	19.41 493	9900 4500
20 × 18 500 × 450	17.91 455	15.94 405	65.51 1664	66.38 1686	65.51 1664	38.78 985	21.85 555	23.74 603	16500 7500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	65.51 1664	66.38 1686	65.51 1664	38.78 985	23.35 593	20.75 527	12980 5900
24 × 20	20.87	17.91	70.15	71.25	80.43	46.06	24.57	25.31	23925	N/A	N/A	N/A	N/A	N/A	N/A	N/A	70.15	71.25	80.43	46.06	25.87	24.41	20240

DIMENSIONS AND WEIGHTS



CLASS API 3000 FULL BORE

ALL TYPES			SIDE-ENTRY					TOP-ENTRY				
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*
2 1/16 50	2.06 52.4	2.06 52.4	14.61 371	8.50 216	6.50 165	4.33 110	(1)	14.61 371	8.50 216	6.50 165	4.33 110	(1)
3/8 80	3.12 79.3	3.12 79.3	17.13 435	9.49 241	7.87 200	5.51 140	(1)	17.13 435	9.49 241	7.87 200	5.51 140	(1)
4 1/16 100	4.06 103.2	4.06 103.2	20.12 511	11.61 295	8.27 210	6.69 170	(1)	20.12 511	11.61 295	8.27 210	6.69 170	(1)
5/8 150	5.12 130	5.12 130	24.13 613	16.65 423	10.83 275	10.16 258	(1)	24.13 613	16.65 423	10.83 275	10.16 258	(1)
7 1/16 200	7.06 179.4	7.06 179.4	28.11 714	15.00 381	13.78 350	13.39 340	(1)	28.11 714	15.00 381	13.78 350	13.39 340	(1)

CLASS API 5000 FULL BORE

ALL TYPES			SIDE-ENTRY					TOP-ENTRY				
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*
2 1/16 50	2.06 52.4	2.06 52.4	14.61 371	8.50 216	6.50 165	4.33 110	(1)	14.61 371	8.50 216	6.50 165	4.33 110	(1)
3/8 80	3.12 79.3	3.12 79.3	18.62 473	10.51 267	7.87 200	5.51 140	(1)	18.62 473	10.51 267	7.87 200	5.51 140	(1)
4 1/16 100	4.06 103.2	4.06 103.2	21.61 549	12.24 311	8.27 210	6.69 170	(1)	21.61 549	12.24 311	8.27 210	6.69 170	(1)
5/8 150	5.12 130	5.12 130	28.62 727	16.65 423	11.02 280	10.16 258	(1)	28.62 727	16.65 423	11.02 280	10.16 258	(1)
7 1/16 200	7.06 179.4	7.06 179.4	32.01 813	21.26 540	13.58 345	13.39 340	(1)	32.01 813	21.26 540	13.58 345	13.39 340	(1)

CLASS API 10000 FULL BORE

ALL TYPES			SIDE-ENTRY					TOP-ENTRY				
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*
2 1/16 50	2.06 52.4	2.06 52.4	20.51 521	11.02 280	7.68 195	8.43 214	(1)	20.51 521	11.02 280	7.68 195	8.43 214	(1)
3/8 80	3.07 78	3.07 78	24.37 619	13.98 355	9.06 230	10.00 254	(1)	24.37 619	13.98 355	9.06 230	10.00 254	(1)
4 1/16 100	4.06 103.2	4.06 103.2	26.38 670	17.95 456	12.05 306	11.02 280	(1)	26.38 670	17.95 456	12.05 306	11.02 280	(1)

* Weight figures are relevant to flanged end valves.

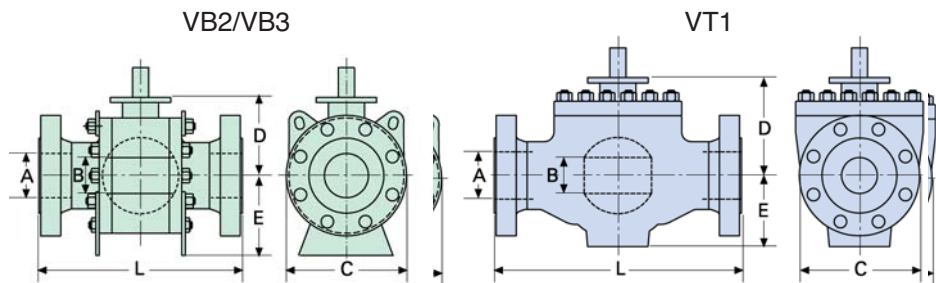
(1) Please consult the factory.

