
Assuring the right flow is our business.
PETROSTAR
VALVE INT'L

CONTENT

ABOUT US
PETROSTAR VALVE

A name synonymous with quality. With skills sharpened by many years we offer a versatile range of durable valves, which ensures lowest ownership cost and long period of trouble free operations.

We believe in long term relationship with our customers. That is why we adhere to highest quality design, manufacturing, delivery and after sales service. We achieve this by making every person in our organization subscribe to quality procedures & methods and continuous training programs that let our quality system evolve.

Our manufacturing range covers Ball, Gate, Globe, Check, Plug and Butterfly valves with almost all kinds of metallurgy used in the Oil & Gas, Petrochemical and Chemical industries. Petrostar offers valves in ASME Class 150, 300, 600, 900, 1500 and 2500 ratings. Other standard ratings and designs are available on request. This has taken us further to reach our goal of leading the industry by becoming the most versatile and reliable valve manufacturer.

PETROSTAR MANUFACTURING PROGRAM

Valve Type	ASME Class	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	28	30	34	36	42	48	60
Cast Steel Gate Valve	150	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	300	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	600	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	900	●		●	●		●	●	●	●	●	●	●	●	●							
	1500	●		●	●		●	●	●	●	●	●	●	●	●							
Cast Steel Slab Gate Valve	150	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	300	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	600	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●			
Cast Steel Check Valve	150	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	300	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	600	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	900	●		●	●		●	●	●	●	●	●	●	●	●							
	1500	●		●	●		●	●	●	●	●	●	●	●	●							
Forged Steel Trunnion Mounted Ball Valve	150	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	300	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	600	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
	900	●	●	●	●	●	●	●	●	●	●	●	●	●								
	1500	●	●	●	●	●	●	●	●	●	●	●	●	●								
	2500	●	●	●	●	●	●	●	●	●	●	●	●									
Cast Steel Trunnion Mounted Ball Valve	150	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	300	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●			
	600	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●					
	900	●	●	●	●		●	●	●	●	●	●	●	●	●							
All Welded Ball Valve	600	●	●	●	●	●	●	●	●	●	●	●	●	●								
	900	●	●	●	●	●	●	●	●	●	●	●	●	●								
	1500	●	●	●	●	●	●	●	●	●	●											
Top Entry Trunnion Mounted Ball Valve	150	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	300	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	600	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
	900	●	●	●	●	●	●	●	●	●	●	●										
	1500	●	●	●	●	●	●	●	●	●	●	●										
Cast Steel Globe Valve	150	●	●	●	●	●	●	●	●	●	●	●										
	300	●		●	●	●	●	●	●	●												
	600	●		●	●	●	●	●	●	●												
	900	●		●		●	●	●														
	1500	●		●		●	●	●														

Valve Type	ASME Class	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Forged Steel Gate Valve	800	●	●	●	●	●	●	●	●	●												
	1500	●	●	●	●	●	●	●	●	●												
	2500	●	●	●	●	●	●	●	●	●												
Forged Steel Globe Valve	800	●	●	●	●	●	●	●	●	●												
	1500	●	●	●	●	●	●	●	●	●												
	2500	●	●	●	●	●	●	●	●	●												
Forged Steel Check Valve	800	●	●	●	●	●	●	●	●	●												
	1500	●	●	●	●	●	●	●	●	●												
	2500	●	●	●	●	●	●	●	●	●												
Forged Steel Ball Valve	800	●	●	●	●	●	●	●	●	●												
	1500	●	●	●	●	●	●	●	●	●												
	2500	●	●	●	●	●	●	●	●	●												
Cast Steel Floating Ball Valve	150			●	●	●	●	●	●	●	●	●	●	●								
	300					●	●	●	●	●	●	●	●	●								
	600								●	●	●	●	●	●								

Valve Type	ASME Class	6	8	10	12	14	16	18	20	24	28	30	34	36	42	48	60	72	80	88	96	100
Butterfly Valve	150	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	300	●	●	●	●	●	●	●	●	●												
	600	●	●	●	●																	

PETROSTAR QUALITY CONTROL PROGRAM (API 600/ISO 10434)

The Petrostar Quality Control Program was implemented to set the quality control standards for pressure boundary castings, and to ensure a consistent supply of quality castings to Petrostar.

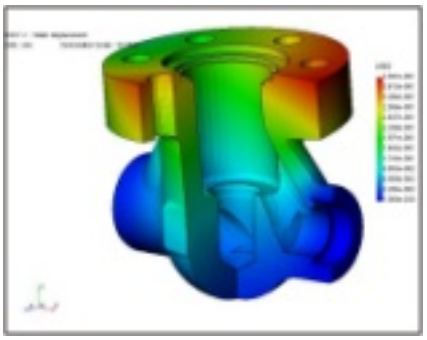
1. X-Ray Sample (pattern) Approval Process;
2. X-Ray Monitoring Program;
3. Casting Monitoring Program.

SAMPLE CASTINGS

Before castings are released for production, the Petrostar NDE Inspector Level III, evaluates and approves the submitted X-ray films (100% coverage) as per API 600

X-RAY MONITORING:

Random X-ray monitoring requires that castings taken every six months from each vendor, randomly by size and quantity sets and X-rayed per B16.34 requirement.

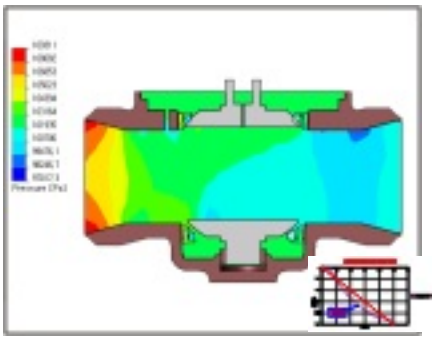


Pro-Engineering model casting simulation program.

If casting fails to meet the X-ray requirements of B16.34, Petrostar Senior Metallurgist will issue a corrective action request to the vendor, including recommendations for detailed methoding change and re-X-ray.

CASTING MONITORING:

Rejected castings due to defects such as hydro-test leakage, porosity, inclusions, shrinkage indication discovered by X-ray or machining, are entered into the computer, as part of the statistical control of each vendor.

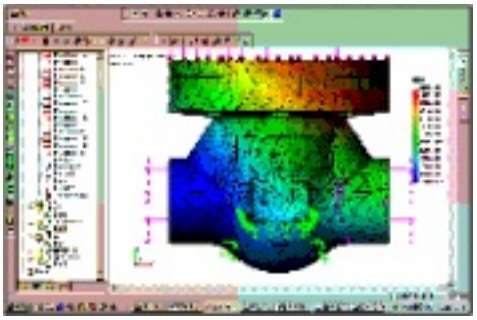


Fluid Mechanics Analysis of a top entry ball valve body.

FINITE ELEMENT ANALYSIS

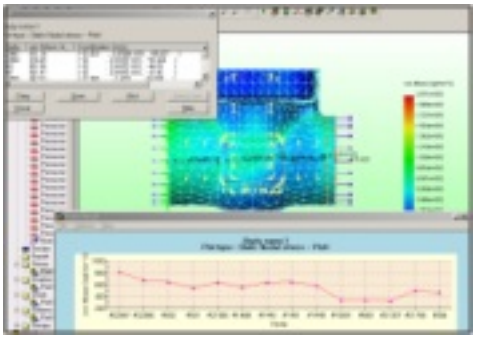
Petrostar applies Finite Element Analysis for assistance at it's design facilities.
Working together with foundry engineers and our designers, we continue improving the internal integrity of castings, to X-Ray Level II or better as a general standard.

No shrinkage on a forged steel gate valve body simulation.



Finite Element Analysis of a forged steel globe valve body.

Finite Element Analysis can be applied to the design of valves with different materials.



Finite Element Analysis of a forged steel gate valve body.

Benefits to Petrostar customers and to the foundries:

- Shorter delivery time,
- Higher quality of commercial castings,
- Optimum methoding system,
- Elimination of trial at sample approval,
- Improves the internal integrity of castings (RT level 2 or better) at pattern approval,
- Optimizes the metal flow and solidification pattern,
- Predicts internal defects,
- Reduces scrap,
- Optimizes the design of the castings,
- Solves problems such as shrinkage and porosity,without test castings,
- Reduces NDE (X-ray) upgrading.




VALVES IN WORK FIELD

Petrostar valves are widely applied to the field of petroleum, chemical, metallurgical, power, fuel gas, city pipeline networks and so on.

Globe valve under testing.

Third Party inspections being carried out.

Satisfied and careful agent network as the backbone of petrostar business.

Gate valve stroke checking with hydraulic actuator

14" CLASS 300 CF8 gate valve, after cryogenic treatment.

Assembly of trunnion mounted ball valve

Ware house

Petrostar Valve manufactures valves with standard treated material, and is capable of supplying valves with special testing like radiographic examination, ultrasonic examination, dye penetrant testing, low temperature impact testing, xylon coating, PTFE coating, etc.

We offer wide ranges of metallurgy including duplex, super duplex, monel, inconel, copper, bronze, etc.

Besides common valves, we also offer special valves like cryogenic valves, bonnet extended valves, top entry and all-welded ball valve, wafer ball valve, metal seated ball valve, soft seated gate valve, bellow sealed globe valve, etc.

Dye penetrant test

Fine lapping of ball

Testing of 30" 300# top entry ball valve

Class 600 6" ball valve, with primer.

Testing electric actuator

Lathe in service

API 6D
API 603
API 6FA
BS 5351

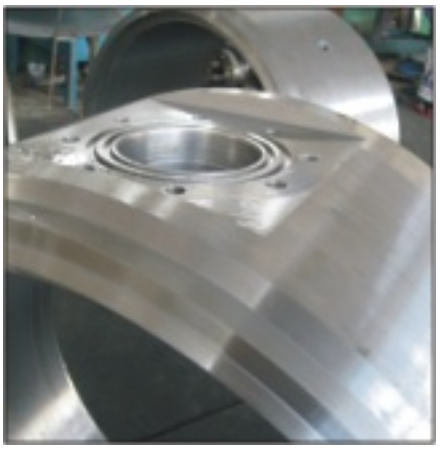
FLOATING BALL VALVE
TRUNNION MOUNTED BALL VALVE
TOP ENTRY BALL VALVE
ALL WELDED BALL VALVE
WAFER TYPE BALL VALVE

Principle of sealing:

The sealing system of trunnion mounted ball valves manufactured by Petrostar are spring assisted ones, which provide tightness at low or high pressures range. The spring assistance provides the necessary initial sealing pressure at low pressure values, while the rising differential pressure resulting from the pressure increase presses the seat ring onto the ball surface. The ball valves can be assembled into the line regardless of the flow direction.

Automatic reduction of body cavity pressure:

The sealing system design in ball valves automatically allows the release of the excessive body cavity pressure into the lower pipe pressure side in case of pressure differences greater than 10 bars.



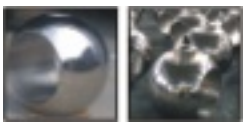
Bi-directional sealing system:

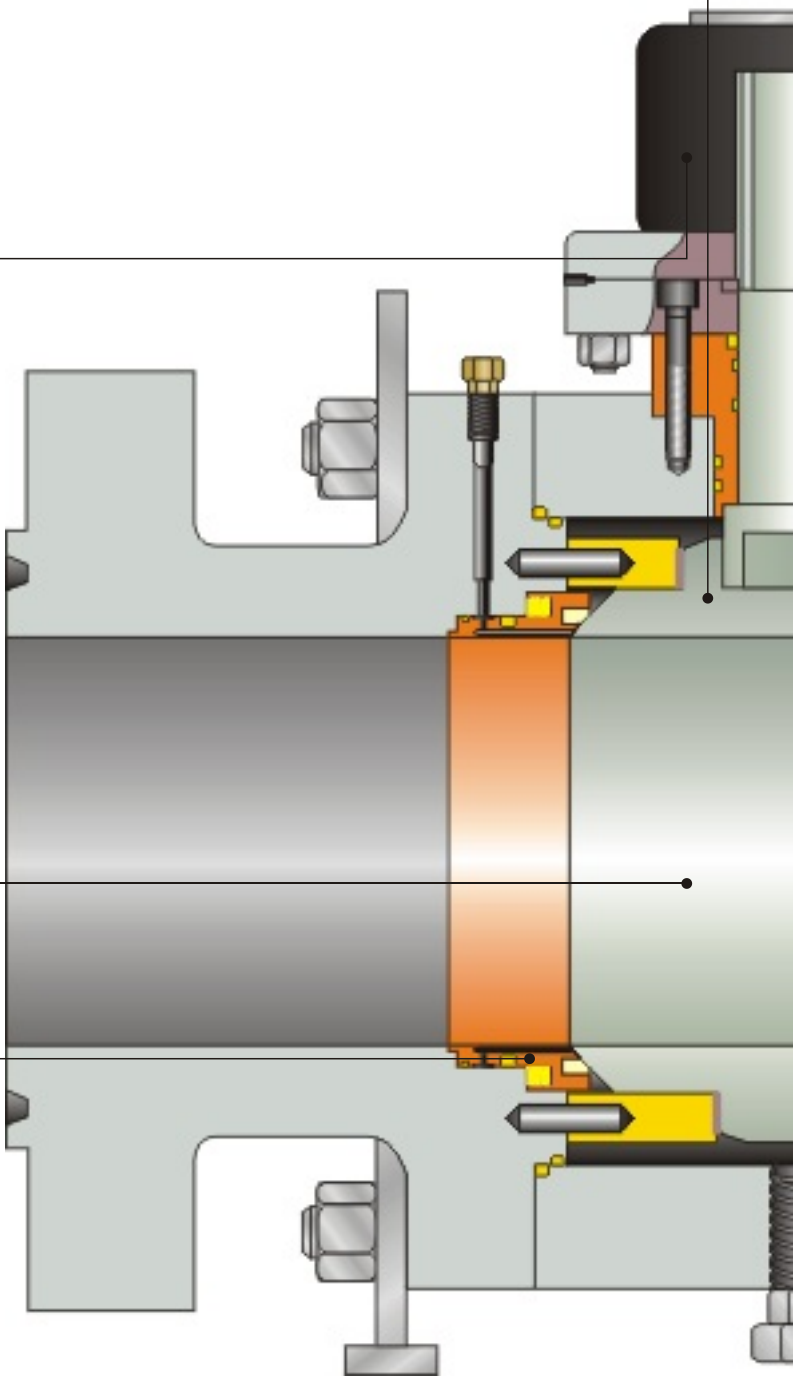
The special sealing system of ball valves assures the inlet and outlet side tightness of body cavity. In case of failure of either gasket, the remaining seal provides the tightness of the body cavity. The double sealing system of trunnion mounted ball valves includes a PFTE insert besides the specially formed elastomer sealing element, which also fulfills the bearing function between the ball and the seat ring. Furthermore, it protects the gasket from failures caused by solid partides and by the erosion of the flowing medium.

Petrostar trunnion-mounted ball valves offer increased value by incorporating advanced design features.

TRUNNION-MOUNTED BALL

The ball is fixed and the seat rings are floating, free to move along the valve axis.
Side load generated by the pressure acting on the ball is absorbed by bearings.
At low pressure the seat sealing action is achieved by the thrust of the springs acting on the seat rings.
As the pressure increases the fluid pressure pushes the seat rings against the ball.



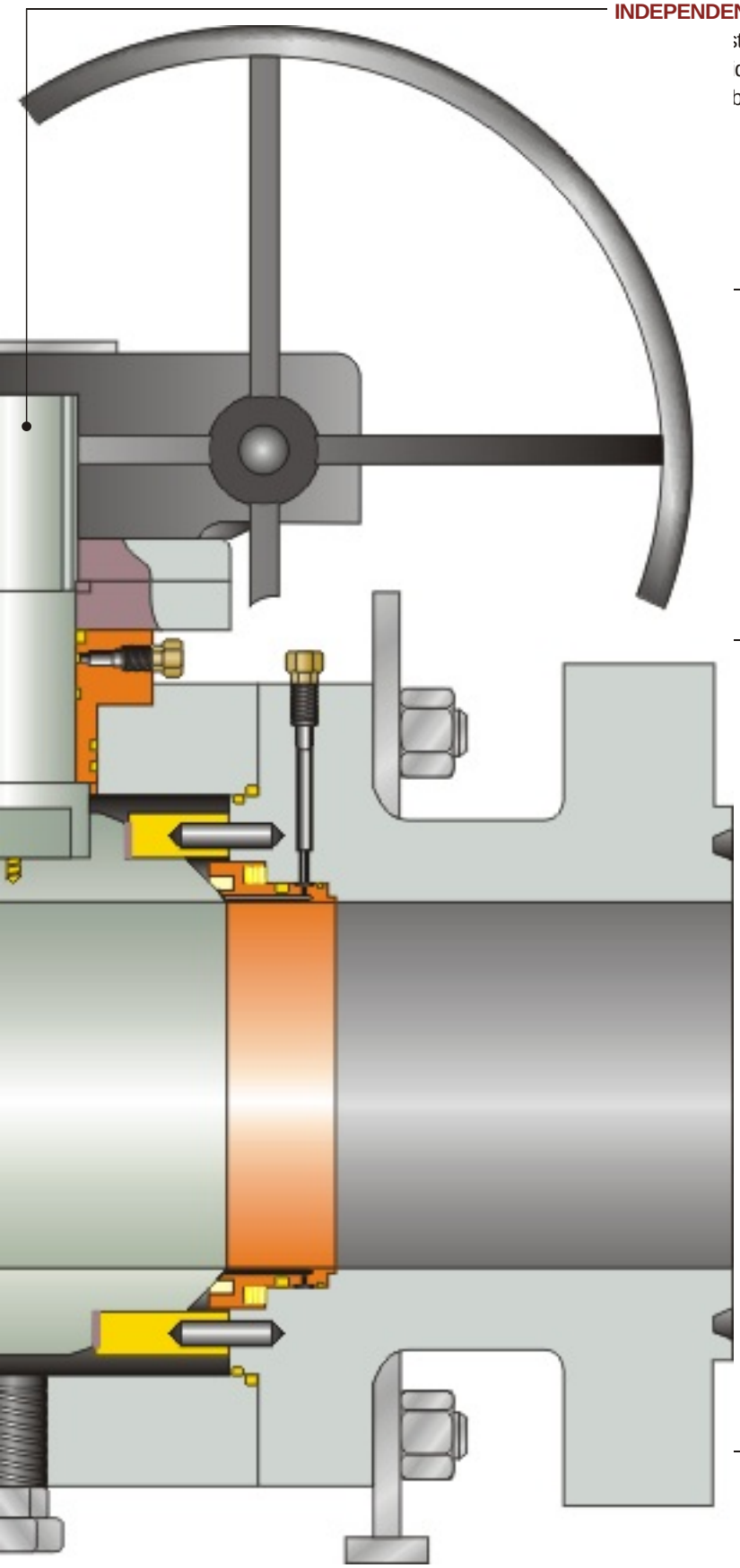


FLOATING SEAT RINGS

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.

INDEPENDENT BALL AND STEM

stem are independent to minimize the de thrust generated by the pressure ball.



ANTI-STATIC DESIGN

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

LOW EMISSION VALVES

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

DOUBLE BLOCK & BLEED

The double block and bleed feature, both with the ball in the fully closed or fully open position, is a standard feature.

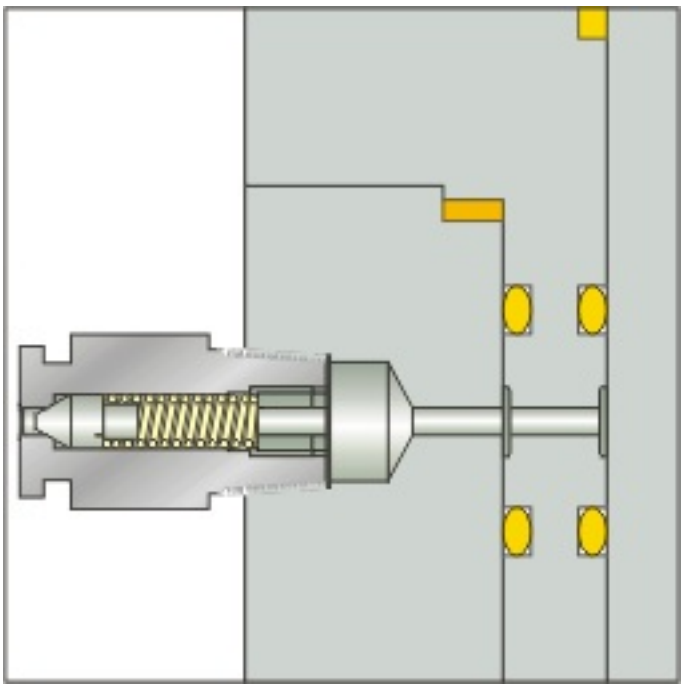
Self-relieving seats are supplied as a standard feature. Double piston or combination seats (self-relieving/upstream, double piston/ downstream) can be supplied on request.

Design Features

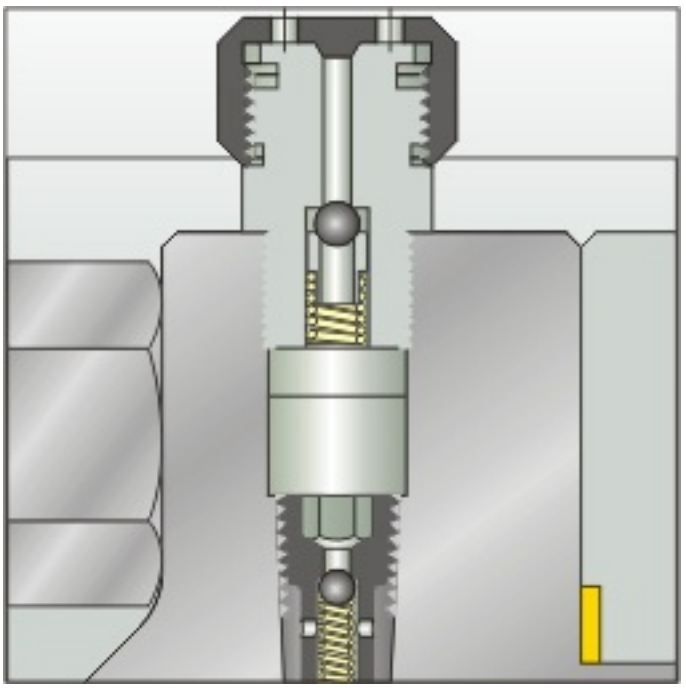
FEATURES	SIDE-ENTRY	WELDED BODY	TOP-ENTRY
Trunnion Mounted	Standard	Standard	Standard
Independent Stem & Ball	Standard	Standard	Standard
Independent Floating Seats	Standard	Standard	Standard
Primary Soft Seat - Secondary Metal Seat	Standard	Standard	Standard
Primary Metal Seat - Secondary Soft	On Request	On Request	On Request
Metal to Metal Seat	On Request	N/A	On Request
Self Relieving Seats	Standard	Standard	Standard
Single Piston Seat Effect	Standard	Standard	Standard
Double Piston Seat Effect	On Request	On Request	On Request
Combination (Self Relieving/Double Piston) Seats	On Request	On Request	On Request
API 6A or API 6D Design and Construction	As Required	As Required	As Required
Face to Face Dimensions to API 6D and ANSI B16.10	Standard	Standard	Standard
Fire Safe Design to API 6FA - API 607 - BS 6755 Part 2	Standard	Standard	Standard
Full, Reduced or Venturi Port	As Required	As Required	As Required
Flanged Ends - Welded Ends - Hub Ends	As Required	As Required	As Required
Transition Pups for Welded Ends Valves	On Request	On Request	On Request
Antistatic	Standard	Standard	Standard
Anti-Blowout Stem	Standard	Standard	Standard
Double Block and Bleed	As Required	As Required	As Required
Possibility to Check Seat Integrity In Line with Ball in Open or Closed Position	Standard	Standard	Standard
Double Body Seals	Standard	Not Required	Standard
Triple Stem	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" & larger)	On Request	On Request	On Request
Seat Pocket Overlay	On Request	On Request	On Request
Seals Area Overlay	On Request	On Request	On Request
Wetted Parts Overlay	On Request	On Request	On Request
Body Internal Lining	On Request	N/A	On Request
Extended Stem for Underground Installation	As Required	As Required	As Required
Extended Bonnet for Low or High Temperature	As Required	N/A	As Required
Locking Device	On Request	On Request	On Request
Lifting Lugs		Standard on 6" and Larger	
Supporting Feet		Standard on 6" and Larger	
Manual or Motorized Operation	As Required	As Required	As Required
In-line Maintenance	N/A	N/A	Yes
On site Maintenance	Yes	N/A	Yes

Note: Other features are available on request.

