



Valbart

***API 6D & 6A Trunnion Mounted
Side Entry, Welded Body, & Top Entry Ball Valves***



Experience In Motion



Flowserve Valbart Main Office



Flowserve Valbart Engineering Office

Profile

Valbart was founded in 2003 as a joint venture. Since then, the company has witnessed tremendous growth and has been recognized as the fastest growing firm in its sector.

Acquired in 2010 by Flowserve Corporation following a long period of sustained growth, Valbart further expanded its technical resources and product offerings.

The company specializes in designing and manufacturing API 6A and API 6D Trunnion Mounted ball Valves. The company is driven by constant innovation to increase its existing range of products. Apart from being one of the leading suppliers of TMBV, Valbart is also recognized for its production of Trunnion Mounted Control Ball Valves, Cryogenic Valves, Twin Ball Double Block & Bleed 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 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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Flowserve Valbart Testing and VAC Centre



Flowserve Valbart Warehouse

Product range

Core products		Special Applications
 <p>API 6D/6A Side Entry (Up to 64")</p>	 <p>Trunnion Mounted Control Ball Valve</p>	 <p>Cryogenic</p>
 <p>API 6D/6A Top Entry (Up to 56")</p>	<p>VALBART TRUNNION MOUNTED BALLVALVES API 6D & 6A Sizes: 1" - 64" Pressure class: 150# - 2500# API 2000 - API 15000</p>	 <p>Subsea</p>
 <p>API 6D/6A Welded Body (Up to 64")</p>	 <p>Rising Stem Ball Valve</p>	 <p>Double Block & Bleed</p>

Product range

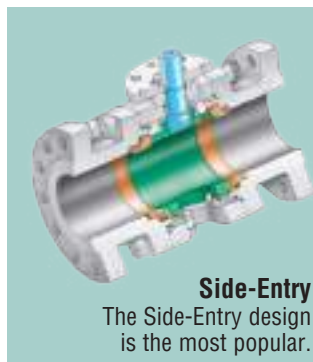
PRODUCT RANGE

API 6D

API 6A

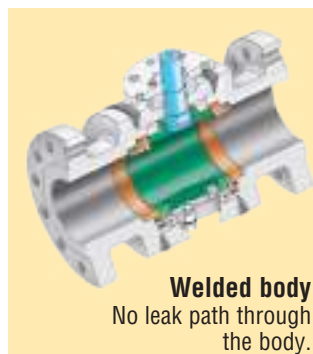
Service	Size (in/mm) – Pressure Range				Size (in/mm) – Pressure Range			
	ASME	ASME	ASME	ASME	API	API	API	API
	150 - 600	900	1500	2500	2000	3000	5000	10000

SIDE ENTRY - MOD. VB2/VB3



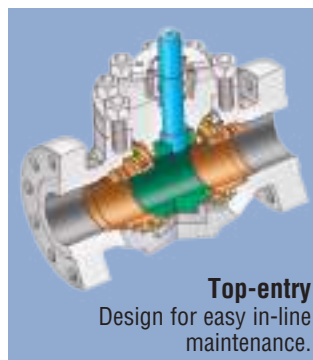
Standard -29°C to 220°C / -20°F to 428°F	1" - 64" 25 - 1600	1" - 56" 25 - 1400	1" - 42" 25 - 1050	1" - 24" 25 - 600	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280
Low temperature -46°C / -50°F	1" - 64" 25 - 1600	1" - 56" 25 - 1400	1" - 42" 25 - 1050	1" - 24" 25 - 600	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280
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 - 300	(1)	(1)	(1)	(1)
Sub sea	1" - 64" 25 - 1600	1" - 56" 25 - 1400	1" - 42" 25 - 1050	1" - 24" 25 - 600	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280
Underground	1" - 64" 25 - 1600	1" - 56" 25 - 1400	1" - 42" 25 - 1050	1" - 24" 25 - 600	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280
High temperature Above 220°C / 428°F	1" - 36" 25 - 900	1" - 36" 25 - 900	1" - 24" 25 - 600	1" - 12" 25 - 300	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280

WELDED BODY - MOD. VW1



Standard -29°C to 220°C / -20°F to 428°F	2" - 64" 50 - 1600	2" - 56" 50 - 1400	2" - 42" 50 - 1050	(1)
Low temperature -46°C / -50°F	2" - 64" 50 - 1600	2" - 56" 50 - 1400	2" - 42" 50 - 1050	(1)
Sub sea	2" - 64" 50 - 1600	2" - 56" 50 - 1400	2" - 42" 50 - 1050	(1)
Underground	2" - 64" 50 - 1600	2" - 56" 50 - 1400	2" - 42" 50 - 1050	(1)

TOP ENTRY - MOD. VT1



Standard -29°C to 220°C / -20°F to 428°F	2" - 64" 50 - 1600	2" - 56" 50 - 1400	2" - 42" 50 - 1050	2" - 24" 50 - 600	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280
Low temperature -46°C / -50°F	2" - 64" 50 - 1600	2" - 56" 50 - 1400	2" - 42" 50 - 1050	2" - 24" 50 - 600	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280
Cryogenic -47°C to -196°C / -52°F to -320°F	2" - 36" 50 - 900	2" - 36" 50 - 900	2" - 24" 50 - 600	2" - 12" 50 - 300	(1)	(1)	(1)	(1)
Sub sea	2" - 64" 50 - 1600	2" - 56" 50 - 1400	2" - 42" 50 - 1050	2" - 24" 50 - 600	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280
Underground	2" - 64" 50 - 1600	2" - 56" 50 - 1400	2" - 42" 50 - 1050	2" - 24" 50 - 600	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280
High temperature Above 220°C / 428°F	2" - 36" 50 - 900	2" - 36" 50 - 900	2" - 24" 50 - 600	2" - 12" 50 - 300	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280	1" - 11" 25 - 280

(1) - Please consult manufacturer. For higher sizes and/or higher pressure ratings, please consult manufacturer.

Manufacturing capabilities

Flowserve Valbart, located in Mezzago, 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.

R&D department

Flowserve Valbart'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).

In-house capabilities

We have a machining and 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.

Certification and approvals

The quality program is fully compliant with the industry's most stringent standards.

Valbart holds API 6A, API 6D and API 6DSS certification and is authorized to use the official API monogram under API Spec Q1 for all of its manufactured products.

Inventory of finished components

Flowserve Valbart facilities have inventory of finished components stored in our workshop facility that are identified with a code number.

The storage area will keep expanding along with our company's growth.



Valbart In-house testing rigs and facilities



In-house testing facilities for valves up to 1600 mm (64")

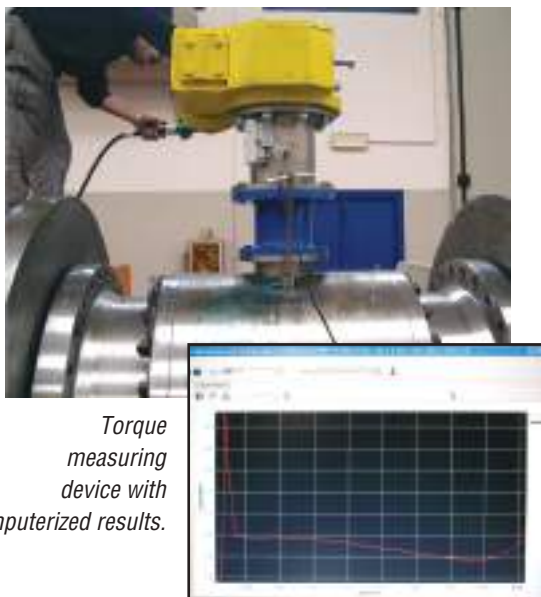
Engineered solutions

Flowserve Valbart 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.



*Cryogenic testing on a 16" (400 mm)
Class 1500 Top Entry Ball Valve*



*Torque
measuring
device with
computerized results.*



*Hydraulic Shell & Seat Test
on a 18" (450 mm)
Class 2500 Uprated valve*



*Hyperbaric testing through
external subcontractor*



High temperature valve testing



High Pressure System for Gas Testing

Machinery and equipment

Our 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. Valbart 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.



SAW welding robot applying weld overlay on valve closure



Boring machine.



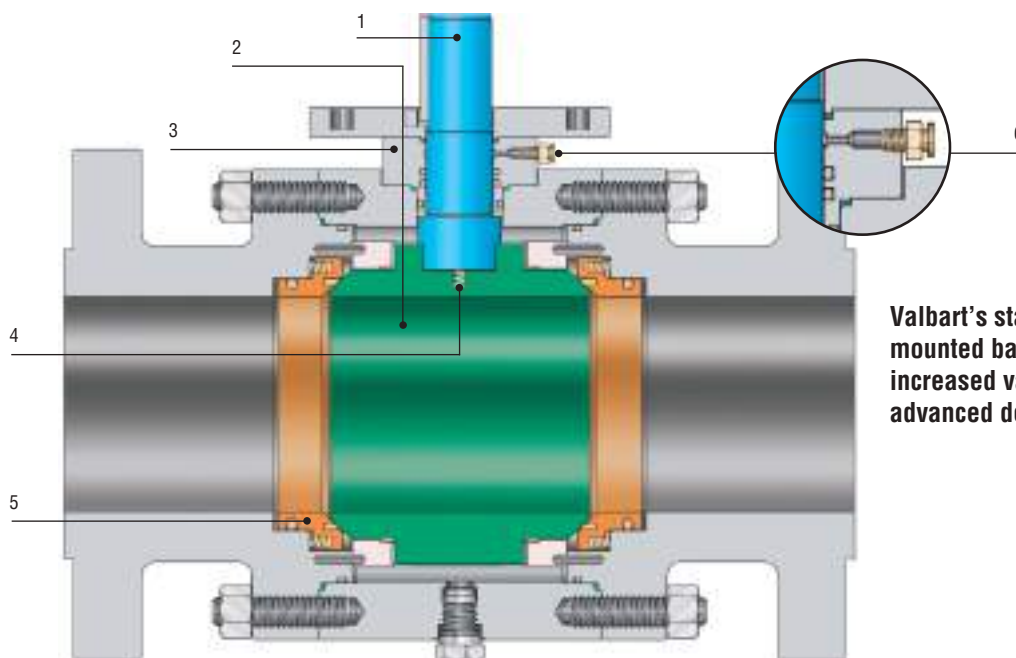
Lapping Cell



In-house Machining center



Horizontal (foreground) and vertical (background) lathes



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

Valbart trunnion-mounted ball valve design features

1 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.

2 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.

3 Anti-blowout stem

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

4 Anti-static design

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

5 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.

6 Emergency sealant injection

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

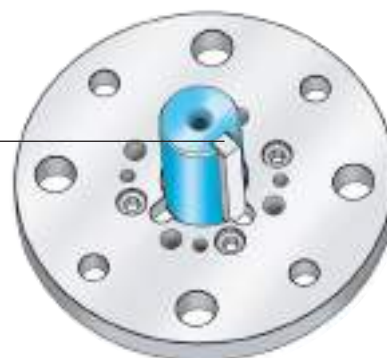
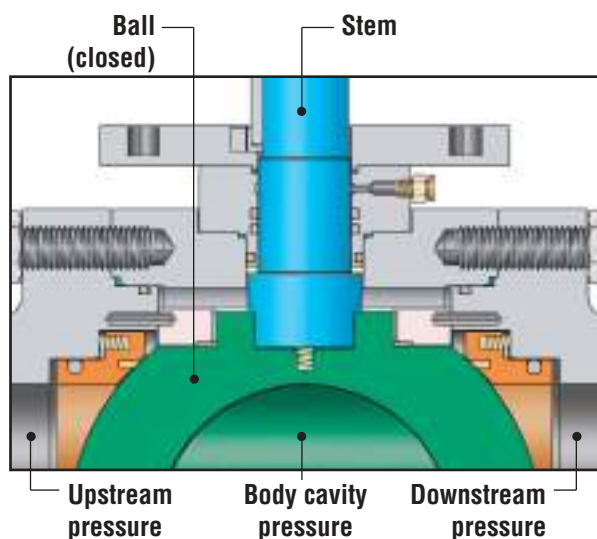
An emergency sealant injection feature on seats is available upon request only, for 6" full port and larger.

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

Low emission valves

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





Ball seat alignment

Mechanical stops ensure control over ball rotation.

Double Block and Bleed

All Valbart 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 to verify that the seats are sealing properly.

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.

Stem Sealing

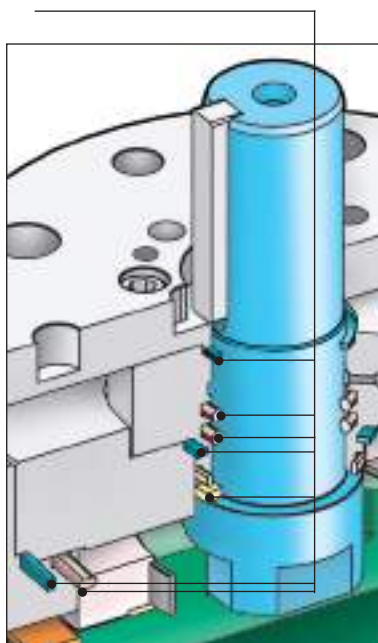
Stem sealing is ensured by two o-rings, while the top graphite gasket ensures fire resistance.

The graphite gasket can be replaced while the valve is under pressure, provided that the ball is in the fully closed position with the body cavity vented.

With no pressure in line, it is also possible to remove the gland plate for replacement of the two o-rings.

Body Sealing

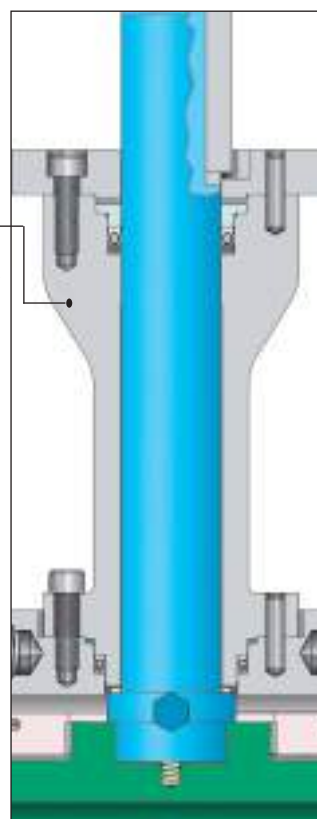
The double sealing action of O-rings and graphite gaskets in all the static joints of the body components ensures zero leakage and the Fire Safe feature.



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)

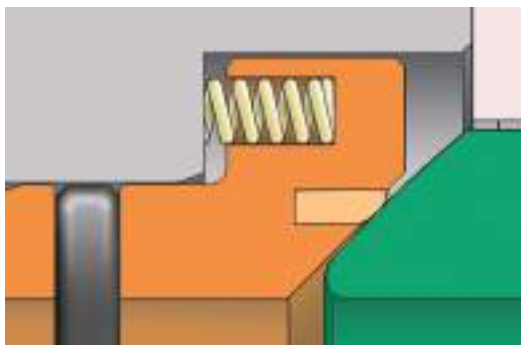


Figure 1 – Soft seat with thermoplastic insert

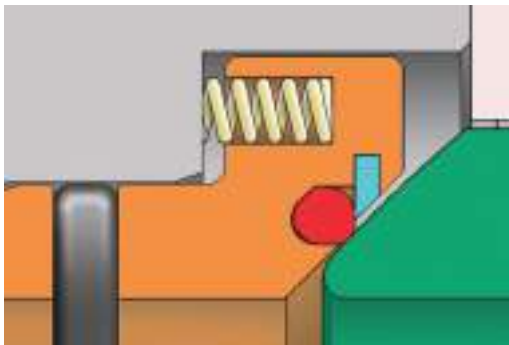


Figure 2 – Soft seat with elastomer (Primary metal secondary soft)

In standard services, soft seats are used. The soft sealing between the seats and the ball is obtained with a thermoplastic insert (figure 1) or an elastomeric o-ring (figure 2). While the thermoplastic design (figure 1) is a fully soft contact, the elastomeric design (figure 2) grants a primary metal secondary soft seal.

Metal-seated valves

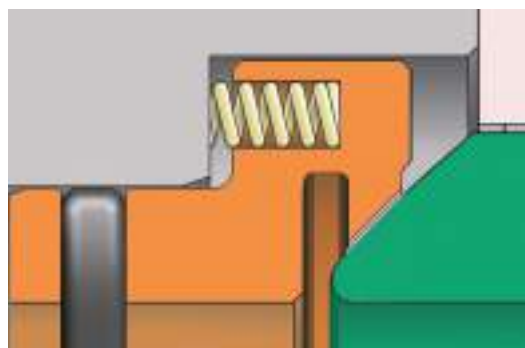
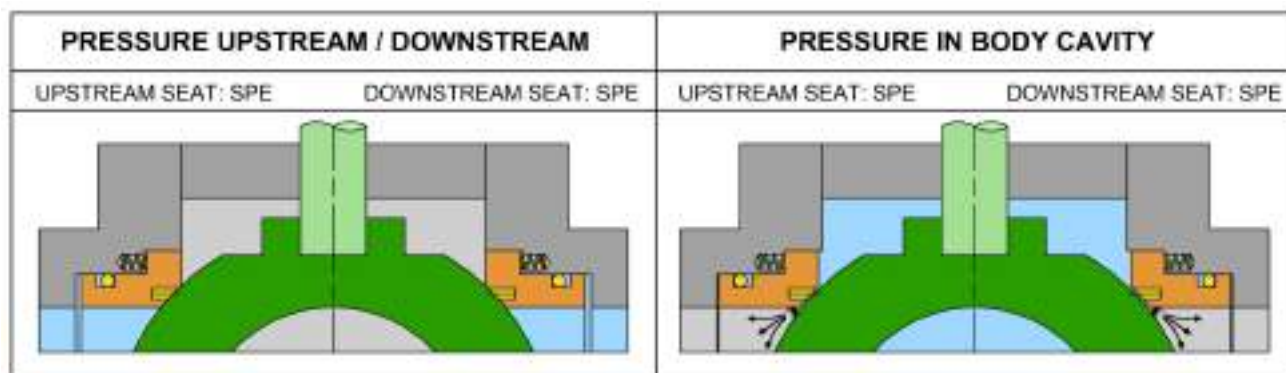


Figure 3 – Metal to metal seat

Whenever soft seat is no longer suitable due to high temperature, chemically aggressive media or dirty services, the contact area between the seats and the ball can be completely metal to metal. This is obtained by coating ball and seats with tungsten carbide, chrome carbide or ENP. Other coatings are available on request.