Note: Consult the factory for additional dimensions and weights.

Dimensions C, D, E, and weights are subject to change without notice.

Face-to-face dimensions not listed in industry standards are subject to change without notice.

DIMENSIONS AND WEIGHTS



CLASS API 3000 REDUCED BORE

ALL TYPES			SIDE-ENTRY					TOP-ENTRY				
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*
2 1/16 x 1 13/16 50 x 40	2.06 52.4	1.81 46	14.61 371	8.50 216	6.50 165	4.33 110	(1)	14.61 371	8.50 216	6.50 165	4.33 110	(1)
3/8 x 2 1/16 80 x 50	3.12 79.3	2.06 52.4	17.13 435	9.49 241	6.50 165	4.33 110	(1)	17.13 435	9.49 241	7.87 200	5.51 140	(1)
4 1/16 x 3 1/8 100 x 80	4.06 103.2	3.12 79.3	20.12 511	11.61 295	7.87 200	5.51 140	(1)	20.12 511	11.61 295	8.27 210	6.69 170	(1)
5/8 x 4 1/16 125 x 100	5.12 130	4.06 103.2	24.13 613	13.78 350	8.27 210	6.69 170	(1)	24.13 613	16.65 423	10.83 275	10.16 258	(1)
7 1/16 x 6 200 x 150	7.06 179.4	6.00 152.4	28.11 714	15.00 381	13.78 350	13.39 340	(1)	28.11 714	15.00 381	13.78 350	13.39 340	(1)

CLASS API 5000 REDUCED BORE

ALL TYPES			SIDE-ENTRY					TOP-ENTRY				
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*
2 1/16 50	2.06 52.4	2.06 52.4	14.61 371	8.50 216	6.50 165	4.33 110	(1)	14.61 371	8.50 216	6.50 165	4.33 110	(1)
3/8 80	3.12 79.3	3.12 79.3	18.62 473	10.51 267	7.87 200	5.51 140	(1)	18.62 473	10.51 267	7.87 200	5.51 140	(1)
4 1/16 100	4.06 103.2	4.06 103.2	21.61 549	12.24 311	8.27 210	6.69 170	(1)	21.61 549	12.24 311	8.27 210	6.69 170	(1)
5/8 150	5.12 130	5.12 130	28.62 727	16.65 423	11.02 280	10.16 258	(1)	28.62 727	16.65 423	11.02 280	10.16 258	(1)
7 1/16 200	7.06 179.4	7.06 179.4	32.01 813	21.26 540	13.58 345	13.39 340	(1)	32.01 813	21.26 540	13.58 345	13.39 340	(1)

CLASS API 10000 REDUCED BORE

ALL TYPES			SIDE-ENTRY					TOP-ENTRY				
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*
2 1/16 50	2.06 52.4	2.06 52.4	20.51 521	11.02 280	7.68 195	8.43 214	(1)	20.51 521	11.02 280	7.68 195	8.43 214	(1)
3/8 80	3.07 78	3.07 78	24.37 619	13.98 355	9.06 230	10.00 254	(1)	24.37 619	13.98 355	9.06 230	10.00 254	(1)
4 1/16 100	4.06 103.2	4.06 103.2	26.38 670	17.95 456	12.05 306	11.02 280	(1)	26.38 670	17.95 456	12.05 306	11.02 280	(1)

* Weight figures are relevant to flanged end valves.

(1) Please consult the factory.

Note: Consult the factory for additional dimensions and weights.

Dimensions C, D, E, and weights are subject to change without notice.

Face-to-face dimensions not listed in industry standards are subject to change without notice.