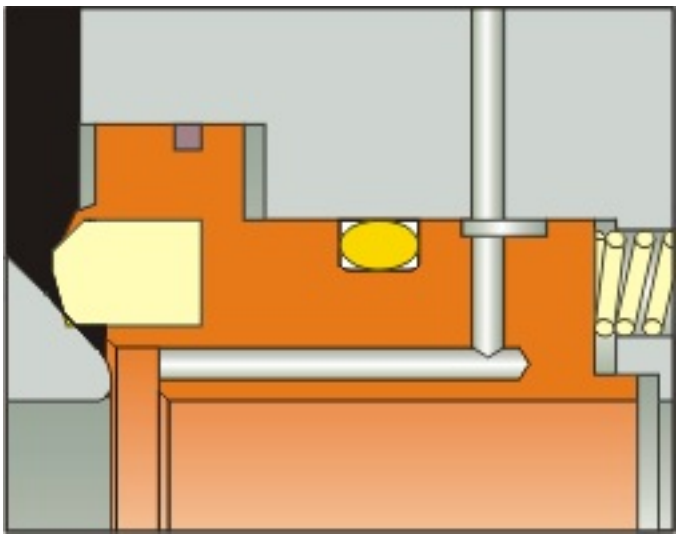
An emergency sealant injection port is located between the upper O-rings and the graphite gasket.



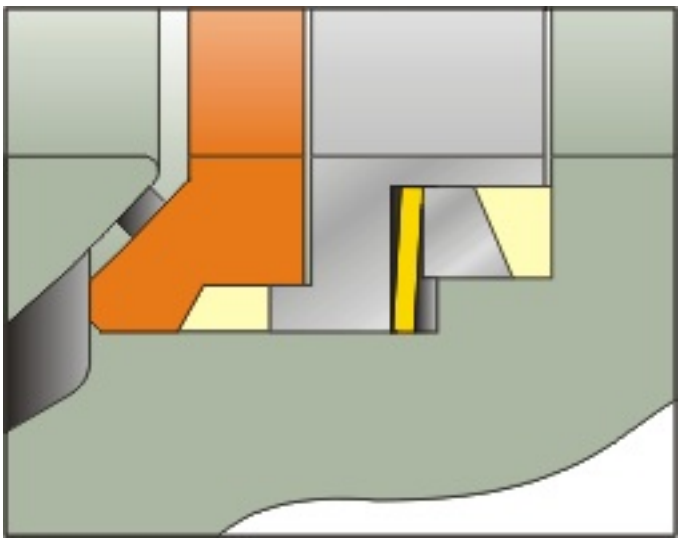
An emergency sealant injection is available in the seating area.



With a compensating seat design, the contact area between ball and seat ring is automatically enlarged under higher pressure from medium, in order to ensure sealing performance. When there's lower pressure from medium, the contact area is smaller, which achieves lower stem torque.



Metal-to-metal seat design is used for abrasive service or high temperature that a resilient material is prohibited.

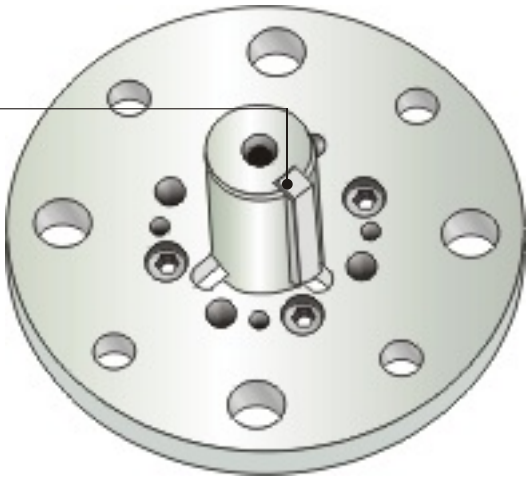


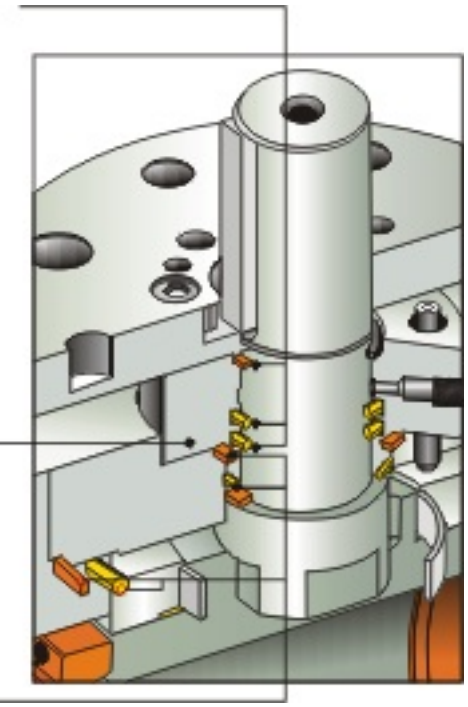
STEM SEALING

Two O-rings and one graphite gasket ensure the stem seal. The graphite gasket can be replaced while the valve is under pressure and with the ball in any position, by removing the adaptor plate, after having released any pressure that may exist between the upper O-ring and the graphite gasket, through the grease injection fitting hole.
The O-rings can be
the valve in fully op
closed position by r
stem cover after ha
all the pressure in t
cavity.

BALL SEAT ALIGNMENT

Mechanical stops ensure control over ball rotation.





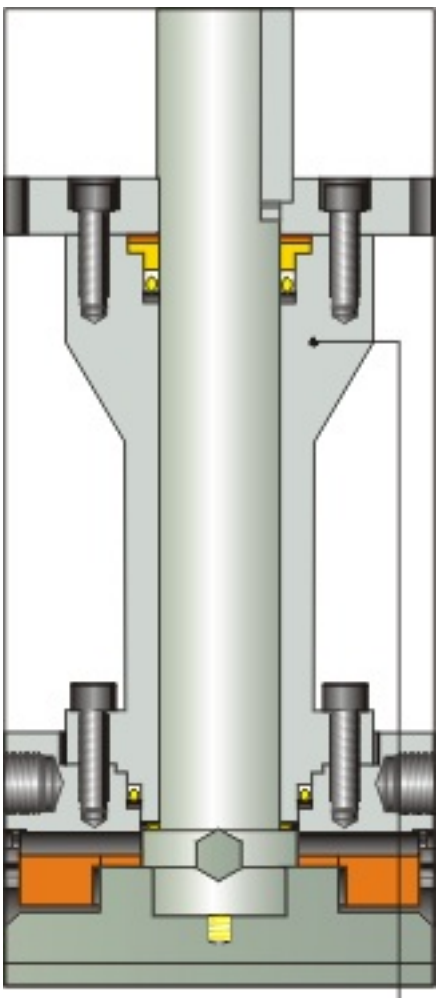
ANTI-BLOWOU

Stem is retained by
cover. Other desigr
on request

BODY SEALING

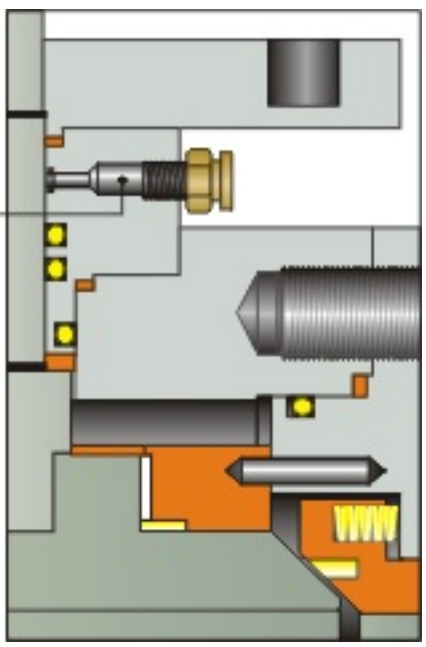
The double sealing action of O-rings and graphite gaskets in all the static joints of the body components, ensures zero leakage and the Fire Safe feature.

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



EMERGENCY SEALANT INJECTION

Each valve is supplied c/w emergency sealant injection feature located between the upper O-rings and the graphite gasket. Emergency sealant injection feature on seats is available on request only, for 6" full port and larger. Emergency grease injection features are not available on low and high temperature valves.



EXTENDED BONNET

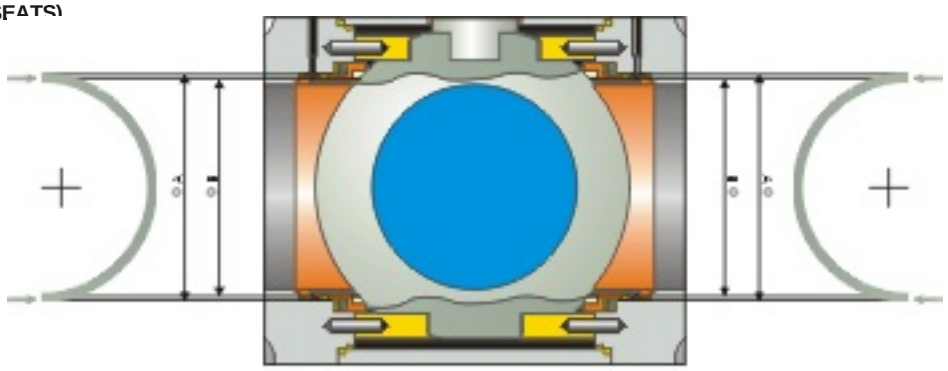
Valve designs are available with extended bonnets for applications in extreme temperature service. Extended bonnets are recommended for service at temperatures below -50℃ or above 220℃.

STANDARD

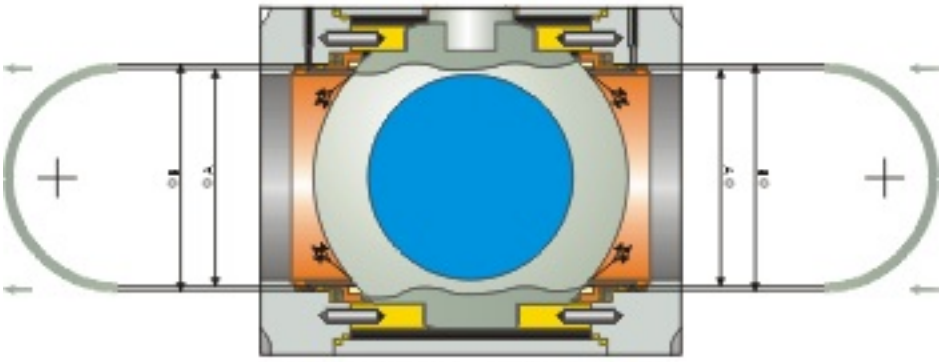
SINGLE PISTON EFFECT (SELF-RELIEVING SEATS)

Fluid pressure, both upstream and downstream, creates a resultant thrust that pushes the seat rings against the ball. Fluid pressure acting in the body cavity creates a resultant thrust that pushes the seat rings away from the ball. The single piston design permits the automatic release of any over pressure in the body cavity when the valve is in the fully open or fully closed position, therefore the seat rings are "self-relieving".

SINGLE PISTON EFFECT

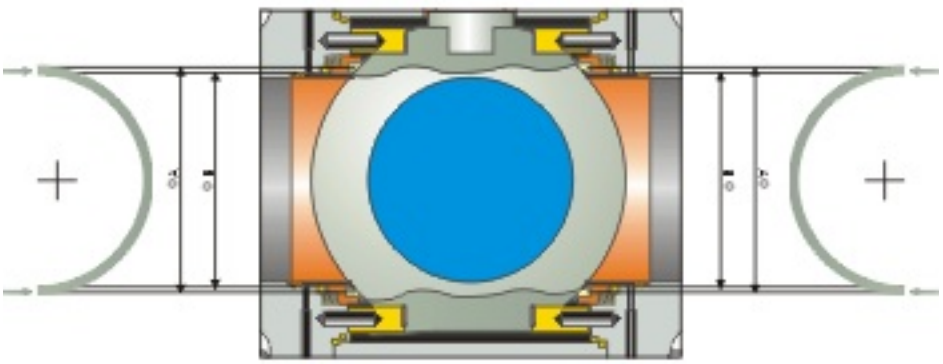


PRESSURE ACTING UPSTREAM AND/OR DOWNSTREAM

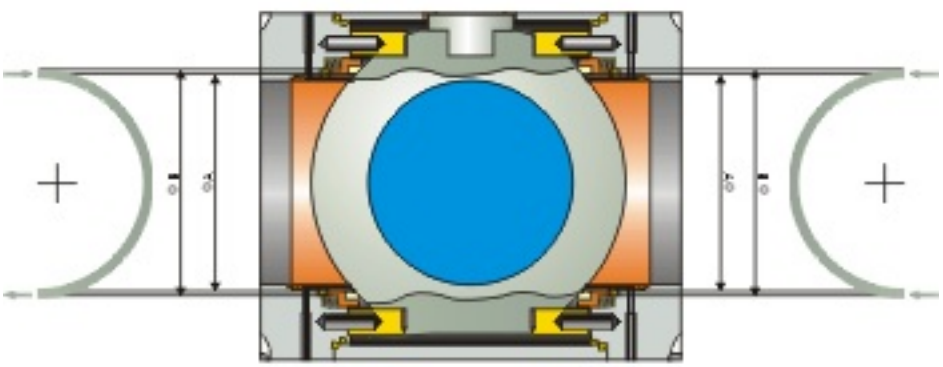


PRESSURE ACTING IN THE BODY CAVITY

DOUBLE PISTON EFFECT



PRESSURE ACTING UPSTREAM AND/OR DOWNSTREAM



PRESSURE ACTING IN THE BODY CAVITY

OPTIONAL

DOUBLE PISTON EFFECT

Fluid pressure, both upstream and downstream, as well as in the body cavity creates a resultant thrust that pushes the seat rings towards the ball. Valves with double piston effect seat rings require a relief valve in order to reduce the build-up of over pressure in the body cavity.

CAST STEEL FLOATING BALL VALVE(> 1½")

Design description: >>

Full port design

Bolted bonnet, split body

Floating ball type

Blow-out proof stem

Fire durable construction

Anti static device

Stopper device

ISO 5211 mounting pad

Flanged or butt welding ends

Available with worn gear operator

Standards >>

Temp & pressure: ASME B 16.34, BS 5351

Wall thickness: ASME B 16.34, BS 5351

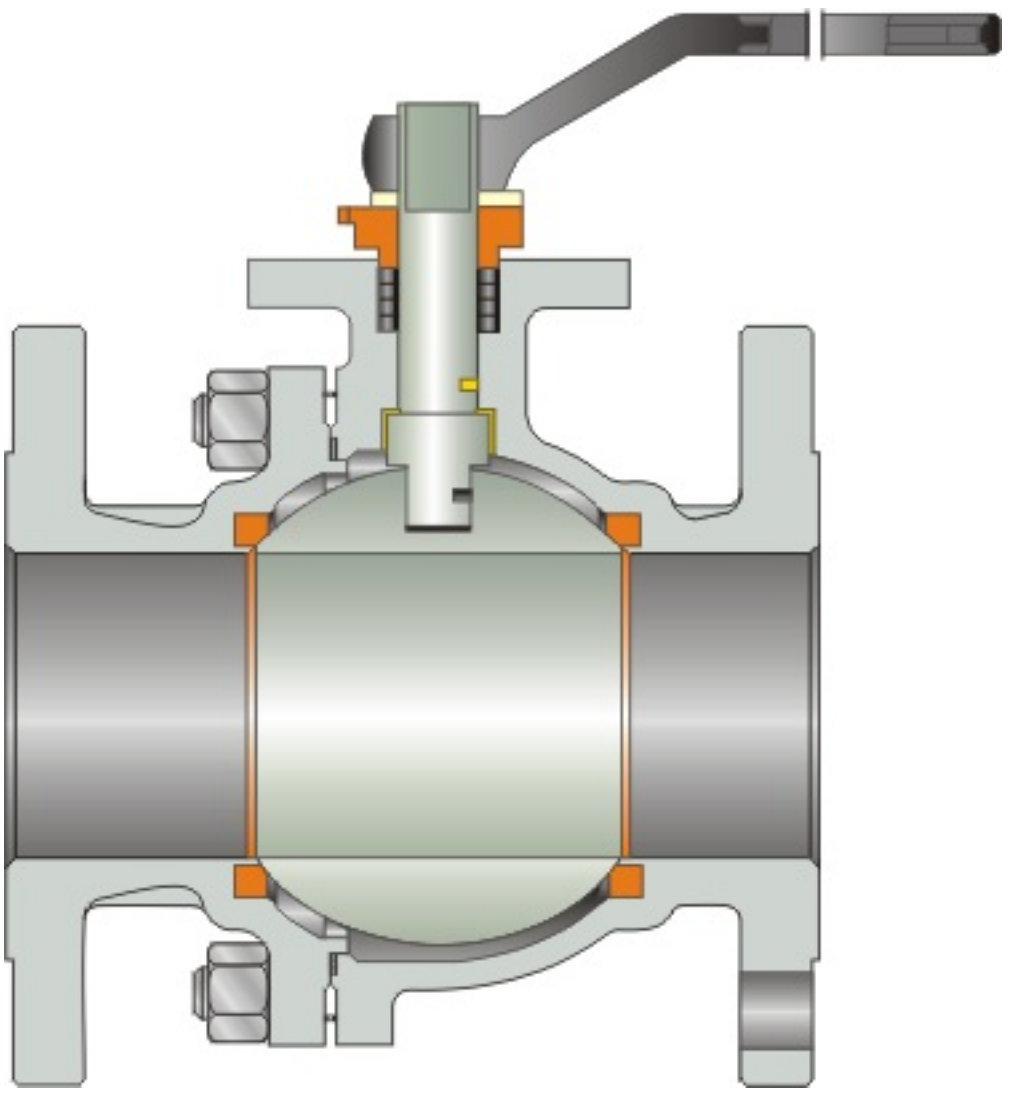
Bore dimension: API 6D, BS 5351

Face to face: ASME B 16.10, BS 2080

Flange dimension: ASME B 16.5, BS 1560

Test & inspection: API 598, API 6D, BS 5146

Body material: WCB, LCB, LCC, CF8, CF8, CF3, CF3M



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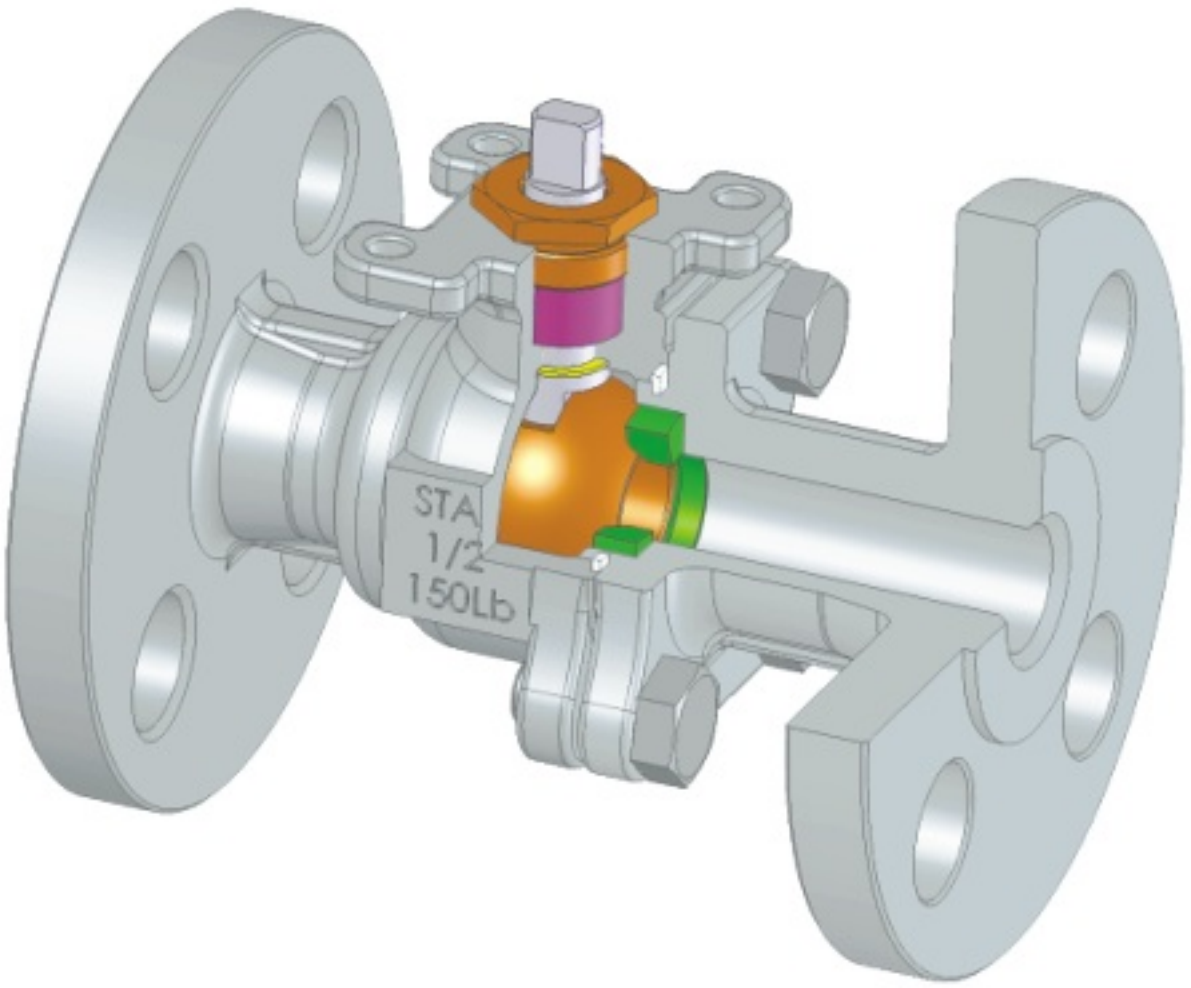
Materials of parts

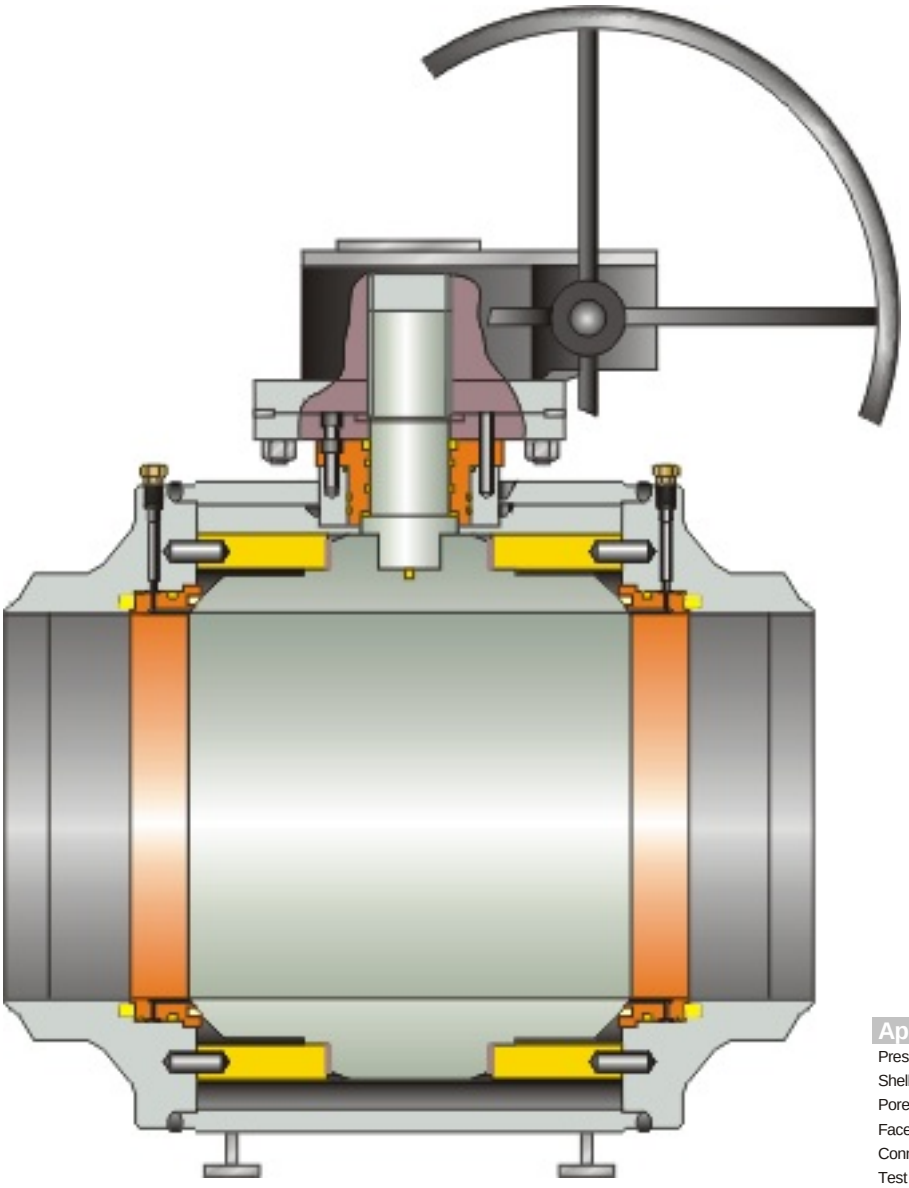
NO	Part name	Carbon steel	ASTM Material 18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	ball	A182-F3041)	A182-F316	A182-F3041)
4	Stem	A276-F304	A276-316	A276-304
5	Seat ring		R. PTEE	
6	Bonnet gasket	Graphite+3042)	PTEE	Graphite+3042)
7	Bonnet stud	A193-B7	A193-B8	A320-L7
8	Bonnet stud nut	A194-2H	A194-8	A194-4
9	Packing		PTEE	
10	Gland flange	A216-WCB	A351-CF8M	A352-LCB
11	Gland bolt	A193-B7	A193-B8	A193-B7
12	Stop plate	Caron steel	Caron steel+Zn	Caron steel
13	Handle		Caron steel	