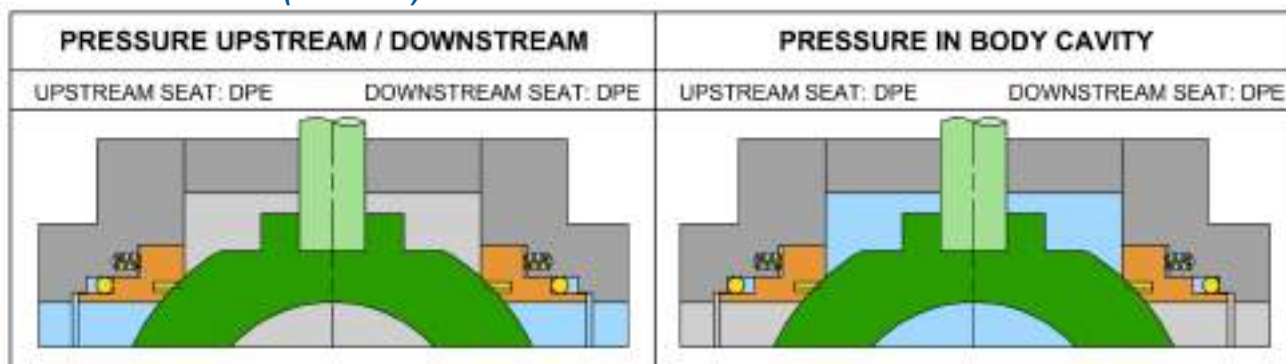
Standard Seat Configuration Single Piston Effect (SPE-SPE)



When pressure acts from upstream/downstream side, SPE seats are pushed against the ball by the piston effect, ensuring tight shutoff. When pressure acts from body cavity, SPE seats are designed to be pushed away from the ball, relieving cavity pressure in line. For such reason, SPE seats are also known as “self relieving”. With SPE-SPE configurations, cavity relief always takes place through lower pressure side.

Typical application: Pipeline ball valves in liquid services, to prevent pressure buildup in body cavity due to change in temperatures

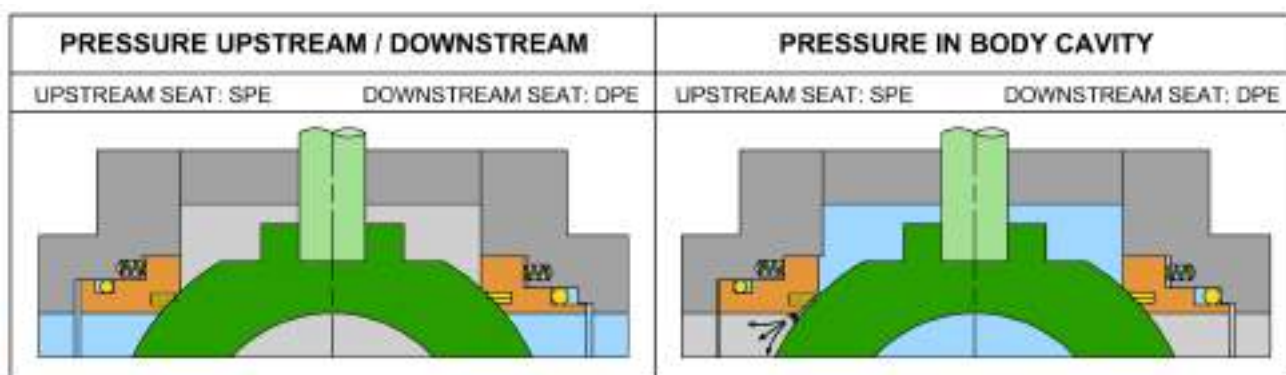
Optional Seat Configuration Double Piston Effect (DPE-DPE)



DPE seats are designed to be pushed against the ball in both cases, whether pressure comes from body cavity or from upstream/downstream side. Valve with DPE seats cannot perform cavity relief. For such reason -in liquid services- the use of a relief valve is recommended.

Typical application: Whenever it is necessary to create an additional safe barrier between the upstream and the downstream sides. Recommended in welded body valves, where seats maintenance is not foreseen.

Optional Seat Configuration Combined SPE-DPE



Upstream SPE seat ensures self relieving capability, while downstream DPE seat grants the double barrier in case of upstream seat damage. This configuration involves a preferred direction of installation with SPE seat facing upstream. With SPE-DPE configurations, cavity relief always takes place through SPE seat.

Typical application: Riser valves, pig launchers/receivers. DPE seat gives double isolation to the pig trap, allowing automatic relief of body cavity at the same time in case of pressure buildup

Fire safe

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

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.

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 flange designs are available on 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.

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

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



Actuated valves for testing in the in-house valve automation centre

Mounting operators valve automation center

Operator mounting should be made at the Valbart Valve Automation Center before shipment.

If the operators will be assembled on site, the mounting will be carried out before installing the valves in line, following Valbart instructions.

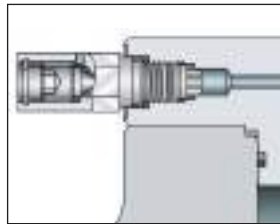
Mounting of operators on valves already installed in line is not recommended and will be performed only under the supervision of Valbart.

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

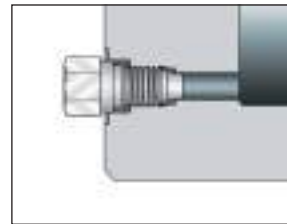
Vent valve and drain plug

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.

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.



1/2" NPT vent valve bleeder



1/2" NPT vent/drain plug

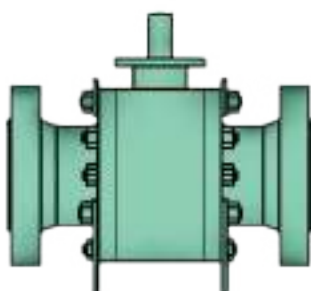


Welded body valve with extended stem

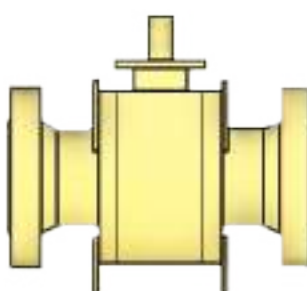


Fire safe testing

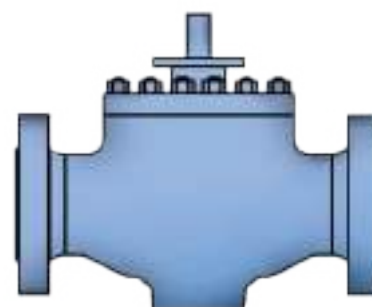
VB2/VB3



VW1

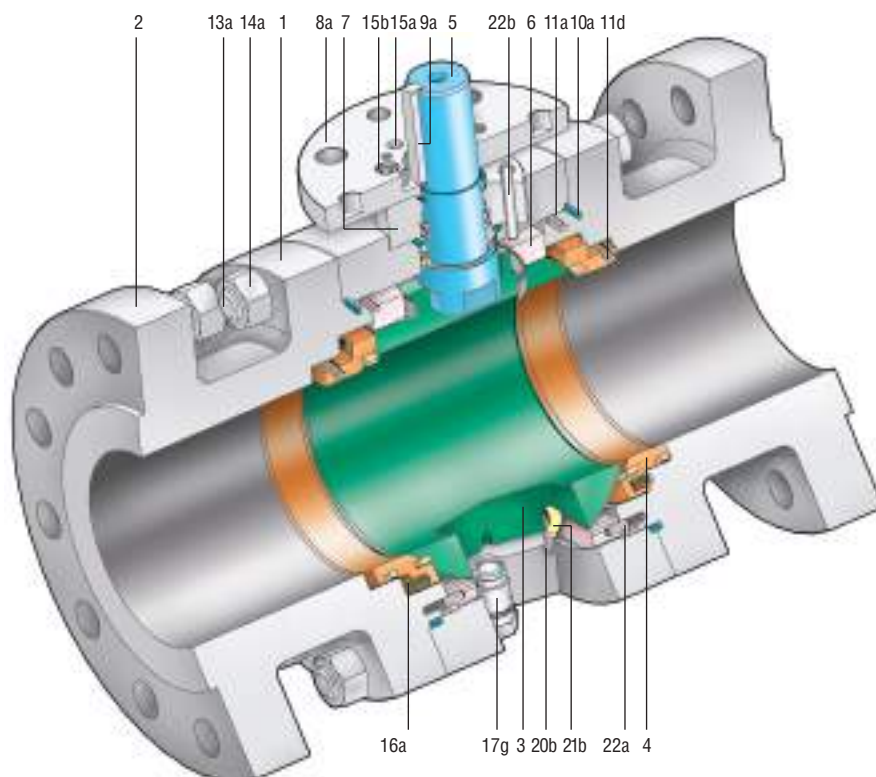


VT1



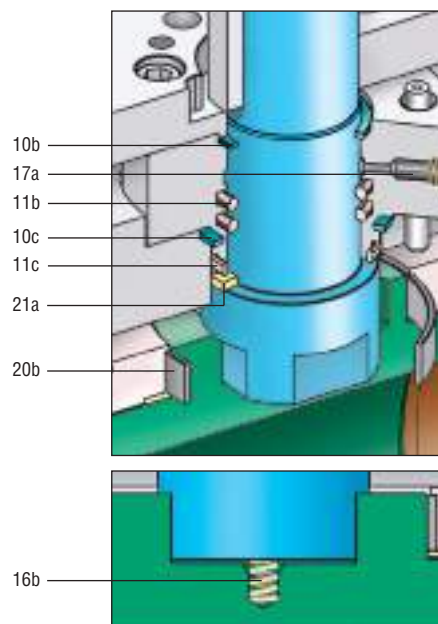
FEATURES	SIDE-ENTRY	WELDED BODY	TOP-ENTRY
Trunnion-mounted	Standard	Standard	Standard
Independent stem and ball	Standard	Standard	Standard
Independent floating seats	Standard	Standard	Standard
Primary soft seat - secondary metal seat	Standard	Standard	Standard
Primary metal seat - secondary soft seat	On request	On request	On request
Metal-to-metal seat	On request	On request	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 closed position	Standard	Standard	Standard
Double body seals	Standard	N/A	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
Stem and seat pocket overlay	On request	On request	On request
All seal areas overlay	On request	On request	On request
All 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	On stem & ancillaries only	Yes

Note: Other features are available on request.

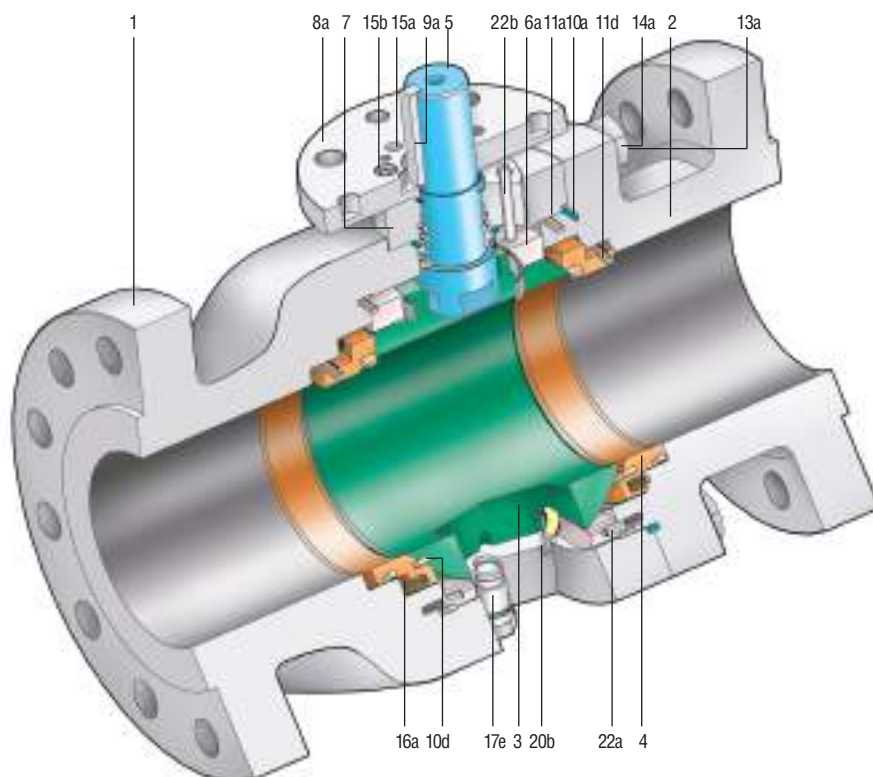


Bolted body side-entry 6" and larger - Mod VB3

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⁾



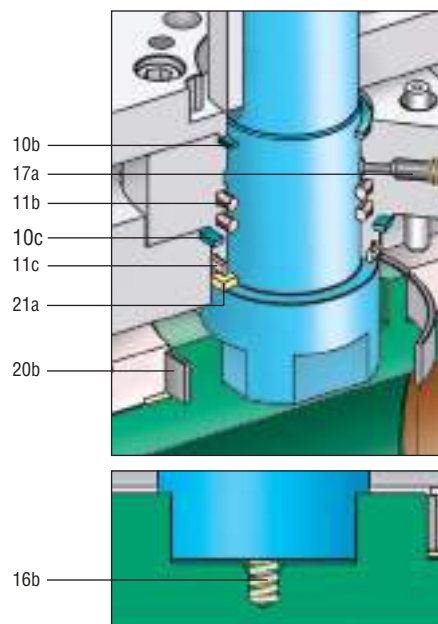
(1) Only for DN > 8" (2) Not visible in drawing opposite.

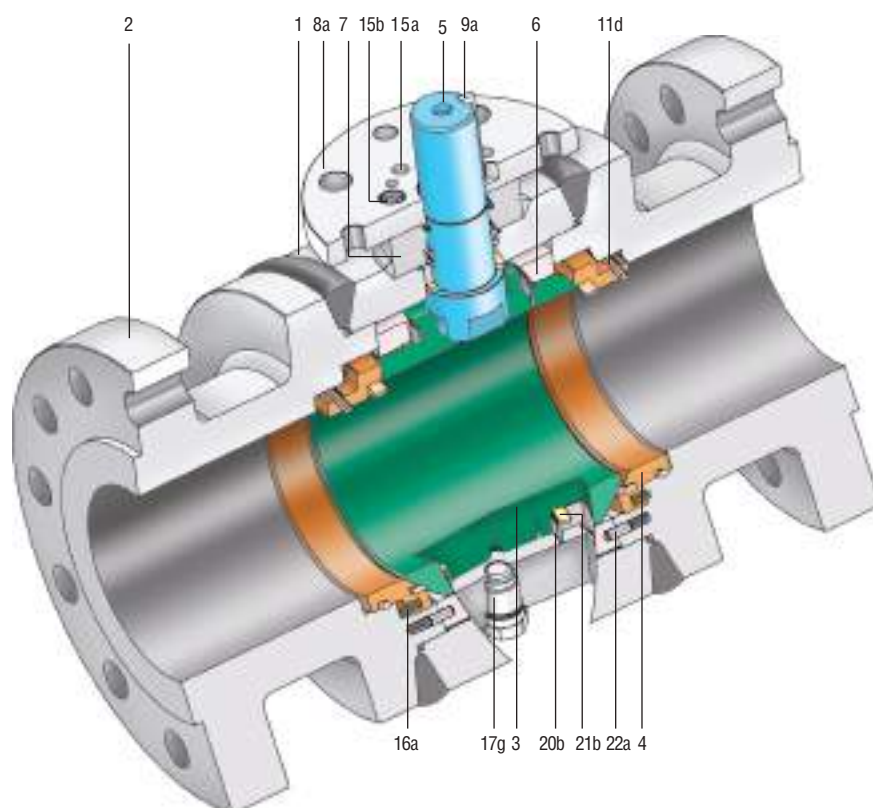


Bolted body side-entry 4" and smaller - Mod VB2

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 opposite.

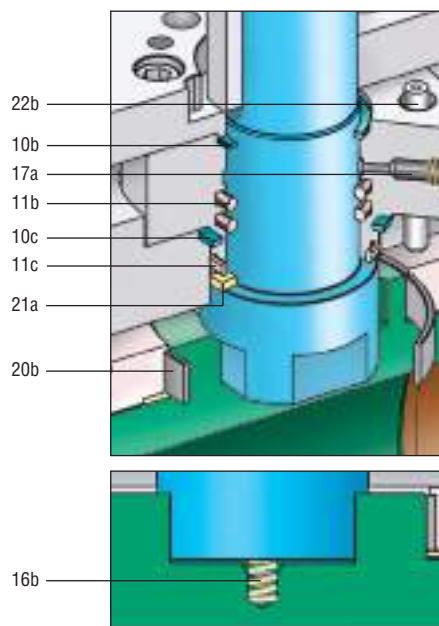


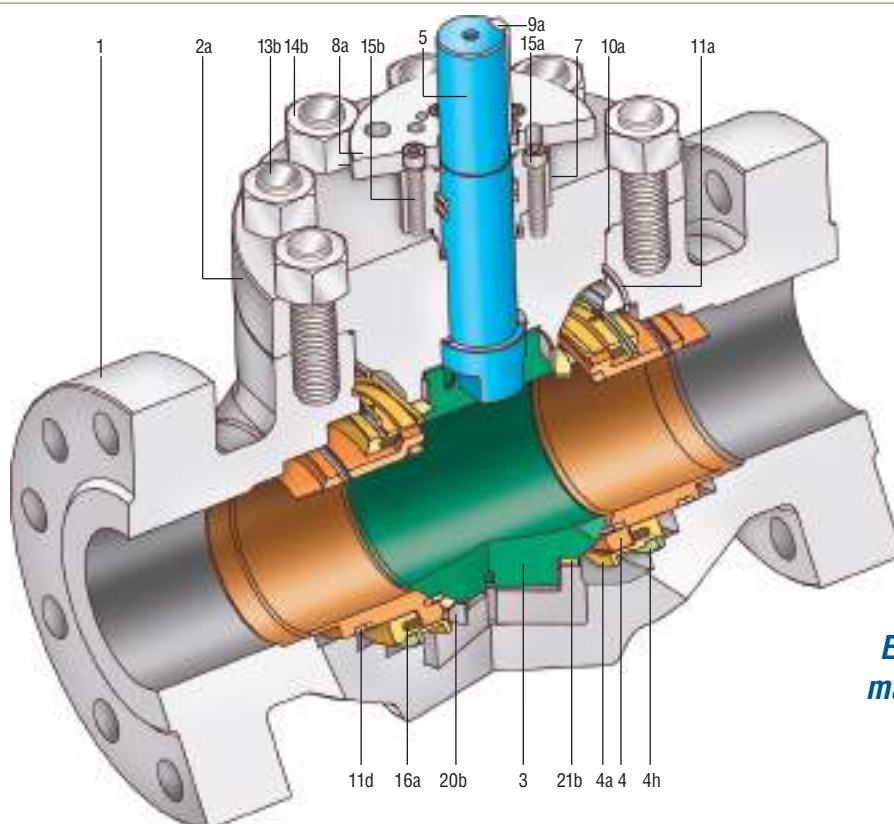


Welded body - Mod VW1

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 opposite.