SPARE PARTS LIST

SIDE-ENTRY - Mod VB2/VB3

Part #	Part	DN < 4" ⁽¹⁾		DN 4" ⁽¹⁾		DN > 4" ⁽¹⁾	
		Spare parts quantity		Spare parts quantity		Spare parts quantity	
		Start up	2 years op.	Start up	2 years op.	Start up	2 years op.
4	Seat	-	(3)	-	(3)	-	(3)
10a	Body gasket	(2)	(3)	(2)	(3)	(2)	(3)
10b	Stem gasket	(2)	(3)	(2)	(3)	(2)	(3)
10c	Stem cover gasket	(2)	(3)	(2)	(3)	(2)	(3)
10d	Seat gasket	(2)	(3)	(2)	(3)	Not applicable	Not applicable
10e	Trunnion gasket	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable
11a	Body O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11b	Stem O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11c	Stem cover O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11d	Seat O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11e	Trunnion O-ring	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable

WELDED BODY - Mod VW1

Part #	Part	DN < 4" ⁽¹⁾		DN 4" ⁽¹⁾		DN > 4" ⁽¹⁾	
		Spare parts quantity		Spare parts quantity		Spare parts quantity	
		Start up	2 years op.	Start up	2 years op.	Start up	2 years op.
10b	Stem gasket	(2)	(3)	(2)	(3)	(2)	(3)
10c	Stem cover gasket	(2)	(3)	(2)	(3)	(2)	(3)
10e	Trunnion gasket	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable
11b	Stem O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11c	Stem cover O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11e	Trunnion O-ring	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable

TOP-ENTRY - Mod VT1

Part #	Part	DN < 4" ⁽¹⁾		DN 4" ⁽¹⁾		DN > 4" ⁽¹⁾	
		Spare parts quantity		Spare parts quantity		Spare parts quantity	
		Start up	2 years op.	Start up	2 years op.	Start up	2 years op.
4	Seat	—	(3)	—	(3)	—	(3)
10a	Body gasket	(2)	(3)	(2)	(3)	(2)	(3)
10b	Stem gasket	(2)	(3)	(2)	(3)	(2)	(3)
10c	Stem cover gasket	(2)	(3)	(2)	(3)	(2)	(3)
10d	Seat gasket	(2)	(3)	(2)	(3)	Not applicable	Not applicable
10e	Trunnion gasket	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable
10h	Spring holder ring gasket	(2)	(3)	(2)	(3)	Not applicable	Not applicable
11a	Body O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11b	Stem O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11c	Stem cover O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11d	Seat O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11e	Trunnion O-ring	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable

NOTES
(1) Reference to nominal port size
(2) One set per 10 valves
(3) One set per 1 valve

API 6D & 6A TRUNNION-MOUNTED BALL VALVES



36" (900 mm) class 600 top-entry cast bodies in production.



24" (600 mm) class 1500 side-entry.



Fully welded 42" (1050 mm) class 600 for underground service.



Fully welded 56" (1400 mm) class 600 with pipe pups.



24" (600 mm) class 300 side-entry for high temperature.



Fully welded 48" (1200 mm) class 600 for underground service.



20" (500 mm) class 1500 side-entry.

ENGINEERING DATA

VALVE TESTING

100% of valves manufactured by Valbart are tested in excess of API 6D requirements, prior to shipping.

LEAKAGE RATES

Standard	Soft seated	Metal-seated	Cryogenic
API 6D	ISO 5208 Rate A	ISO 5208 Rate D	(1)
BS 12266-1	–	Rate D	(1)

(1) Please consult the factory.

STANDARD PERFORMANCE TESTS

- Visual and dimensional check
- High-pressure hydrostatic shell test
- High-pressure hydrostatic seats test
- Low-pressure air seats test
- Stem torque check

RATING AND TEST PRESSURES AT AMBIENT TEMPERATURE

ASME CLASS	RATING (1)			BODY TEST			H.P. SEAT TEST			AIR SEAT TEST		
	psi	bar	kg/cm ²	psi	bar	kg/cm ²	psi	bar	kg/cm ²	psi	bar	kg/cm ²
150	275	19	19.3	413	28.5	29	303	20.9	21	100	6	7
300	720	50	51	1080	75	77	792	55	56	100	6	7
600	1440	99	101	2160	148.5	152	1584	108.9	111	100	6	7
900	2160	149	152	3240	223.5	228	2376	163.9	167	100	6	7
1500	3600	248	253	5400	372	380	3960	272.8	278	100	6	7
2500	5988	413	421	8982	619.5	632	6587	454.3	463	100	6	7
API 3000	3000	207	210	4500	310.5	315	3300	227.7	231	100	6	7
API 5000	5000	345	352	7500	517.5	528	5500	379.5	387	100	6	7
API 10000	10000	690	703	15000	1035	1055	11000	759	773	100	6	7

(1) Typical only - rating pressure may change for different materials.