Note:1). A 105+ENP optional; 2). Spiral wound construction



Main part materials list

NO	Part name	Carbon steel	Low Temp. steel	Stainless steel
1	Body	ASTM A105	ASTM A305 LF2	ASTM A316
2	Bonnet	ASTM A105	ASTM A305 LF2	ASTM A316
6	Inject valve	ANSI 1045	ANSI 1045	A276-316
7	O-ring	VITON	VITON	VITON
8	O-ring	VITON	VITON	VITON
9	Seat retainer	ASTM A105R	ASTM A305 LF2+ENP	ASTM A182 F316
10	Ring	PTEE	PTEE	PTEE
11	Spring	Inconelx-750	Inconelx-750	Inconelx-750
12	Ball	ASTM A 105+ENP	ASTM A305 LF2+ENP	ASTM A182 F316
13	Sliding bearing	304+PTEE	304+PTEE	316+PTEE
14	Static spring	A276-316	A276-316	A276-316
22	Stem	A182-F6a	A182-F6a	ASTM A182-F6a
24	Gasket	304+PTEE	304+PTEE	316+PTEE
25	O-ring	VITON	VITON	VITON
26	O-ring	VITON	VITON	VITON
30	Packing	Graphite	Graphite	Graphite
45	Screw	ASTM A 193-B7/B7M	ASTM A 193-B7M	ASTM A 193-B8
46	Waste valve	ANSI 1045	ANSI 1045	ASTM A182 F316
49	Backing	ASTM A105	ASTM A305 LF2+ENP	ASTM A182 F316
50	Back pin	ANSI 1045	ASTM A305 LF2+ENP	ASTM A182 F316
51	Upper bushing	ASTM A105	ASTM A305 LF2+ENP	ASTM A182 F316
52	Gasket	304+Graphite	304+Graphite	316+Graphite
53	Positioning pin	ANSI 1045	ANSI 1045	A276-316
54	O-ring	VITON	VITON	VITON
55	Packing seat	ASTM A182-F6a	ASTM A182-F6a	ASTM A182 F316
57	Coupling plate	ASTMA105	ASTM A350 LF2	ASTM A182 F316
59	Base frame	ANSI 1025	ANSI 1025	A276-316



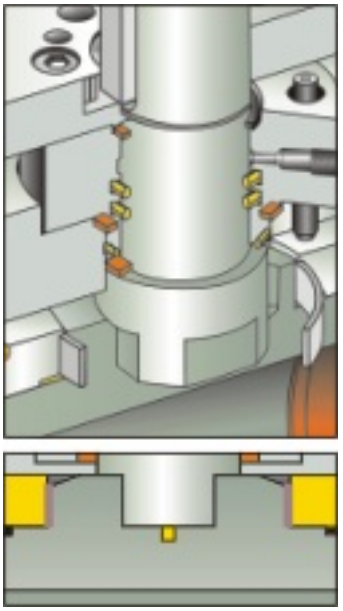
Applicable standards:

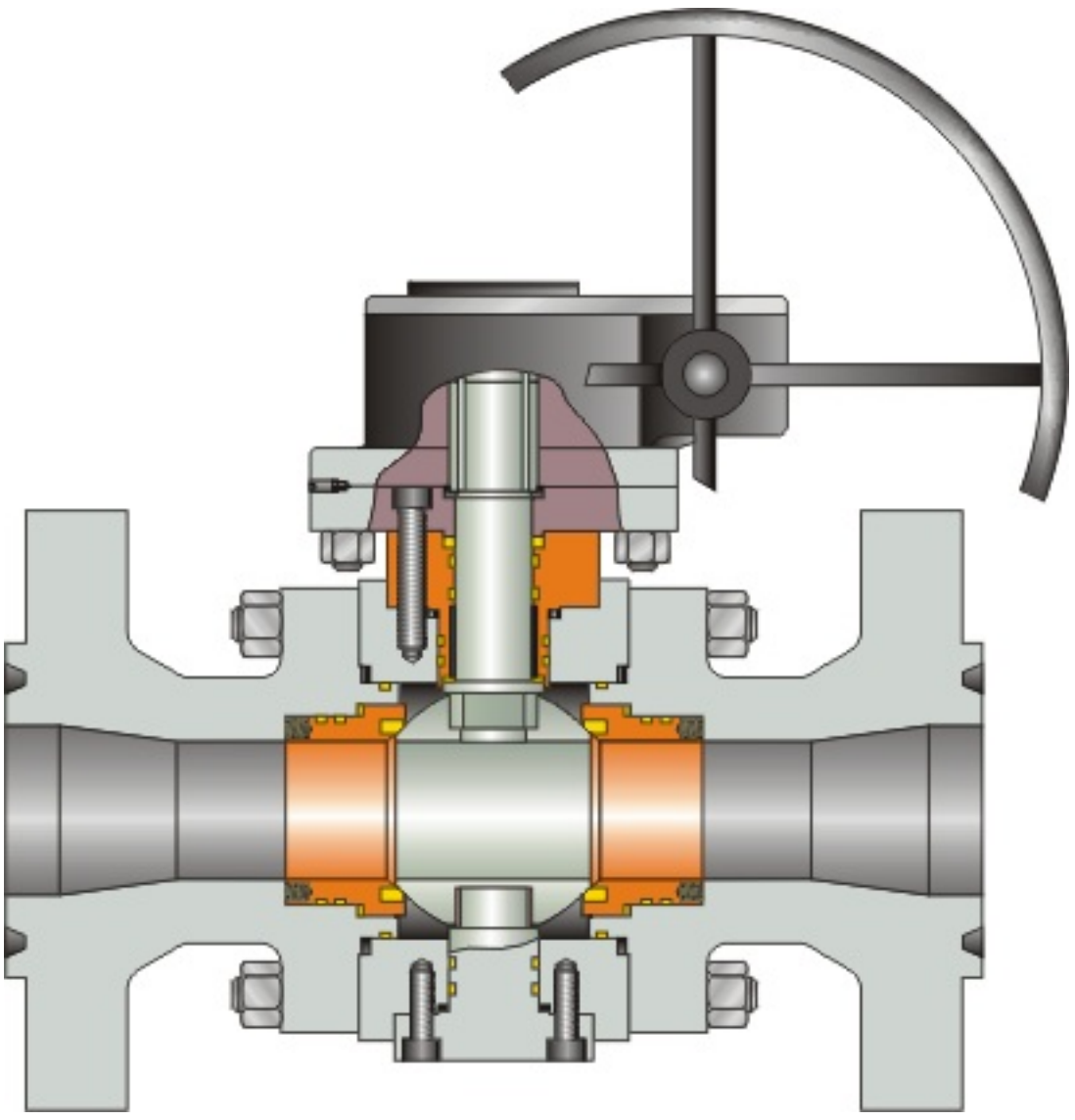
Pressure temperature rating , ASME B16.34 、 BS5351
Shell thickness, ASME B16.34 、 BS5351
Pore hole dimension, API 6D 、 BS5351
Face to face, ASME B16.10 、 API 6D
Connection dimension, ASME B16.5 、 BS1560
Test and inspection conform to , API 6D 、 BS5146
Main materials,A105 、 LF2 、 F304 、 F304L 、 F316L

Materials of parts

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-ringg	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 below drawing.

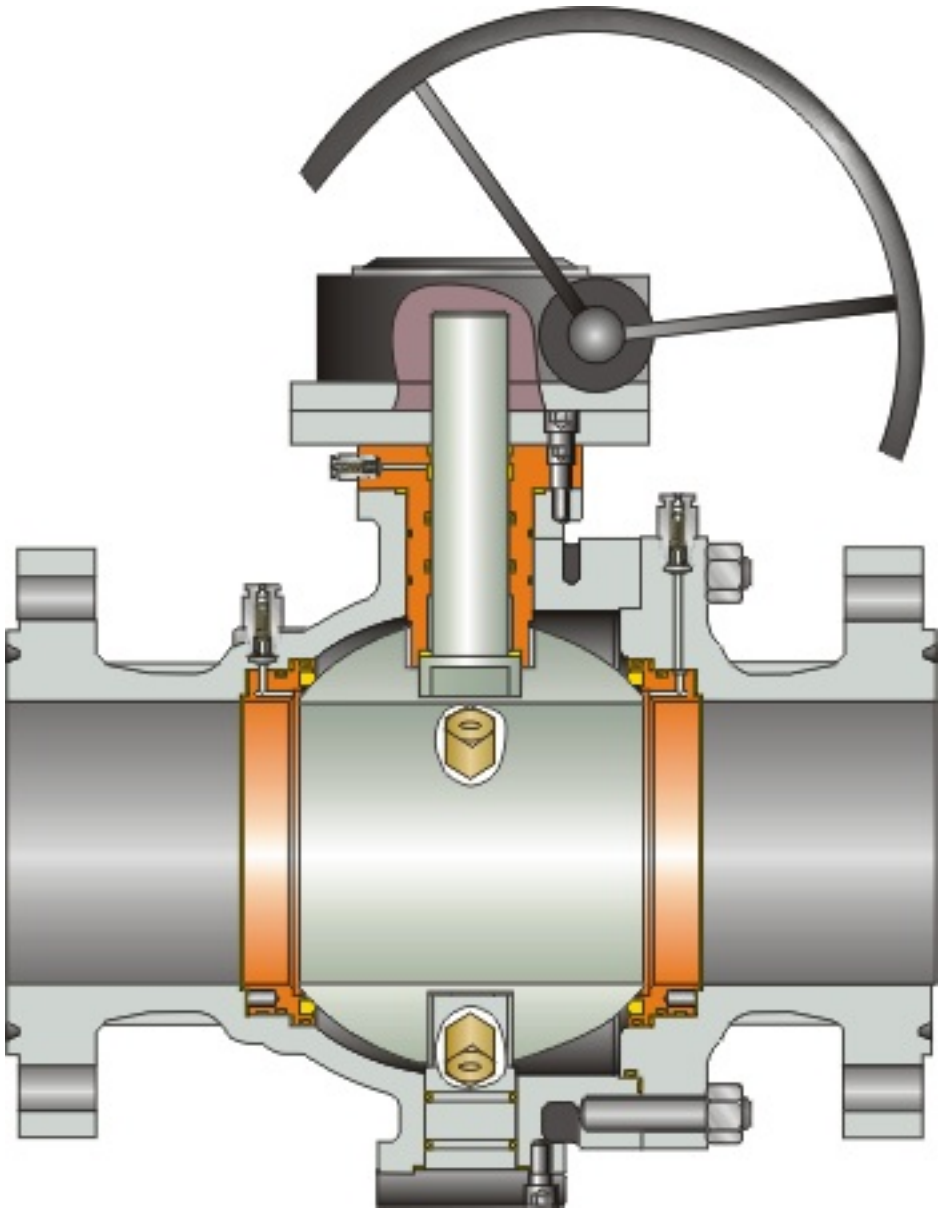




Materials of parts

NO	Part name	Carbon steel	ASTM Material 18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	ball	A182-F3041)	A182-F316	A182-F3041)
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert		Claa filled PTEE	
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+3042)	Graphite+3162)	Graphite+3042)
11	Bonnet O-ring	NBR	Viton	Viton
12	Sntistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTEE	316+PTEE	304+PTEE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steell
21	Handle		Carbon steel	

Note:1).A 105+ENP optional; 2). Spiral wound construction



Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12"& above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with worm gear operator

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable,Ap1607
Anti static, API 608
Steel valves, ASME B16.34
Face to face, ASME B16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

TOP ENTRY TRUNNION MOUNTED BALL VALVE

Design description:

Size:2"~24"

Class:150~1500

Top entry body

Trunnion mounted ball , full & reduced bore

Anti-static device

Blow-out proof stem

Fire safe design

Emergency sealant injector(6"& larger)

Standards

Design: ASME B 16.34/API 6D

Face to face: ASME B 16.10/API 6D

End to end: ASME B 16.10/API 6D

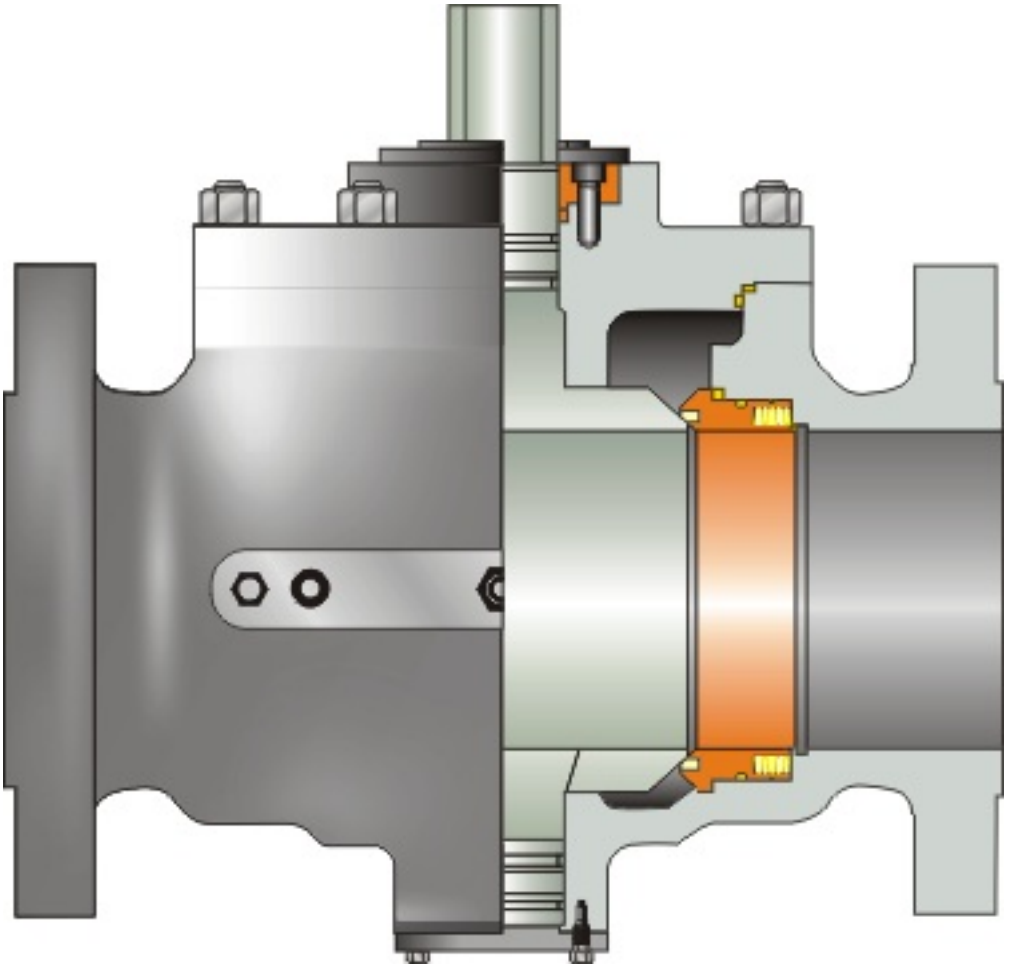
Flange end: ASME B 16.5

BW end: ASME B 16.25

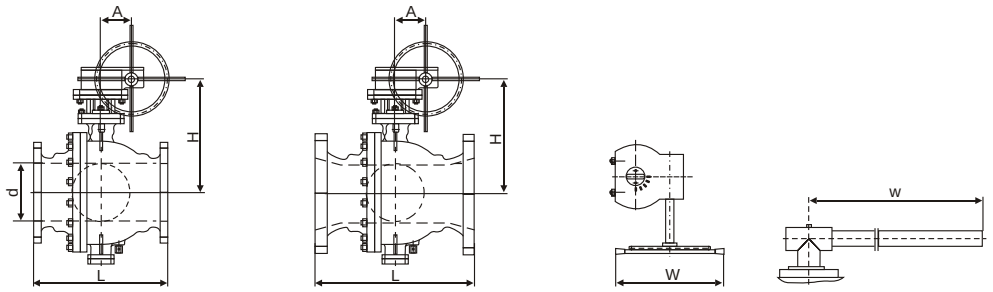
Test: API 6D API 598

Fire safe test: API 607/API 6FA

Special : NACE MR-01-75



DIMENSIONS & WEIGHTS



2PC, CLASS 150 TRUNNION FULL BORE VALVE (FIG NO. F1--)

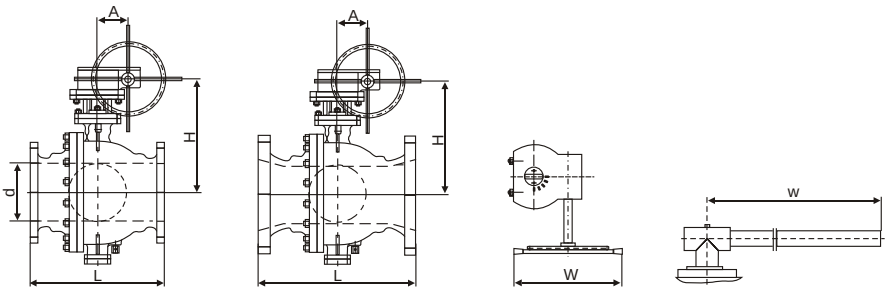
Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Bore Size (d)	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"	23.19"
RF Face to Face	7.00"	8.00"	9.00"	15.50"	18.00"	21.00"	24.00"	27.00"	30.00"	34.00"	36.00"	42.00"
BW End to End	8.50"	11.13"	12.00"	18.00"	20.50"	22.00"	25.00"	30.00"	33.00"	36.00"	39.00"	45.00"
Flange OD	6.00"	7.50"	9.00"	11.00"	13.50"	16.00"	19.00"	21.00"	23.50"	25.00"	27.50"	32.00"
Weight(Lbs)	30.00	78.00	118.00	270.00	4800.00	570.00	1010.0	1195.0	1800.0	1950.0	3600.0	4800.0
Center to Lever H	8.30"	10.16"	11.80"	13.50"	-	-	-	-	-	-	-	-
Handle Length W	13.78"	15.75"	17.69"	41.34"	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	14.00	14.80"	21.50"	23.80"	25.40"	28.45"	29.00"	32.00"	35.70"
Handwheel Dia W	-	-	-	20.00	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"

2PC, CLASS 150 TRUNNION REDUCED BORE VALVE - (FIG. NO. G1--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Bore Size (d)	1.50"	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"
Weight(Lbs)	24.00	48.00	79.00	120.00	320.00	500.00	605.0	1150.0	1250.0	1900.0	2300.0	4450.0
Center to Lever H	7.80"	8.30"	10.16"	11.80"	13.50"	-	-	-	-	-	-	-
Handle Length W	13.78"	13.78"	15.75"	16.69"	41.34"	-	-	-	-	-	-	-
Center to Gear H	-	-	-	-	14.00	14.80"	21.50"	23.80"	25.40"	28.45"	29.00"	32.00"
Handwheel Dia W	-	-	-	-	20.00"	23.62"	27.56"	31.50"	39.38"	39.38"	39.38"	39.38"

2PC, CLASS 300 TRUNNION FULL BORE VALVE (FIG NO. F3--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Bore Size (d)	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"	23.19"
RF Face to Face	8.50"	11.13"	12.00"	15.88"	19.75"	22.38"	25.50"	30.00"	33.00"	36.00"	39.00"	45.00"
BW End to End	8.50"	11.13"	12.00"	18.00"	20.50"	22.00"	25.00"	30.00"	33.00"	36.00"	39.00"	45.00"
Flange OD	6.50"	8.25"	10.00"	12.50"	15.00"	17.50"	20.50"	23"	25.50"	28.00"	30.50"	36.00"
Weight(Lbs)	38.00	85.00	130.00	315.00	510.00	630.00	1110.0	1295.0	2259.0	2600.0	4365.0	5800.0
Center to Lever H	8.50"	10.25"	12.00"	13.75"	-	-	-	-	-	-	-	-
Handle Length W	17.00"	22.20"	24.00"	42.00"								
Center to Gear H	-	-	-	14.50	15.80"	22.50"	24.80"	25.40"	28.55"	29.52"	32.50"	36.90"
Handwheel Dia W	-	-	-	20.00	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"



2PC, CLASS 300 TRUNNION REDUCED BORE VALVE - (FIG. NO. G3--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Bore Size (d)	1.50"	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"
Weight(Lbs)	32.00	66.00	88.00	140.00	350.00	530.00	695.0	1250.0	1460.0	2350.0	2800.0	5150.0
Center to Lever H	8.00"	8.50"	10.25"	12.00"	13.75"	-	-	-	-	-	-	-
Handle Length W	15.00"	17.00"	22.20"	24.00"	42.00"	-	-	-	-	-	-	-
Center to Gear H	-	-	-	-	14.50	15.80"	22.50"	24.80"	25.40"	28.55"	29.52"	32.50"
Handwheel Dia W	-	-	-	-	20.00	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"

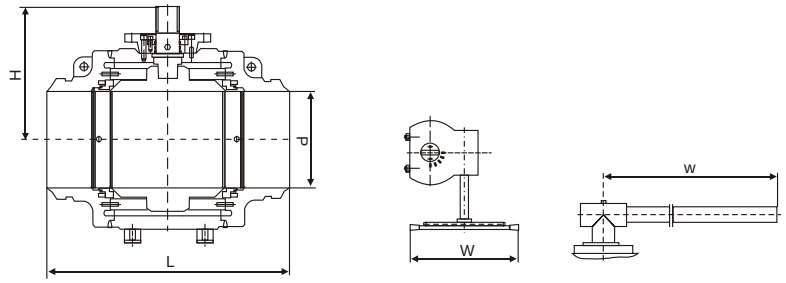
2PC, CLASS 600 TRUNNION FULL BORE VALVE (FIG NO. F6--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Bore Size (d)	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"	23.19"
RF Face to Face	11.50"	14.00"	17.00"	22.00"	26.00"	31.00"	33.00"	35.00"	39.00"	43.00"	47.00"	55.00"
RJ End to End	11.63"	14.13"	17.13"	22.13"	26.13"	31.13"	33.13"	35.13"	39.13"	43.13"	47.25"	55.38"
BW End to End	11.50"	14.00"	17.00"	22.00"	26.00"	31.00"	33.00"	35.00"	39.00"	43.00"	47.00"	55.00"
Flange OD	6.50"	8.25"	10.75"	14.00"	16.50"	20.00"	22.00"	23.75"	27.00"	29.25"	32.00"	37.00"
Weight(Lbs)	62.00	125.00	190.00	495.00	860.0	1295.0	1950.0	2203.0	3100.0	3950.0	5100.0	8400.0
Center to Lever H	8.70"	10.70"	12.40"	-	-	-	-	-	-	-	-	-
Handle Length W	15.00"	17.00"	20.00"	-	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	15.00"	16.80"	23.80"	25.80"	26.90"	30.00"	33.00"	36.00"	39.00"
Handwheel Dia-W	-	-	-	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"

2PC, CLASS 600 TRUNNION REDUCED BORE VALVE - (FIG. NO. G6--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Bore Size (d)	1.50"	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"
Weight(Lbs)	52.00	97.00	155.00	340.00	700.00	1050.0	1600.0	1950.0	2800.0	3300.0	4700.0	7500.0
Center to Lever H	8.20"	8.70"	10.70"	12.40"	-	-	-	-	-	-	-	-
Handle Length W	15.00"	15.00"	17.00"	20.00"	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	-	15.00"	16.80"	23.80"	25.80"	26.90"	30.00"	33.00"	36.00"
Handwheel Dia W	-	-	-	-	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"

DIMENSIONS & WEIGHTS



3PC/WELD, CLASS 150 TRUNNION FULL BORE VALVE (FIG NO. H1-- / M1--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
Bore Size (d)	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"	23.19"	28.94"	34.41"
RF Face to Face	7.00"	8.00"	9.00"	15.50"	18.00"	21.00"	24.00"	27.00"	30.00"	34.00"	36.00"	42.00"	51.00"	60.00"
BW End to End	8.50"	11.13"	12.00"	18.00"	20.50"	22.00"	25.00"	30.00"	33.00"	36.00"	39.00"	45.00"	55.00"	68.00"
Flange OD	6.00"	7.50"	9.00"	11.00"	13.50"	16.00"	19.00"	21.00"	23.50"	25.00'"	27.50"	32.00"	38.75"	46.00"
Weight(Lbs)	62.00	115.00	200.00	386.00	585.00	873.00	1210.0	1675.0	2359.0	3400.0	4465.0	6900.0	18000	27000
Center to Lever H	6.30"	8.16"	9.80"	12.50"	-	-	-	-	-	-	-	-	-	-
Handle Length W	13.78"	15.75"	17.69"	41.34"	-	-	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	12.00	12.80"	18.50"	20.80"	22.40"	24.45"	25.00"	28.00"	30.70"	38.03"	43.15"
Handwheel Dia W	-	-	-	20.00	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"