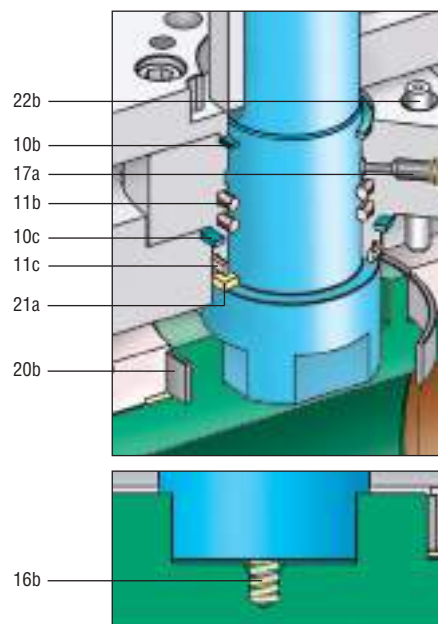


*Easy in-line
maintenance*

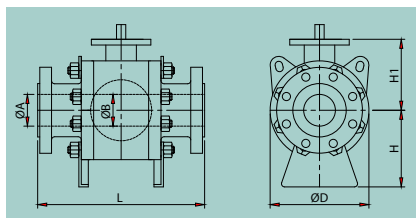
Top-entry - Mod VT1

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

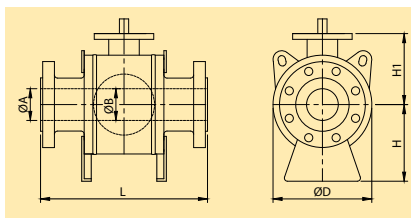
(1) Not visible in drawing opposite.



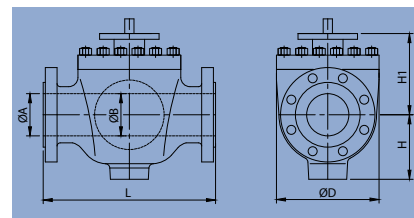
VB2/VB3



VW1



VT1



Dimensions and weights

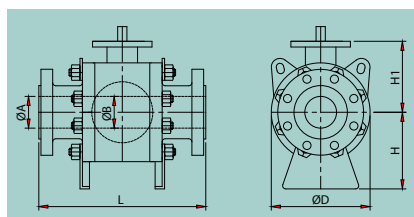
ASME CLASS 150 (METRIC)

		SIDE ENTRY									WELDED BODY									TOP ENTRY								
DN (mm)	PRESSURE CLASS	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
50 x 40	150	178	-	216	49	38	160	113	131	19	178	-	216	49	38	160	113	131	(1)	292	-	292	49	38	170	85	200	25
50	150	178	-	216	49	49	170	118	136	20	178	-	216	49	49	170	118	136	(1)	292	-	292	49	49	200	85	200	28
80 x 50	150	203	-	283	74	49	170	118	136	27	203	-	283	74	49	170	118	136	(1)	356	-	356	74	49	200	85	200	35
80	150	203	-	283	74	74	198	136	154	32	203	-	283	74	74	198	136	154	(1)	356	-	356	74	74	245	114	223	55
100 x 80	150	229	-	305	100	74	198	136	154	49	229	-	305	100	74	198	136	154	(1)	432	-	432	100	74	245	114	223	70
100	150	229	-	305	100	100	245	154	182	73	229	-	305	100	100	245	154	182	(1)	432	-	432	100	100	290	140	280	100
150 x 100	150	394	-	457	150	100	245	154	182	100	394	-	457	150	100	245	154	182	(1)	559	-	559	150	100	290	140	280	130
150	150	394	-	457	150	150	325	220	227	154	394	-	457	150	150	325	260	227	(1)	559	-	559	150	150	334	219	275	210
200 x 150	150	457	-	521	201	150	325	220	227	191	457	-	521	201	150	325	220	227	(1)	660	-	660	201	150	334	219	275	250
200	150	457	-	521	201	201	402	265	267	256	457	-	521	201	201	405	310	267	(1)	660	-	660	201	201	410	265	321	407
250 x 200	150	533	-	559	252	201	402	265	267	304	533	-	559	252	201	405	310	267	(1)	787	-	787	252	201	410	265	321	455
250	150	533	-	559	252	252	472	315	301	385	533	-	559	252	252	472	315	301	(1)	787	-	787	252	252	500	315	355	510
300 x 250	150	610	-	635	303	252	472	315	301	467	610	-	635	303	252	472	315	301	(1)	838	-	838	303	252	500	315	355	549
350 x 250	150	686	-	762	334	252	472	315	301	475	686	-	762	334	252	472	315	301	(1)	889	-	889	334	252	500	315	355	640
300	150	610	-	635	303	303	581	370	369	656	610	-	635	303	303	581	370	369	(1)	838	-	838	303	303	570	405	470	710
350 x 300	150	686	-	762	334	303	581	370	369	664	686	-	762	334	303	581	370	369	(1)	889	-	889	334	303	570	405	470	790
400 x 300	150	762	-	838	385	303	581	370	369	834	762	-	838	385	303	581	370	369	(1)	991	-	991	385	303	570	405	470	880
350	150	686	-	762	334	334	610	380	383	725	686	-	762	334	334	602	460	378	(1)	889	-	889	334	334	660	432	455	760
400 x 350	150	762	-	838	385	334	610	380	383	893	762	-	838	385	334	602	460	378	(1)	991	-	991	385	334	660	432	455	910
450 x 350	150	864	-	914	436	334	610	380	383	1000	864	-	914	436	334	602	460	378	(1)	1092	-	1092	436	334	660	432	455	1060
400	150	762	-	838	385	385	684	445	421	1130	762	-	838	385	385	684	503	421	(1)	991	-	991	385	385	676	451	460	1100
450 x 400	150	864	-	914	436	385	684	445	421	1238	864	-	914	436	385	684	503	421	(1)	1092	-	1092	436	385	676	451	460	1250
500 x 400	150	914	-	991	487	385	684	445	421	1374	914	-	991	487	385	684	503	421	(1)	1194	-	1194	487	385	676	451	460	1502
450	150	864	-	914	436	436	772	480	467	1562	864	-	914	436	436	772	480	467	(1)	1092	-	1092	436	436	800	472	503	1556
500 x 450	150	914	-	991	487	436	772	480	467	1698	914	-	991	487	436	772	480	467	(1)	1194	-	1194	487	436	800	472	503	1740
500	150	914	-	991	487	487	846	530	500	2015	914	-	991	487	487	846	583	500	(1)	1194	-	1194	487	487	890	560	560	1930
600 x 500	150	1067	-	1143	589	487	846	530	500	2369	1067	-	1143	589	487	846	583	500	(1)	1397	-	1397	589	487	890	560	560	2378
550	150	991	-	1092	538	538	924	590	545	2543	991	-	1092	538	538	924	590	545	(1)	1295	-	1295	538	538	970	578	602	2750
600	150	1067	-	1143	589	589	998	620	582	3118	1067	-	1143	589	589	998	620	582	(1)	1397	-	1397	589	589	1050	600	610	3200
750 x 600	150	1295	-	1397	735	589	998	620	582	3896	1295	-	1397	735	589	998	620	582	(1)	1651	-	1651	735	589	1050	600	610	4008
650	150	1143	-	1245	633	633	1099	670	654	4170	1143	-	1245	633	633	1099	670	654	(1)	1448	-	1448	633	633	1130	632	670	3800
700	150	1245	-	1346	684	684	1185	770	676	4990	1245	-	1346	684	684	1185	770	676	(1)	1549	-	1549	684	684	1220	710	730	4600
750	150	1295	-	1397	735	735	1245	760	707	5850	1295	-	1397	735	735	1245	760	707	(1)	1651	-	1651	735	735	1270	790	800	5630
900 x 750	150	1524	-	1727	874	735	1245	760	707	6922	1524	-	1727	874	735	1245	760	707	(1)	2083	-	2083	874	735	1270	790	800	7048
800	150	1372	-	1524	779	779	1320	798	744	6937	1372	-	1524	779	779	1320	798	744	(1)	1778	-	1778	779	779	1340	830	846	7100
850	150	1473	-	1626	830	830	1405	853	806	8466	1473	-	1626	830	830	1405	853	806	(1)	1930	-	1930	830	830	1425	870	890	7800
900	150	1524	-	1727	874	874	1470	885	838	9523	1524	-	1727	874	874	1470	885	838	(1)	2083	-	2083	874	874	1490	933	935	9100
1000	150	1753	-	1956	976	976	1605	990	950	12560	1753	-	1956	976	976	1605	990	950	(1)	2300	-	2300	976	976	1760	1012	1030	12800
1050	150	1790	-	2083	1020	1020	1692	1025	930	14052	1790	-	2083	1020	1020	1692	1025	930	(1)	2400	-	2400	1020	1020	1830	1065	1065	15100
1200	150	1995	-	2288	1166	1166	1920	1200	1079	21900	1995	-	2288	1166	1166	1920	1200	1079	(1)	2700	-	2700	1166	1166	2120	1230	1230	22600
1400	150	2489	-	2489	1360	1360	2270	1370	1250	34100	2489	-	2489	1360	1360	2270	1370	1250	(1)	3000	-	3000	1360	1360	2600	1340	1510	33500

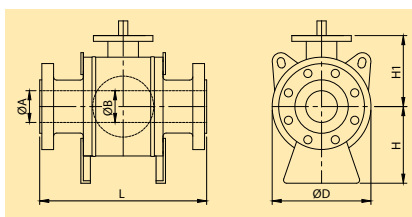
General Notes

(1) Please consult manufacturer weight values are relevant to flanged end valves. For dimensions and weights in larger sizes consult the factory. Dimensions D, H, H1 and weights may be subject to change without notice. Face to face dimensions not listed in industry standards may be subject to change without notice.

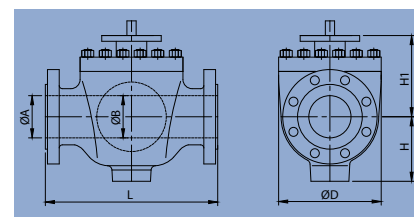
VB2/VB3



VW1



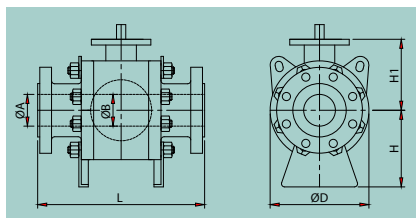
VT1



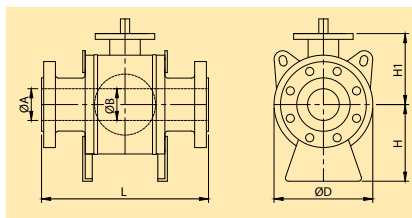
ASME CLASS 150 (IMPERIAL)

DN (in)	PRESSURE CLASS	SIDE ENTRY									WELDED BODY									TOP ENTRY								
		Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
2 x 1.5	150	7.01	-	8.50	1.93	1.50	6.30	4.45	5.16	42	7.01	-	8.50	1.93	1.50	6.30	4.45	5.16	(1)	11.50	-	11.50	1.93	1.50	6.69	3.35	7.87	55
2	150	7.01	-	8.50	1.93	1.93	6.69	4.65	5.35	44	7.01	-	8.50	1.93	1.93	6.69	4.65	5.35	(1)	11.50	-	11.50	1.93	1.93	7.87	3.35	7.87	62
3 x 2	150	7.99	-	11.14	2.91	1.93	6.69	4.65	5.35	60	7.99	-	11.14	2.91	1.93	6.69	4.65	5.35	(1)	14.02	-	14.02	2.91	1.93	7.87	3.35	7.87	77
3	150	7.99	-	11.14	2.91	2.91	7.80	5.35	6.06	71	7.99	-	11.14	2.91	2.91	7.80	5.35	6.06	(1)	14.02	-	14.02	2.91	2.91	9.65	4.49	8.78	121
4 x 3	150	9.02	-	12.01	3.94	2.91	7.80	5.35	6.06	107	9.02	-	12.01	3.94	2.91	7.80	5.35	6.06	(1)	17.01	-	17.01	3.94	2.91	9.65	4.49	8.78	154
4	150	9.02	-	12.01	3.94	3.94	9.65	6.06	7.17	161	9.02	-	12.01	3.94	3.94	9.65	6.06	7.17	(1)	17.01	-	17.01	3.94	3.94	11.42	5.51	11.02	220
6 x 4	150	15.51	-	17.99	5.91	3.94	9.65	6.06	7.17	220	15.51	-	17.99	5.91	3.94	9.65	6.06	7.17	(1)	22.01	-	22.01	5.91	3.94	11.42	5.51	11.02	287
6	150	15.51	-	17.99	5.91	5.91	12.80	8.66	8.94	340	15.51	-	17.99	5.91	5.91	12.80	10.24	8.94	(1)	22.01	-	22.01	5.91	5.91	13.15	8.62	10.83	463
8 x 6	150	17.99	-	20.51	7.91	5.91	12.80	8.66	8.94	421	17.99	-	20.51	7.91	5.91	12.80	8.66	8.94	(1)	25.98	-	25.98	7.91	5.91	13.15	8.62	10.83	551
8	150	17.99	-	20.51	7.91	7.91	15.83	10.43	10.51	564	17.99	-	20.51	7.91	7.91	15.94	12.20	10.51	(1)	25.98	-	25.98	7.91	7.91	16.14	10.43	12.64	897
10 x 8	150	20.98	-	22.01	9.92	7.91	15.83	10.43	10.51	670	20.98	-	22.01	9.92	7.91	15.94	12.20	10.51	(1)	30.98	-	30.98	9.92	7.91	16.14	10.43	12.64	1003
10	150	20.98	-	22.01	9.92	9.92	18.58	12.40	11.85	849	20.98	-	22.01	9.92	9.92	18.58	12.40	11.85	(1)	30.98	-	30.98	9.92	9.92	19.69	12.40	13.98	1124
12 x 10	150	24.02	-	25.00	11.93	9.92	18.58	12.40	11.85	1030	24.02	-	25.00	11.93	9.92	18.58	12.40	11.85	(1)	32.99	-	32.99	11.93	9.92	19.69	12.40	13.98	1210
14 x 10	150	27.01	-	30.00	13.15	9.92	18.58	12.40	11.85	1047	27.01	-	30.00	13.15	9.92	18.58	12.40	11.85	(1)	35.00	-	35.00	13.15	9.92	19.69	12.40	13.98	1411
12	150	24.02	-	25.00	11.93	11.93	22.87	14.57	14.53	1446	24.02	-	25.00	11.93	11.93	22.87	14.57	14.53	(1)	32.99	-	32.99	11.93	11.93	22.44	15.94	18.50	1565
14 x 12	150	27.01	-	30.00	13.15	11.93	22.87	14.57	14.53	1464	27.01	-	30.00	13.15	11.93	22.87	14.57	14.53	(1)	35.00	-	35.00	13.15	11.93	22.44	15.94	18.50	1742
16 x 12	150	30.00	-	32.99	15.16	11.93	22.87	14.57	14.53	1839	30.00	-	32.99	15.16	11.93	22.87	14.57	14.53	(1)	39.02	-	39.02	15.16	11.93	22.44	15.94	18.50	1940
14	150	27.01	-	30.00	13.15	13.15	24.02	14.96	15.08	1598	27.01	-	30.00	13.15	13.15	23.70	18.11	14.88	(1)	35.00	-	35.00	13.15	13.15	25.98	17.01	17.91	1676
16 x 14	150	30.00	-	32.99	15.16	13.15	24.02	14.96	15.08	1969	30.00	-	32.99	15.16	13.15	23.70	18.11	14.88	(1)	39.02	-	39.02	15.16	13.15	25.98	17.01	17.91	2006
18 x 14	150	34.02	-	35.98	17.17	13.15	24.02	14.96	15.08	2205	34.02	-	35.98	17.17	13.15	23.70	18.11	14.88	(1)	42.99	-	42.99	17.17	13.15	25.98	17.01	17.91	2337
16	150	30.00	-	32.99	15.16	15.16	26.93	17.52	16.57	2491	30.00	-	32.99	15.16	15.16	26.93	19.80	16.57	(1)	39.02	-	39.02	15.16	15.16	26.61	17.76	18.11	2425
18 x 16	150	34.02	-	35.98	17.17	15.16	26.93	17.52	16.57	2729	34.02	-	35.98	17.17	15.16	26.93	19.80	16.57	(1)	42.99	-	42.99	17.17	15.16	26.61	17.76	18.11	2756
20 x 16	150	35.98	-	39.02	19.17	15.16	26.93	17.52	16.57	3029	35.98	-	39.02	19.17	15.16	26.93	19.80	16.57	(1)	47.01	-	47.01	19.17	15.16	26.61	17.76	18.11	3311
18	150	34.02	-	35.98	17.17	17.17	30.39	18.90	18.39	3444	34.02	-	35.98	17.17	17.17	30.39	18.90	18.39	(1)	42.99	-	42.99	17.17	17.17	31.50	18.58	19.80	3430
20 x 18	150	35.98	-	39.02	19.17	17.17	30.39	18.90	18.39	3743	35.98	-	39.02	19.17	17.17	30.39	18.90	18.39	(1)	47.01	-	47.01	19.17	17.17	31.50	18.58	19.80	3836
20	150	35.98	-	39.02	19.17	19.17	33.31	20.87	19.69	4442	35.98	-	39.02	19.17	19.17	33.31	22.95	19.69	(1)	47.01	-	47.01	19.17	19.17	35.04	22.05	22.05	4255
24 x 20	150	42.01	-	45.00	23.19	19.17	33.31	20.87	19.69	5223	42.01	-	45.00	23.19	19.17	33.31	22.95	19.69	(1)	55.00	-	55.00	23.19	19.17	35.04	22.05	22.05	5243
22	150	39.02	-	42.99	21.18	21.18	36.38	23.23	21.46	5606	39.02	-	42.99	21.18	21.18	36.38	23.23	21.46	(1)	50.98	-	50.98	21.18	21.18	38.19	22.76	23.70	6063
24	150	42.01	-	45.00	23.19	23.19	39.29	24.41	22.91	6874	42.01	-	45.00	23.19	23.19	39.29	24.41	22.91	(1)	55.00	-	55.00	23.19	23.19	41.34	23.62	24.02	7055
30 x 24	150	50.98	-	55.00	28.94	23.19	39.29	24.41	22.91	8589	50.98	-	55.00	28.94	23.19	39.29	24.41	22.91	(1)	65.00	-	65.00	28.94	23.19	41.34	23.62	24.02	8836
26	150	45.00	-	49.02	24.92	24.92	43.27	26.38	25.75	9193	45.00	-	49.02	24.92	24.92	43.27	26.38	25.75	(1)	57.01	-	57.01	24.92	24.92	44.49	24.88	26.38	8378
28	150	49.02	-	52.99	26.93	26.93	46.65	30.31	26.61	11001	49.02	-	52.99	26.93	26.93	46.65	30.31	26.61	(1)	60.98	-	60.98	26.93	26.93	48.03	27.95	28.74	10141
30	150	50.98	-	55.00	28.94	28.94	49.02	29.92	27.81	12897	50.98	-	55.00	28.94	28.94	49.02	29.92	27.81	(1)	65.00	-	65.00	28.94	28.94	50.00	31.10	31.50	12412
36 x 30	150	60.00	-	67.99	34.41	28.94	49.02	29.92	27.83	15260	60.00	-	67.99	34.41	28.94	49.02	29.92	27.83	(1)	82.01	-	82.01	34.41	28.94	50.00	31.10	31.50	15538
32	150	54.02	-	60.00	30.67	30.67	51.97	31.42	29.29	15293	54.02	-	60.00	30.67	30.67	51.97	31.42	29.29	(1)	70.00	-	70.00	30.67	30.67	52.76	32.68	33.31	15653
34	150	57.99	-	64.02	32.68	32.68	55.31	33.58	31.73	18664	57.99	-	64.02	32.68	32.68	55.31	33.58	31.73	(1)	75.98	-	75.98	32.68	32.68	56.10	34.25	35.04	17196
36	150	60.00	-	67.99	34.41	34.41	57.87	34.84	32.99	20995	60.00	-	67.99	34.41	34.41	57.87	34.84	32.99	(1)	82.01	-	82.01	34.41	34.41	58.66	36.73	36.81	20062
40	150	69.02	-	77.01	38.43	38.43	63.19	38.98	37.40	27690	69.02	-	77.01	38.43	38.43	63.19	38.98	37.40	(1)	90.55	-	90.55	38.43	38.43	69.29	39.84	40.55	28219
42	150	70.47	-	82.01	40.16	40.16	66.61	40.35	36.61	30979	70.47	-	82.01	40.16	40.16	66.61	40.35	36.61	(1)	94.49	-	94.49	40.16	40.16	72.05	41.93	41.93	33290
48	150	78.54	-	90.08	45.91	45.91	75.59	47.24	42.48	48281	78.54	-	90.08	45.91	45.91	75.59	47.24	42.48	(1)	106.30	-	106.30	45.91	45.91	83.46	48.43	48.43	49824
56	150	97.99	-	97.99	53.54	53.54	89.37	53.94	49.21	75178	97.99	-	97.99	53.54	53.54	89.37	53.94	49.21	(1)	118.11	-	118.11	53.54	53.54	102.36	52.76	59.45	73855