Conversion factors 1 bar = 14.50 psi and 1 bar = 0,981 kg/cm² and 1 bar = 100 kpa 1 kg/cm² = 14.22 psi
1°F = (1.8 x °C) +32 and 1°C = (°F -32) / 1.8

QUALITY STANDARDS

American Petroleum Institute – API

	API 6D	API 6D SS	API 6FA	API 598
	API 6A	API 607	API 605	

American Society of Mechanical Engineers – ASME

ASME B 16.5	ASME B 16.10	ASME B 16.25
ASME B 16.34	ASME B 31.3	ASME B31.8
ASME B 46.1		

International Organization for Standardisation – ISO

ISO 9001:2000	ISO 14313
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British Standards

BS EN 10222	BS EN 9000
BS 1560	BS EN 10213
BS 4504	BS EN 12266
BS 5351	

Manufacturers Standardization Society – MSS

MSS SP 6	MSS SP 25
MSS SP 44	MSS SP 45
MSS SP 55	MSS SP 61
MSS SP 72	

Compliant to CSA Z245

ENGINEERING DATA

HOW TO AVOID PROBLEMS

- Ball valves will be transported and stored with the ball in the fully open position.
 - Flanged ends and welded ends will be protected.
 - End protection will be removed only when the valve is installed in the line.
 - Valves will be handled using the proper lifting lugs.
 - Valves will be stored according to Valbart storage procedures. Long-term storage should be avoided.
 - In case of long storage the valve shall be flushed and cycled a few times.
 - For welded-end valves, advise Valbart if there will be a post-weld heat treatment (transition pups may be necessary to avoid damages to seals).
 - Flush and clean the line before operating the valve.
 - Make sure no line-testing fluid is left in the line and/or the valve body.
 - Avoid leaving the valve body filled with salt water to prevent internal corrosion.
 - During line-testing, valves will be left in the partially open position for the minimum possible amount of time.
 - Standard ball valves will be used for on-off service only. Throttling service (use of the valve with the ball partially open) can damage the seats.
 - Make sure to take into consideration the actual service conditions when selecting materials for O-rings and seat inserts.
- Always specify anti-explosive decompression material for valves to be used in high-pressure gas service.
 - Make sure the selected actuator has been properly sized (an oversized actuator can be as dangerous as an undersized one).
 - Advise Valbart of cycle frequency to ensure proper sizing of actuator.
 - Do not use the actuator to lift the valve.



Valbart side-entry bolted body trunnion-mounted ball Valves destined for offshore service.

WARRANTY CLAUSE

WARNING: Valbart Srl will not accept claims for damages due to poor handling on site and/or for valves service conditions different from the ones for which they have been manufactured and sold by Valbart Srl.

In any case in which Valbart Srl is not made aware of the actual use of the valves (e.g., the valves ordered by a third party, such as a Distributor) it is responsibility of the third party and/or the user to verify the suitability of the valve materials and design for the medium and service conditions in which the valves will be used.

MATERIALS

BODY AND TRIM MATERIAL

CARBON STEEL
A105N A216 WCB A216 WCC
LOW TEMPERATURE CARBON STEEL
A350 LF2 A352 LCB A352 LCC
LOW ALLOY STEEL
AISI 4140 A694 F65 A694 F52
A694 F60 A350 LF3
API 6A 60K (A694 F60 Mod)

MARTENSITIC STAINLESS STEEL
A182 F6A A182 F6NM
A217 CA15 A487 CA6NM

AUSTENITIC STAINLESS STEEL
A182 F316 A182 F316L
A182 F316LN-Mod. A182 F347
A182 F44 (6% Mo) A182 FXM-19
(UNS S31254) (Nitronic 50)
A351 CF8M A351 CF3
A351 CF3M