3PC/WELD, CLASS 150 TRUNNION REDUCED BORE, VALVE (FIG. NO. J1--/ N1--)

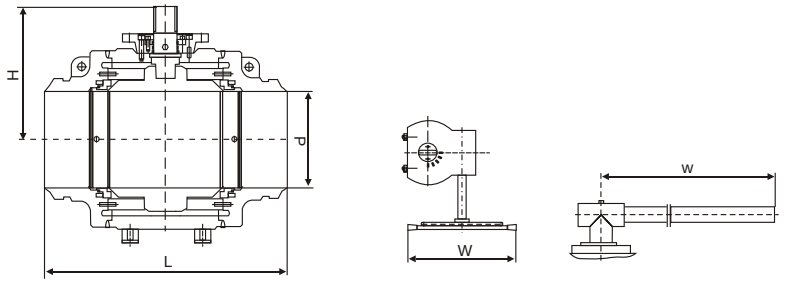
Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
Bore Size (d)	1.50"	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"	23.19"	28.94"
Weight(Lbs)	58.00	65.00	138.00	210.00	425.00	660.00	1050.0	1450.0	1600.0	2650.0	3475.0	4900.0	7950.0	22500
Center to Lever H	6.30"	6.30"	8.16"	9.80"	12.50"	-	-	-	-	-	-	-	-	-
Handle Length W	13.78"	13.78"	15.75"	16.69"	41.34"	-	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	-	12.00	12.80"	18.50"	20.80"	22.40"	24.45"	25.00"	28.00"	30.70"	38.03"
Handwheel Dia W	-	-	-	-	20.00"	23.62"	27.56"	31.50"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"

3PC/WELD, CLASS 300 TRUNNION, FULL BORE, VALVE (FIG NO. H3--/ M3--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
Bore Size (d)	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"	23.19"	28.94"	34.41"
RF Face to Face	8.50"	11.13"	12.00"	15.88"	19.75"	22.38"	25.50"	30.00"	33.00"	36.00"	39.00"	45.00"	55.00"	68.00"
BW End to End	8.50"	11.13"	12.00"	18.00"	20.50"	22.00"	25.00"	30.00"	33.00"	36.00"	39.00"	45.00"	55.00"	68.00"
Flange OD	6.50"	8.25"	10.00"	12.50"	15.00"	17.50"	20.50"	23"	25.50"	28.00"	30.50"	36.00"	43.00"	50.00"
Weight(Lbs)	64.00	120.00	218.00	450.00	680.00	1175.0	1725.0	2400.0	3255.0	3750.0	5100.0	8100.0	21000	28750
Center to Lever H	6.50"	8.25"	10.00"	12.75"	-	-	-	-	-	-	-	-	-	-
Handle Length W	17.00"	22.20"	24.00"	42.00"	-	-	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	12.50	16.80"	18.50"	20.80"	21.40"	23.55"	25.52"	27.50"	31.90"	39.00"	45.15"
Handwheel Dia W	-	-	-	20.00	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"

3PC/WELD, CLASS 300 TRUNNION, REDUCED BORE, VALVE - (FIG. NO. J3--/ N3--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
Bore Size (d)	1.50"	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"	23.19"	28.94"
Weight(Lbs)	60.00	75.00	145.00	270.00	550.00	700.00	1350.0	1950.0	2250.0	3250.0	4000.0	5750.0	9400.0	25000
Center to Lever H	6.10"	6.50"	8.25"	10.00"	12.75"	-	-	-	-	-	-	-	-	-
Handle Length W	15.00"	17.00"	22.20"	24.00"	42.00"	-	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	-	12.50	16.80"	18.50"	20.80"	21.40"	23.55"	25.52"	27.50"	31.90"	39.00"
Handwheel Dia W	-	-	-	-	20.00	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"



3PC/WELD, CLASS 600 TRUNNION FULL BORE VALVE (FIG NO. H6--/ M6--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
Bore Size (d)	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"	23.19"	28.94"	34.41"
RF Face to Face	11.50"	14.00"	17.00"	22.00"	26.00"	31.00"	33.00"	35.00"	39.00"	43.00"	47.00"	55.00"	65.00"	82.00"
RJ End to End	11.63"	14.13"	17.13"	22.13"	26.13"	31.13"	33.13"	35.13"	39.13"	43.13"	47.25"	55.38"	65.50"	82.63"
BW End to End	11.50"	14.00"	17.00"	22.00"	26.00"	31.00"	33.00"	35.00"	39.00"	43.00"	47.00"	55.00"	65.00"	82.00"
Flange OD	6.50"	8.25"	10.75"	14.00"	16.50"	20.00"	22.00"	23.75"	27.00"	29.25"	32.00"	37.00"	44.50"	51.75"
Weight(Lbs)	75.00	145.00	270.00	600.00	1125.0	1750.0	2450.0	2500.0	3500.0	4550.0	6100.0	11000	23000	32000
Center to Lever H	6.70"	9.70"	10.40"	-	-	-	-	-	-	-	-	-	-	-
Handle Length W	15.00"	17.00"	20.00"	-	-	-	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	15.00"	16.80"	18.80"	20.80"	21.90"	23.00"	26.00"	28.00"	32.00"	36.00"	45.00"
Handwheel Dia-W	-	-	-	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	45.00"

3PC/WELD, CLASS 600 TRUNNION REDUCED BORE VALVE - (FIG. NO. J6--/ N6--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
Bore Size (d)	1.50"	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	13.15"	15.16"	17.17"	19.17"	23.19"	28.94"
Weight(Lbs)	72.00	97.00	195.00	380.00	700.00	1250.0	1900.0	2600.0	3100.0	3900.0	5100.0	7500.0	16000	27500
Center to Lever H	6.20"	6.30"	6.70"	8.40"	-	-	-	-	-	-	-	-	-	-
Handle Length W	15.00"	15.00"	17.00"	20.00"	-	-	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	-	15.00"	16.80"	18.80"	20.80"	21.90"	23.00"	26.00"	28.00"	32.00"	36.00"
Handwheel Dia W	-	-	-	-	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"

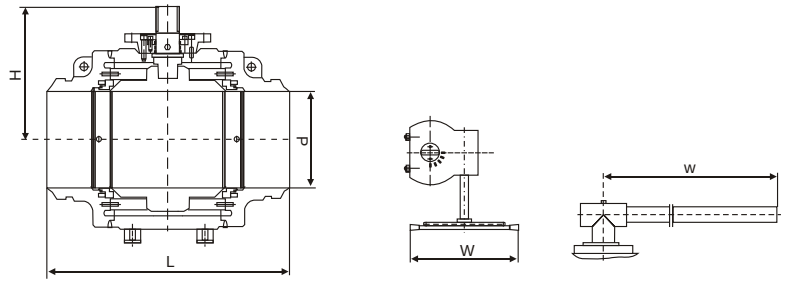
3PC/WELD, CLASS 900 TRUNNION FULL BORE VALVE (FIG NO. H9--/ M9--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Bore Size (d)	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	12.68"	14.69"	16.65"	18.54"	22.44"
RF Face to Face	14.50"	15.00"	18.00"	24.00"	29.00"	33.00"	38.00"	40.50"	44.50"	48.00"	52.00"	61.00"
RJ End to End	14.63"	15.13"	18.13"	24.13"	29.13"	33.13"	38.13"	40.88"	44.88"	48.50"	52.50"	61.75"
BW End to End	14.50"	15.00"	18.00"	24.00"	29.00"	33.00"	38.00"	40.50"	44.50"	48.00"	52.00"	61.00"
Flange OD	8.50"	9.50"	11.50"	15.00"	18.50"	21.50"	24.00"	25.25"	27.75"	31.00"	33.75"	41.00"
Weight(Lbs)	115.00	175.00	330.00	875.00	1400.0	2300.0	3500.0	4400.0	6300.0	9000.0	11400	19000
Center to Lever H	7.00"	10.00"	11.40"	-	-	-	-	-	-	-	-	-
Handle Length W	15.00"	17.00"	28.00"	-	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	15.50"	17.20"	20.70"	21.70"	24.90"	26.00"	28.00"	30.00"	34.00"
Handwheel Dia-W	-	-	-	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"

3PC/WELD, CLASS 900 TRUNNION REDUCED BORE VALVE - (FIG. NO. J9--/ N9--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Bore Size (d)	1.50"	1.93"	2.91"	3.94"	5.91"	7.91"	9.92"	11.93"	12.68"	14.69"	16.65"	18.54"
Weight(Lbs)	110.00	130.00	230.00	465.00	1050.0	1200.0	2700.0	3750.0	4650.0	6450.0	9150.0	12000
Center to Lever H	6.90"	7.00"	10.00"	11.40"	-	-	-	-	-	-	-	-
Handle Length W	15.00"	15.00"	17.00"	28.00"	-	-	-	-	-	-	-	-
Center to Gear H	-	-	-	-	15.50"	17.20"	20.70"	21.70"	24.90"	26.00"	28.00"	30.00"
Handwheel Dia W	-	-	-	-	23.62"	27.56"	39.38"	39.38"	39.38"	39.38"	39.38"	39.38"

DIMENSIONS & WEIGHTS



3PC/WELD, CLASS 1500 TRUNNION FULL BORE VALVE (FIG NO. H15--/ M15--)

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Bore Size (d)	1.93"	2.91"	3.94"	5.67"	7.56"	9.50"	11.30"	12.00"	14.25"	15.94"	17.91"	20.87"
RF Face to Face	14.50"	18.50"	21.50"	27.75"	32.75"	39.00"	44.50"	49.50"	54.50"	60.50"	65.50"	80.50"
RJ End to End	14.63"	18.63"	21.63"	28.00"	33.13"	39.38"	45.13"	50.25"	55.38"	61.38"	66.38"	81.63"
BW End to End	14.50"	18.50"	21.50"	27.75"	32.75"	39.00"	44.50"	49.50"	54.50"	60.50"	65.50"	80.50"
Flange OD	8.50"	10.50"	12.25"	15.50"	19.00"	23.00"	26.50"	29.50"	32.50"	36.00"	38.75"	46.00"
Weight(Lbs)	120.00	230	390	1150	2000	3400	5300	6400	9250	13500	16500	28000
Center to Lever H	6.30"	7.68"	11.50"	-	-	-	-	-	-	-	-	-
Handle Length W	29.20"	37.20"	43.20"	-	-	-	-	-	-	-	-	-
Center to Gear H	-	12.79"	14.00"	15.30"	18.75"	19.40"	21.00"	22.50"	24.00"	25.80"	28.90"	30.90"
Handwheel Dia-W	-	20.00"	20.00"	24.00"	28.00"	30.00"	40.00"	40.00"	40.00"	40.00"	40.00"	40.00"

3PC/WELD, CLASS 1500 TRUNNION REDUCED BORE VALVE - (FIG. NO. J15--/ N15--)

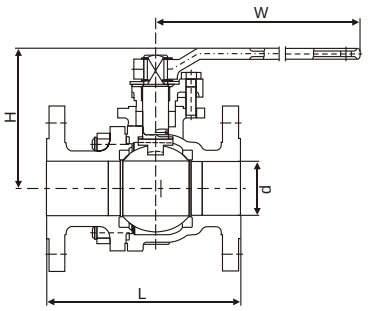
Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Bore Size (d)	1.50"	1.93"	2.91"	3.94"	5.67"	7.56"	9.50"	11.30"	12.00"	14.25"	15.94"	17.91"
Weight(Lbs)	115.00	165.00	290.00	600.00	1350.0	2700.0	4300.0	5600.0	6700.0	9700.0	14000	21000
Center to Lever H	5.90"	6.30"	7.68"	11.50"								
Handle Length W	29.20"	37.20"	37.2"	43.20"								
Center to Gear H	-	-	12.79"	14.00"	15.30"	18.75"	19.40"	21.00"	22.50"	24.00"	25.80"	28.90"
Handwheel Dia W	-	-	20.00"	20.00"	24.00"	30.00"	30.00"	40.00"	40.00"	40.00"	40.00"	40.00"

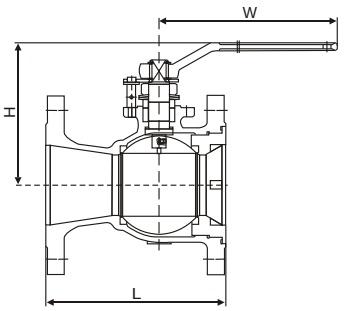
3PC/WELD, CLASS 2500 TRUNNION FULL BORE VALVE (FIG NO. H25--/M25--)

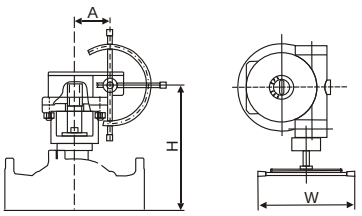
Valve Size	2"	3"	4"	6"	8"	10"	12"
Bore Size (d)	1.65"	2.44"	3.43"	5.16"	7.05"	8.78"	10.43"
RF Face to Face	17.76"	22.76"	26.50"	35.98"	40.24"	50.00"	55.98"
RJ End to End	17.87"	22.99"	26.89"	36.50"	40.87"	50.87"	56.89"
BW End to End	17.87"	22.99"	26.89"	36.50"	40.87"	50.87"	56.89"
Flange OD	9.25"	12.00"	14.00"	19.00"	21.75"	26.50"	30.00"
Weight(Lbs)	194.00	410.00	830.00	1600.00	2790.00	4500.00	7000.00
Center to Gear H	9.65"	12.00"	13.00"	17.00"	19.75"	22.40"	25.00"
Handwheel Dia-W	20.00"	20.00"	20.00"	24.00"	28.00"	30.00"	40.00"

3PC/WELD, CLASS 2500 TRUNNION REDUCED BORE VALVE - (FIG. NO. J25--/ N25--)

Valve Size	2"	3"	4"	6"	8"	10"	12"
Bore Size (d)	1.50"	2.00"	3.00"	4.00"	5.75"	7.63"	9.50"
Weight(Lbs)	140.00	335.00	560.00	1050.00	2200.00	3600.0	5500.0
Center to Lever H	5.90"	-	-	-	-	-	-
Handle Length W	29.20"	-	-	-	-	-	-
Center to Gear H	9.75"	9.65"	12.00"	13.00"	17.00"	19.75"	22.40"
Handwheel Dia W	20.00"	20.00"	20.00"	20.00"	24.00"	28.00"	30.00"







CLASS 150# FLOATING BALL TYPE R B (FIG NO. A1--)

Valve Size	1/2"	3/4"	1"	1-1/2"	2"	3"	4"	6"	8"
Bore Size (d)	0.39"	0.5"	0.79"	1.00"	1.50"	2.50"	3.00"	4.00"	5.60"
RF Face to Face	4.25"	4.625"	5.00"	6.50"	7.00"	8.00"	9.00"	10.50"	11.50"
Weight (Lbs)	4.00	6.00	7.00	12.00	19.00	26.00	59.00	115	190.00
Center to Lever H	3.3"	3.5"	3.75"	4.75"	5.15"	7.3"	8.3"	11.6"	13.2"
Handle Length W	5.1"	5.1"	5.5"	9.85"	9.85"	15.75"	17.7"	41.5"	59"

CLASS 150# FLOATER - F B (FIG NO. B1--)

Valve Size	1/2"	3/4"	1"	1-1/2"	2"	2-1/2"	3"	4"	6"	8"
Bore Size (d)	0.50"	0.75"	1.00"	1.50"	2.00"	2.50"	3.00"	4.00"	6.00"	8.00"
RF Face to Face	4.25"	4.625"	5.00"	6.50"	7.00"	7.50"	8.00"	9.00"	15.50"	18.00"
Weight (Lbs)	5.00	6.00	9.00	17.00	23.00	39.00	53.00"	82.00	185	331.00
Center to Lever H	3.3"	3.5"	3.75"	4.75"	5.15"	6.3"	7.3"	8.3"	11.6"	13.2"
Handle Length W	5.1"	5.1"	5.5"	9.85"	9.85"	15.75"	15.75"	17.7"	41.5"	59"

CLASS 150# FLOATER - R B (FIG NO. C1--)

Valve Size	2"	3"	4"	6"	8"	10"
Bore Size (d)	1.50"	2.00"	3.00"	4.00"	6.00"	8.00"
RF Face to Face	7.00"	8.00"	9.00"	10.50"	11.50"	13.00"
Weight (Lbs)	19.00	34.00	59.00	110.00	180.00	350.00
Center to Lever H	4.75"	5.15"	7.3"	8.3"	11.6"	13.2"
Handle Length W	9.85"	9.85"	15.75"	17.7"	41.5"	59"

CLASS 300 FLOATER - F B (FIG NO. B3--)

CLASS 300 FLOATER - RB (FIG NO. C3--)

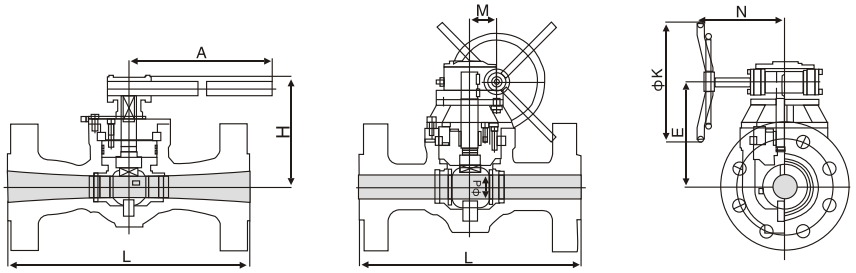
Valve Size	1/2"	3/4"	1"	1-1/2"	2"	3"	4"	6"	8"	2"	3"	2"	4"	6"	8"	10"
Bore Size (d)	0.50"	0.75"	1.00"	1.50"	2.00"	3.00"	4.00"	6.00"	8.00"	1.50"	2.00"	1.50"	3.00"	4.00"	6.00"	8.00"
RF Face to Face	5.50"	6.00"	6.50"	7.50"	8.50"	11.125"	12.00"	15.875"	19.75"	8.50"	11.125"	8.50"	12.00"	15.875"	16.50"	18.00"
Weight (Lbs)	6.00	9.00	12.00	23.00	31.00	72.00	110.00	238.00	406.00	26.00	52.00	26.00	61.00	143.00	309.00	463.00
Center to Lever H	3.4"	3.6"	3.85"	4.95"	5.35"	7.5"	8.5"	11.9"	13.5"	4.95"	5.35"	4.95"	7.5"	8.5"	11.9"	13.5"
Handle Length W	5.1"	5.1"	5.5"	9.85"	9.85"	15.75"	17.7"	41.5"	59"	9.85"	9.85"	9.85"	15.75"	17.7"	41.5"	59"

CLASS 600# FLOATER - F B (FIG NO. B6--)

CLASS 600# FLOATER - R B (FIG NO. C6--)

Valve Size	1"	1-1/2	2"	3"	2"	3"	4"
Bore Size (d)	1.00"	1.50"	2.00"	3.00"	1.50"	2.00"	3.00"
RF Face to Face	8.50"	9.50"	11.50"	14.00"	11.50"	14.00"	17.00"
RJ Face to Face	8.50"	9.50"	11.62"	14.12"	11.62"	14.12"	17.12"
Weight (Lbs)	15.00	28.00	60.00	117.00	33.00	95.00	125.00
Center to Lever H	4.1"	4.95"	5.55"	7.7"	4.95"	5.55"	7.7"
Handle Length W	8.7"	9.9"	9.9"	13.8"	9.9"	9.9"	13.8"

DIMENSIONS & WEIGHTS



CLASS 150 FULL BORE VALVE(FIG. NO. K1--)

Valve Size		6"	8"	10"	12"	14"	16"	18"	20"	24"	30"
Bore Size (d)		6.00"	8.00"	10.00"	12.00"	13.25"	15.25"	17.25"	19.25"	23.25"	28.98"
RF Face to Face		15.50"	18.00"	21.00"	24.00"	27.00"	30.00"	34.00"	36.00"	42.00"	65.00"
BW End to End		18.00"	20.50"	22.00"	25.00"	30.00"	33.00"	36.00"	39.00"	45.00"	65.00"
RJ Face to Face		16.00"	18.00"	21.50"	24.50"	27.50"	30.50"	34.50"	36.50"	42.50"	65.50"
LEVER	A	31.50"	39.40"	-	-	-	-	-	-	-	-
	H	10.85"	12.60"	-	-	-	-	-	-	-	-
	E	11.61"	13.00"	15.75"	17.13"	19.69"	22.09"	23.62"	25.98"	29.60"	34.10"
GEAR	M	1.98"	1.97"	2.32"	2.72"	2.72"	3.90"	3.90"	5.00"	5.00"	7.50"
	N	2.10"	2.10"	5.63"	6.58"	6.58"	10.35"	10.35"	11.69"	11.69"	22.83"
	ΦK	7.90"	7.90"	11.81"	15.75"	15.75"	23.62	23.62"	27.56"	27.56"	29.60"
Weight(Kgs)		235	430	475	610	795	1160	1570	2000	3300	5820

CLASS 150 REDUCED BORE VALVE(FIG. NO. L1--)

Valve Size		8" x 6"	10" x 8"	12" x 10"	14" x 12"	16" x 14"	18" x 16"	20" x 18"	24" x 20"	30" x 24"
Bore Size (d)		6.00"	8.00"	10.00"	12.00"	13.25"	15.25"	17.25"	19.25"	23.25"
LEVER	A	31.50"	39.40"	-	-	-	-	-	-	-
	H	10.85"	12.60"	-	-	-	-	-	-	-
	E	11.61"	13.00"	15.75"	17.13"	19.69"	22.09"	23.62"	25.98"	29.98"
GEAR	M	1.98"	1.98"	2.32"	2.72"	2.72"	3.90"	3.90"	5.00"	7.50"
	N	2.10"	2.10"	5.63"	6.58"	6.58"	10.35"	10.35"	11.69"	22.80"
	ΦK	7.90"	7.90"	11.81"	15.75"	15.75"	23.62	23.62"	27.56"	29.60"
Weight(Kgs)		265	480	510	820	955	1295	1800	2440	4100

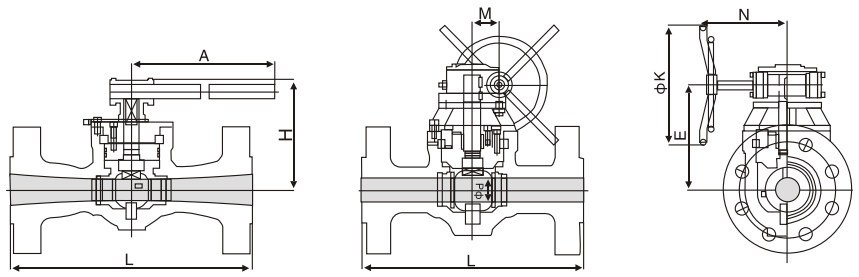
CLASS 300 FULL BORE VALVE(FIG. NO. K3--)

Valve Size		6"	8"	10"	12"	14"	16"	18"	20"	24"	30"
Bore Size (d)		6.00"	8.00"	10.00"	12.00"	13.25"	15.25"	17.25"	19.25"	23.25"	28.98"
RF Face to Face		15.90"	19.75"	24.40"	25.50"	30.00"	33.00"	36.00"	39.00"	45.00"	65.00"
BW End to End		18.00"	20.50"	22.00"	25.00"	30.00"	33.00"	36.00"	39.00"	45.00"	65.50"
RJ Face to Face		16.50"	20.38"	23.00"	26.13"	30.63"	33.63"	36.63"	39.75"	45.88"	65.00"
LEVER	A	31.50"	39.40"	-	-	-	-	-	-	-	-
	H	10.85"	12.60"	-	-	-	-	-	-	-	-
	E	11.61"	13.00"	15.75"	17.13"	19.69"	22.09"	23.62"	25.98"	29.60"	34.05"
GEAR	M	1.98"	1.98"	2.32"	2.72"	3.90"	5.00"	5.00"	5.00"	5.00"	7.50"
	N	2.10"	2.10"	5.63"	6.58"	10.35"	11.70"	11.70"	11.70"	11.70"	22.80"
	ΦK	7.90"	7.90"	11.81"	15.75"	23.62"	27.56"	27.56"	27.56"	27.56"	29.60"
Weight(Kgs)		275	505	557	715	932	1360	1840	2340	3870	6825

CLASS 300 REDUCED BORE VALVE(FIG. NO. L3--)