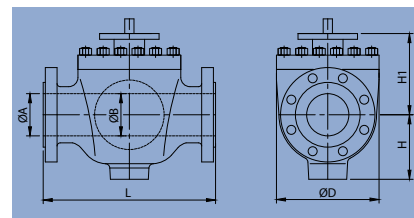
VB2/VB3



VW1



VT1



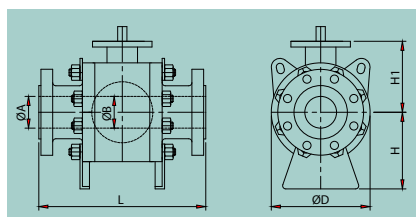
ASME CLASS 300 (METRIC)

		SIDE ENTRY									WELDED BODY									TOP ENTRY								
DN (mm)	PRESSURE CLASS	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
50 x 40	300	216	-	216	49	38	157	113	131	25	216	-	216	49	38	157	113	131	(1)	292	-	292	49	38	170	85	200	29
50	300	216	-	216	49	49	166	118	136	30	216	-	216	49	49	168	118	136	(1)	292	-	292	49	49	200	85	200	32
80 x 50	300	283	-	283	74	49	166	118	136	46	283	-	283	74	49	168	118	136	(1)	356	-	356	74	49	200	85	200	40
80	300	283	-	283	74	74	220	143	167	53	283	-	283	74	74	216	143	167	(1)	356	-	356	74	74	245	114	223	63
100 x 80	300	305	-	305	100	74	220	143	167	74	305	-	305	100	74	216	143	167	(1)	432	-	432	100	74	245	114	223	81
100	300	305	-	305	100	100	254	159	186	100	305	-	305	100	100	254	159	186	(1)	432	-	432	100	100	290	140	280	115
150 x 100	300	403	-	419	150	100	254	159	186	138	403	-	419	150	100	254	159	186	(1)	559	-	559	150	100	290	140	280	150
150	300	403	-	419	150	150	324	235	227	171	403	-	419	150	150	324	268	227	(1)	559	-	559	150	150	334	219	275	242
200 x 150	300	502	-	521	201	150	324	235	227	235	502	-	521	201	150	324	268	227	(1)	660	-	660	201	150	334	219	275	288
200	300	502	-	521	201	201	404	280	277	312	502	-	521	201	201	404	335	277	(1)	660	-	660	201	201	410	265	321	468
250 x 200	300	568	-	559	252	201	404	280	277	367	568	-	559	252	201	404	335	277	(1)	787	-	787	252	201	410	265	321	523
250	300	568	-	559	252	252	497	343	327	485	568	-	559	252	252	491	398	321	(1)	787	-	787	252	252	515	315	355	587
300 x 250	300	648	-	635	303	252	497	343	327	579	648	-	635	303	252	497	398	321	(1)	838	-	838	303	252	515	315	355	631
350 x 250	300	762	-	762	334	252	497	343	327	678	762	-	762	334	252	497	398	321	(1)	889	-	889	334	252	515	315	355	736
300	300	648	-	635	303	303	581	370	369	723	648	-	635	303	303	581	420	369	(1)	838	-	838	303	303	570	405	470	817
350 x 300	300	762	-	762	334	303	581	370	369	822	762	-	762	334	303	581	420	369	(1)	889	-	889	334	303	570	405	470	909
400 x 300	300	838	-	838	385	303	581	370	369	974	838	-	838	385	303	581	420	369	(1)	991	-	991	385	303	570	405	470	1012
350	300	762	-	762	334	334	610	390	383	918	762	-	762	334	334	602	460	378	(1)	889	-	889	334	334	665	432	455	874
400 x 350	300	838	-	838	385	334	610	390	383	1070	838	-	838	385	334	602	460	378	(1)	991	-	991	385	334	665	432	455	1047
450 x 350	300	914	-	914	436	334	610	390	383	1239	914	-	914	436	334	602	460	378	(1)	1092	-	1092	436	334	665	432	455	1219
400	300	838	-	838	385	385	696	458	428	1341	838	-	838	385	385	696	506	428	(1)	991	-	991	385	385	720	451	460	1265
450 x 400	300	914	-	914	436	385	696	458	428	1511	914	-	914	436	385	696	506	428	(1)	1092	-	1092	436	385	720	451	460	1438
500 x 400	300	991	-	991	487	385	696	458	428	1705	991	-	991	487	385	696	506	428	(1)	1194	-	1194	487	385	720	451	460	1727
450	300	914	-	914	436	436	778	500	467	1801	914	-	914	436	436	778	540	467	(1)	1092	-	1092	436	436	810	472	503	1789
500 x 450	300	991	-	991	487	436	778	500	467	1995	991	-	991	487	436	778	540	467	(1)	1194	-	1194	487	436	810	472	503	2001
500	300	991	-	991	487	487	867	535	515	2380	991	-	991	487	487	867	590	515	(1)	1194	-	1194	487	487	890	560	560	2220
600 x 500	300	1143	-	1143	589	487	867	535	515	2873	1143	-	1143	589	487	867	590	515	(1)	1397	-	1397	589	487	890	560	560	2735
550	300	1092	-	1092	538	538	943	600	553	3065	1092	-	1092	538	538	943	600	553	(1)	1295	-	1295	538	538	970	578	602	3163
600	300	1143	-	1143	589	589	1024	635	596	3745	1143	-	1143	589	589	1024	666	596	(1)	1397	-	1397	589	589	1050	600	610	3680
750 x 600	300	1397	-	1397	735	589	1024	635	596	4860	1397	-	1397	735	589	1024	666	596	(1)	1651	-	1651	735	589	1050	600	610	4609
650	300	1245	-	1245	633	633	1103	720	656	4830	1245	-	1245	633	633	1103	720	656	(1)	1448	-	1448	633	633	1130	637	678	4370
700	300	1346	-	1346	684	684	1180	770	693	5922	1346	-	1346	684	684	1180	770	693	(1)	1549	-	1549	684	684	1220	715	738	5290
750	300	1397	-	1397	735	735	1271	775	741	6980	1397	-	1397	735	735	1271	775	741	(1)	1651	-	1651	735	735	1300	795	811	6475
900 x 750	300	1727	-	1727	874	735	1271	775	741	8675	1727	-	1727	874	735	1271	775	741	(1)	2083	-	2083	874	735	1300	795	811	8105
800	300	1524	-	1524	779	779	1340	810	755	8188	1524	-	1524	779	779	1340	810	755	(1)	1778	-	1778	779	779	1370	835	850	8165
850	300	1626	-	1626	830	830	1430	870	783	9992	1626	-	1626	830	830	1430	870	783	(1)	1930	-	1930	830	830	1460	877	885	8970
900	300	1727	-	1727	874	874	1496	900	829	11432	1727	-	1727	874	874	1496	945	829	(1)	2083	-	2083	874	874	1515	938	942	10465
1000	300	1750	-	1750	976	976	1660	1020	940	13775	1750	-	1750	976	976	1660	1020	940	(1)	2300	-	2300	976	976	1780	1020	1036	14720
1050	300	1780	-	1780	1020	1020	1727	1040	981	15600	1780	-	1780	1020	1020	1656	1040	962	(1)	2400	-	2400	1020	1020	1860	1070	1081	17365
1200	300	2070	-	2070	1166	1166	1960	1210	1084	21796	2070	-	2070	1166	1166	1960	1210	1084	(1)	2700	-	2700	1166	1166	2120	1230	1230	25990
1400	300	2570	-	2570	1360	1360	2320	1410	1290	38155	2570	-	2570	1360	1360	2320	1410	1290	(1)	3000	-	3000	1360	1360	2650	1340	1510	38525

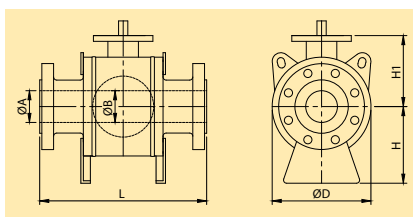
General Notes

(1) Please consult manufacturer weight values are relevant to flanged end valves. For dimensions and weights in larger sizes consult the factory. Dimensions D, H, H1 and weights may be subject to change without notice. Face to face dimensions not listed in industry standards may be subject to change without notice.

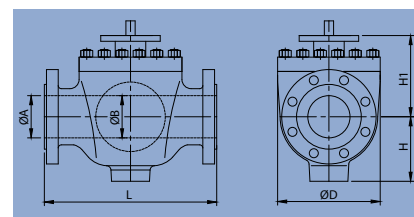
VB2/VB3



VW1



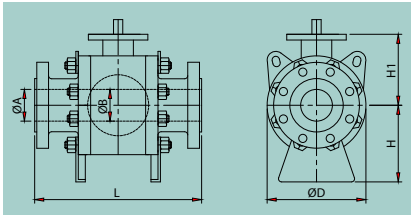
VT1



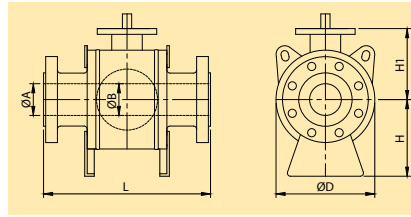
ASME CLASS 300 (IMPERIAL)

		SIDE ENTRY									WELDED BODY									TOP ENTRY								
DN (in)	PRESSURE CLASS	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
2 x 1.5	300	8.50	-	8.50	1.93	1.50	6.18	4.45	5.16	55	8.50	-	8.50	1.93	1.50	6.18	4.45	5.16	(1)	11.50	-	11.50	1.93	1.50	6.69	3.35	7.87	63
2	300	8.50	-	8.50	1.93	1.93	6.54	4.65	5.35	66	8.50	-	8.50	1.93	1.93	6.61	4.65	5.35	(1)	11.50	-	11.50	1.93	1.93	7.87	3.35	7.87	71
3 x 2	300	11.14	-	11.14	2.91	1.93	6.54	4.65	5.35	101	11.14	-	11.14	2.91	1.93	6.61	4.65	5.35	(1)	14.02	-	14.02	2.91	1.93	7.87	3.35	7.87	89
3	300	11.14	-	11.14	2.91	2.91	8.66	5.63	6.57	117	11.14	-	11.14	2.91	2.91	8.50	5.63	6.57	(1)	14.02	-	14.02	2.91	2.91	9.65	4.49	8.78	139
4 x 3	300	12.01	-	12.01	3.94	2.91	8.66	5.63	6.57	163	12.01	-	12.01	3.94	2.91	8.50	5.63	6.57	(1)	17.01	-	17.01	3.94	2.91	9.65	4.49	8.78	177
4	300	12.01	-	12.01	3.94	3.94	10.00	6.26	7.32	220	12.01	-	12.01	3.94	3.94	10.00	6.26	7.32	(1)	17.01	-	17.01	3.94	3.94	11.42	5.51	11.02	254
6 x 4	300	15.87	-	16.50	5.91	3.94	10.00	6.26	7.32	304	15.87	-	16.50	5.91	3.94	10.00	6.26	7.32	(1)	22.01	-	22.01	5.91	3.94	11.42	5.51	11.02	330
6	300	15.87	-	16.50	5.91	5.91	12.76	9.25	8.94	377	15.87	-	16.50	5.91	5.91	12.76	10.55	8.94	(1)	22.01	-	22.01	5.91	5.91	13.15	8.62	10.83	532
8 x 6	300	19.76	-	20.51	7.91	5.91	12.76	9.25	8.94	518	19.76	-	20.51	7.91	5.91	12.76	10.55	8.94	(1)	25.98	-	25.98	7.91	5.91	13.15	8.62	10.83	634
8	300	19.76	-	20.51	7.91	7.91	15.91	11.02	10.91	688	19.76	-	20.51	7.91	7.91	15.91	13.19	10.91	(1)	25.98	-	25.98	7.91	7.91	16.14	10.43	12.64	1032
10 x 8	300	22.36	-	22.01	9.92	7.91	15.91	11.02	10.91	809	22.36	-	22.01	9.92	7.91	15.91	13.19	10.91	(1)	30.98	-	30.98	9.92	7.91	16.14	10.43	12.64	1154
10	300	22.36	-	22.01	9.92	9.92	19.57	13.50	12.87	1069	22.36	-	22.01	9.92	9.92	19.33	15.67	12.64	(1)	30.98	-	30.98	9.92	9.92	20.28	12.40	13.98	1293
12 x 10	300	25.51	-	25.00	11.93	9.92	19.57	13.50	12.87	1276	25.51	-	25.00	11.93	9.92	19.57	15.67	12.64	(1)	32.99	-	32.99	11.93	9.92	20.28	12.40	13.98	1392
14 x 10	300	30.00	-	30.00	13.15	9.92	19.57	13.50	12.87	1495	30.00	-	30.00	13.15	9.92	19.57	15.67	12.64	(1)	35.00	-	35.00	13.15	9.92	20.28	12.40	13.98	1623
12	300	25.51	-	25.00	11.93	11.93	22.87	14.57	14.53	1594	25.51	-	25.00	11.93	11.93	22.87	16.54	14.53	(1)	32.99	-	32.99	11.93	11.93	22.44	15.94	18.50	1800
14 x 12	300	30.00	-	30.00	13.15	11.93	22.87	14.57	14.53	1812	30.00	-	30.00	13.15	11.93	22.87	16.54	14.53	(1)	35.00	-	35.00	13.15	11.93	22.44	15.94	18.50	2003
16 x 12	300	32.99	-	32.99	15.16	11.93	22.87	14.57	14.53	2147	32.99	-	32.99	15.16	11.93	22.87	16.54	14.53	(1)	39.02	-	39.02	15.16	11.93	22.44	15.94	18.50	2231
14	300	30.00	-	30.00	13.15	13.15	24.02	15.35	15.06	2024	30.00	-	30.00	13.15	13.15	23.70	18.11	14.88	(1)	35.00	-	35.00	13.15	13.15	26.18	17.01	17.91	1927
16 x 14	300	32.99	-	32.99	15.16	13.15	24.02	15.35	15.08	2359	32.99	-	32.99	15.16	13.15	23.70	18.11	14.88	(1)	39.02	-	39.02	15.16	13.15	26.18	17.01	17.91	2307
18 x 14	300	35.98	-	35.98	17.17	13.15	24.02	15.35	15.08	2732	35.98	-	35.98	17.17	13.15	23.70	18.11	14.88	(1)	42.99	-	42.99	17.17	13.15	26.18	17.01	17.91	2687
16	300	32.99	-	32.99	15.16	15.16	27.40	18.03	16.85	2956	32.99	-	32.99	15.16	15.16	27.40	19.92	16.85	(1)	39.02	-	39.02	15.16	15.16	28.35	17.76	18.11	2789
18 x 16	300	35.98	-	35.98	17.17	15.16	27.40	18.03	16.85	3331	35.98	-	35.98	17.17	15.16	27.40	19.92	16.85	(1)	42.99	-	42.99	17.17	15.16	28.35	17.76	18.11	3169
20 x 16	300	39.02	-	39.02	19.17	15.16	27.40	18.03	16.85	3759	39.02	-	39.02	19.17	15.16	27.40	19.92	16.85	(1)	47.01	-	47.01	19.17	15.16	28.35	17.76	18.11	3808
18	300	35.98	-	35.98	17.17	17.17	30.63	19.69	18.39	3971	35.98	-	35.98	17.17	17.17	30.63	21.26	18.39	(1)	42.99	-	42.99	17.17	17.17	31.89	18.58	19.80	3945
20 x 18	300	39.02	-	39.02	19.17	17.17	30.63	19.69	18.39	4398	39.02	-	39.02	19.17	17.17	30.63	21.26	18.39	(1)	47.01	-	47.01	19.17	17.17	31.89	18.58	19.80	4411
20	300	39.02	-	39.02	19.17	19.17	34.13	21.06	20.28	5247	39.02	-	39.02	19.17	19.17	34.13	23.23	20.28	(1)	47.01	-	47.01	19.17	19.17	35.04	22.05	22.05	4893
24 x 20	300	45.00	-	45.00	23.19	19.17	34.13	21.06	20.28	6334	45.00	-	45.00	23.19	19.17	34.13	23.23	20.28	(1)	55.00	-	55.00	23.19	19.17	35.04	22.05	22.05	6029
22	300	42.99	-	42.99	21.18	21.18	37.13	23.62	21.77	6757	42.99	-	42.99	21.18	21.18	37.13	23.62	21.77	(1)	50.98	-	50.98	21.18	21.18	38.19	22.76	23.70	6972
24	300	45.00	-	45.00	23.19	23.19	40.31	25.00	23.46	8256	45.00	-	45.00	23.19	23.19	40.31	26.22	23.46	(1)	55.00	-	55.00	23.19	23.19	41.34	23.62	24.02	8113
30 x 24	300	55.00	-	55.00	28.94	23.19	40.31	25.00	23.46	10714	55.00	-	55.00	28.94	23.19	40.31	26.22	23.46	(1)	65.00	-	65.00	28.94	23.19	41.34	23.62	24.02	10162
26	300	49.02	-	49.02	24.92	24.92	43.43	28.35	25.83	10648	49.02	-	49.02	24.92	24.92	43.43	28.35	25.83	(1)	57.01	-	57.01	24.92	24.92	44.49	25.08	26.69	9634
28	300	52.99	-	52.99	26.93	26.93	46.46	30.31	27.26	13056	52.99	-	52.99	26.93	26.93	46.46	30.31	27.26	(1)	60.98	-	60.98	26.93	26.93	48.03	28.15	29.06	11662
30	300	55.00	-	55.00	28.94	28.94	50.04	30.51	29.15	15388	55.00	-	55.00	28.94	28.94	50.04	30.51	29.15	(1)	65.00	-	65.00	28.94	28.94	51.18	31.30	31.93	14274
36 x 30	300	67.99	-	67.99	34.41	28.94	50.04	30.51	29.17	19125	67.99	-	67.99	34.41	28.94	50.04	30.51	29.17	(1)	82.01	-	82.01	34.41	28.94	51.18	31.30	31.93	17869
32	300	60.00	-	60.00	30.67	30.67	52.76	31.89	29.72	18051	60.00	-	60.00	30.67	30.67	52.76	31.89	29.72	(1)	70.00	-	70.00	30.67	30.67	53.94	32.87	33.46	18001
34	300	64.02	-	64.02	32.68	32.68	56.30	34.25	30.83	22029	64.02	-	64.02	32.68	32.68	56.30	34.25	30.83	(1)	75.98	-	75.98	32.68	32.68	57.48	34.53	34.84	19775
36	300	67.99	-	67.99	34.41	34.41	58.90	35.43	32.64	25203	67.99	-	67.99	34.41	34.41	58.90	37.20	32.64	(1)	82.01	-	82.01	34.41	34.41	59.65	36.93	37.09	23071
40	300	68.90	-	68.90	38.43	38.43	65.35	40.16	37.01	30369	68.90	-	68.90	38.43	38.43	65.35	40.16	37.01	(1)	90.55	-	90.55	38.43	38.43	70.08	40.16	40.79	32452
42	300	70.08	-	70.08	40.16	40.16	67.99	40.94	38.62	34392	70.08	-	70.08	40.16	40.16	65.20	40.94	37.87	(1)	94.49	-	94.49	40.16	40.16	73.23	42.13	42.56	38283
48	300	81.50	-	81.50	45.91	45.91	77.17	47.64	42.68	48052	81.50	-	81.50	45.91	45.91	77.17	47.64	42.68	(1)	106.30	-	106.30	45.91	45.91	83.46	48.43	48.43	57298
56	300	101.18	-	101.18	53.54	53.54	91.34	55.51	50.79	84117	101.18	-	101.18	53.54	53.54	91.34	55.51	50.79	(1)	118.11	-	118.11	53.54	53.54	104.33	52.76	59.45	84903