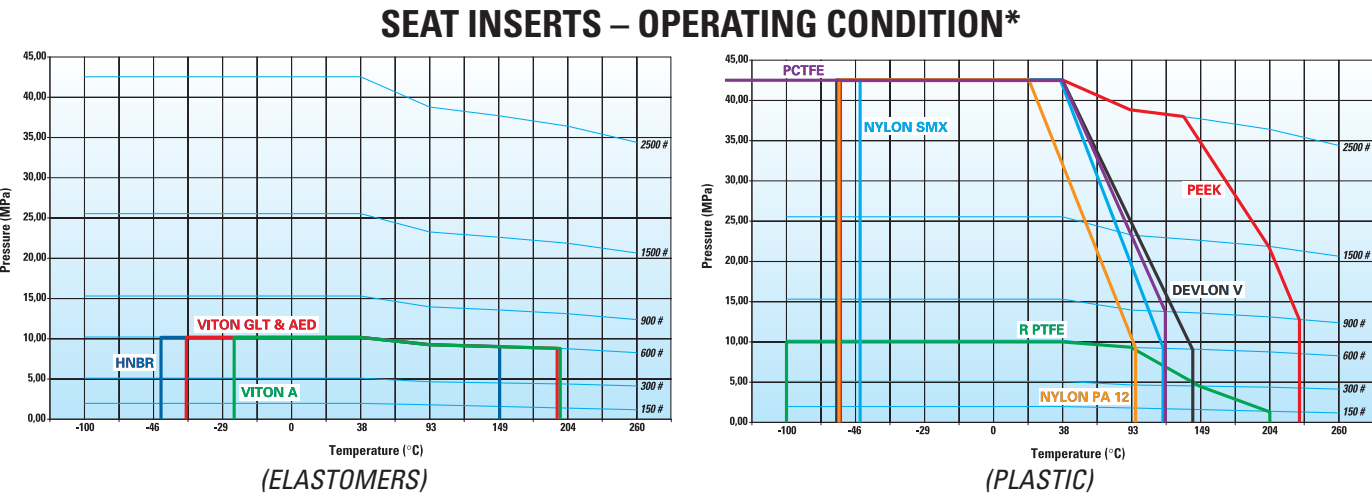
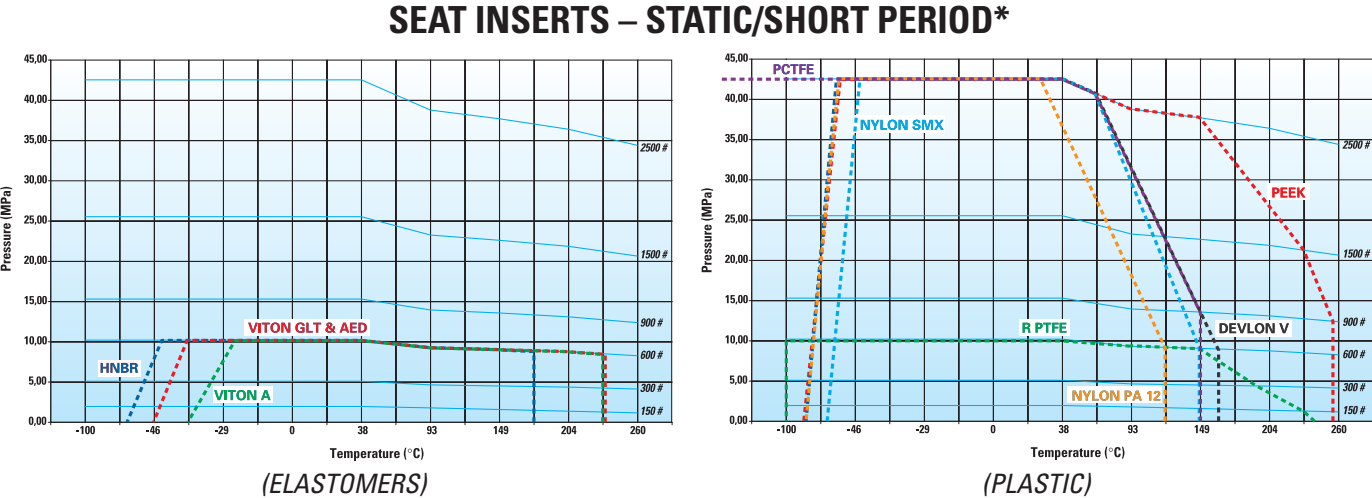
PRECIPITATION HARDENING STAINLESS STEEL
A564 Gr 630 H1150M (UNS S17400)