Valve Size		8" x 6"	10" x 8"	12" x 10"	14" x 12"	16" x 14"	18" x 16"	20" x 18"	24" x 20"	30" x 24"
Bore Size (d)		6.00"	8.00"	10.00"	12.00"	13.25"	15.25"	17.25"	19.25"	23.25"
LEVER	A	31.50"	39.40"	-	-	-	-	-	-	-
	H	10.85"	12.60"	-	-	-	-	-	-	-
	E	11.61"	13.00"	15.75"	17.13"	19.69"	22.09"	23.62"	25.98"	30.58"
GEAR	M	1.98"	1.98"	2.32"	2.72"	3.90"	5.00"	5.00"	5.00"	7.50"
	N	2.10"	2.10"	5.63"	6.58"	10.35"	11.70"	11.70"	11.70"	23.00"
	ΦK	7.90"	7.90"	11.81"	15.75"	23.62"	23.62"	27.56"	27.56"	29.60"
Weight(Kgs)		311	563	596	960	1120	1518	2110	2860	4810

DIMENSIONS & WEIGHTS



CLASS 600 FULL BORE VALVE (FIG. NO. K6--)

Valve Size		2"	3"	4"	6"	8"	10"	12"	14"	16"
Bore Size (d)		2.00"	3.00"	4.00"	6.00"	8.00"	10.00"	12.00"	13.25"	15.25"
RF Face to Face		11.50"	14.00"	17.00"	22.00"	26.00"	31.00"	33.00"	35.00"	39.00"
BW End to End		11.50"	14.00"	17.00"	22.00"	26.00"	31.00"	33.00"	35.00"	39.00"
RJ Face to Face		11.63"	14.13"	17.13"	22.13"	26.13"	31.13"	33.13"	35.13"	39.13"
LEVER	A	23.62"	23.63"	31.50"	39.37"	-	-	-	-	-
	H	6.10"	9.06"	11.10"	11.81"	-	-	-	-	-
	E	-	-	10.98"	12.60"	15.35"	17.01"	18.90"	20.70	20.70
GEAR	M	-	-	2.32"	2.32"	2.32"	2.72"	3.27"	5.00"	6.25"
	N	-	-	5.63"	5.63"	5.63"	6.58"	7.60"	8.10"	8.80"
	ΦK	-	-	11.80"	11.80"	11.80"	15.75"	16.70"	22.00"	22.00"
Weight(Kgs)		37	72	137	302	560	710	910	1190	1735

CLASS 600 REDUCED BORE VALVE(FIG. NO. L6--)

Valve Size		3" x 2"	4" x 3"	6" x 4"	8" x 6"	10" x 8"	12" x 10"	14" x 12"	16" x 14"
Bore Size (d)		2.00"	3.00"	4.00"	6.00"	8.00"	10"	12'	13.25"
LEVER	A	23.62"	23.62"	31.50"	39.37"	-	-	-	-
	H	6.10"	9.06"	11.10"	11.81"	-	-	-	-
	E	-	-	10.98"	12.60"	15.35"	17.01"	18.90"	20.70"
GEAR	M	-	-	2.32"	2.32"	2.32"	2.72"	3.27"	5.00"
	N	-	-	5.63"	5.63"	5.63"	6.58"	7.60"	8.10"
	ΦK	-	-	11.81"	11.81"	11.81"	15.75"	16.70"	22.00"
Weight(Kgs)		48	97	181	340	625	760	1230	1430

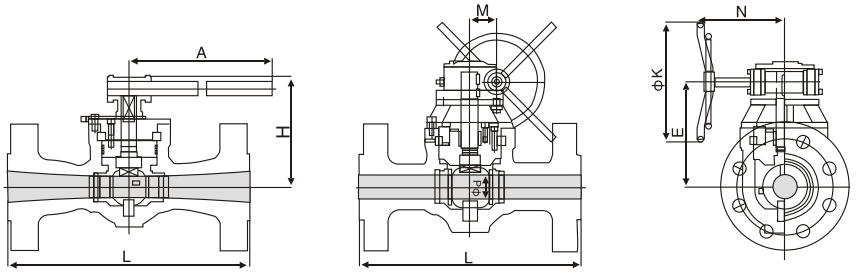
CLASS 900 FULL BORE VALVE(FIG. NO. K9--)

Valve Size		2"	3"	4"	6"	8"	10"	12"
Bore Size (d)		2.00"	3.00"	4.00"	6.00"	8.00"	10.00"	12.00"
RF Face to Face		11.50"	15.00"	18.00"	24.00"	29.00"	33.00"	38.00"
BW End to End		11.50"	15.00"	18.00"	24.00"	29.00"	33.00"	38.00"
RJ Face to Face		14.63"	15.13"	18.13"	24.13"	29.13"	33.13"	38.13"
LEVER	A	23.62"	31.50"	-	-	-	-	-
	H	6.30"	9.92"	-	-	-	-	-
	E	-	-	11.81"	13.39"	15.75"	18.90"	21.65"
GEAR	M	-	-	2.32"	2.32"	2.72"	3.27"	5.00"
	N	-	-	5.63"	5.63"	6.58"	7.60"	11.69"
	ΦK	-	-	11.81"	11.81"	15.75"	19.69"	27.56"
Weight(Kgs)		-	-	-	-	-	-	-

CLASS 900 REDUCED BORE VALVE(FIG. NO.L9--)

Valve Size		3" x 2"	4" x 3"	6" x 4"	8" x 6"	10" x 8"	12" x 10"
Bore Size (d)		2.00"	3.00"	4.00"	6.00"	8.00"	10"
LEVER	A	23.62"	31.50"	-	-	-	-
	H	6.30"	9.95"	-	-	-	-
	E	-	-	11.81"	13.39"	15.75"	18.90"
GEAR	M	-	-	2.32"	2.32"	2.72"	3.27"
	N	-	-	5.63"	5.63"	6.58"	7.60"
	ΦK	-	-	11.81"	11.81"	15.75"	19.69"
Weight(Kgs)		-	-	-	-	-	-

DIMENSIONS & WEIGHTS



CLASS 1500 FULL BORE VALVE(FIG. NO. K15--)

Valve Size		2"	3"	4"	6"	8"	10"	12"
Bore Size (d)		2.00"	3.00"	4.00"	6.00"	8.00"	10.00"	12.00"
RF Face to Face		14.50"	18.50"	21.50"	27.75"	32.75"	39.00"	44.50"
BW End to End		14.50"	18.50"	21.50"	27.75"	32.75"	39.00"	44.50"
RJ Face to Face		14.63"	18.63"	21.63"	28.00"	33.13"	39.38"	45.13"
LEVER	A	31.50"	39.37"	-	-	-	-	-
	H	7.87"	9.92"	-	-	-	-	-
	E	-	-	11.81"	13.39"	15.75"	18.90"	24.80"
GEAR	M	-	-	2.32"	2.32"	3.27"	5.00"	5.00"
	N	-	-	5.63"	5.63"	7.60"	11.69"	11.69"
	ΦK	-	-	11.81"	11.81"	16.69"	27.56"	27.56"
Weight(Kgs)		-	-	-	-	-	-	-

CLASS 1500 REDUCED BORE VALVE(FIG. NO. L15--)

Valve Size		3" x 2"	4" x 3"	6" x 4"	8" x 6"	10" x 8"	12" x 10"
Bore Size (d)		2.00"	3.00"	4.00"	6.00"	8.00"	10.00"
LEVER	A	31.50"	39.37"	-	-	-	-
	H	7.87"	9.92"	-	-	-	-
	E	-	-	11.81"	11.81"	15.75"	18.90"
GEAR	M	-	-	2.32"	2.32"	3.27"	5.00"
	N	-	-	5.63"	5.63"	7.60"	11.69"
	ΦK	-	-	11.81"	11.81"	19.69"	27.56"
Weight(Kgs)		-	-	-	-	-	-

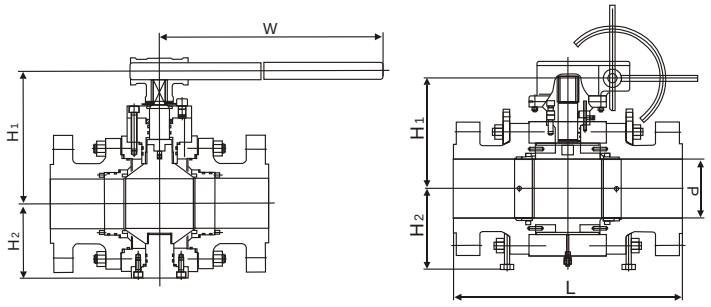
CLASS 2500 FULL BORE VALVE(FIG. NO. K325--)

Valve Size		2"	3"	4"	6"	8"	10"	12"
Bore Size (d)		2.00"	3.00"	4.00"	6.00"	8.00"	10.00"	12.00"
RF Face to Face		17.75"	22.75"	26.50"	36.00"	40.50"	50.00"	56.00"
BW End to End		17.75"	22.75"	26.50"	36.00"	40.50"	50.00"	56.00"
RJ Face to Face		17.88"	23.00"	26.88"	36.50"	40.88"	50.88"	56.88"
LEVER	A	39.37"	-	-	-	-	-	-
	H	7.87"	-	-	-	-	-	-
	E	-	9.10"	2.60"	14.96"	18.11"	20.47"	24.88"
GEAR	M	-	2.32"	2.32"	2.72"	3.27"	5.00"	5.00"
	N	-	5.63"	5.63"	6.58"	7.60"	11.69"	11.69"
	ΦK	-	11.81"	11.81"	15.75"	19.69"	27.56"	27.56"
Weight(Kgs)		-	-	-	-	-	-	-

CLASS 2500 REDUCED BORE VALVE(FIG. NO. L25--)

Valve Size		3" x 2"	4" x 3"	6" x 4"	8" x 6"	10" x 8"	12" x 10"
Bore Size (d)		2.00"	3.00"	4.00"	6.00"	8.00"	10"
LEVER	A	39.37"	-	-	-	-	-
	H	7.87"	-	-	-	-	-
	E	-	9.10"	12.60"	14.96"	18.11"	20.47"
GEAR	M	-	2.32"	2.32"	2.72"	3.27"	5.00"
	N	-	5.63"	5.63"	6.58"	7.60"	11.69"
	ΦK	-	11.81"	11.81"	15.75"	19.69"	27.56"
Weight(Kgs)		-	-	-	-	-	-

DIMENSIONS & WEIGHTS



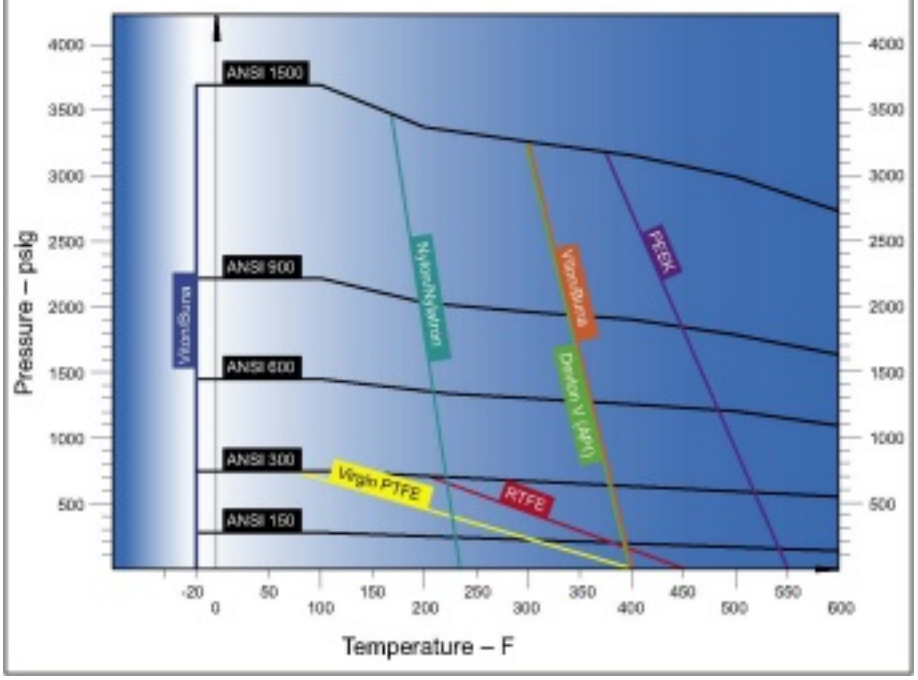
CLASS 150-300(FIG. NO. H1/H3--)

NPS		ASME 150-300				
In mm	d	L	H1	H2	W	Kg
2	2	7	6.02	6.5	15.74	28
3	3	8	7.68	8.03	23.63	55
4	4	9	8.39	8.54	33.46	80
2	2	8.5	6.02	6.5	15.74	30
3	3	11.125	7.68	8.03	23.63	60
4	4	12	8.39	8.54	33.46	100

CLASS 600-900(FIG. NO. H6/H9--)

NPS		ASME 600-900				
In mm	d	L	H1	H2	W	Kg
2	2	11.05	6.59	5.55	23.15	32
3	3	14	8.21	6.57	49.25	64
4	4	17	9.61	7.97	51.22	122
2	2	14.5	6.59	5.55	23.15	48
3	3	15	8.21	6.57	49.25	78
4	4	18	-	7.97	-	138

SOFT SEAT MATERIAL PRESSURE/TEMPERATURE CHART



GEAR OPERATORS

Petrostar gate and globe valves are supplied with fully-enclosed bevel gear operators as a standard for sizes and class ratings as show in the table below. Gear operators are available as an option in other sizes too.

GEAR OPERATOR SELECTION

VALVE TYPE	ASME CLASS	API 600		ASME B 16.34	
		STANDARD	OPTIONAL	STANDARD	OPTIONAL
GATE	150	24"& above	14"- 20"	-	-
	300	20"& above	14"-18"	-	-
	600	16"& above	8"-14"	-	-
	900	8"& above	-	10"& above	6"& 8"
	1500	6"& above	-	10"& above	6"& 8"
	2500	-	-	8"& above	6"
GLOBE	150	10"& above	-	-	-
	300	10"& above	-	-	-
	600	6"& above	-	-	-
	900	-	-	-	-
	1500	-	-	-	-

ELECTRIC ACTUATORS

Electric actuators may be used with Petrostar valves in all sizes and class ratings. For correct selection of actuator, please specify details of line pressure, differential pressure when closed, power supplier requirements and actuator accessories.

BYPASS ARRANGEMENT

A bypass serves two purposes:

1.in steam services, to warm up the line before opening the main valve.

2.in steam and other lines, to balance the pressure on both sides of the main valve wedge or disc to bring down the valve opening torque.

As an option, almost all Petrostar valves can be furnished with bypass. The bypass can be a gate valve or a globe valve, with a pressure/temperature rating and material equal to that of main valve.

SIZE CHART

MAIN VALVE	2" to 4"	5" to 8"	10" or higher	ASME B 16.34
BYPASS VALVE	1/2"	3/4"	1"	

The bypass is installed to the side of the main valve with the stems of both valves in parallel and pointing upward.

LANTERN RING

A lantern ring is used to provide further integrity to the gland packing area in gate and globe valves, to prevent escape of medium to the atmosphere. This finds application in stringent environmental conditions or in the case of potentially harmful medium.

The lantern ring is provided between two sets of packing rings, with a leak-off plug that gives the option of removal of possible leakage, from the lower packing rings. And a sealing fluid can be introduced through the plug to prevent incidental leakage through the lower packing rings.

Lantern rings serve a useful purpose. But, since they are a possible source of shaft scoring, it is advisable to restrict their usage to essential applications.

POSITION INDICATORS

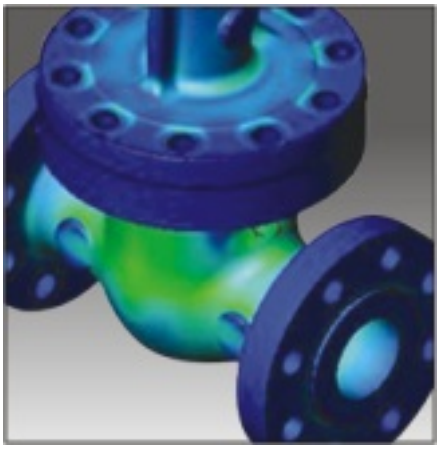
Valves can be provided with position indicators as a visible means to indicate the “open” and “closed” positions. Typically, for gate valves, the indicator is in the form of a pointer traveling along a fixed scale.

LOCKING DEVICES

Locking devices are used to secure a hand wheel in a fixed position, to prevent accidental operation of a valve. The locking arrangement typically allows the use of chain to secure the valve.

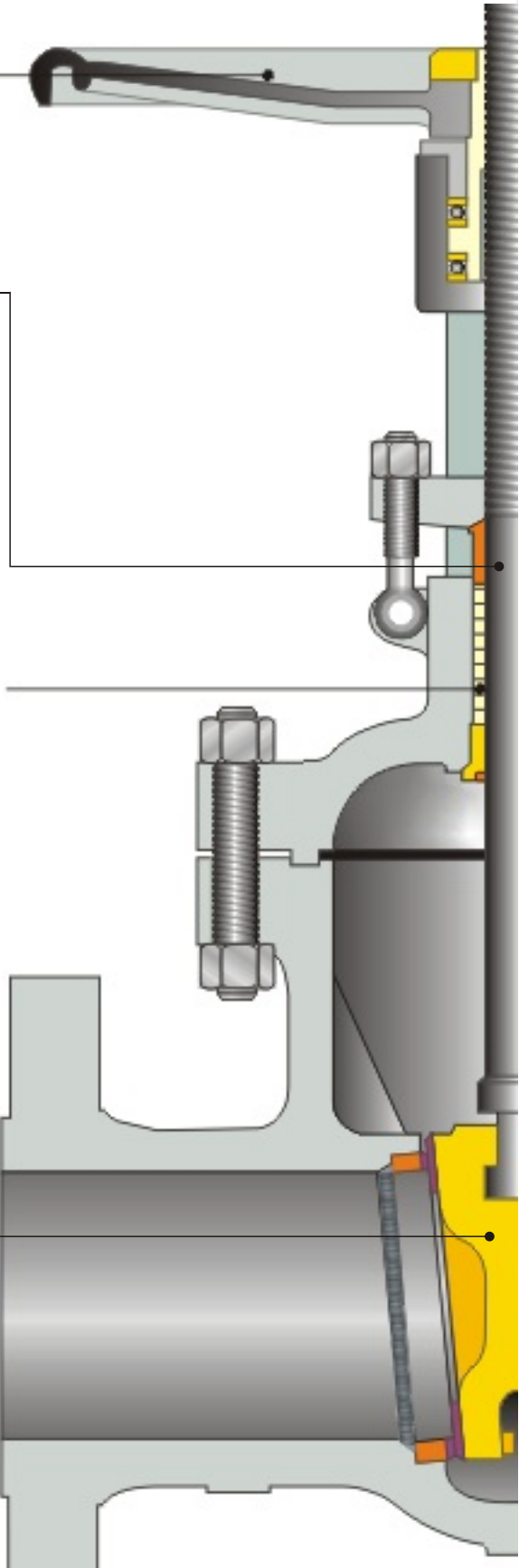
BS1414,API6D,API 600

Petrostar gate valve is offered in a variety of material to suit different requirements. These material includes carbon steel (standard), alloy steel and stainless steel for body and bonnet. Special material like duplex SS is still available. Material of trim is offered with API trim No. 1, trim No. 2, trim No. 5, trim No. 5, trim No. 8 and trim No. 10. For special trim material, please contact us for details.



BODY MATERIAL AND WORKING TEMPERATURE

MATERIAL CLASSIFICATION	ASTM SPECIFICATION	WORKING TEMPERATURE
Carbon Steel	ASTM A216 Gr.WCB	-29℃to 427℃(-200F to 8000F)
1-1/4 Cr -1/2 Mo	ASTM A217 Gr.WC6	-29℃to 593℃(-200F to 11000F)
2-1/4 Cr -1 Mo	ASTM A217 Gr.WC9	-29℃to 593℃(-200F to 11000F)
5 Cr - 1/2 Mo	ASTM A217 Gr.C5	-29℃to 649℃(-200F to 12000F)
9 Cr - 1 Mo	ASTM A217 Gr.C12	-29℃to 649℃(-200F to 12000F)
9 Cr - 1 Mo-1/4 V	ASTM A217 Gr.C12A	-29℃to 649℃(-200F to 12000F)
Low-temperature Steel	ASTM A352 Gr.LCB/LCC	-46℃to 343℃(-500F to 6500F)
Austenitic Stainless Steel 18-8 (Type 304)	ASTM A351 Gr.CF8	-196℃to 649℃(-3200F to 12000F)
Austenitic Stainless Steel 16Cr-12Ni-2Mo (Type 316)	ASTM A351 Gr.CF8M	-196℃to 649℃(-3200F to 12000F)



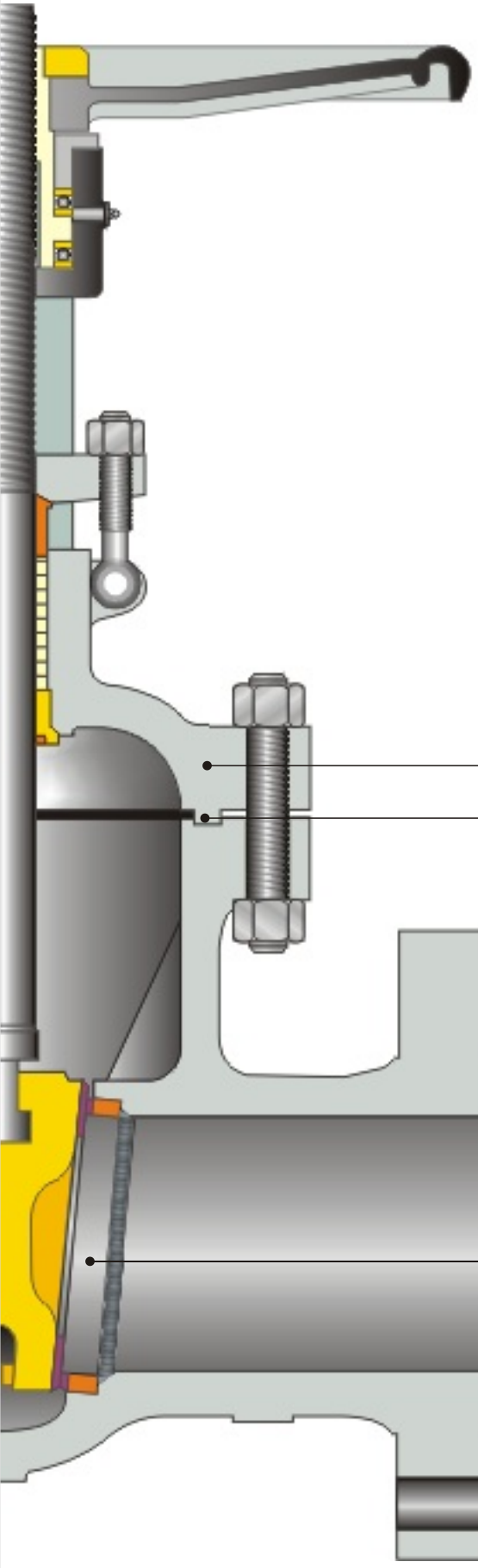
Stem

Petrostar gate valves feature a stem of non-piece construction, ACME threaded and precision-machined with polished surfaces to reduce friction, minimize leakage and extend stem life.

In gate valves, the heavy forged T-head engages with the T-slot in the wedge. The stem also has an integral self-adjusting radial back-seat shoulder that matches with the back-seat bush in the bonnet.

Flexible Wedge

Petrostar gate valves feature a one-piece cast flexible wedge that minimizes stress concentration. Wedge flexibility ensures tight seating over a wide range of differential pressures and temperatures. It also adjusts to slight misalignments caused by pipeline deflections and thermal deformation. The stem-to-wedge thrust is applied close to the wedge centre, This reduces lateral stem loading and provides for more accurate wedge movement.



Body and Bonnet

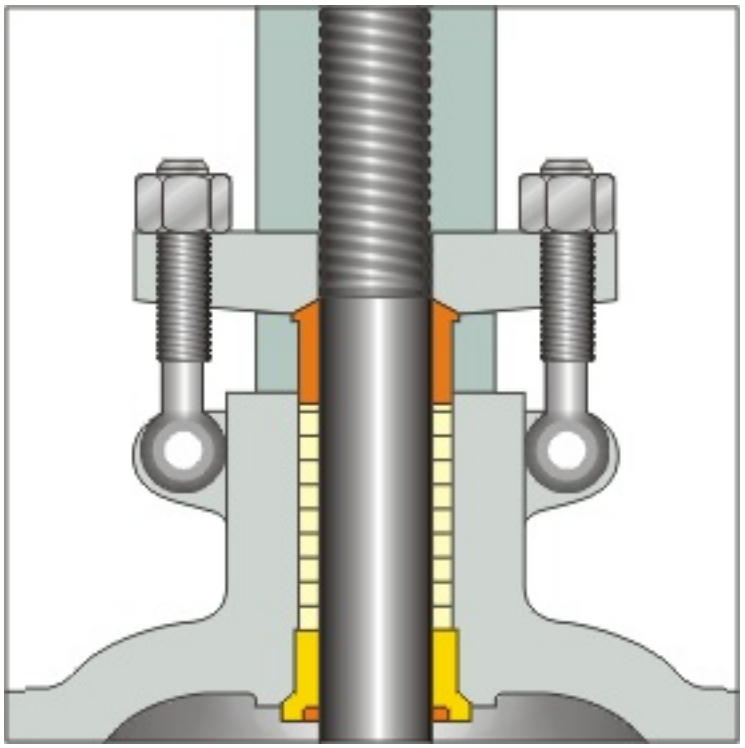
The body and bonnet are cast with uniform section and generous radius fillets to prevent stress concentration. The castings are precision-machined for high performance.