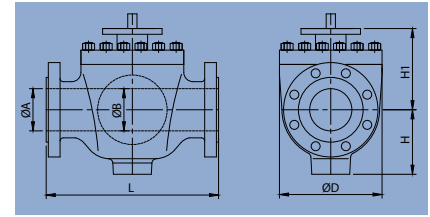
VB2/VB3



VW1



VT1



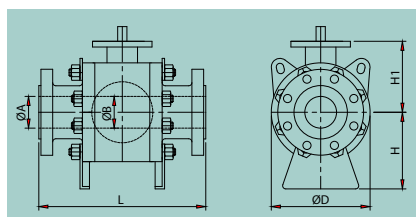
ASME CLASS 600 (METRIC)

		SIDE ENTRY									WELDED BODY									TOP ENTRY								
DN (mm)	PRESSURE CLASS	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
50 x 40	600	292	295	292	49	38	157	113	131	34	292	295	292	49	38	157	113	131	(1)	292	295	292	49	38	170	85	200	35
50	600	292	295	292	49	49	165	118	136	37	292	295	292	49	49	165	118	136	(1)	292	295	292	49	49	200	85	200	41
80 x 50	600	356	359	356	74	49	165	118	136	52	356	359	356	74	49	165	118	136	(1)	356	359	356	74	49	200	85	200	48
80	600	356	359	356	74	74	216	143	167	70	356	359	356	74	74	216	143	167	(1)	356	359	356	74	74	245	114	223	70
100 x 80	600	432	435	432	100	74	216	143	167	75	432	435	432	100	74	216	143	167	(1)	432	435	432	100	74	245	114	223	150
100	600	432	435	432	100	100	254	159	186	110	432	435	432	100	100	254	159	186	(1)	432	435	432	100	100	310	140	280	140
150 x 100	600	559	562	559	150	100	254	178	186	160	559	562	559	150	100	254	178	186	(1)	559	562	559	150	100	310	140	280	180
150	600	559	562	559	150	150	329	245	227	251	559	562	559	150	150	330	268	227	(1)	559	562	559	150	150	360	219	275	300
200 x 150	600	660	664	660	201	150	329	245	227	332	660	664	660	201	150	330	268	227	(1)	660	664	660	201	150	360	219	275	340
200	600	660	664	660	201	201	406	280	277	406	660	664	660	201	201	406	335	277	(1)	660	664	660	201	201	475	265	321	510
250 x 200	600	787	791	787	252	201	406	280	277	566	787	791	787	252	201	406	335	277	(1)	787	791	787	252	201	475	265	321	600
250	600	787	791	787	252	252	512	343	331	688	787	791	787	252	252	512	398	331	(1)	787	791	787	252	252	530	315	355	775
300 x 250	600	838	841	838	303	252	512	343	331	789	838	841	838	303	252	512	398	331	(1)	838	841	838	303	252	530	315	355	825
350 x 250	600	889	892	889	334	252	512	343	331	891	889	892	889	334	252	512	398	331	(1)	889	892	889	334	252	530	315	355	991
300	600	838	841	838	303	303	610	395	384	935	838	841	838	303	303	592	395	374	(1)	838	841	838	303	303	600	405	470	1055
350 x 300	600	889	892	889	334	303	610	395	384	1037	889	892	889	334	303	592	395	374	(1)	889	892	889	334	303	600	405	470	1203
400 x 300	600	991	994	991	385	303	610	395	384	1301	991	994	991	385	303	592	395	374	(1)	991	994	991	385	303	600	405	470	1390
350	600	889	892	889	334	334	622	400	390	1206	889	892	889	334	334	622	460	390	(1)	889	892	889	334	334	670	432	455	1180
400 x 350	600	991	994	991	385	334	622	400	390	1470	991	994	991	385	334	622	460	390	(1)	991	994	991	385	334	670	432	455	1480
450 x 350	600	1092	1095	1092	436	334	622	400	390	1761	1092	1095	1092	436	334	622	460	390	(1)	1092	1095	1092	436	334	670	432	455	1780
400	600	991	994	991	385	385	712	465	428	1751	991	994	991	385	385	696	507	428	(1)	991	994	991	385	385	720	451	460	1505
450 x 400	600	1092	1095	1092	436	385	712	465	428	2042	1092	1095	1092	436	385	696	507	428	(1)	1092	1095	1092	436	385	720	451	460	1705
500 x 400	600	1194	1200	1194	487	385	712	465	428	2383	1194	1200	1194	487	385	696	507	428	(1)	1194	1200	1194	487	385	720	451	460	1910
450	600	1092	1095	1092	436	436	809	515	482	2431	1092	1095	1092	436	436	809	555	482	(1)	1092	1095	1092	436	436	820	472	503	2380
500 x 450	600	1194	1200	1194	487	436	809	515	482	2772	1194	1200	1194	487	436	809	555	482	(1)	1194	1200	1194	487	436	820	472	503	2680
500	600	1194	1200	1194	487	487	893	550	530	3186	1194	1200	1194	487	487	893	630	530	(1)	1194	1200	1194	487	487	905	560	560	2565
600 x 500	600	1397	1407	1397	589	487	893	550	530	4108	1397	1407	1397	589	487	893	630	530	(1)	1397	1407	1397	589	487	905	560	560	3650
550	600	1295	1305	1295	538	538	980	620	590	4115	1295	1305	1295	538	538	980	620	590	(1)	1295	1305	1295	538	538	990	578	602	4200
600	600	1397	1407	1397	589	589	1060	655	630	5151	1397	1407	1397	589	589	1024	666	615	(1)	1397	1407	1397	589	589	1075	600	610	5195
750 x 600	600	1651	1664	1651	735	589	1060	655	630	6535	1651	1664	1651	735	589	1024	666	615	(1)	1651	1664	1651	735	589	1075	610	622	6195
650	600	1448	1461	1448	633	633	1148	715	675	6364	1448	1461	1448	633	633	1120	730	655	(1)	1448	1461	1448	633	633	1165	640	682	5990
700	600	1549	1562	1549	684	684	1215	770	715	7758	1549	1562	1549	684	684	1215	770	715	(1)	1549	1562	1549	684	684	1235	722	742	7130
750	600	1651	1664	1651	735	735	1280	820	771	8681	1651	1664	1651	735	735	1280	795	771	(1)	1651	1664	1651	735	735	1310	795	811	8150
900 x 750	600	2083	2099	2083	874	735	1280	820	771	11668	2083	2099	2083	874	735	1280	795	771	(1)	2083	2099	2083	874	735	1310	795	811	11500
800	600	1778	1794	1778	779	779	1400	850	815	11227	1778	1794	1778	779	779	1400	850	815	(1)	1778	1794	1778	779	779	1410	840	855	10800
850	600	1930	1946	1930	830	830	1482	900	857	13199	1930	1946	1930	830	830	1450	900	838	(1)	1930	1946	1930	830	830	1500	890	893	11850
900	600	2083	2099	2083	874	874	1535	995	899	15110	2083	2099	2083	874	874	1504	945	884	(1)	2083	2099	2083	874	874	1570	944	947	13850
1000	600	2080	2096	2080	976	976	1716	1048	976	18548	2080	2096	2080	976	976	1716	1048	976	(1)	2300	2300	2300	976	976	1800	1025	1041	18500
1050	600	2175	2175	2175	1020	1020	1825	1162	1031	20903	2175	2175	2175	1020	1020	1825	1162	1031	(1)	2400	2400	2400	1020	1020	1860	1075	1086	22402
1200	600	2435	2435	2435	1166	1166	2075	1265	1182	31681	2435	2435	2435	1166	1166	2075	1265	1182	(1)	2700	2700	2700	1166	1166	2220	1240	1374	34500
1400	600	2710	2710	2710	1360	1360	2380	1450	1306	46858	2710	2710	2710	1360	1360	2380	1450	1306	(1)	3000	3000	3000	1360	1360	2700	1340	1510	49550

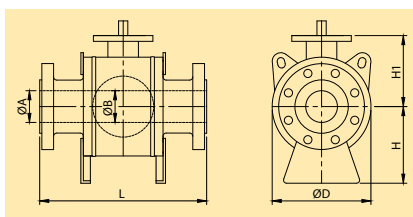
General Notes

(1) Please consult manufacturer weight values are relevant to flanged end valves. For dimensions and weights in larger sizes consult the factory. Dimensions D, H, H1 and weights may be subject to change without notice. Face to face dimensions not listed in industry standards may be subject to change without notice.

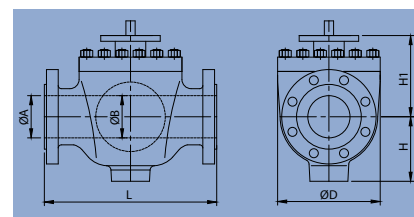
VB2/VB3



VW1



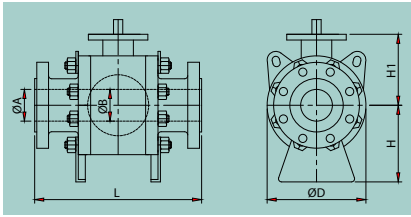
VT1



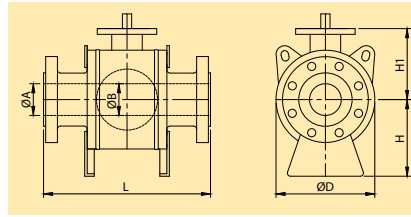
ASME CLASS 600 (IMPERIAL)

		SIDE ENTRY									WELDED BODY									TOP ENTRY								
DN (in)	PRESSURE CLASS	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
2 x 1.5	600	11.50	11.61	11.50	1.93	1.50	6.18	4.45	5.16	75	11.50	11.61	11.50	1.93	1.50	6.18	4.45	5.16	(1)	11.50	11.61	11.50	1.93	1.50	6.69	3.35	7.87	77
2	600	11.50	11.61	11.50	1.93	1.93	6.50	4.65	5.35	82	11.50	11.61	11.50	1.93	1.93	6.50	4.65	5.35	(1)	11.50	11.61	11.50	1.93	1.93	7.87	3.35	7.87	90
3 x 2	600	14.02	14.13	14.02	2.91	1.93	6.50	4.65	5.35	115	14.02	14.13	14.02	2.91	1.93	6.50	4.65	5.35	(1)	14.02	14.13	14.02	2.91	1.93	7.87	3.35	7.87	106
3	600	14.02	14.13	14.02	2.91	2.91	8.50	5.63	6.57	154	14.02	14.13	14.02	2.91	2.91	8.50	5.63	6.57	(1)	14.02	14.13	14.02	2.91	2.91	9.65	4.49	8.78	154
4 x 3	600	17.01	17.13	17.01	3.94	2.91	8.50	5.63	6.57	165	17.01	17.13	17.01	3.94	2.91	8.50	5.63	6.57	(1)	17.01	17.13	17.01	3.94	2.91	9.65	4.49	8.78	331
4	600	17.01	17.13	17.01	3.94	3.94	10.00	6.26	7.32	243	17.01	17.13	17.01	3.94	3.94	10.00	6.26	7.32	(1)	17.01	17.13	17.01	3.94	3.94	12.20	5.51	11.02	309
6 x 4	600	22.01	22.13	22.01	5.91	3.94	10.00	7.01	7.32	353	22.01	22.13	22.01	5.91	3.94	10.00	7.01	7.32	(1)	22.01	22.13	22.01	5.91	3.94	12.20	5.51	11.02	397
6	600	22.01	22.13	22.01	5.91	5.91	12.95	9.65	8.94	553	22.01	22.13	22.01	5.91	5.91	12.99	10.55	8.94	(1)	22.01	22.13	22.01	5.91	5.91	14.17	8.62	10.83	661
8 x 6	600	25.98	26.14	25.98	7.91	5.91	12.95	9.65	8.94	732	25.98	26.14	25.98	7.91	5.91	12.99	10.55	8.94	(1)	25.98	26.14	25.98	7.91	5.91	14.17	8.62	10.83	750
8	600	25.98	26.14	25.98	7.91	7.91	15.98	11.02	10.91	895	25.98	26.14	25.98	7.91	7.91	15.98	13.19	10.91	(1)	25.98	26.14	25.98	7.91	7.91	18.70	10.43	12.64	1124
10 x 8	600	30.98	31.14	30.98	9.92	7.91	15.98	11.02	10.91	1248	30.98	31.14	30.98	9.92	7.91	15.98	13.19	10.91	(1)	30.98	31.14	30.98	9.92	7.91	18.70	10.43	12.64	1323
10	600	30.98	31.14	30.98	9.92	9.92	20.16	13.50	13.03	1517	30.98	31.14	30.98	9.92	9.92	20.16	15.67	13.03	(1)	30.98	31.14	30.98	9.92	9.92	20.87	12.40	13.98	1709
12 x 10	600	32.99	33.11	32.99	11.93	9.92	20.16	13.50	13.03	1739	32.99	33.11	32.99	11.93	9.92	20.16	15.67	13.03	(1)	32.99	33.11	32.99	11.93	9.92	20.87	12.40	13.98	1819
14 x 10	600	35.00	35.12	35.00	13.15	9.92	20.16	13.50	13.03	1964	35.00	35.12	35.00	13.15	9.92	20.16	15.67	13.03	(1)	35.00	35.12	35.00	13.15	9.92	20.87	12.40	13.98	2185
12	600	32.99	33.11	32.99	11.93	11.93	24.02	15.55	15.12	2061	32.99	33.11	32.99	11.93	11.93	23.31	15.55	14.72	(1)	32.99	33.11	32.99	11.93	11.93	23.62	15.94	18.50	2326
14 x 12	600	35.00	35.12	35.00	13.15	11.93	24.02	15.55	15.12	2286	35.00	35.12	35.00	13.15	11.93	23.31	15.55	14.72	(1)	35.00	35.12	35.00	13.15	11.93	23.62	15.94	18.50	2652
16 x 12	600	39.02	39.13	39.02	15.16	11.93	24.02	15.55	15.12	2868	39.02	39.13	39.02	15.16	11.93	23.31	15.55	14.72	(1)	39.02	39.13	39.02	15.16	11.93	23.62	15.94	18.50	3064
14	600	35.00	35.12	35.00	13.15	13.15	24.49	15.75	15.35	2659	35.00	35.12	35.00	13.15	13.15	24.49	18.11	15.35	(1)	35.00	35.12	35.00	13.15	13.15	26.38	17.01	17.91	2601
16 x 14	600	39.02	39.13	39.02	15.16	13.15	24.49	15.75	15.35	3241	39.02	39.13	39.02	15.16	13.15	24.49	18.11	15.35	(1)	39.02	39.13	39.02	15.16	13.15	26.38	17.01	17.91	3263
18 x 14	600	42.99	43.11	42.99	17.17	13.15	24.49	15.75	15.35	3882	42.99	43.11	42.99	17.17	13.15	24.49	18.11	15.35	(1)	42.99	43.11	42.99	17.17	13.15	26.38	17.01	17.91	3924
16	600	39.02	39.13	39.02	15.16	15.16	28.03	18.31	16.85	3860	39.02	39.13	39.02	15.16	15.16	27.40	19.96	16.85	(1)	39.02	39.13	39.02	15.16	15.16	28.35	17.76	18.11	3318
18 x 16	600	42.99	43.11	42.99	17.17	15.16	28.03	18.31	16.85	4502	42.99	43.11	42.99	17.17	15.16	27.40	19.96	16.85	(1)	42.99	43.11	42.99	17.17	15.16	28.35	17.76	18.11	3759
20 x 16	600	47.01	47.24	47.01	19.17	15.16	28.03	18.31	16.85	5254	47.01	47.24	47.01	19.17	15.16	27.40	19.96	16.85	(1)	47.01	47.24	47.01	19.17	15.16	28.35	17.76	18.11	4211
18	600	42.99	43.11	42.99	17.17	17.17	31.85	20.28	18.98	5359	42.99	43.11	42.99	17.17	17.17	31.85	21.85	18.98	(1)	42.99	43.11	42.99	17.17	17.17	32.28	18.58	19.80	5247
20 x 18	600	47.01	47.24	47.01	19.17	17.17	31.85	20.28	18.98	6111	47.01	47.24	47.01	19.17	17.17	31.85	21.85	18.98	(1)	47.01	47.24	47.01	19.17	17.17	32.28	18.58	19.80	5908
20	600	47.01	47.24	47.01	19.17	19.17	35.16	21.65	20.87	7024	47.01	47.24	47.01	19.17	19.17	35.16	24.80	20.87	(1)	47.01	47.24	47.01	19.17	19.17	35.63	22.05	22.05	5655
24 x 20	600	55.00	55.39	55.00	23.19	19.17	35.16	21.65	20.87	9057	55.00	55.39	55.00	23.19	19.17	35.16	24.80	20.87	(1)	55.00	55.39	55.00	23.19	19.17	35.63	22.05	22.05	8047
22	600	50.98	51.38	50.98	21.18	21.18	38.58	24.41	23.23	9072	50.98	51.38	50.98	21.18	21.18	38.58	24.41	23.23	(1)	50.98	51.38	50.98	21.18	21.18	38.98	22.76	23.70	9259
24	600	55.00	55.39	55.00	23.19	23.19	41.73	25.79	24.80	11356	55.00	55.39	55.00	23.19	23.19	40.31	26.22	24.21	(1)	55.00	55.39	55.00	23.19	23.19	42.32	23.62	24.02	11453
30 x 24	600	65.00	65.51	65.00	28.94	23.19	41.73	25.79	24.80	14407	65.00	65.51	65.00	28.94	23.19	40.31	26.22	24.21	(1)	65.00	65.51	65.00	28.94	23.19	42.32	24.02	24.49	13658
26	600	57.01	57.52	57.01	24.92	24.92	45.20	28.15	26.57	14030	57.01	57.52	57.01	24.92	24.92	44.09	28.74	25.79	(1)	57.01	57.52	57.01	24.92	24.92	45.87	25.20	26.85	13206
28	600	60.98	61.50	60.98	26.93	26.93	47.83	30.31	28.15	17103	60.98	61.50	60.98	26.93	26.93	47.83	30.31	28.15	(1)	60.98	61.50	60.98	26.93	26.93	48.62	28.43	29.21	15719
30	600	65.00	65.51	65.00	28.94	28.94	50.39	32.28	30.35	19138	65.00	65.51	65.00	28.94	28.94	50.39	31.30	30.35	(1)	65.00	65.51	65.00	28.94	28.94	51.57	31.30	31.93	17968
36 x 30	600	82.01	82.64	82.01	34.41	28.94	50.39	32.28	30.35	25724	82.01	82.64	82.01	34.41	28.94	50.39	31.30	30.35	(1)	82.01	82.64	82.01	34.41	28.94	51.57	31.30	31.93	25353
32	600	70.00	70.63	70.00	30.67	30.67	55.12	33.46	32.09	24750	70.00	70.63	70.00	30.67	30.67	55.12	33.46	32.09	(1)	70.00	70.63	70.00	30.67	30.67	55.51	33.07	33.66	23810
34	600	75.98	76.61	75.98	32.68	32.68	58.35	35.43	33.74	29099	75.98	76.61	75.98	32.68	32.68	57.09	35.43	32.99	(1)	75.98	76.61	75.98	32.68	32.68	59.06	35.04	35.16	26125
36	600	82.01	82.64	82.01	34.41	34.41	60.43	39.17	35.39	33312	82.01	82.64	82.01	34.41	34.41	59.21	37.20	34.80	(1)	82.01	82.64	82.01	34.41	34.41	61.81	37.17	37.28	30534
40	600	81.89	82.52	81.89	38.43	38.43	67.56	41.26	38.43	40891	81.89	82.52	81.89	38.43	38.43	67.56	41.26	38.43	(1)	90.55	90.55	90.55	38.43	38.43	70.87	40.35	40.98	40785
42	600	85.63	85.63	85.63	40.16	40.16	71.85	45.75	40.59	46083	85.63	85.63	85.63	40.16	40.16	71.85	45.75	40.59	(1)	94.49	94.49	94.49	40.16	40.16	73.23	42.32	42.76	49388
48	600	95.87	95.87	95.87	45.91	45.91	81.69	49.80	46.54	56845	95.87	95.87	95.87	45.91	45.91	81.69	49											