DUPLEX STAINLESS STEEL
A181 F51 (UNS S31803)
A182 F53 (UNS S31750)
A182 F55 (UNS S31760)
A890-4A (UNS S31803)
A890-6A (UNS S32760)

NICKEL ALLOYS
Incoloy 825 (UNS N08825) Incoloy 925 (UNS N09925)
Inconel 625 (UNS N06625) Inconel 718 (UNS N07718)
Inconel 750 (UNS N07750)
Monel 400
Monel K500

SEAT INSERT AND SEALS MATERIALS OPERATING (DYNAMIC) LIMITS*

MATERIAL	TEMP. °C		PRESSURE CLASS		SIZE	
	MIN.	MAX.	SEAT INSERT	SEAL	SEAT INSERT	SEAL
Nylon SMX	-40	120	2500	N/A	64"	N/A
Lauramid (Nylon 12G)	-60	100	2500	N/A	64"	N/A
Devlon (Nylon 6)	-60	140	2500	N/A	64"	N/A
Pek	-60	220	2500	N/A	36"	N/A
PTFE Glass Filled (25%)	-100	200	600	N/A	24"	N/A
PTFE Carbon Filled (25%)	-100	180	300	N/A	24"	N/A
PCTFE	-196	150	2500	N/A	36"	N/A
HNBR-Therban	-40	150	600	2500	64"	64"
FKM A (Viton A)	-29	180	600	2500	64"	64"
FKM GLT (Viton GLT)	-40	180	600	2500	64"	64"
FKM AED	-29	180	600	2500	64"	64"
PTFE + Elgiloy Springs	-196	200	N/A	2500	N/A	36"



*Given as reference only.

Cv FLOW COEFFICIENTS

API 6D

BORE (INCHES)	CLASSES					
	150	300	600	900	1500	2500
2	420	420	400	330	330	250
2½	690	690	610	520	510	320
3 × 2	200	200	200	190	180	200
3	1200	1050	1000	910	820	500
4 × 3	600	600	600	590	550	560
4	2200	2100	1850	1800	1700	1100
6 × 4	800	800	790	790	780	745
6	5150	5100	4600	4380	3800	2500
8 × 6	2150	2150	2150	2150	2150	2150
8	9500	9400	9000	8500	7400	5300
10 × 8	4300	4300	4300	4450	4450	4100
10	15000	15000	14700	14500	11500	8300
12 × 10	7550	7550	7550	8000	9000	7550
14 × 10	6000	6000	6000	6100	6100	-
12	23000	23000	22500	21100	18000	13000
14 × 12	14000	14000	14000	12800	13000	-
16 × 12	9100	9100	9100	8900	8900	-
14	28000	28000	28000	25000	21000	-
16 × 14	15000	15000	15000	14200	14100	-
16	37200	37200	37200	34500	27500	-
18 × 16	21000	21000	21000	19200	19000	-
20 × 16	15300	15300	15300	13800	12000	-
18	49000	49000	49000	45000	37000	-
20 × 18	28400	28400	28400	25000	25000	-
20	59000	59000	59000	55200	47800	-
24 × 20	28200	28200	28000	25100	20600	-
22	68200	68200	68200	62000	54000	-
24	92000	92000	92000	83800	70000	-
30 × 24	36000	36000	36000	32900	-	-
26	110000	110000	110000	98500	-	-
28	121000	121000	121000	113000	-	-
30	145000	144000	144000	130000	-	-
36 × 30	64000	64000	64000	61500	-	-
32	170000	170000	170000	151000	-	-
36 × 32	87000	87000	87000	69500	-	-
36	210000	210000	210000	198200	-	-
40	267500	267500	267500	-	-	-
42 × 36	96700	96700	96000	-	-	-
42	280000	280000	280000	-	-	-
48	384000	384000	384000	-	-	-
56 × 42	89000	89000	89000	-	-	-
56	521000	521000	521000	-	-	-

API 6A

BORE (INCHES)	CLASSES		
	3000	5000	10000
1 13/16	270	270	230
2 1/16	350	350	300
3 1/8	1000	940	890
4 1/16	1750	1700	1600
5 1/8	2900	2700	2450
7 1/16	5930	5400	5220

DATA FOR CALCULATION OF FLOW

The coefficient of flow Cv expresses the rate of flow in gallons per minute at 60°F water with a pressure drop of 1 psig across the valve. The Cv coefficients for the various types and sizes, shown in the tables, have been determined from actual flow tests.