The gate valve body has a straight through port without recesses except at the seat area. This ensures minimum turbulence, erosion and resistance to flow. Long integral guide ride in the body match with guide slots in the wedge for accurate alignment and guidance. Bonnet castings are of one-piece design, where the yoke is integral with the bonnet for gate valves of sizes up to 12" (300mm). This ensures accurate alignment of stem and a smooth operation.

Seat Ring

Petrostar gate valves feature a seal-welded seat ring that offers a leakproof design as it eliminates the leakage path between the seat ring and the body. This design is superior to threaded seats which can loosen up due to temperature fluctuations, corrosion or vibration and result in leakage. Threaded seat rings are optional, For 50mm gate valves, the seat ring is flared into the body, while seal welding is optional.

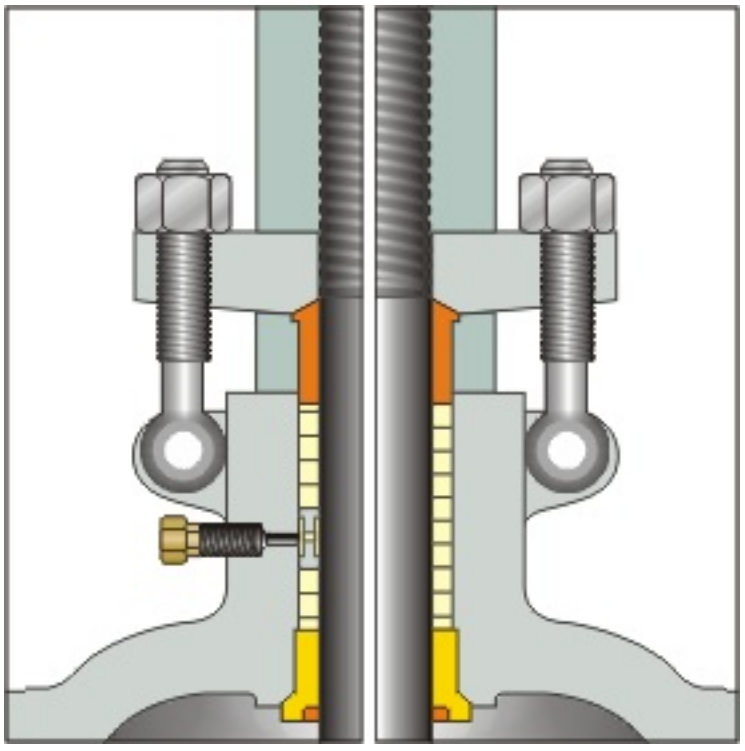
Petrostar now offers standard cast steel bolted bonnet gate and globe valves qualification tested for compliance with EPA fugitive emissions regulations



Standard Stem

The Petrostar stem seal evolved from these test findings:

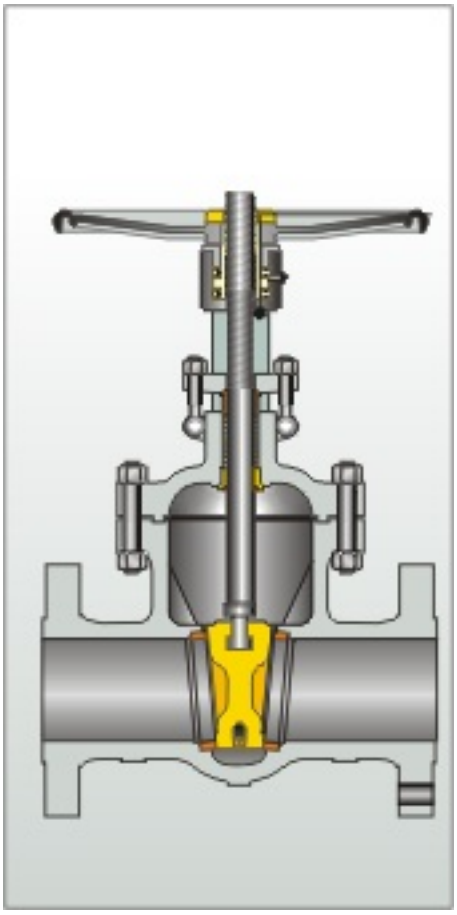
- Ensures leakage of less than 100 ppm as demonstrated through extensive laboratory testing.
- Large loads.
  Sealing is achieved when compression load is high and packing forms a mass of low porosity and permeability (4,000 psi for graphite).
- Small clearances between vital parts.
- Precision stem and packing chambers.
  Straightness, roundness and fine finish of stem and packing chamber wall are essential.
- Short and narrow packing chambers improve sealing.
  Maximum six rings in a single set chamber and wherever possible, only 1.4" wide.
- Stem and packing chamber walls.
  Close roundness, straightness and superior surface finish of 6 RMS or better for the stem and 63 RMS for the packing chamber.



Live-loading With leak-off

LIVE-LOADING OPTIONS

- Live-loading. Two sets springs maintain a permanent packing stress of 3500~4000 psi. Live-loading extends low emission service life especially in service with large pressure/ temperature transients or frequent cycling.
- Leak-off.
  For critical service a lantern ring and double packing can be provided with a leak-off connection. The leak-off is provided to allow collection of leakage from the lower packing set.
- Rings individually compressed in packing chamber to 3500~4000 psi for graphite and 2,000 psi PTFE to ensure equal stress distribution and effectiveness of all rings.



Cast Carbon, Stainless or Alloy Steel Bolted Bonnet Gate Valves, 2-60" (50-1500 mm) ASME Class 150, 300, 600, 900 and 1500

DESIGN SPECIFICATIONS

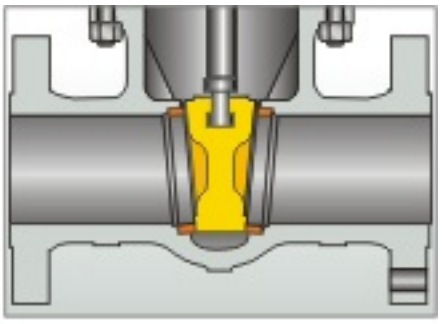
ITEM	APPLICABLE SPECIFICATION
Wall thickness and general valve design	API 600, API 6D, BS1414
Pressure-temperature rating	ASME B16.34
Face to face dimensions for butt weld and flanged valves	ASME B16.10
Flange design	ASME B16.5
Butt welding design	ASME B16.25
Test and Inspection	API 598

DESIGN FEATURES:

- Universal Trim. Petrostar provides wide ranges of Trim material including Trim 1 to very special alloys.
- Seat face Stellited, ground and lapped to a mirror finish.
- Flexible Wedge with low center stem-wedge contact, in solid 13 CR or hard faced with 13 CR, SS 316, Monel or Stellite. Wedge is ground and lapped to a mirror finish and tightly guided to prevent dragging and seat damage. A Stellite 6 hard faced CF8M wedge is also available.
- Non-rotating stem with precision Acme threads and burnished finish. Double Acme for faster operation.
- Larger diameter valves are provided with double bearing on hand wheel for smooth operation.
- Pressure seal bonnet design available in Class 900 and above rating valves.
- Body and bonnet castings are precision machined. One-piece bonnet up to 12" (300 mm) for better alignment and fewer parts.
- Gland has two-piece construction for easy alignment.
- Flanges:
  Finish 125-250 AARH for all valves.
- Rotating stem nut is ASTM B 62 renewable in line. Thrust bearings are supplied as follows:

  150-300: 10-12" (250-300 mm), 1 bearing (top),
  16" (400 mm) and up, two bearings
  600: 6" (150 mm) and up
  900-1500: 6" (150 mm) and up.

CAST STEEL VALVE DESIGN FEATURES



FLEXIBLE ROUND WEDGE PIONEERED BY PETROSTAR

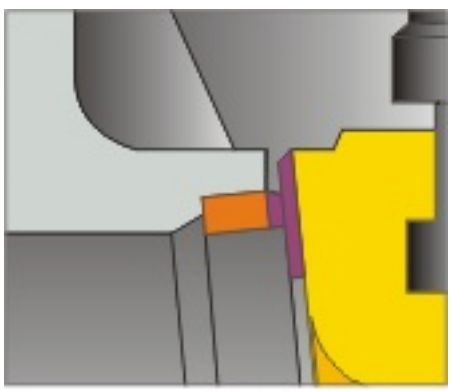
- Universal use for temperatures up to 1000°F (538°C).
- Flexibility compensates for seat face distortion.
- Compensates for deformation of body due to pipe stresses.
- Long cycle life.
- Ideal for processes with large temperature fluctuations.
- Assures valve tightness on both seats over wide range of pressures.
- Stem to wedge connection is inside the seating faces supporting the wedge ears during opening.

More robust with less mass.

CLASSICAL SOLID WEDGE ON COMPETITIVE DESIGNS

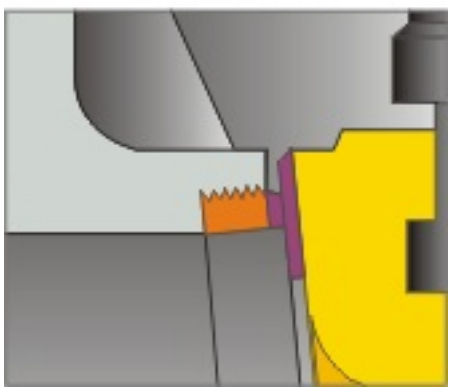
- Wedge may cause severe jamming at temperatures over 200°F (93°C).
- Suitable for small valves (1/2-2", 15/50mm).
- Wedge will stick when valve is closed hot and allowed to cool.
- No compensation for deformation of body due to pressure temperature or pipe stresses.
- Difficult to make valve tight on both seats due to seat face distortion.

SEAL WELDED SEATS VS SCREWED-IN SEATS



PETROSTAR STANDARD GROUND AND LAPPED SEAL WELDED SEAT RINGS FACED WITH STELLITE 6

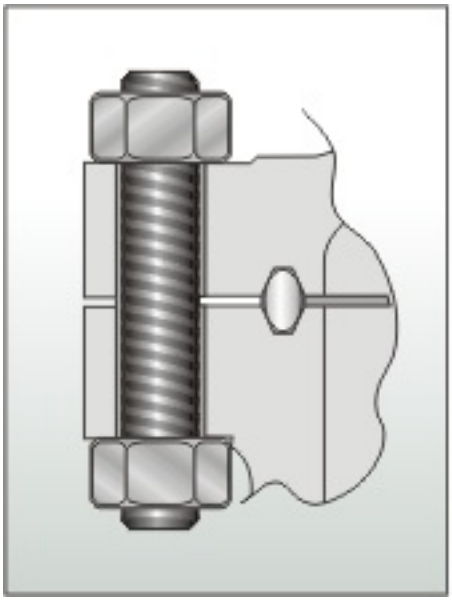
- Welded-in leakproof.
- Weld quality 100% tested.
- Stable performance.
- Ground and lapped to 2 RMS finish after weld-in.
- Standardized use for steam up to 1000°F (538°C), oil and gas.
- Easier to be replaced.



COMPETING SCREWED-IN SEATS

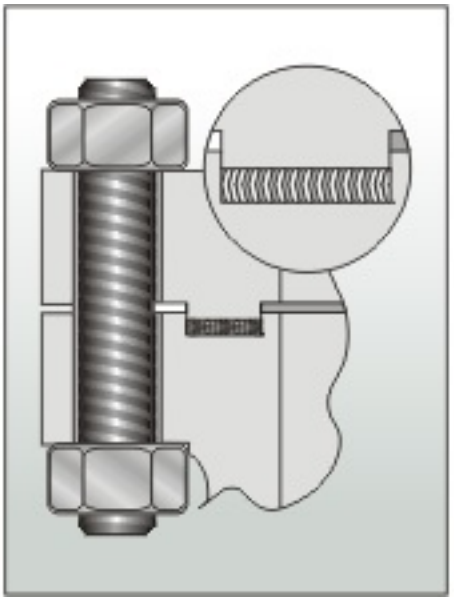
- Can loosen up due to corrosion and cause substantial leakage.
- Replacement is difficult if not impossible.
- Threads can corrode and cause leakage.
- Seat is unsecured from unscrewing.
- Seat can become loose due to temperature fluctuations, corrosion or vibration, and can leak.
- Not suitable for steam service. Steam and other fluids will wire draw body threads of loose seats beyond repair.

Body Gasket of Gate, Globe and Check valve



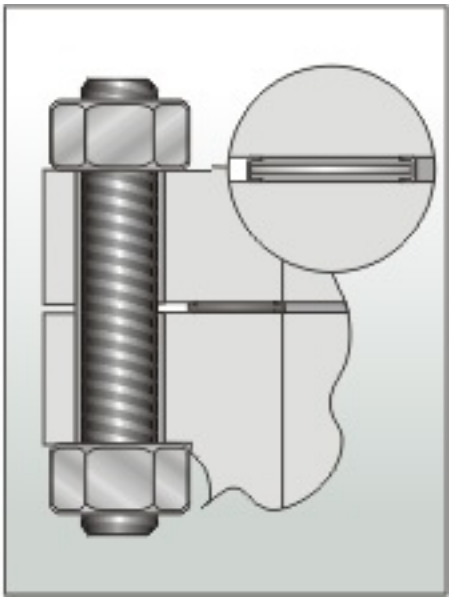
Structure 1:

For Class 900, Class 1500 and Class 2500



Structure 2:

For Class 300, Class 600 and Class 900



Structure 3:

For Class 150

GATE VALVE DIMENSIONS AND WEIGHT

CLASS 150 (FIG NO. GB1--)

SIZE	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30	32	36
L-RF	7.0	7.5	8.0	9.0	10.5	11.5	13	14	15	16	17	18	20.0	24.0	24.0	28.0	28.0
L-BW	8.5	9.5	11.1	12	15.9	16.5	18	19.8	22.5	24	26	28	32.0	36.0	36.0	38.0	40.0
L-RJ	7.5	8.0	8.5	9.5	11	12	13.5	14.5	15.5	16.5	17.5	18.5	20.5	-	-	-	-
H	15.3	17.3	19.7	23.4	30.6	38.4	45.7	54.7	61.2	71.3	82.8	90.5	102.7	131	142	146	154.5
W (HW)	8	8	10	10	14	14	16	18	22	24	25	27	30	-	-	-	-
W1(Gear)	-	-	-	-	12.2	12.2	12.2	12.2	18.1	1.1	18.1	18.1	18.1	23.6	23.6	23.6	23.6
Wt (HW)	19	25	33	49	77	123	188	288	385	500	601	764	1007	-	-	-	-
Wt (Gear)	-	-	-	-	104	150	215	315	435	552	653	816	1185	1880	2300	2550	3390

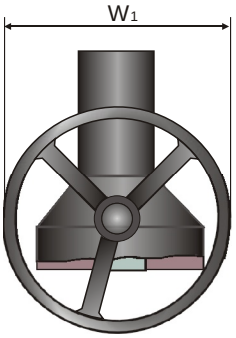
CLASS 300 (FIG NO. GB3--)

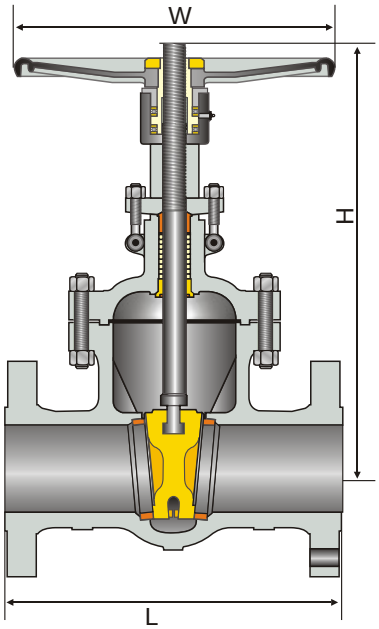
SIZE	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30
L-RF / L-BW	8.5	9.5	11.1	12.0	15.9	16.5	18.0	19.7	30.0	33.0	36.0	39.0	45.0	53.0	55.0
L-RJ	9.1	10.1	11.7	12.6	16.5	17.1	18.6	20.4	30.6	33.6	36.6	39.7	45.9	54.0	56.0
H	16.9	19.9	20.9	24.8	31.5	39.7	48.8	57.9	64.8	72.5	77.1	86.4	102.3	122.0	130.7
W (HW)	8	8	10	11	14	16	18	20	24	24	26	30	36	-	-
W1 Gear	-	-	-	12.2	12.2	12.2	12.2	12.2	18.1	18.1	18.1	18.1	24	24	24
Wt (HW)	25	30	48	73	130	208	334	450	704	923	1131	1345	2122	-	-
Wt. (Gear)	-	-	-	100	186	235	386	502	756	965	1224	1400	2385	3300	3550

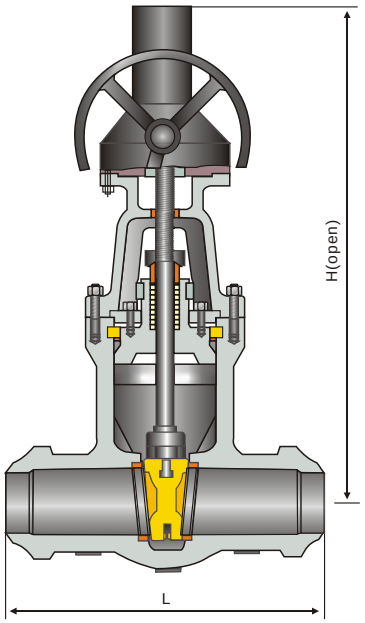
CLASS 600 (FIG NO. GB6--/ GP6--)

SIZE	2	2.5	3	4	6	8	10	12	14	16	18	20	24
L-RF / L-BW	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	55.0
L-RJ	11.6	13.1	14.1	17.1	22.1	26.1	31.1	33.1	35.1	39.1	43.1	47.3	55.4
H (Bolted Bonnet)	17.9	21.7	23.7	27.2	35.8	41.9	49.5	57.8	63.9	71.5	89.0	106.5	110.6
H (P.S Bonnet)	23.2	24.8	26.3	36	42.5	49.9	59.5	70.5	73.1	85.1	89.0	106.5	110.6
W (HW)	10	10	11.1	12	18	20	26	30	36	36	-	-	-
W1 (Gear)	-	10	10	10	12.2	12.2	18.1	18.1	18.1	18.1	30	30	30
Wt (HW)	32	52	60	107	216	399	605	851	1177	1513	-	-	-
Wt (Gear)	-	65	87	134	268	451	657	893	1232	1568	1980	2480	3850

GATE VALVE DIMENSIONS AND WEIGHTS







BW= Butt weld

FL = Flanged

H = Center-to-Top, Open

CLASS 900 (FIG NO. GB9--/ GP9--)

SIZE	2	2.5	3	4	6	8	10	12	14	16
L-RF / L-BW	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	40.6	44.5
L-RJ	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.9	44.9
H (Bolted Bonnet)	19.7	21.7	24.0	27.6	38.6	43.3	52.0	59.0	74.8	80.7
H (P.S Bonnet)	23.4	29.6	29.8	34.0	39.9	50.2	60.7	70.1	79.8	89.0
W (HW)	11.1	11.1	12	14	20	26	28	36	36	36
W1 (Gear)	-	10	10	12.2	18.1	18.1	18.1	18.1	24	24
Wt (HW)	70	110	140	200	358	550	1000	1215	1600	2150
Wt (Gear)	-	1130	167	227	410	600	1100	1310	1700	2330

CLASS 1500 (FIG NO. GB15--/ GP15--)

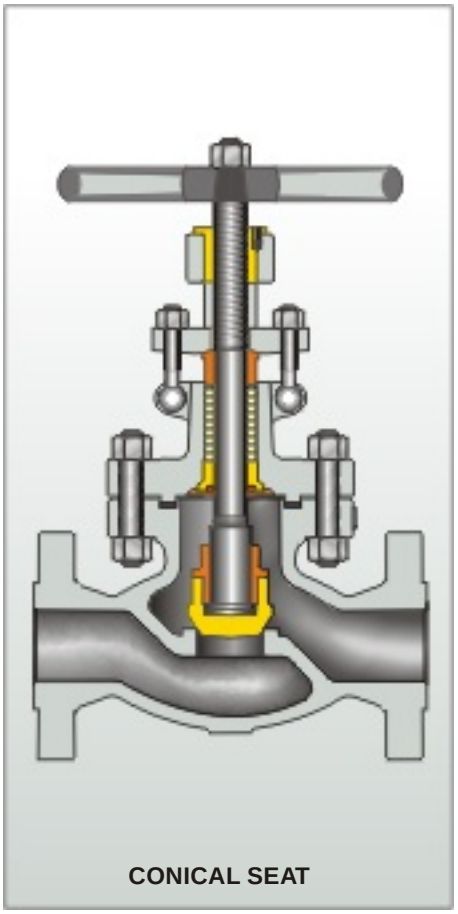
SIZE	2	2.5	3	4	6	8	10	12	14	16
L-RF / L-BW	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	49.5	54.5
L-RJ	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12	50.2	55.4
H (Bolted Bonnet)	20.1	22.1	24.4	28.7	39.4	44.5	65.4	72.44	-	-
H (P.S Bonnet)	23.4	29.6	29.8	36.0	48.0	51.6	64.8	77.8		
W (HW)	11.1	12	14	16	20	30	36	36	-	-
W1 (Gear)	-	10	10	12.2	18.1	18.1	24	24	24	24
Wt (HW)	75	124	175	270	520	820	1560	1900	-	-
Wt (Gear)	99	158	202	300	575	915	1750	2120	2600	3450

CLASS 2500 (CP25--)

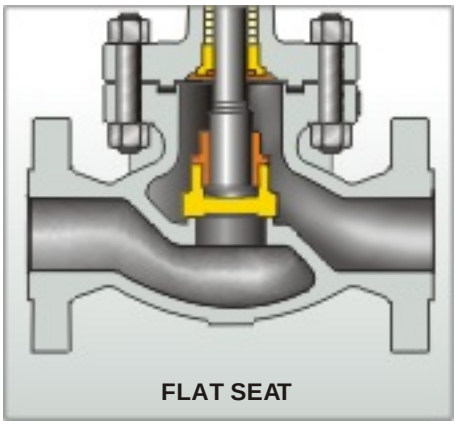
SIZE	2	2.5	3	4	6	8	10	12
L-RF / L-BW	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00
L-RJ	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88
H (P.S Bonnet)	27.56	29.53	34.92	43.19	57.09	63.39	81.73	89.80
W	14	18	18	20	24	24	24	24
Weight	135	210	271	650	1600	2450	4570	7150

Note: Weights mentioned are for Bolted bonnet type in Kgs. Other details are available on request.

Cast Carbon, Stainless or Alloy Steel Bolted Bonnet Globe Valves, 2-16" (50-400 mm) ASME Class 150, 300, 600, 900 and 1500



CONICAL SEAT



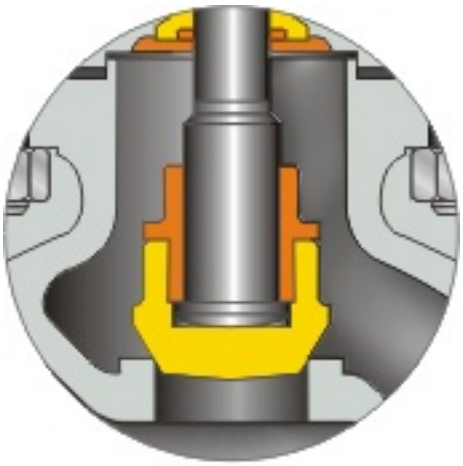
FLAT SEAT

DESIGN FEATURES:

- Rotating Stem with precision ACME threads and burnished finish. Valve suitable for horizontal installation.
- Universal Trim.Petrostar provides wide ranges of Trim material including Trim 1 to very special alloys.
- Seat face Stellited, ground and lapped to a mirror finish. Conical seat machined to 8 RMS.
- Flat disc. Floating stem-disc engagement, hard faced with 13 CR, Stellite 6, SS 316 or Monel, ground and lapped with seat. Disc in SS 316 hard faced with Stellite 6 also available.
- Tapered disc. Disc is guided by the mating surface of the seat, hard faced with 13 CR, Stellite 6, SS 316 or Monel, ground and lapped with seat. Disc in SS 316 hard faced with Stellite 6 also available. 2-6" (50-150 mm) valves may have solid 13 CR discs.
- Body and bonnet. Castings are precision machined. One-piece bonnet for better alignment, fewer parts. Stuffing box finish to 63 RMS or better.
- Body and bonnet joint accurately machined. Fully enclosed gasket. Gland has two-piece construction for easy alignment.
- Rotating Stem nut. ASTM B62, renewable in-line.
- Torque arm. To reduce wear on packing rings, to enable better sealing and to reduce torque.
- Impactor handwheels. Globe valves require higher closing torques than gate valves with the same seat diameter and pressure class. The most economical mechanism for tight shut off is the impact or handwheel. Two lugs cast under the wheel strike simultaneous blows and give 3-10 times the closing force of standard hand wheels. Impact or hand wheels are supplied at manufacturer's option unless specified by customer.
- Soft Seated Plugs : Petrostar provides special Soft seated plugs for special applications.
- Pressure seal bonnet design available in Class 900 and above rating valves.
- Larger diameter valves are provided with Double bearing on hand wheel for smooth operation.