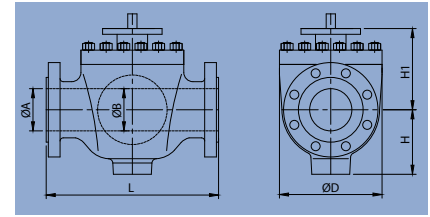
VB2/VB3



VW1



VT1



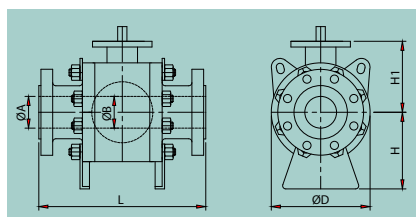
ASME CLASS 900 (METRIC)

		SIDE ENTRY									WELDED BODY									TOP ENTRY								
DN (mm)	PRESSURE CLASS	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
50 x 40	900	368	371	368	49	38	160	113	131	53	368	371	368	49	38	160	113	131	(1)	368	371	368	49	38	190	85	210	49
50	900	368	371	368	49	49	168	118	136	60	368	371	368	49	49	166	118	136	(1)	368	371	368	49	49	215	95	210	52
80 x 50	900	381	384	381	74	49	168	121	136	65	381	384	381	74	49	166	118	136	(1)	381	384	381	74	49	215	95	210	75
80	900	381	384	381	74	74	215	143	167	90	381	384	381	74	74	215	143	167	(1)	381	384	381	74	74	255	113	227	110
100 x 80	900	457	460	457	100	74	215	146	167	124	457	460	457	100	74	215	146	167	(1)	457	460	457	100	74	255	113	227	140
100	900	457	460	457	100	100	275	170	199	150	457	460	457	100	100	273	170	199	(1)	457	460	457	100	100	325	145	280	200
150 x 100	900	610	613	610	150	100	275	191	199	214	610	613	610	150	100	273	191	199	(1)	610	613	610	150	100	325	145	280	273
150	900	610	613	610	150	150	360	263	253	329	610	613	610	150	150	358	268	253	(1)	610	613	610	150	150	380	223	280	450
200 x 150	900	737	740	737	201	150	360	263	253	466	737	740	737	201	150	358	268	253	(1)	737	740	737	201	150	380	223	280	570
200	900	737	740	737	201	201	470	305	310	555	737	740	737	201	201	434	350	293	(1)	737	740	737	201	201	480	290	350	702
250 x 200	900	838	841	838	252	201	470	305	310	701	838	841	838	252	201	434	350	293	(1)	838	841	838	252	201	480	290	350	906
250	900	838	841	838	252	252	530	378	339	803	838	841	838	252	252	505	378	329	(1)	838	841	838	252	252	585	320	380	1090
300 x 250	900	965	968	965	303	252	530	378	339	1020	965	968	965	303	252	505	378	329	(1)	965	968	965	303	252	585	320	380	1090
350 x 250	900	1029	1038	1029	322	252	530	378	339	1220	1029	1038	1029	322	252	505	378	329	(1)	1029	1038	1029	322	252	585	320	380	1495
300	900	965	968	965	303	303	615	395	387	1225	965	968	965	303	303	593	395	363	(1)	965	968	965	303	303	705	418	507	1350
350 x 300	900	1029	1038	1029	322	303	615	395	387	1425	1029	1038	1029	322	303	593	395	363	(1)	1029	1038	1029	322	303	705	418	507	1800
400 x 300	900	1130	1140	1130	373	303	615	395	387	1724	1130	1140	1130	373	303	593	395	363	(1)	1130	1140	1130	373	303	705	418	507	1994
350	900	1029	1038	1029	322	322	655	433	406	1650	1029	1038	1029	322	322	655	433	406	(1)	1029	1038	1029	322	322	710	443	520	1760
400 x 350	900	1130	1140	1130	373	322	655	433	406	1949	1130	1140	1130	373	322	655	433	406	(1)	1130	1140	1130	373	322	710	443	520	2350
450 x 350	900	1219	1232	1219	423	322	655	433	406	2436	1219	1232	1219	423	322	655	433	406	(1)	1219	1232	1219	423	322	710	443	520	2650
400	900	1130	1140	1130	373	373	750	485	456	2328	1130	1140	1130	373	373	750	525	451	(1)	1130	1140	1130	373	373	810	463	538	2649
450 x 400	900	1219	1232	1219	423	373	750	485	456	3115	1219	1232	1219	423	373	750	525	451	(1)	1219	1232	1219	423	373	810	463	538	2837
500 x 400	900	1321	1334	1321	471	373	750	485	456	3363	1321	1334	1321	471	373	750	525	451	(1)	1321	1334	1321	471	373	810	463	538	3515
450	900	1219	1232	1219	423	423	843	550	505	3323	1219	1232	1219	423	423	843	550	505	(1)	1219	1232	1219	423	423	870	487	580	3400
500 x 450	900	1321	1334	1321	471	423	843	550	505	3871	1321	1334	1321	471	423	843	550	505	(1)	1321	1334	1321	471	423	870	487	580	3875
500	900	1321	1334	1321	471	471	949	600	577	4610	1321	1334	1321	471	471	953	600	577	(1)	1321	1334	1321	471	471	986	605	625	4450
600 x 500	900	1549	1568	1549	570	471	949	600	577	6059	1549	1568	1549	570	471	953	600	577	(1)	1549	1568	1549	570	471	986	605	625	5695
600	900	1549	1568	1549	570	570	1137	695	694	7341	1549	1568	1549	570	570	1137	695	679	(1)	1549	1568	1549	570	570	1180	625	690	7460
750 x 600	900	1880	1902	1880	712	570	1137	695	694	8582	1880	1902	1880	712	570	1137	695	679	(1)	1880	1902	1880	712	570	1180	625	690	9000
700	900	1713	1726	1713	665	665	1282	770	761	9600	1713	1726	1713	665	665	1282	770	761	(1)	1713	1726	1713	665	665	1345	723	820	10400
750	900	1880	1902	1880	712	712	1360	850	839	11072	1880	1902	1880	712	712	1360	945	839	(1)	1880	1902	1880	712	712	1455	800	880	12875
900 x 750	900	2286	2315	2286	855	712	1360	850	839	15836	2286	2315	2286	855	712	1360	945	839	(1)	2286	2315	2286	855	712	1455	800	880	15235
800	900	2032	2054	2032	760	760	1380	900	855	15200	2032	2054	2032	760	760	1380	900	855	(1)	2032	2054	2032	760	760	1540	870	938	15950
850	900	2159	2188	2159	808	808	1490	950	870	17170	2159	2188	2159	808	808	1490	950	870	(1)	2159	2188	2159	808	808	1655	920	982	17500
900	900	2286	2315	2286	855	855	1605	1000	894	19142	2286	2315	2286	855	855	1605	1000	894	(1)	2286	2315	2286	855	855	1760	990	1050	20600

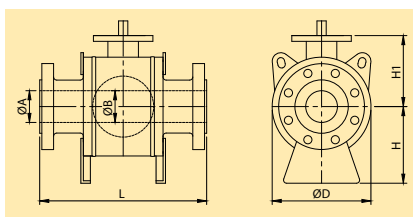
General Notes

(1) Please consult manufacturer weight values are relevant to flanged end valves. For dimensions and weights in larger sizes consult the factory. Dimensions D, H, H1 and weights may be subject to change without notice. Face to face dimensions not listed in industry standards may be subject to change without notice.

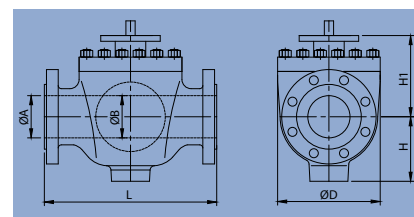
VB2/VB3



VW1



VT1



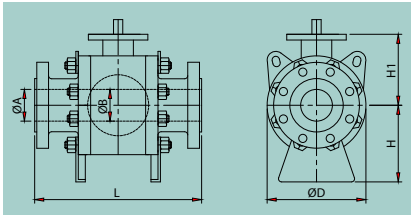
ASME CLASS 900 (IMPERIAL)

DN (in)	PRESSURE CLASS	SIDE ENTRY									WELDED BODY									TOP ENTRY								
		Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
2 x 1.5	900	14.49	14.61	14.49	1.93	1.50	6.30	4.45	5.16	117	14.49	14.61	14.49	1.93	1.50	6.30	4.45	5.16	(1)	14.49	14.61	14.49	1.93	1.50	7.48	3.35	8.27	108
2	900	14.49	14.61	14.49	1.93	1.93	6.61	4.65	5.35	132	14.49	14.61	14.49	1.93	1.93	6.54	4.65	5.35	(1)	14.49	14.61	14.49	1.93	1.93	8.46	3.74	8.27	115
3 x 2	900	15.00	15.12	15.00	2.91	1.93	6.61	4.76	5.35	143	15.00	15.12	15.00	2.91	1.93	6.54	4.65	5.35	(1)	15.00	15.12	15.00	2.91	1.93	8.46	3.74	8.27	165
3	900	15.00	15.12	15.00	2.91	2.91	8.46	5.63	6.57	198	15.00	15.12	15.00	2.91	2.91	8.46	5.63	6.57	(1)	15.00	15.12	15.00	2.91	2.91	10.04	4.45	8.94	243
4 x 3	900	17.99	18.11	17.99	3.94	2.91	8.46	5.75	6.57	273	17.99	18.11	17.99	3.94	2.91	8.46	5.75	6.57	(1)	17.99	18.11	17.99	3.94	2.91	10.04	4.45	8.94	309
4	900	17.99	18.11	17.99	3.94	3.94	10.83	6.69	7.83	331	17.99	18.11	17.99	3.94	3.94	10.75	6.69	7.83	(1)	17.99	18.11	17.99	3.94	3.94	12.80	5.71	11.02	441
6 x 4	900	24.02	24.13	24.02	5.91	3.94	10.83	7.50	7.83	472	24.02	24.13	24.02	5.91	3.94	10.75	7.50	7.83	(1)	24.02	24.13	24.02	5.91	3.94	12.80	5.71	11.02	602
6	900	24.02	24.13	24.02	5.91	5.91	14.17	10.35	9.96	724	24.02	24.13	24.02	5.91	5.91	14.09	10.55	9.96	(1)	24.02	24.13	24.02	5.91	5.91	14.96	8.78	11.02	992
8 x 6	900	29.02	29.13	29.02	7.91	5.91	14.17	10.35	9.96	1027	29.02	29.13	29.02	7.91	5.91	14.09	10.55	9.96	(1)	29.02	29.13	29.02	7.91	5.91	14.96	8.78	11.02	1257
8	900	29.02	29.13	29.02	7.91	7.91	18.50	12.01	12.20	1224	29.02	29.13	29.02	7.91	7.91	17.09	13.78	11.54	(1)	29.02	29.13	29.02	7.91	7.91	18.90	11.42	13.78	1548
10 x 8	900	32.99	33.11	32.99	9.92	7.91	18.50	12.01	12.20	1545	32.99	33.11	32.99	9.92	7.91	17.09	13.78	11.54	(1)	32.99	33.11	32.99	9.92	7.91	18.90	11.42	13.78	1997
10	900	32.99	33.11	32.99	9.92	9.92	20.87	14.88	13.35	1769	32.99	33.11	32.99	9.92	9.92	19.88	14.88	12.95	(1)	32.99	33.11	32.99	9.92	9.92	23.03	12.60	14.96	2403
12 x 10	900	37.99	38.11	37.99	11.93	9.92	20.87	14.88	13.35	2249	37.99	38.11	37.99	11.93	9.92	19.88	14.88	12.95	(1)	37.99	38.11	37.99	11.93	9.92	23.03	12.60	14.96	2403
14 x 10	900	40.51	40.87	40.51	12.68	9.92	20.87	14.88	13.35	2690	40.51	40.87	40.51	12.68	9.92	19.88	14.88	12.95	(1)	40.51	40.87	40.51	12.68	9.92	23.03	12.60	14.96	3296
12	900	37.99	38.11	37.99	11.93	11.93	24.21	15.55	15.24	2701	37.99	38.11	37.99	11.93	11.93	23.35	15.55	14.29	(1)	37.99	38.11	37.99	11.93	11.93	27.76	16.46	19.96	2976
14 x 12	900	40.51	40.87	40.51	12.68	11.93	24.21	15.55	15.24	3142	40.51	40.87	40.51	12.68	11.93	23.35	15.55	14.29	(1)	40.51	40.87	40.51	12.68	11.93	27.76	16.46	19.96	3968
16 x 12	900	44.49	44.88	44.49	14.69	11.93	24.21	15.55	15.24	3801	44.49	44.88	44.49	14.69	11.93	23.35	15.55	14.29	(1)	44.49	44.88	44.49	14.69	11.93	27.76	16.46	19.96	4396
14	900	40.51	40.87	40.51	12.68	12.68	25.79	17.05	15.98	3638	40.51	40.87	40.51	12.68	12.68	25.79	17.05	15.98	(1)	40.51	40.87	40.51	12.68	12.68	27.95	17.44	20.47	3880
16 x 14	900	44.49	44.88	44.49	14.69	12.68	25.79	17.05	15.98	4297	44.49	44.88	44.49	14.69	12.68	25.79	17.05	15.98	(1)	44.49	44.88	44.49	14.69	12.68	27.95	17.44	20.47	5181
18 x 14	900	47.99	48.50	47.99	16.65	12.68	25.79	17.05	15.98	5370	47.99	48.50	47.99	16.65	12.68	25.79	17.05	15.98	(1)	47.99	48.50	47.99	16.65	12.68	27.95	17.44	20.47	5842
16	900	44.49	44.88	44.49	14.69	14.69	29.53	19.09	17.95	5132	44.49	44.88	44.49	14.69	14.69	29.53	20.67	17.76	(1)	44.49	44.88	44.49	14.69	14.69	31.89	18.23	21.18	5840
18 x 16	900	47.99	48.50	47.99	16.65	14.69	29.53	19.09	17.95	6867	47.99	48.50	47.99	16.65	14.69	29.53	20.67	17.76	(1)	47.99	48.50	47.99	16.65	14.69	31.89	18.23	21.18	6255
20 x 16	900	52.01	52.52	52.01	18.54	14.69	29.53	19.09	17.95	7414	52.01	52.52	52.01	18.54	14.69	29.53	20.67	17.76	(1)	52.01	52.52	52.01	18.54	14.69	31.89	18.23	21.18	7749
18	900	47.99	48.50	47.99	16.65	16.65	33.19	21.65	19.88	7326	47.99	48.50	47.99	16.65	16.65	33.19	21.65	19.88	(1)	47.99	48.50	47.99	16.65	16.65	34.25	19.17	22.83	7496
20 x 18	900	52.01	52.52	52.01	18.54	16.65	33.19	21.65	19.88	8534	52.01	52.52	52.01	18.54	16.65	33.19	21.65	19.88	(1)	52.01	52.52	52.01	18.54	16.65	34.25	19.17	22.83	8543
20	900	52.01	52.52	52.01	18.54	18.54	37.36	23.62	22.72	10163	52.01	52.52	52.01	18.54	18.54	37.52	23.62	22.72	(1)	52.01	52.52	52.01	18.54	18.54	38.82	23.82	24.61	9811
24 x 20	900	60.98	61.73	60.98	22.44	18.54	37.36	23.62	22.72	13358	60.98	61.73	60.98	22.44	18.54	37.52	23.62	22.72	(1)	60.98	61.73	60.98	22.44	18.54	38.82	23.82	24.61	12555
24	900	60.98	61.73	60.98	22.44	22.44	44.76	27.36	27.32	16184	60.98	61.73	60.98	22.44	22.44	44.76	27.36	26.73	(1)	60.98	61.73	60.98	22.44	22.44	46.46	24.61	27.17	16446
30 x 24	900	74.02	74.88	74.02	28.03	22.44	44.76	27.36	27.32	18920	74.02	74.88	74.02	28.03	22.44	44.76	27.36	26.73	(1)	74.02	74.88	74.02	28.03	22.44	46.46	24.61	27.17	19842
28	900	67.44	67.95	67.44	26.18	26.18	50.47	30.31	29.96	21164	67.44	67.95	67.44	26.18	26.18	50.47	30.31	29.96	(1)	67.44	67.95	67.44	26.18	26.18	52.95	28.46	32.28	22928
30	900	74.02	74.88	74.02	28.03	28.03	53.54	33.46	33.03	24410	74.02	74.88	74.02	28.03	28.03	53.54	37.20	33.03	(1)	74.02	74.88	74.02	28.03	28.03	57.28	31.50	34.65	28384
36 x 30	900	90.00	91.14	90.00	33.66	28.03	53.54	33.46	33.03	34912	90.00	91.14	90.00	33.66	28.03	53.54	37.20	33.03	(1)	90.00	91.14	90.00	33.66	28.03	57.28	31.50	34.65	33587
32	900	80.00	80.87	80.00	29.92	29.92	54.33	35.43	33.66	33510	80.00	80.87	80.00	29.92	29.92	54.33	35.43	33.66	(1)	80.00	80.87	80.00	29.92	29.92	60.63	34.25	36.93	35164
34	900	85.00	86.14	85.00	31.81	31.81	58.66	37.40	34.25	37853	85.00	86.14	85.00	31.81	31.81	58.66	37.40	34.25	(1)	85.00	86.14	85.00	31.81	31.81	65.16	36.22	38.66	38581
36	900	90.00	91.14	90.00	33.66	33.66	63.19	39.37	35.20	42201	90.00	91.14	90.00	33.66	33.66	63.19	39.37	35.20	(1)	90.00	91.14	90.00	33.66	33.66	69.29	38.98	41.34	45415

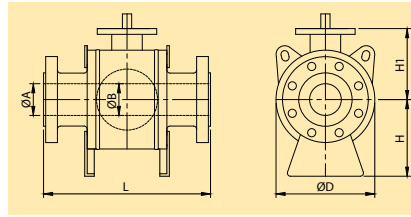
General Notes

(1) Please consult manufacturer weight values are relevant to flanged end valves. For dimensions and weights in larger sizes consult the factory. Dimensions D, H, H1 and weights may be subject to change without notice. Face to face dimensions not listed in industry standards may be subject to change without notice.