NOTE: Kv is the metric equivalent of Cv.

Kv = Cv x 0.85

FOR LIQUIDS:

(1) Q_L = C_v √ (Δ P / G_L)

(2) Δ P = G_L (Q_L / C_v)²

WHERE: Q_L = Flow in U.S. gallons per minute.
Δ P = (P₁-P₂) Pressure drop in psi
G_L = Specific gravity of liquid (water = 1 at 60°F)

FOR GASES:

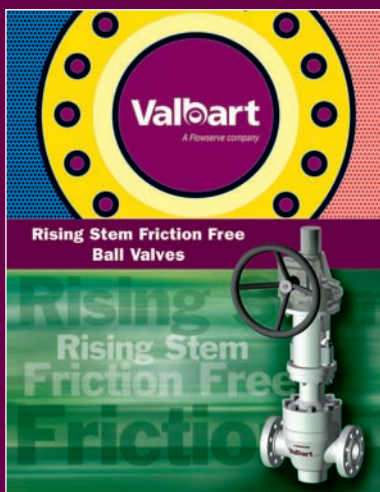
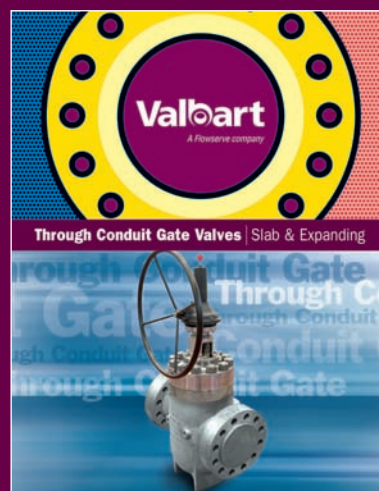
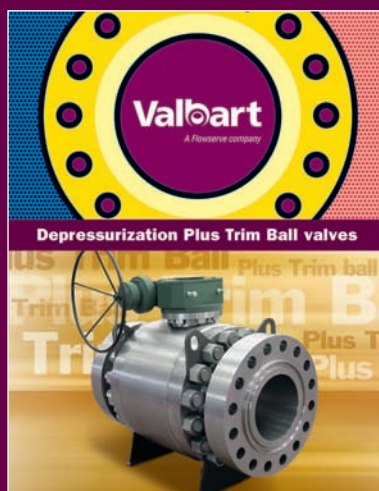
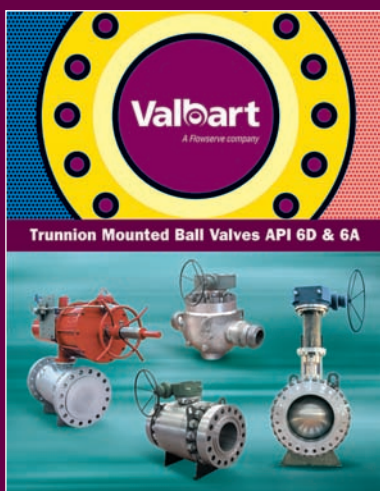
(3) Q_g = 1360 C_v √ (Δ P / G_gT) • √ (P₁ + P₂ / 2)

(4) Δ P = P₁ - √ (P₁² - 2G_gT (Q_g / 1360C_v)²)

WHERE: Q_g = Volumetric flow of gas (SCFH)
G_g = Specific gravity of gas at standard conditions (air at atmosphere and 60°F = 1)
T = Absolute temperature of gas (°F +460)

NOTE: For gas, max. ΔP = 1/2 P₁, and min. P₂ = 1/2 P₁, and P₁, P₂ are absolute pressures (psia)

For Information on Valbart Specialized valves, please refer to the following leaflets:



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