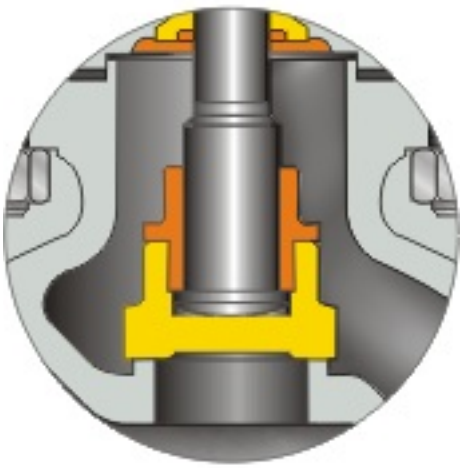
Notes

Most sizes and pressure classes have conical seats. Choice of flat or conical seat is manufacturer's option unless specified by customer.



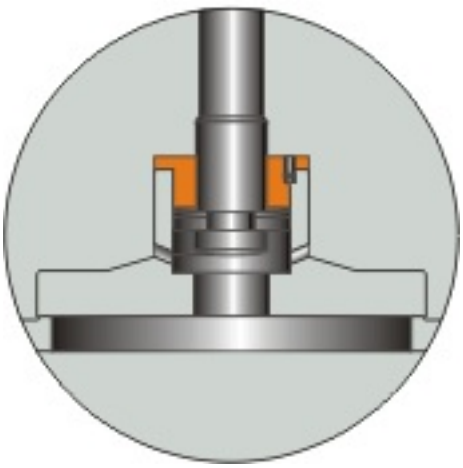
CONICAL SEAT

- Line contact seal.
- Contact pressure increase by 1.5 - 5 with same stems and yokes.
- Seat has greater elasticity.
- Lower closing torques.
- Recommended for high pressure-temperature.



FLAT SEAT

- Machining, lapping to close tolerances is easy.
- Flatness tolerance easy to control.
- Area contact wide seat.
- Disc is guided by the mating surface of the seat.
- Hard thrust pad prevents galling.
- Faster maintenance in-line. Flat seating faces can be lapped and checked for flatness easier.



INVERSE FLOW DISC

- Double discs
- For size larger than 8"
- For high pressure service
- Easy sealing

GLOBE VALVE DIMENSIONS AND WEIGHTS

CLASS 150 (FIG NO. LB1--)

SIZE	2	2.5	3	4	6	8	10	12	14	16	18
L-RF/BW	8.00	8.50	9.50	11.50	16.00	19.50	24.50	27.50	31.00	36.00	38.50
L-RJ	8.50	9.00	10.00	12.00	16.50	20.00	25.00	28.00	31.50	36.50	39.00
H	12.9	14.17	15.94	19.09	20.47	23.62	31.00	33.94	53.00	61.00	70.00
W (HW)	8	10	10	12	14	16	18	20	22	24	32
W1 (Gear)	-	-	-	-	-	16	16	18	20	24	30
Wt (HW)	22	32	38	62	104	154	308	539	819	1085	1294
Wt (Gear)	-	-	-	-	-	174	330	575	855	1185	1394

CLASS 300 (FIG NO. LB3--)

SIZE	2	2.5	3	4	6	8	10	12	14	16
L-RF/BW	10.50	11.50	12.50	14.00	17.50	22.00	24.50	28.00	33.00	34.00
L-RJ	11.13	12.13	13.13	14.63	18.13	22.63	25.13	28.63	33.63	34.63
H	13.78	15.39	16.54	19.37	24.41	31.22	45.08	49.61	55.28	62.99
W (HW)	8	10	12	14	18	22	25	28	32	32
W1 (Gear)	-	-	-	-	16	20	22	24	30	30
Wt (HW)	28	48	56	82	154	240	319	632	946	1243
Wt (Gear)	-	-	-	-	178	270	352	672	1000	1350

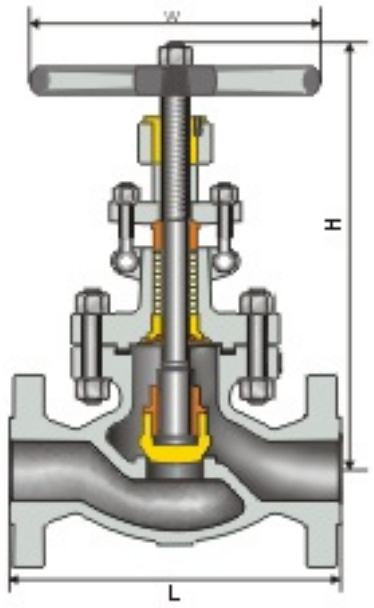
CLASS 600 (FIG NO. LB6--/ LP6--)

SIZE	2	2.5	3	4	6	8	10	12
L-RF/BW	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00
L-RJ	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12
H (Bolted Bonnet)	15.4	17.0	18.8	20.8	26.6	28.4	38.3	42.3
H (P.S Bonnet)	21.7	24.8	26.8	29.5	45.3	49.2	55.1	61.0
W (HW)	10	11	12	16	22	26	28	30
W1 (Gear)	-	-	-	16	20	22	22	24
Wt (HW)	32	42	63	107	240	375	680	900
Wt (Gear)	-	-	-	135	275	425	750	1000

GLOBE VALVE DIMENSIONS AND WEIGHTS

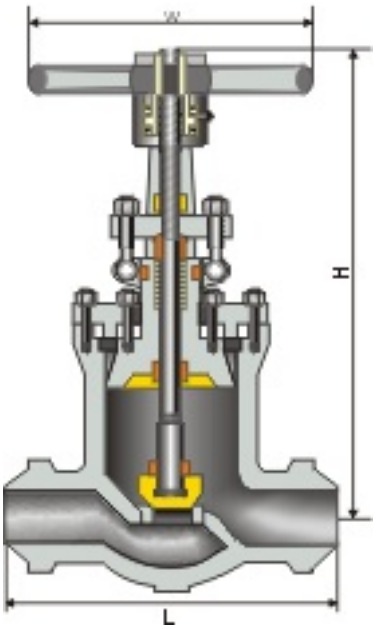
CLASS 900 (FIG NO. LB9--/ LP9--)

SIZE	2	2.5	3	4	6	8	10	12
L-RF/BW	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00
L-RJ	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12
H (Bolted Bonnet)	19.6	20.0	20.6	23.7	28.8	38.20	52.40	61.00
H (P.S Bonnet)	24.4	25.3	28.4	33.5	48.2	53.1	61.0	68.9
W (HW)	12.4	12.4	14	16	22	26	38.3	38
W1 (Gear)	-	-	12	15	20	22	24	28
Wt (HW)	55	68	95	138	390	774	1250	1535
Wt (Gear)	-	-	128	175	460	850	1325	1625



CLASS 1500 (FIG NO. LB15--/ LP15--)

SIZE	2	2.5	3	4	6	8	10
L-RF/BW	14.50	16.50	18.50	21.50	27.75	32.75	39.00
L-RJ	14.62	16.62	18.62	21.62	28.00	33.12	39.38
H (Bolted Bonnet)	22.4	25.5	28.5	32.75	40.15	46.53	53.0
H (P.S Bonnet)	24.4	25.3	28.4	33.5	48.2	53.1	61.0
W (HW)	16	16	20	24	28	34	48
W1 (Gear)	14	14	20	22	25	25	30
Wt (HW)	73	130	151	172	467	1225	1635
Wt (Gear)	105	178	201	235	540	1325	1750



CLASS 2500 (FIG NO. LP25--)

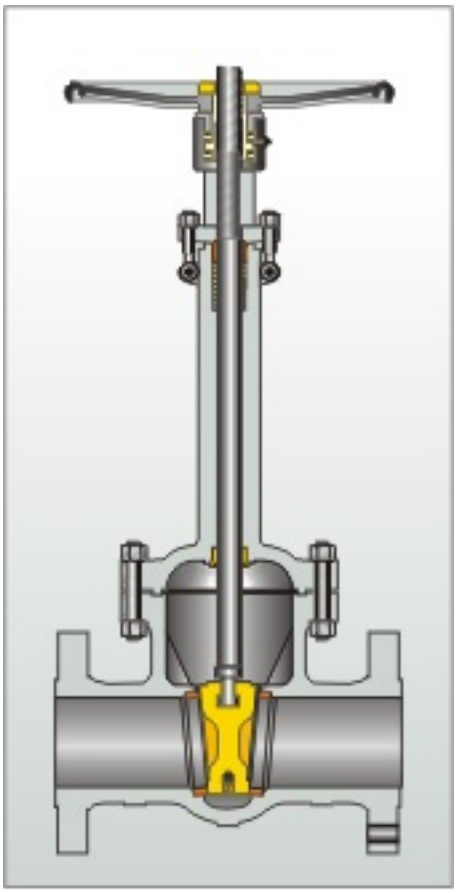
Size	2	2.5	3	4	6	8
L-RF/BW	17.75	20.00	22.75	26.50	36.00	40.25
L-RJ	17.87	20.25	23.00	26.88	36.50	40.87
H (Pressure seal)	28.35	31.50	34.84	49.61	75.00	97.05
W	16	20	22	25	25	25
Weight	176	264	308	759	1990	4390

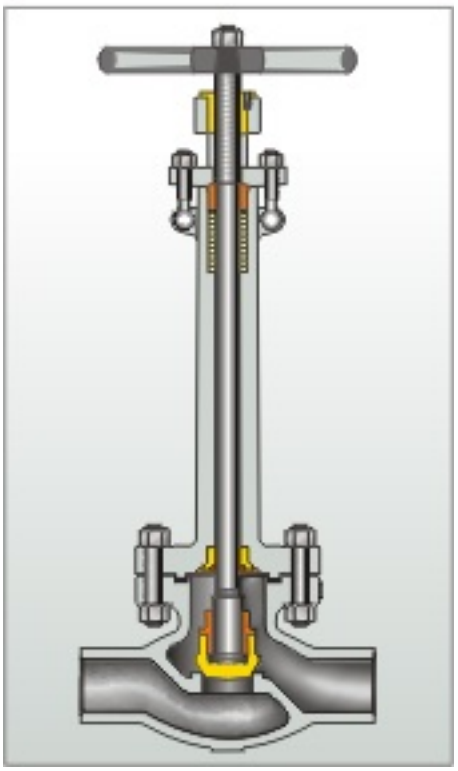
H = Center-to-Top, Open

DESIGN SPECIFICATIONS

ITEM	APPLICABLE SPECIFICATION
Wall thickness and general valve design	BS 1873, ASME B 16.34
Pressure-temperature rating	ASME B16.34
Face-to-face dimensions for butt weld and flanged valves	ASME B16.10
Flange design	ASME B16.5
Butt welding design	ASME B16.25
Test and Inspection	API 598

Cast Cryogenic Gate, Globe and Check Valves Austenitic Stainless Steel 2-30" (50-750 mm) Pressure Class 150-1500





The production, transport and storage of liquefied gases such as oxygen, nitrogen, argon, natural gas, hydrogen or helium (down to -425°F), presents several technical problems. Petrostar specially-adapted extended bonnet cast valves offer safe and efficient service.

MATERIALS:

- Body and bonnet: Austenitic stainless steel castings used for bodies and bonnets offer excellent impact strength, minimal heat loss and protection against corrosion.
- Stem: Austenitic stainless steel. To reduce galling, stems are also offered in A479 grade XM-19 with high tensile strength even at extreme low temperatures, excellent low friction and galling-free movement at points of stem contact.
- Wetted parts: All Austenitic stainless steel and Stellite 6.
- Stem nut/yoke bushing: ASTM B62.
- Packing: PTFE or graphite packing protected from freezing by a column of insulating gas.
- Seating faces: Stellite 6 is used to prevent seizing and galling. When extremely tight shut off is required, globe and check valves are supplied with Neoflon, PTFE or other soft inserts.
- Bolting: Strain-hardened Austenitic stainless steel.

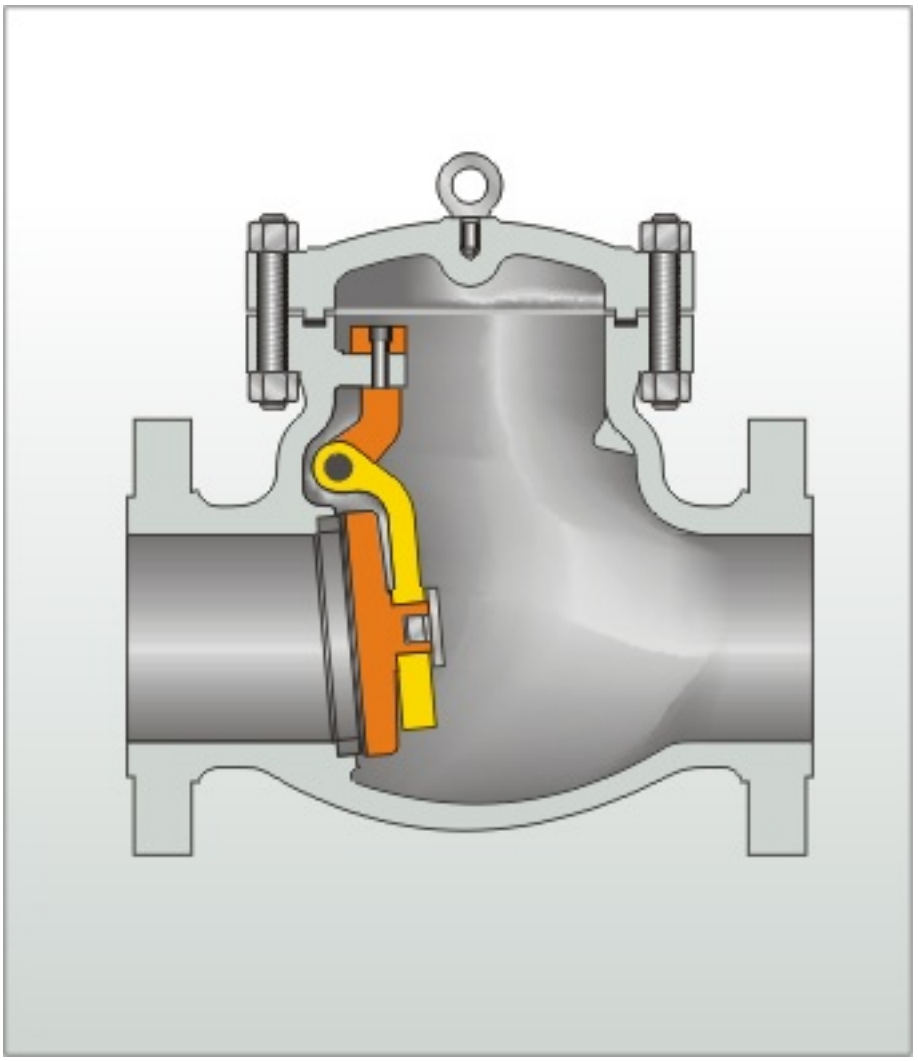
DESIGN FEATURES:

- Extended bonnets with sufficient gas column length, usually specified by customer, are supplied for all valves to keep stem packing at sufficient distance away from the cold fluid to remain functional.
- Flexible wedges with Stellite seating faces for cryogenic service(gate valve).
- Neoflon inserts are available for globe, piston, and swing check discs.
- Cleaning: All cryogenic valves are thoroughly de greased and cleaned and pipe ends are sealed to prevent contamination.

TABLE OF LIQUEFIED GASES

	Boiling Point		Liquid Density		Boiling Point		Liquid Density
Type	° C	° F	lb/ft.3	Type	° C	° F	lb/ft.3
Natural gas(LNG)	-168	-270	26	Air	-194.4	-318	57.87
Methane(CH_4)	-161.5	-258	26.20	Nitrogen(N^2)	-195.8	-320	50.45
Oxygen(O_2)	-182.9	-296	71.20	Hydrogen(H_2)	-252.8	-423	4.43
Argon(Ar)	-185.9	-303	87.40	Helium(He)	-268.9	-452	7.82
Carbon Dioxide(CO_2)	-78.5	-109	50.60	Absolute zero	-273.16	- 460	-

Cast Carbon, Stainless or Alloy Steel Swing Check Valves , 2-36" (50-900 mm) ASME Class 150, 300, 600, 900 and 1500



DESIGN FEATURES:

- Body and cover. Precision machined castings.
- Body and cover joint. Accurately machined,fully enclosed gasket
- Disc. Robust one-piece construction to withstand the severe shock of check valve service. Hard faced with 13 CR, Stellite 6, SS 316, or Monel, ground and lapped to mirror finish. Sizes 2-6" (50-150 mm) may have solid13 CR disc.
- Disc assembly. Disc is fastened securely to disc hanger with a lock nut and cotter pin. Disc is free to rotate to avoid localized wear. Disc hanger is supported on a sturdy disc carrier hinge pin of excellent bearing qualities. All parts are accessible from top for easy servicing.

CHECK VALVE DIMENSIONS AND WEIGHTS

CLASS 150 (FIG NO. CB1--)

SIZE	2	2.5	3	4	6	8	10	12	14	16	18	20	24	30	36
L-RF/ BW	8.00	8.50	9.50	11.50	14.00	19.50	24.50	27.50	31.00	34.00	38.50	38.50	51.00	60.00	77.00
L-RJ	8.50	9.00	10.00	12.00	14.50	20.00	25.00	28.00	31.50	34.50	39.00	39.00	51.50	60.50	77.50
H	6.10	6.70	7.10	8.66	10.55	12.20	13.70	14.90	15.80	18.10	19.85	22.20	26.75	36.00	41.50
Weight Kgs.	19	26	29	46	77	163	220	356	428	555	775	835	1180	1725	2800

CLASS 300 (FIG NO. CB3--)

SIZE	2	2.5	3	4	6	8	10	12	14	16	18	20	24	30	36
L-RF/ BW	10.50	11.50	12.50	14.00	17.50	21.00	24.50	28.00	33.00	34.00	38.50	40.00	53.00	62.75	82.00
L-RJ	11.13	12.13	33.13	14.63	18.13	21.63	25.13	28.63	33.63	34.63	39.13	40.75	53.88	63.75	83.00
H	6.30	7.45	7.83	8.95	10.95	12.70	15.05	17.10	20.10	20.50	22.50	24.75	28.00	37.00	43.00
Weight Kgs.	21	30	39	69	125	210	307	450	680	840	1025	1320	1960	2515	4515

CLASS 600 (FIG NO. CB6--/ CP6)

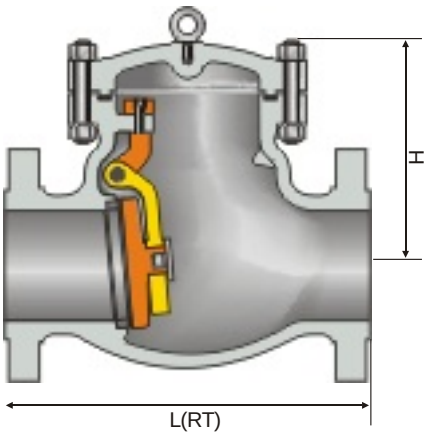
SIZE	2	2.5	3	4	6	8	10	12	14	16	18	20	24
L-RF/ BW	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
L-RJ	11.63	13.13	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	55.38
H (Bolted Cover)	7.20	7.90	8.95	10.25	12.80	15.50	19.30	20.80	22.60	26.00	28.40	29.40	38.00
H (P.S Cover)	9.5	10.4	10.6	12.5	15.7	23.1	23.9	27.4	29.5	28.7	28.7	32.2	32.2
Weight Kgs.	36	50	70	122	270	465	675	880	950	1230	1635	2140	3200

CLASS 900 (FIG NO. CB9--/ CP9)

SIZE	2	2.5	3	4	6	8	10	12	14	16	18	20	24
L-RF/ BW	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
L-RJ	14.63	16.62	15.13	18.13	24.13	29.13	33.13	38.13	40.87	44.87	48.50	52.50	61.75
H (Bolted Cover)	10.50	11.50	11.50	12.10	13.30	18.20	19.75	22.90	25.60	28.00	31.00	33.50	36.80
H (P.S Cover)	10.5	11.5	11.50	12.5	15.7	23.1	23.9	27.4	29.5	28.7	32.0	34.2	38.0
Weight Kgs.	70	110	100	150	305	510	810	1120	1733	2395	3220	3960	5750

CLASS 1500 (FIG NO. CB15--/ CP15)

SIZE	2	2.5	3	4	6	8	10	12	14	16	18	20	24
L-RF/BW	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50
L-RJ	14.63	16.62	18.63	21.63	28.00	33.13	39.37	45.12	50.25	55.37	61.37	66.37	77.63
H (Bolted Cover)	10.50	11.81	11.60	14.00	18.35	21.30	22.80	26.50	28.70	32.00	35.65	39.80	44.50
H (P.S Cover)	10.5	11.5	11.60	14.5	19.0	22.2	23.9	27.4	29.5	33.2	36.2	39.8	44.5
Weight Kgs.	85	120	150	245	550	1010	1550	2280	3210	4365	5877	7260	10470



H = Center-to-Top,
Open

CLASS 2500 (FIG NO. CP2500)

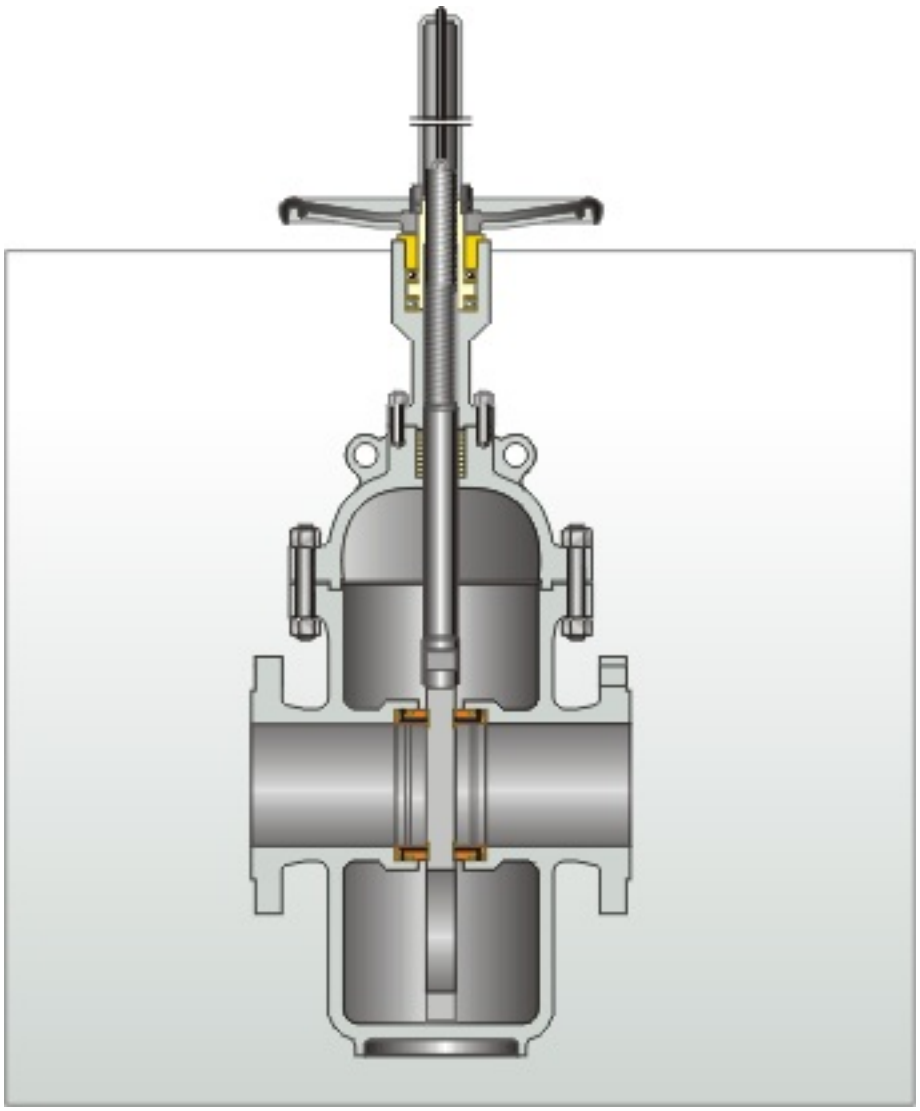
SIZE	2	2.5	3	4	6	8	10	12
L-RF/BW	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00
L-RJ	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88
H	16.40	16.50	17.40	19.00	20.30	28.10	33.60	39.50
Weight Kgs.	145	240	330	650	1400	2420	3750	5500

Note: Weights mentioned are for Bolted bonnet type. Other details are available on request.