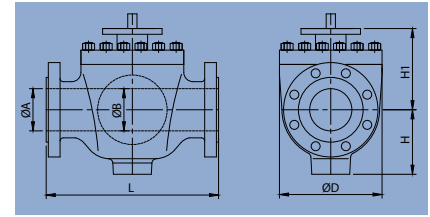
VB2/VB3



VW1



VT1



ASME CLASS 1500 (METRIC)

		SIDE ENTRY									WELDED BODY									TOP ENTRY								
DN (mm)	PRESSURE CLASS	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
50 x 40	1500	368	371	368	49	38	160	113	131	53	368	371	368	49	38	160	113	131	(1)	368	371	368	49	38	190	85	210	50
50	1500	368	371	368	49	49	168	118	136	60	368	371	368	49	49	166	118	136	(1)	368	371	368	49	49	215	95	210	56
80 x 50	1500	470	473	470	74	49	168	134	136	82	470	473	470	74	49	166	118	136	(1)	470	473	470	74	49	215	95	210	98
80	1500	470	473	470	74	74	216	143	167	110	470	473	470	74	74	216	143	167	(1)	470	473	470	74	74	270	118	236	153
100 x 80	1500	546	549	546	100	74	216	156	167	140	546	549	546	100	74	216	156	167	(1)	546	549	546	100	74	270	118	236	203
100	1500	546	549	546	100	100	273	169	199	200	546	549	546	100	100	273	169	199	(1)	546	549	546	100	100	340	150	295	278
150 x 100	1500	705	711	705	144	100	273	197	199	310	705	711	705	144	100	273	197	199	(1)	705	711	705	144	100	340	150	295	376
150	1500	705	711	705	144	144	430	295	304	490	705	711	705	144	144	397	305	299	(1)	705	711	705	144	144	450	236	303	600
200 x 150	1500	832	841	832	192	144	430	295	304	650	832	841	832	192	144	397	305	299	(1)	832	841	832	192	144	450	236	303	703
200	1500	832	841	832	192	192	537	350	339	957	832	841	832	192	192	513	400	327	(1)	832	841	832	192	192	540	285	354	1100
250 x 200	1500	991	1000	991	239	192	537	350	339	1180	991	1000	991	239	192	513	400	327	(1)	991	1000	991	239	192	540	285	354	1273
250	1500	991	1000	991	239	239	600	400	371	1490	991	1000	991	239	239	550	410	343	(1)	991	1000	991	239	239	625	333	398	1438
300 x 250	1500	1130	1146	1130	287	239	600	400	371	1850	1130	1146	1130	287	239	550	410	343	(1)	1130	1146	1130	287	239	625	333	398	1535
350 x 250	1500	1257	1276	1257	315	239	600	400	371	2145	1257	1276	1257	315	239	550	410	343	(1)	1257	1276	1257	315	239	625	333	398	2100
300	1500	1130	1146	1130	287	287	675	453	411	2167	1130	1146	1130	287	287	675	473	411	(1)	1130	1146	1130	287	287	750	427	530	2017
350 x 300	1500	1257	1276	1257	315	287	675	453	411	2620	1257	1276	1257	315	287	675	473	411	(1)	1257	1276	1257	315	287	750	427	530	2698
400 x 300	1500	1384	1407	1384	360	287	675	453	411	2860	1384	1407	1384	360	287	675	473	411	(1)	1384	1407	1384	360	287	750	427	530	3100
350	1500	1257	1276	1257	315	315	755	515	461	3000	1257	1276	1257	315	315	744	505	455	(1)	1257	1276	1257	315	315	850	456	550	2612
400 x 350	1500	1384	1407	1384	360	315	755	515	461	3450	1384	1407	1384	360	315	744	505	455	(1)	1384	1407	1384	360	315	850	456	550	3200
450 x 350	1500	1537	1559	1537	406	315	755	515	461	3800	1537	1559	1537	406	315	744	505	455	(1)	1537	1559	1537	406	315	850	456	550	3750
400	1500	1384	1407	1384	360	360	860	570	514	4255	1384	1407	1384	360	360	810	545	475	(1)	1384	1407	1384	360	360	955	487	565	3990
450 x 400	1500	1537	1559	1537	406	360	860	570	514	4970	1537	1559	1537	406	360	810	545	475	(1)	1537	1559	1537	406	360	955	487	565	4360
500 x 400	1500	1664	1686	1664	454	360	860	570	514	5135	1664	1686	1664	454	360	810	545	475	(1)	1664	1686	1664	454	360	955	487	565	4560
450	1500	1537	1559	1537	406	406	949	612	587	5515	1537	1559	1537	406	406	934	612	580	(1)	1537	1559	1537	406	406	908	527	592	5150
500 x 450	1500	1664	1686	1664	454	406	949	612	587	6450	1664	1686	1664	454	406	934	612	580	(1)	1664	1686	1664	454	406	908	527	592	5850
500	1500	1664	1686	1664	454	454	1070	680	670	7540	1664	1686	1664	454	454	1070	680	670	(1)	1664	1686	1664	454	454	1125	630	650	6678
600 x 500	1500	1943	1972	1943	546	454	1070	680	670	10875	1943	1972	1943	546	454	1070	680	670	(1)	1943	1972	1943	546	454	1125	630	650	9200
600	1500	1943	1972	1943	546	546	1305	750	720	14550	1943	1972	1943	546	546	1260	760	698	(1)	1943	1972	1943	546	546	1330	640	800	11700

ASME CLASS 2500 (METRIC)

		SIDE ENTRY									WELDED BODY									TOP ENTRY								
DN (mm)	PRESSURE CLASS	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)			ØA (mm)	ØB (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
50 x 40	2500	451	454	451	42	38	174	128	149	105	451	454	451	42	38	174	128	149	(1)	451	454	451	42	38	231	95	215	80
50	2500	451	454	451	42	42	213	150	174	125	451	454	451	42	42	213	150	174	(1)	451	454	451	42	42	260	100	215	120
80 x 50	2500	578	584	578	62	42	213	153	174	185	578	584	578	62	42	213	153	174	(1)	578	584	578	62	42	260	100	215	160
80	2500	578	584	578	62	62	305	196	219	240	578	584	578	62	62	305	196	219	(1)	578	584	578	62	62	290	122	243	246
100 x 80	2500	673	683	673	87	62	305	196	219	388	673	683	673	87	62	305	196	219	(1)	673	683	673	87	62	290	122	243	300
100	2500	673	683	673	87	87	375	220	272	388	673	683	673	87	87	375	220	272	(1)	673	683	673	87	87	450	165	300	470
150 x 100	2500	914	927	914	131	87	375	242	272	700	914	927	914	131	87	375	242	272	(1)	914	927	914	131	87	450	165	300	670
150	2500	914	927	914	131	131	525	340	353	1042	914	927	914	131	131	525	340	353	(1)	914	927	914	131	131	488	243	355	937
200 x 150	2500	1022	1038	1022	179	131	525	340	353	1230	1022	1038	1022	179	131	525	340	353	(1)	1022	1038	1022	179	131	488	243	355	1150
200	2500	1022	1038	1022	179	179	650	400	415	1685	1022	1038	1022	179	179	650	400	415	(1)	1022	1038	1022	179	179	586	292	424	1550
250 x 200	2500	1270	1292	1270	223	179	650	400	415	2450	1270	1292	1270	223	179	650	400	415	(1)	1270	1292	1270	223	179	586	292	424	2250
250	2500	1270	1292	1270	223	223	800	490	489	3236	1270	1292	1270	223	223	800	490	489	(1)	1270	1292	1270	223	223	800	352	503	2600
300 x 250	2500	1422	1445	1422	265	223	800	490	489	3750	1422	1445	1422	265	223	800	490	489	(1)	1422	1445	1422	265	223	800	352	503	3300
300	2500	1422	1445	1422	265	265	870	555	531	4504	1422	1445	1422	265	265	870	555	531	(1)	1422	1445	1422	265	265	960	436	588	4200

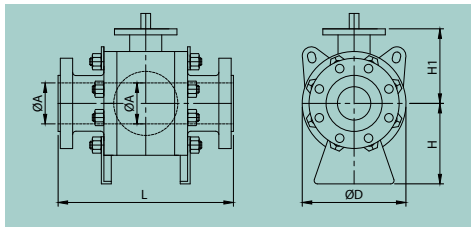
ASME CLASS 1500 (IMPERIAL)

DN (in)	PRESSURE CLASS	SIDE ENTRY									WELDED BODY									TOP ENTRY								
		Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
2 x 1,5	1500	14.49	14.61	14.49	1.93	1.50	6.30	4.45	5.16	117	14.49	14.61	14.49	1.93	1.50	6.30	4.45	5.16	(1)	14.49	14.61	14.49	1.93	1.50	7.48	3.35	8.27	110
2	1500	14.49	14.61	14.49	1.93	1.93	6.61	4.65	5.35	132	14.49	14.61	14.49	1.93	1.93	6.54	4.65	5.35	(1)	14.49	14.61	14.49	1.93	1.93	8.46	3.74	8.27	123
3 x 2	1500	18.50	18.62	18.50	2.91	1.93	6.61	5.28	5.35	181	18.50	18.62	18.50	2.91	1.93	6.54	4.65	5.35	(1)	18.50	18.62	18.50	2.91	1.93	8.46	3.74	8.27	216
3	1500	18.50	18.62	18.50	2.91	2.91	8.50	5.63	6.57	243	18.50	18.62	18.50	2.91	2.91	8.50	5.63	6.57	(1)	18.50	18.62	18.50	2.91	2.91	10.63	4.65	9.29	337
4 x 3	1500	21.50	21.61	21.50	3.94	2.91	8.50	6.12	6.57	309	21.50	21.61	21.50	3.94	2.91	8.50	6.12	6.57	(1)	21.50	21.61	21.50	3.94	2.91	10.63	4.65	9.29	448
4	1500	21.50	21.61	21.50	3.94	3.94	10.75	6.65	7.83	441	21.50	21.61	21.50	3.94	3.94	10.75	6.65	7.83	(1)	21.50	21.61	21.50	3.94	3.94	13.39	5.91	11.61	613
6 x 4	1500	27.76	27.99	27.76	5.67	3.94	10.75	7.76	7.83	683	27.76	27.99	27.76	5.67	3.94	10.75	7.76	7.83	(1)	27.76	27.99	27.76	5.67	3.94	13.39	5.91	11.61	829
6	1500	27.76	27.99	27.76	5.67	5.67	16.93	11.61	11.97	1080	27.76	27.99	27.76	5.67	5.67	15.63	12.01	11.77	(1)	27.76	27.99	27.76	5.67	5.67	17.72	9.29	11.93	1323
8 x 6	1500	32.76	33.11	32.76	7.56	5.67	16.93	11.61	11.97	1433	32.76	33.11	32.76	7.56	5.67	15.63	12.01	11.77	(1)	32.76	33.11	32.76	7.56	5.67	17.72	9.29	11.93	1550
8	1500	32.76	33.11	32.76	7.56	7.56	21.14	13.78	13.35	2110	32.76	33.11	32.76	7.56	7.56	20.20	15.75	12.87	(1)	32.76	33.11	32.76	7.56	7.56	21.26	11.22	13.94	2425
10 x 8	1500	39.02	39.37	39.02	9.41	7.56	21.14	13.78	13.35	2601	39.02	39.37	39.02	9.41	7.56	20.20	15.75	12.87	(1)	39.02	39.37	39.02	9.41	7.56	21.26	11.22	13.94	2806
10	1500	39.02	39.37	39.02	9.41	9.41	23.62	15.75	14.61	3285	39.02	39.37	39.02	9.41	9.41	21.65	16.14	13.50	(1)	39.02	39.37	39.02	9.41	9.41	24.61	13.11	15.67	3170
12 x 10	1500	44.49	45.12	44.49	11.30	9.41	23.62	15.75	14.61	4079	44.49	45.12	44.49	11.30	9.41	21.65	16.14	13.50	(1)	44.49	45.12	44.49	11.30	9.41	24.61	13.11	15.67	3384
14 x 10	1500	49.49	50.24	49.49	12.40	9.41	23.62	15.75	14.61	4729	49.49	50.24	49.49	12.40	9.41	21.65	16.14	13.50	(1)	49.49	50.24	49.49	12.40	9.41	24.61	13.11	15.67	4630
12	1500	44.49	45.12	44.49	11.30	11.30	26.57	17.83	16.18	4777	44.49	45.12	44.49	11.30	11.30	26.57	18.62	16.18	(1)	44.49	45.12	44.49	11.30	11.30	29.53	16.81	20.87	4447
14 x 12	1500	49.49	50.24	49.49	12.40	11.30	26.57	17.83	16.18	5776	49.49	50.24	49.49	12.40	11.30	26.57	18.62	16.18	(1)	49.49	50.24	49.49	12.40	11.30	29.53	16.81	20.87	5948
16 x 12	1500	54.49	55.39	54.49	14.17	11.30	26.57	17.83	16.18	6305	54.49	55.39	54.49	14.17	11.30	26.57	18.62	16.18	(1)	54.49	55.39	54.49	14.17	11.30	29.53	16.81	20.87	6834
14	1500	49.49	50.24	49.49	12.40	12.40	29.72	20.28	18.15	6614	49.49	50.24	49.49	12.40	12.40	29.29	19.88	17.91	(1)	49.49	50.24	49.49	12.40	12.40	33.46	17.95	21.65	5758
16 x 14	1500	54.49	55.39	54.49	14.17	12.40	29.72	20.28	18.15	7606	54.49	55.39	54.49	14.17	12.40	29.29	19.88	17.91	(1)	54.49	55.39	54.49	14.17	12.40	33.46	17.95	21.65	7055
18 x 14	1500	60.51	61.38	60.51	15.98	12.40	29.72	20.28	18.15	8378	60.51	61.38	60.51	15.98	12.40	29.29	19.88	17.91	(1)	60.51	61.38	60.51	15.98	12.40	33.46	17.95	21.65	8267
16	1500	54.49	55.39	54.49	14.17	14.17	33.86	22.44	20.24	9381	54.49	55.39	54.49	14.17	14.17	31.89	21.46	18.70	(1)	54.49	55.39	54.49	14.17	14.17	37.60	19.17	22.24	8796
18 x 16	1500	60.51	61.38	60.51	15.98	14.17	33.86	22.44	20.24	10957	60.51	61.38	60.51	15.98	14.17	31.89	21.46	18.70	(1)	60.51	61.38	60.51	15.98	14.17	37.60	19.17	22.24	9612
20 x 16	1500	65.51	66.38	65.51	17.87	14.17	33.86	22.44	20.24	11321	65.51	66.38	65.51	17.87	14.17	31.89	21.46	18.70	(1)	65.51	66.38	65.51	17.87	14.17	37.60	19.17	22.24	10053
18	1500	60.51	61.38	60.51	15.98	15.98	37.36	24.09	23.11	12158	60.51	61.38	60.51	15.98	15.98	36.77	24.09	22.83	(1)	60.51	61.38	60.51	15.98	15.98	35.75	20.75	23.31	11354
20 x 18	1500	65.51	66.38	65.51	17.87	15.98	37.36	24.09	23.11	14220	65.51	66.38	65.51	17.87	15.98	36.77	24.09	22.83	(1)	65.51	66.38	65.51	17.87	15.98	35.75	20.75	23.31	12897
20	1500	65.51	66.38	65.51	17.87	17.87	42.13	26.77	26.38	16623	65.51	66.38	65.51	17.87	17.87	42.13	26.77	26.38	(1)	65.51	66.38	65.51	17.87	17.87	44.29	24.80	25.59	14722
24 x 20	1500	76.50	77.64	76.50	21.50	17.87	42.13	26.77	26.38	23975	76.50	77.64	76.50	21.50	17.87	42.13	26.77	26.38	(1)	76.50	77.64	76.50	21.50	17.87	44.29	24.80	25.59	20283
24	1500	76.50	77.64	76.50	21.50	21.50	51.38	29.53	28.35	32077	76.50	77.64	76.50	21.50	21.50	49.61	29.92	27.48	(1)	76.50	77.64	76.50	21.50	21.50	52.36	25.20	31.50	25794

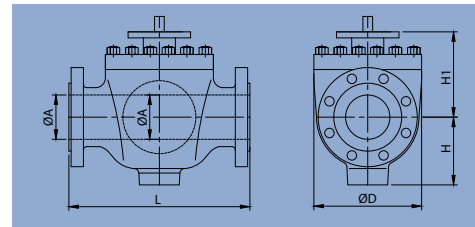
ASME CLASS 2500 (IMPERIAL)

		SIDE ENTRY									WELDED BODY									TOP ENTRY								
DN (in)	PRESSURE CLASS	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	Face To Face (in)			ØA (in)	ØB (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)
		RF	RTJ	BW							RF	RTJ	BW							RF	RTJ	BW						
2 x 1,5	2500	17.76	17.87	17.76	1.65	1.50	6.85	5.04	5.87	231	17.76	17.87	17.76	1.65	1.50	6.85	5.04	5.87	(1)	17.76	17.87	17.76	1.65	1.50	9.09	3.74	8.46	176
2	2500	17.76	17.87	17.76	1.65	1.65	8.39	5.91	6.85	276	17.76	17.87	17.76	1.65	1.65	8.39	5.91	6.85	(1)	17.76	17.87	17.76	1.65	1.65	10.24	3.94	8.46	265
3 x 2	2500	22.76	22.99	22.76	2.44	1.65	8.39	6.00	6.85	408	22.76	22.99	22.76	2.44	1.65	8.39	6.00	6.85	(1)	22.76	22.99	22.76	2.44	1.65	10.24	3.94	8.46	353
3	2500	22.76	22.99	22.76	2.44	2.44	12.01	7.72	8.62	529	22.76	22.99	22.76	2.44	2.44	12.01	7.72	8.62	(1)	22.76	22.99	22.76	2.44	2.44	11.42	4.80	9.57	542
4 x 3	2500	26.50	26.89	26.50	3.43	2.44	12.01	7.72	8.62	855	26.50	26.89	26.50	3.43	2.44	12.01	7.72	8.62	(1)	26.50	26.89	26.50	3.43	2.44	11.42	4.80	9.57	661
4	2500	26.50	26.89	26.50	3.43	3.43	14.76	8.66	10.71	855	26.50	26.89	26.50	3.43	3.43	14.76	8.66	10.71	(1)	26.50	26.89	26.50	3.43	3.43	17.72	6.50	11.81	1036
6 x 4	2500	35.98	36.50	35.98	5.16	3.43	14.76	9.51	10.71	1543	35.98	36.50	35.98	5.16	3.43	14.76	9.51	10.71	(1)	35.98	36.50	35.98	5.16	3.43	17.72	6.50	11.81	1477
6	2500	35.98	36.50	35.98	5.16	5.16	20.67	13.39	13.90	2297	35.98	36.50	35.98	5.16	5.16	20.67	13.39	13.90	(1)	35.98	36.50	35.98	5.16	5.16	19.21	9.57	13.98	2066
8 x 6	2500	40.24	40.87	40.24	7.05	5.16	20.67	13.39	13.90	2712	40.24	40.87	40.24	7.05	5.16	20.67	13.39	13.90	(1)	40.24	40.87	40.24	7.05	5.16	19.21	9.57	13.98	2535
8	2500	40.24	40.87	40.24	7.05	7.05	25.59	15.75	16.32	3715	40.24	40.87	40.24	7.05	7.05	25.59	15.75	16.32	(1)	40.24	40.87	40.24	7.05	7.05	23.07	11.50	16.69	3417
10 x 8	2500	50.00	50.87	50.00	8.78	7.05	25.59	15.75	16.32	5401	50.00	50.87	50.00	8.78	7.05	25.59	15.75	16.32	(1)	50.00	50.87	50.00	8.78	7.05	23.07	11.50	16.69	4960
10	2500	50.00	50.87	50.00	8.78	8.78	31.50	19.29	19.25	7134	50.00	50.87	50.00	8.78	8.78	31.50	19.29	19.25	(1)	50.00	50.87	50.00	8.78	8.78	31.50	13.86	19.80	7732
12 x 10	2500	55.98	56.89	55.98	10.43	8.78	31.50	19.29	19.25	8267	55.98	56.89	55.98	10.43	8.78	31.50	19.29	19.25	(1)	55.98	56.89	55.98	10.43	8.78	31.50	13.86	19.80	7525
12	2500	55.98	56.89	55.98	10.43	10.43	34.25	21.85	20.91	9930	55.98	56.89	55.98	10.43	10.43	34.25	21.85	20.91	(1)	55.98	56.89	55.98	10.43	10.43	37.80	17.17	23.15	9255

VB2/VB3



VT1



API CLASS 3000 (METRIC)

		SIDE ENTRY							TOP ENTRY						
DN (mm)	PRESSURE CLASS	Face To Face (mm)	ØA(2) (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)	ØA(2) (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)		
		Flanged 6BX						Flanged 6BX							
50	3000	371	52.5	163	118	136	(1)	371	52.5	163	112	150	(1)		
70	3000	384	65.5	210	143	167	(1)	384	65.5	210	136	184	(1)		
80	3000	422	78	210	143	167	(1)	384	78	210	136	184	(1)		
100	3000	460	103.5	275	170	199	(1)	460	103.5	275	162	219	(1)		
150	3000	613	130.5	360	263	253	(1)	613	130.5	360	250	278	(1)		
200	3000	740	179.5	435	305	310	(1)	740	179.5	435	290	341	(1)		
250	3000	1000	229	600	400	371	(1)	1000	229	600	380	408	(1)		
300	3000	1146	280	675	453	411	(1)	1146	280	675	430	452	(1)		

API CLASS 5000 (METRIC)

		SIDE ENTRY							TOP ENTRY						
DN (mm)	PRESSURE CLASS	Face To Face (mm)	ØA(2) (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)	ØA(2) (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)		
		Flanged 6BX						Flanged 6BX							
50	5000	371	52.5	208	150	154	(1)	371	52.5	208	143	169	(1)		
70	5000	473	65.5	305	200	200	(1)	473	65.5	305	190	220	(1)		
80	5000	473	78	375	219	240	(1)	473	78	375	208	264	(1)		
100	5000	549	103.5	415	280	296	(1)	549	103.5	415	266	326	(1)		
150	5000	711	130.5	455	340	352	(1)	711	130.5	455	323	387	(1)		
200	5000	841	179.5	630	400	400	(1)	841	179.5	630	380	440	(1)		
250	5000	1292	229	800	490	489	(1)	1292	229	800	466	538	(1)		
300	5000	1600	280	870	555	531	(1)	1600	280	870	527	584	(1)		

API CLASS 10000 (METRIC)

		SIDE ENTRY							TOP ENTRY						
DN (mm)	PRESSURE CLASS	Face To Face (mm)	ØA(2) (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)	Face To Face (mm)	ØA(2) (mm)	ØD (mm)	H (mm)	H1 (mm)	Weight (kg)		
		Flanged 6BX						Flanged 6BX							
40	10000	464	46	300	211	218	(1)	464	46	300	200	240	(1)		
50	10000	521	52.5	300	211	218	(1)	521	52.5	300	200	240	(1)		
70	10000	565	65.5	335	235	247	(1)	565	65.5	335	223	272	(1)		
80	10000	619	78	435	310	312	(1)	619	78	435	295	343	(1)		
100	10000	670	103.5	460	310	326	(1)	670	103.5	460	295	359	(1)		
150	10000	737	130.5	565	390	393	(1)	737	130.5	565	371	432	(1)		
200	10000	889	179.5	842	546	556	(1)	889	179.5	842	519	612	(1)		
250	10000	1292	229	900	618	607	(1)	1292	229	900	587	668	(1)		
300	10000	1600	280	1060	774	677	(1)	1600	280	1060	735	745	(1)		

Notes

(1) Please consult manufacturer.

(2) Maximum bore. Some bore values may need to be reduced to stay within face to face dimension.

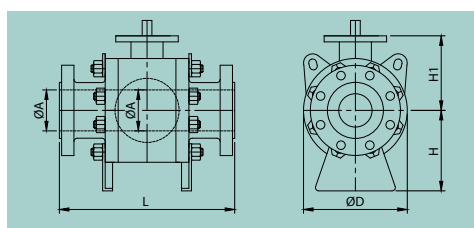
General Notes

For dimensions in larger sizes consult manufacturer.

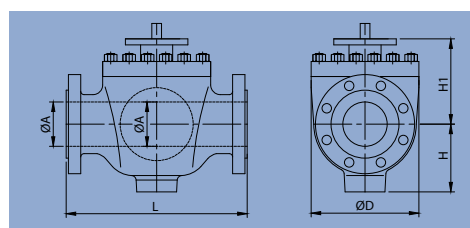
Dimensions D, H, H1 and weights may be subject to change without notice.

Face to face dimensions not listed in industry standards may be subject to change without notice.

VB2/VB3



VT1



API CLASS 3000 (IMPERIAL)

DN	PRESSURE CLASS	SIDE ENTRY							TOP ENTRY						
		Face To Face (in)	ØA(2) (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)		Face To Face (in)	ØA(2) (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	
		Flanged 6BX							Flanged 6BX						
2" 1/16	3000	14.61	2.07	6.42	4.65	5.35	(1)		14.61	2.07	6.42	4.41	5.89	(1)	
2" 9/16	3000	15.12	2.58	8.27	5.63	6.57	(1)		15.12	2.58	8.27	5.35	7.23	(1)	
3" 1/8	3000	16.61	3.07	8.27	5.63	6.57	(1)		15.12	3.07	8.27	5.35	7.23	(1)	
4" 1/16	3000	18.11	4.07	10.83	6.69	7.83	(1)		18.11	4.07	10.83	6.36	8.62	(1)	
5" 1/8	3000	24.13	5.14	14.17	10.35	9.96	(1)		24.13	5.14	14.17	9.84	10.96	(1)	
7" 1/16	3000	29.13	7.07	17.13	12.01	12.20	(1)		29.13	7.07	17.13	11.41	13.43	(1)	
9"	3000	39.37	9.02	23.62	15.75	14.61	(1)		39.37	9.02	23.62	14.96	16.07	(1)	
11"	3000	45.12	11.02	26.57	17.83	16.18	(1)		45.12	11.02	26.57	16.94	17.80	(1)	

API CLASS 5000 (IMPERIAL)

DN	PRESSURE CLASS	SIDE ENTRY							TOP ENTRY						
		Face To Face (in)	ØA(2) (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)		Face To Face (in)	ØA(2) (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	
		Flanged 6BX							Flanged 6BX						
2" 1/16	5000	14.61	2.07	8.19	5.91	6.06	(1)		14.61	2.07	8.19	5.61	6.67	(1)	
2" 9/16	5000	18.62	2.58	12.01	7.87	7.87	(1)		18.62	2.58	12.01	7.48	8.66	(1)	
3" 1/8	5000	18.62	3.07	14.76	8.62	9.45	(1)		18.62	3.07	14.76	8.19	10.39	(1)	
4" 1/16	5000	21.61	4.07	16.34	11.00	11.65	(1)		21.61	4.07	16.34	10.45	12.82	(1)	
5" 1/8	5000	27.99	5.14	17.91	13.39	13.86	(1)		27.99	5.14	17.91	12.72	15.24	(1)	
7" 1/16	5000	33.11	7.07	24.80	15.75	15.75	(1)		33.11	7.07	24.80	14.96	17.32	(1)	
9"	5000	50.87	9.02	31.50	19.29	19.25	(1)		50.87	9.02	31.50	18.33	21.18	(1)	
11"	5000	62.99	11.02	34.25	21.85	20.91	(1)		62.99	11.02	34.25	20.76	23.00	(1)	

API CLASS 10000 (IMPERIAL)

DN	PRESSURE CLASS	SIDE ENTRY							TOP ENTRY						
		Face To Face (in)	ØA(2) (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)		Face To Face (in)	ØA(2) (in)	ØD (in)	H (in)	H1 (in)	Weight (lb)	
		Flanged 6BX							Flanged 6BX						
1" 3/16	10000	18.27	1.81	11.81	8.31	8.58	(1)		18.27	1.81	11.81	7.89	9.44	(1)	
2" 1/16	10000	20.51	2.07	11.81	8.31	8.58	(1)		20.51	2.07	11.81	7.89	9.44	(1)	
2" 9/16	10000	22.24	2.58	13.19	9.25	9.72	(1)		22.24	2.58	13.19	8.79	10.70	(1)	
3" 1/16	10000	24.37	3.07	17.13	12.20	12.28	(1)		24.37	3.07	17.13	11.59	13.51	(1)	
4" 1/16	10000	26.38	4.07	18.11	12.20	12.83	(1)		26.38	4.07	18.11	11.59	14.12	(1)	
5" 1/8	10000	29.02	5.14	22.24	15.35	15.47	(1)		29.02	5.14	22.24	14.59	17.02	(1)	
7" 1/16	10000	35.00	7.07	33.15	21.50	21.89	(1)		35.00	7.07	33.15	20.42	24.08	(1)	
9"	10000	50.87	9.02	35.43	24.33	23.90	(1)		50.87	9.02	35.43	23.11	26.29	(1)	
11"	10000	62.99	11.02	41.73	30.47	26.65	(1)		62.99	11.02	41.73	28.95	29.32	(1)	

Notes

(1) Please consult manufacturer.

(2) Maximum bore. Some bore values may need to be reduced to stay within face to face dimension.

General Notes

For dimensions in larger sizes consult manufacturer.

Dimensions D, H, H1 and weights may be subject to change without notice.

Face to face dimensions not listed in industry standards may be subject to change without notice.

API 6D & 6A trunnion-mounted ball valves

Bolted body side entry • Welded body • Top entry



24" (600 mm) Class 2500 Side Entry Valve with special vent & drain connections



48" (1200 mm) Class 600 valve with Electrohydraulic actuator



11" (250 mm) Class 10000 API 6A Ball Valve



24" (600 mm) Class 1500 Ball Valves with Gas Over Oil actuators



24" (600 mm) class 1500 side-entry



56" (1400 mm) Fully Welded, Class 600 valve



56" (1400 mm) Fully Welded valve



36" (900 mm) class 600 top-entry ball valves



34" Class 1500 Top Entry Ball Valve



20" (500 mm) class 300 side entry valves



GOV Actuated bolted body valves with RF and BW ends with pup piece

Engineered products for specialized applications

Control ball valve • Rising stem ball valve • Twin ball double block & bleed • Cryogenic • Subsea



24" (600 mm) Class 900# Top Entry Ball valve for Cryogenic service



12" (300 mm) Class 1500 Twin Ball Double Block & Bleed Valve



48" (1200 mm) class 300 ball valve for subsea service



20" (500 mm) Class 600 Twin Ball, Double Block & Bleed Valve



16" (400 mm) Class 600 Actuated Rising Stem Ball Valves



30" (750 mm) Class 600 Trunnion Control Ball Valve



30" (750 mm) Class 300 actuated control ball valve with anti cavitation trim



16" (400 mm) Class 900 Actuated Rising Stem Ball Valves



10" (250 mm) Class 150 actuated control ball valve with noise reduction trim

Engineering data

Valve testing

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

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

LEAKAGE RATES

ISO 5208 SEAT LEAKAGE RATES AS PER API 6D	Seat Test Type		
	HP Hydrostatic @1.1 rating pressure	LP Pneumatic @ 6 bars	HP Gas @ 1.1 rating pressure
Soft Seated valves	Rate A	Rate A	Rate B
Metal Seated valves	Rate D	Rate B	Rate D

Above mentioned leakage rates are standard. More stringent requirements are achievable upon request.

TESTING PRESSURES

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	3000	207	210	100	6	7
API 5000	5000	345	352	7500	517.5	528	5000	345	352	100	6	7
API 10000	10000	690	703	15000	1035	1055	10000	690	703	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 ASME B 16.47

International Organization for Standardisation – ISO

ISO 9001:2000 ISO 14313 ISO 14001

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



Fugitive emission testing



Valves in packing area after being tested

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)

Inconel 625 (UNS N06625)

Inconel 750 (UNS N07750)

Monel 400

Monel K500

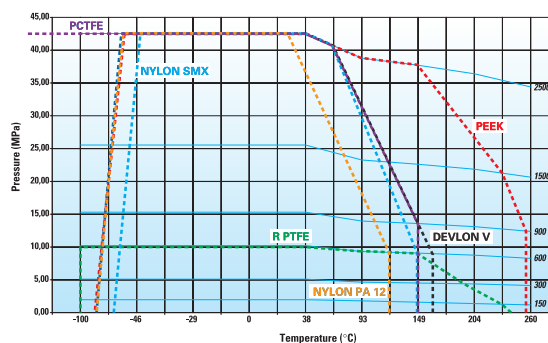
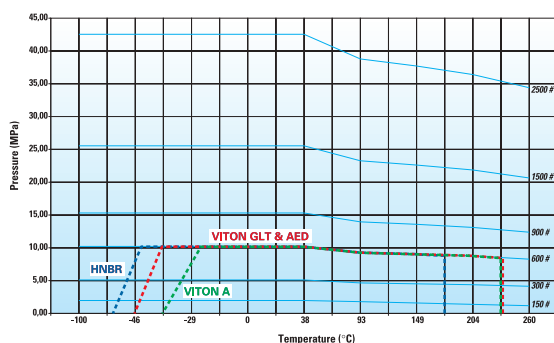
Incoloy 925 (UNS N09925)

Inconel 718 (UNS N07718)

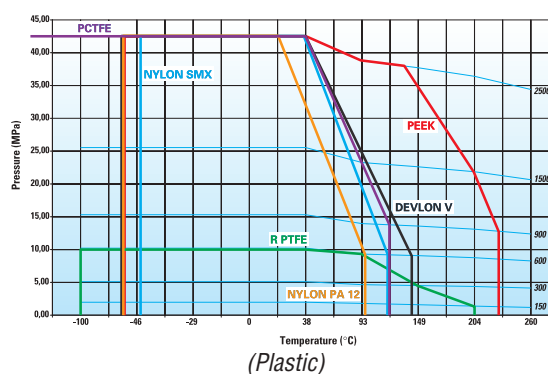
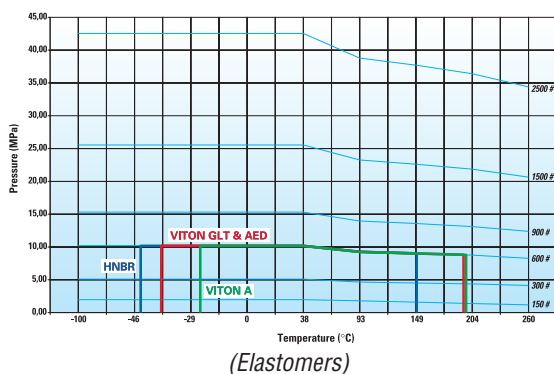
SEAT INSERT AND SEALS MATERIALS OPERATING (DYNAMIC) LIMITS*

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
Peek	-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"

SEAT INSERTS – STATIC/SHORT PERIOD*



SEAT INSERTS – OPERATING CONDITION*



*Given as reference only.

Spare parts list



SIDE-ENTRY - MOD VB2/VB3

Part #	Part	DN < 4" (1) Spare parts quantity		DN 4" (1) Spare parts quantity		DN > 4" (1) 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) Spare parts quantity		DN 4" (1) Spare parts quantity		DN > 4" (1) 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) Spare parts quantity		DN 4" (1) Spare parts quantity		DN > 4" (1) 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

How to avoid problems

- Ball valves should be transported and stored with the ball in the fully open position
- Flanged ends and welded ends should be protected
- End protection should be removed only when the valve is installed in the line
- Valves should be handled using the proper lifting lugs
- Valves should be stored according to Valbart storage procedures. Long-term storage should be avoided
- In case of long storage, valves should be flushed and cycled a few times
- For welded-end valves, Valbart should be informed of any post-weld heat treatment (transition pups may be necessary to avoid damages to seals)
- The line should be flushed and cleaned before valve operation
- 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
- Actual service conditions should be taken into consideration while 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



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