DESIGN SPECIFICATIONS

ITEM	APPLICABLE SPECIFICATION
Wall thickness and general valve design	API 6D, BS 1868
Pressure-temperature rating	ASME B16.34
Face-to-face dimensions for butt weld and flanged valves	ASME B16.10
Flange design	ASME B16.5
Butt welding design	ASME B16.25
Test and Inspection	API 598

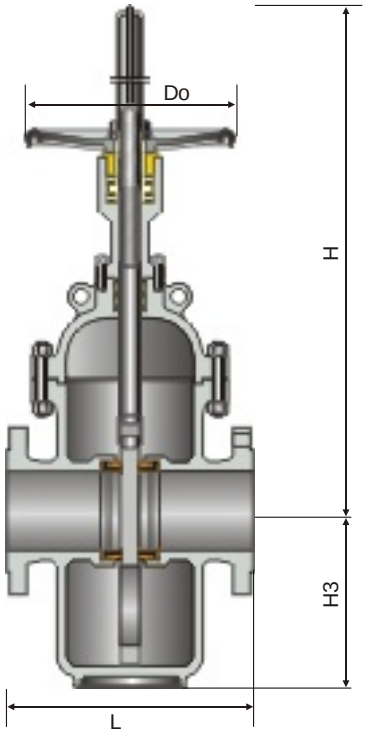
Cast Carbon, Stainless or Alloy Steel Slab Gate Valve , 2-36" (50-900 mm) ASME Class 150, 300 and 600



DESIGN FEATURES

- A double sealing seat system of PTFE-to-metal and metal-to-metal is available, and PTFE can also clean the disc.
- Pilot port is optional. With a pilot port, the sealing will be protected from medium in both fully open and fully closed service.
- For metal seated, sealant injection is applied to ensure zero leakage.
- Smaller torque and low flow resistance compared to common gate valve.
- Fully open port, convenient for pipe cleaning.

DIMENSIONS OF SLAB GATE VALVE WITH PILOT PORT



H = Center-to-Top,
Open

DESIGN SPECIFICATIONS

ITEM	APPLICABLE SPECIFICATION
Wall thickness and general valve design	API 600, API 6D, BS1414
Pressure-temperature rating	ASME B16.34
Face to face dimensions for butt weld and flanged valves	ASME B16.10
Flange design	ASME B16.5
Butt welding design	ASME B16.25
Test and Inspection	API 598

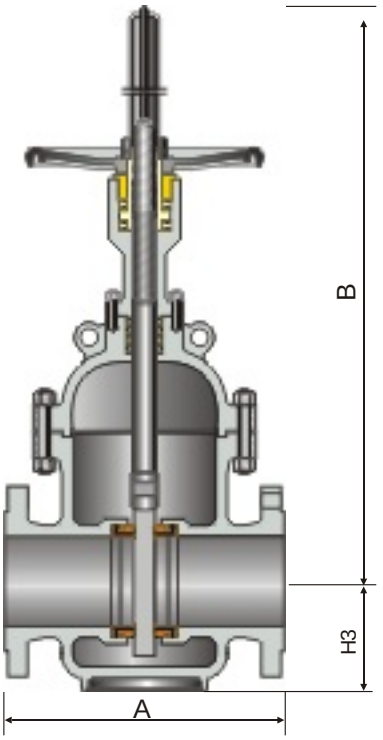
CLASS 150

SIZE	Flange	Hand-operated		Geared driving	Non-diversion Hole type	Diversion hole type
in mm	L	H	Do		H_3	H_1
1	127	360	180	-	60	85
1-1/4	140	375	180	-	71	103
1-1/2	165	410	250	-	75	115
2	178	450	250	-	85	122
2-1/2	190	550	300	-	91	154
3	203	610	300	-	109	169
4	229	700	300	BA-0	121	193
6	267	895	350	BA-0	178	283
8	292	1130	350	BA-0	211	352
10	330	1290	400	BA-0	215	440
12	356	1480	450	BA-0	245	514
14	381	1660	500	BA-1	280	602
16	406	1850	500	BA-1	310	678
18	432	2080	600	BA-1	346	785
20	457	2300	700	BA-1	363	855
24	508	2680	800	BA-2	442	1045
28	610	3080	800	BA-2	505	1190
32	660	3491	1000	BA-2	560	1350
36	711	3897	1000	BA-3	610	1510
40	811	4317	1200	BA-3	715	1715

DIMENSIONS OF SLAB GATE VALVE WITHOUT PILOT PORT

CLASSES 300

SIZE	Flange	Hand-operated		Geared driving	Non-diversion Hole type	Diversion hole type
in mm	L	H	Do		H_3	H_1
1	165	370	180	-	70	90
1-1/4	178	385	180	-	80	115
1-1/2	190	420	250	-	85	130
2	216	458	250	-	100	137
2-1/2	241	555	300	-	106	169
3	283	615	300	-	124	184
4	305	710	300	BA-0	146	218
6	403	900	350	BA-0	206	311
8	419	1135	350	BA-0	241	382
10	457	1401	400	BA-0	251	476
12	502	1580	450	BA-0	281	545
14	762	-	-	BA-1	325	645
16	838	-	-	BA-1	360	728
18	914	-	-	BA-1	400	800
20	991	-	-	BA-1	430	930
24	1143	-	-	BA-2	497	1100
28	1346	-	-	BA-2	560	1260
32	1524	-	-	BA-2	620	1420
36	1727	-	-	BA-3	610	1510



BW= Butt weld

FL = Flanged

H = Center-to-Top, Open

CLASSES 600

SIZE	Flange	Hand-operated		Geared driving	Non-diversion Hole type	Diversion hole type
in mm	L	H	Do		H_3	H_1
2	292	468	300	BA-0	108	158
2-1/2	330	565	300	BA-0	125	190
3	356	625	350	BA-0	145	225
4	432	720	350	BA-0	165	255
6	559	910	400	BA-0	220	330
8	660	1145	500	BA-1	280	410
10	787	1411	500	BA-1	330	490
12	838	1590	600	BA-1	380	570
14	889	-	-	BA-2	430	650
16	991	-	-	BA-2	480	735
18	1092	-	-	BA-2	530	810
20	1194	-	-	BA-2	580	905

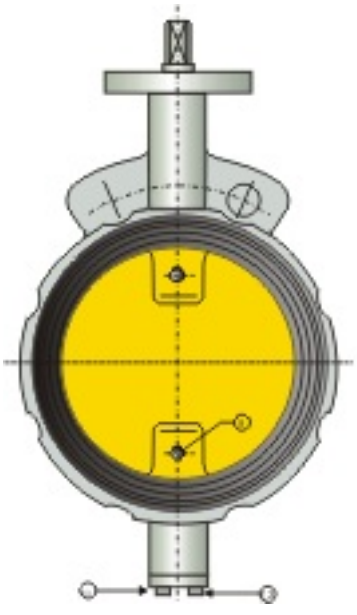
CONCENTRIC BUTTERFLY VALVES

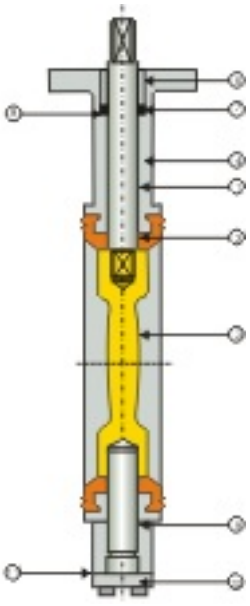
Concentric butterfly valves are the most economical solution for isolation.A wafer like disc closes and opens the body opening with its 90o rotational movement. The Petrostar Concentric Butterfly valves are designed, constructed and tested according to the most recent international standards, such as API, ASME/ANSI, BS, DIN, etc.

Wide ranges of materials are available as our standard ranges of metallurgy. However these valves are used in relatively low pressure applications. The valves are provided with soft seats made of resilient materials like EPDM, Rubber, Buna -N, Neoprene etc. Also Petrostar can offer the valves with all kinds of operators and a

SECTIONAL DRAWING AND PARTS

No	PART NAME
1	BODY
2	SEAT
3	DISC
4	UPPER STEM
5	LOWER STEM
6	BUSHING
7	O-RING
8	STUFFING RING
9	DISC PIN
10	CAP
11	GASKET
12	CAP BOLT
13	SPRING WASHER





PRINCIPLE OF SEALING:

The eccentric butterfly valves shall have 3 offsets in its construction as shown in the above drawing.

- Offset 1: The first offset is between the seat and the shaft , This helps for complete sealing around the entire seat
- Offset 2: The second offset is between the pipe center line and shaft center line to allow interference free operation
- Offset 3: The seat cone axis is in offset from the shaft center line. This greatly reduces the friction during the operation and ensures uniform compressive sealing around the seat .

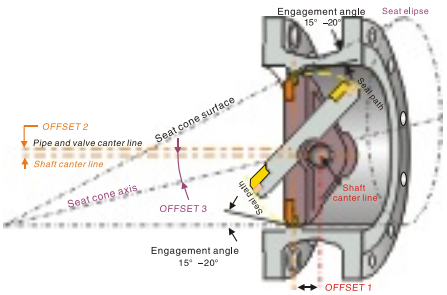
ECCENTRIC TYPES ARE AVAILABLE ALSO WITH DOUBLE OFFSET AS THE THIRD OFFSET IS ELIMINATED. BUT METAL SEATED VALVES ARE RECOMMENDED WITH TOB DESIGN

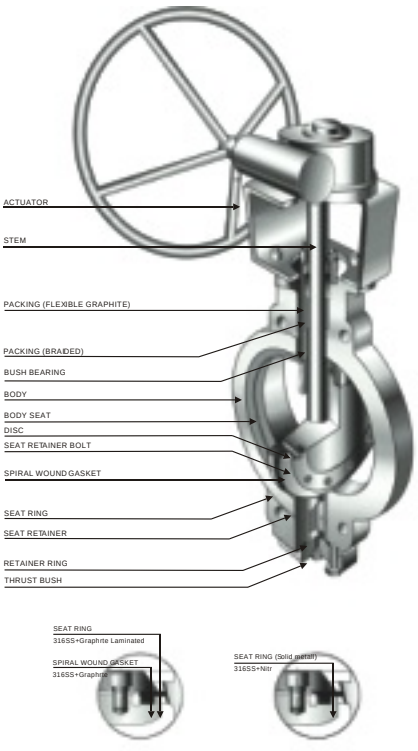
MAJOR COMPONENTS

- Valve Body: Generally Petrostar valves are manufactured with single piece casting, the end connections are available in flanged, wafer, lug and welded ends.
- Body Seat: Body seats are designed to ensure minimum friction, jamming and leakage in shut off condition. In case of eccentric valves the body seat is an integrated part of the body. However Petrostar's engineering team is capable of producing renewable body seat on special request. Stellite or weld hardening / overlaying is available for longer life cycle for eccentric valves. In resilient seated valves, the inner portion of the body is covered with thick soft seat materials.
- Stem:Stem serves as the fixture for the disc and the movement transmission medium from the valve operator to the disc. Petrostar uses both single piece and two piece design for stem construction. The stem is fixed to the disc by means of a pin or in combination of key and pin .Our valves are provided with suitable bearings and bushes to guarantee minimum operating torque and longer life, blow-out proof operation is achieved by retainer rings installed on stem
- Disc: In eccentric valves, the disc is manufactured with highly precision manufacturing methods. The offsets are maintained with extra care to ensure every Petrostar valve is performed to the optimum level. The material of construction is as per the client's requirement. Special spiral wound gaskets are used between seal rings and disc.
- Seal Ring (Eccentric type): Seal ring is installed on the disc by a seat retainer ring bolted to the disc. Seal rings are made from different soft materials like Nylon, PTFE and RTFE etc. Metal seated valves are also available from our standard range.
- Fire Safe Design: Soft seated valves are available with fire safe design, with the secondary metal seats. In the event of disintegration of soft seats, metal seats will come in contact with disc surface and seal the flow.
- Stem Packing & Gland: Petrostar has designed its stem packing to ensure the lowest emission as its social commitment, different kinds of special packing are also available for special needs. In general case stem sealing is ensured by orals and die formed graphite rings supported by flanged gland and gland follower. Gland followers are provided with O-rings (optional). Stem bearing ensures concentric stem rotations. Optional live loading type glands are available on request

ECCENTRIC BUTTERFLY VALVE

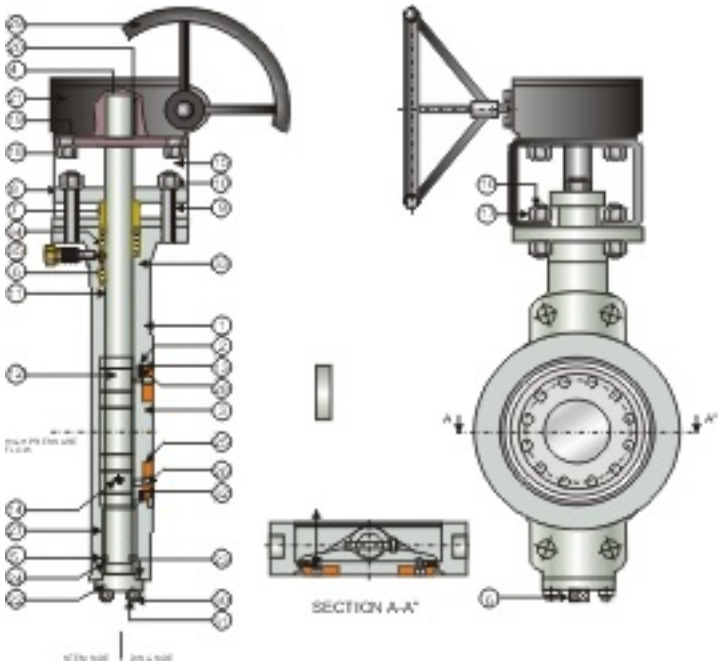
Eccentric butterfly valves are useful to handle higher pressure ratings with bubble tight shut off. The geometry of these designs ensures the seating contacts between the disc and seat surface only at the final shut off position. This greatly helps to red uce the friction and uniform seal contact. It also helps to reduce the torque required for effective sealing at full close position. All the mentioned advantages combined, the valves will be able to provide longer maintenance free service.



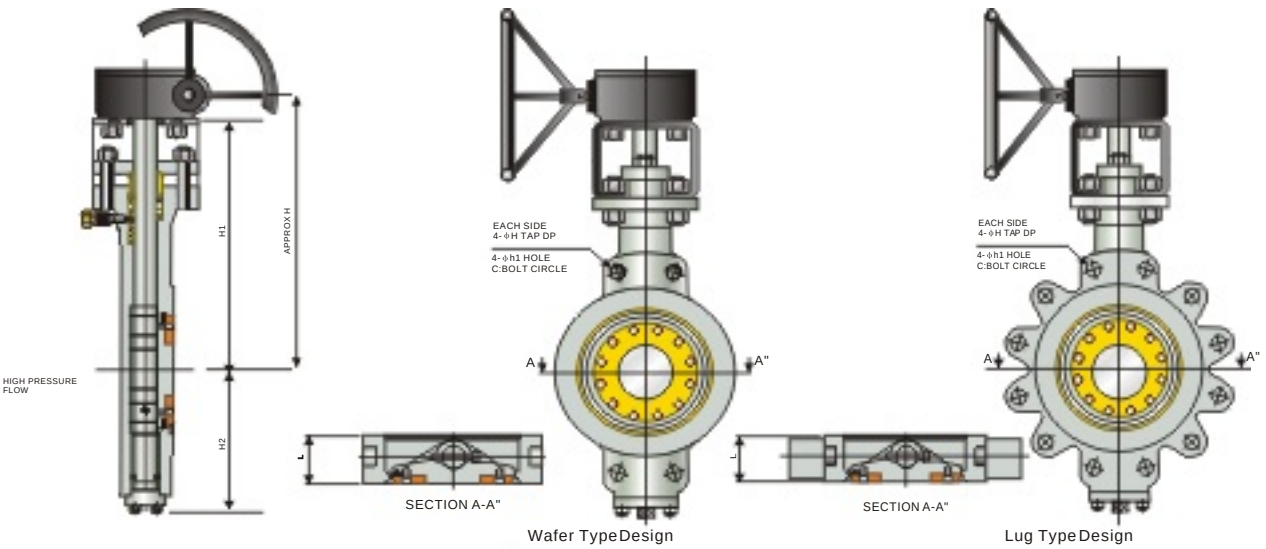


Parts

1	Body	nut	
2	Sea tsurface	18	Mounting bolt
3	Disc	19	Spring washer
4	Stem	20	Key
5	Retainer ring	21	Gear box
6	Packing	22	Cap
7	Packing gland	23	Gasket (cap)
8	Gland flange	24	Thrust bush
9	Gland bolt	25	Seat retainer
10	Nut	26	Retainer bolt
11	Bush bearing	27	Bush bearing
12	Key	28	Gasket
13	Seal ring	29	Handwheel
14	Taper pin	30	Cap bolt
15	Yoke	31	Cap nut
16	Yoke bolt	32	Seal ring pin
17	Yoke nut	33	Spacer

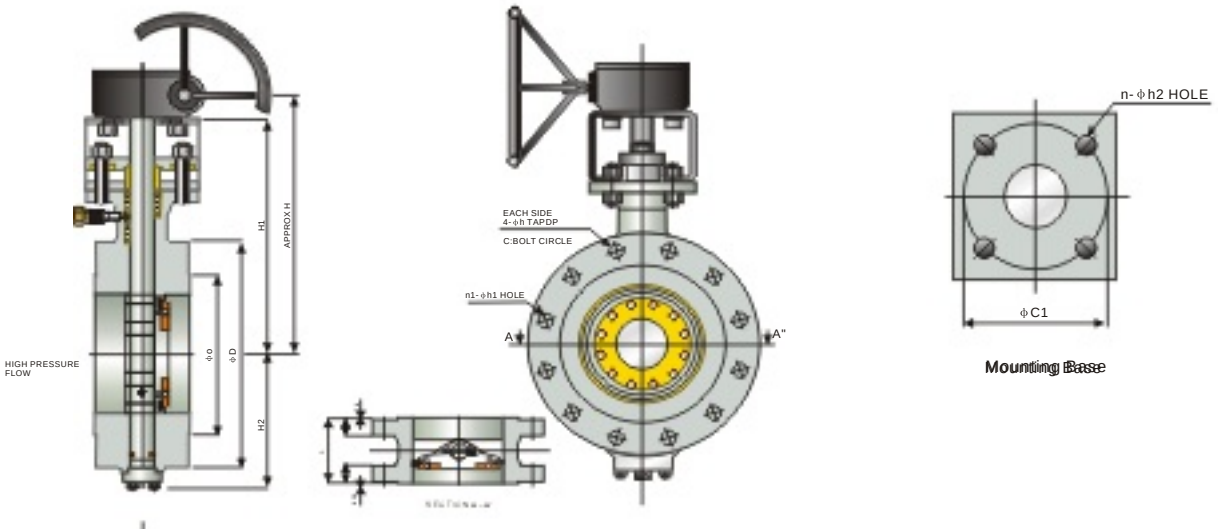


VALVE DIMENSIONAL DRAWINGS



Wafer Type Design

Lug Type Design



Double Flange Design

Mounting Base

BUTTERFLY VALVE DIMENSIONS AND WEIGHTS

DIMENSIONAL DETAILS CLASS 150 VALVES

Size	F to F - mm		Flange Dimensions - mm					Height - mm			Mounting Base - mm				Weight (Kgs)		
Inch	W & L	Flanged	C	h1	D*	g*	n1^	H	H1	H2	Type	C1	n	h2	Wafer	Lug	Flange
3	48	114	152.4	19.1	191	127.0	4	282	258	142	F07	70	4	9	21	23	27
4	54	127	190.5	19.1	229	157.2	8	294	270	162	F07	70	4	9	27	30	35
5	57	140	215.9	22.2	254	185.7	8	319	295	170	F07	70	4	9	32	36	41
6	57	140	241.3	22.2	279	215.9	8	340	316	179	F07	70	4	9	35	39	45
8	64	152	298.4	22.2	343	269.7	8	384	344	208	F10	102	4	11	53	59	68
10	71	165	361.9	25.4	406	323.9	12	434	394	241	F10	102	4	11	74	83	97
12	81	178	431.8	25.4	483	381.0	12	520	470	267	F14	140	4	18	95	110	133
14	92	190	476.3	28.6	533	412.8	12	544	494	316	F14	140	4	18	131	153	188
16	102	216	539.7	28.6	597	469.9	16	643	578	349	F16	165	4	22	165	193	238
18	114	222	577.8	31.8	635	533.4	16	660	595	381	F16	165	4	22	230	258	302
20	127	229	635	31.8	699	584.2	20	695	630	412	F16	165	4	22	280	318	380
24	154	267	749.3	35.1	813	692.2	20	813	743	473	F25	254	8	18	450	507	599

DIMENSIONAL DETAILS CLASS 300 VALVES

Size	F to F - mm		Flange Dimensions - mm					Height - mm			Mounting Base - mm				Weight (Kgs)		
Inch	W & L	Flanged	C	h1^	D*	g*	n1^	H	H1	H2	Type	C1	n	h2	Wafer	Lug	Flange
3	48	114	168.2	22.2	210	127.0	4	282	258	142	F07	70	4	9	21	24	29
4	54	127	200.0	22.2	254	157.2	8	294	270	162	F07	70	4	9	27	32	39
5	59	140	234.9	22.2	279	185.7	8	319	295	170	F10	102	4	9	38	44	52
6	59	140	269.8	22.2	318	215.9	8	375	336	199	F10	102	4	9	45	52	63
8	73	152	330.2	25.4	381	269.7	8	450	400	227	F14	140	4	11	72	83	101
10	83	165	387.3	28.6	445	323.9	12	499	449	265	F14	140	4	11	135	151	176
12	92	178	450.8	31.8	521	381.0	12	562	497	302	F16	165	4	18	148	172	210
14	117	190	514.3	31.8	584	412.8	12	616	551	328	F16	165	4	18	208	249	315
16	133	216	571.5	35.1	648	469.9	16	676	606	367	F25	254	8	22	298	352	440
18	149	222	628.6	35.1	711	533.4	16	711	641	402	F25	254	8	22	382	449	558
20	159	229	685.8	35.1	775	584.2	20	798	721	432	F30	298	8	22	450	534	670
24	181	267	812.8	41.2	814	692.2	20	914	837	530	F30	298	8	18	680	812	1025

DIMENSIONAL DETAILS CLASS 600 VALVES

Size	F to F - mm		Flange Dimensions - mm					Height - mm			Mounting Base - mm				Weight (Kgs)		
Inch	W & L	Flanged	C	h1^	D*	g*	n1^	H	H1	H2	Type	C1	n	h2	Wafer	Lug	Flange
3	54	180	168.2	22.2	210	127.0	8	289	265	148	F07	70	4	9	29	32	37
4	64	190	215.9	25.4	273	157.2	8	370	330	180	F10	102	4	11	38	45	55
5	78	200	266.7	28.6	330	185.7	12	405	365	195	F14	140	4	18	55	67	86
6	78	210	292.1	28.6	356	215.9	12	420	370	225	F14	140	4	18	75	88	109
8	102	230	349.2	31.8	419	269.7	12	490	425	255	F16	165	4	22	136	157	192
10	117	250	431.8	35.1	508	323.9	16	545	480	310	F16	165	4	22	200	237	296
12	140	270	488.9	35.1	559	381.0	20	630	560	330	F25	254	8	18	295	335	390

* Only applicable for Double Flanged design ^ Only applicable for Lug and Flanged Design

STANDARDS OF DESIGN

Valve Construction Design	Confirmed to API 609
Hydro Testing	API 598
Fire Safe Design	API 607 Ed 4
End Connections	Flanged, Wafer, Lug and Welded
Dimension Standards	API 609 table 2, MSS-SP-68 Table 1, ISO 5752
	ASME B16.5, B16.47, B16.34, DIN, MSS-SP-44, BS3293
Mounting Flange	ISO 5211

Body and Bonnet

Petrostar forged steel valves contain gate, globe & check valves. We offer standard bolted bonnet with optional welded bonnet and pressure sealed bonnet.

Petrostar also offers globe valve with bellow seal. Stellited seating face is also available with Petrostar forged valves.

Forged steel valves can be furnished with nipples.
Y type globe valve available.

Products Range:

Type:Gate, Globe Check
Size: 1/2 "~2"
Rating:
150Lb,300Lb,600Lb,900Lb
800Lb ,1500Lb,2500Lb
Body Material:
A105,F11,F22,F5,F316,F304
End connection:
NPT, SW, R F ,BW

Design Feature:

Solid wedge(gate)
Bolted, welded or pressure sealed bonnet
Full port or reduced port
Optional bellow seal(gate, globe)
Plug disc with optional needle disc(globe)
Lift check with optional swing check (check)

Os&y, Rising Stem, Solid wedge, Bolted bonnet, Screwed or Socket Weld End

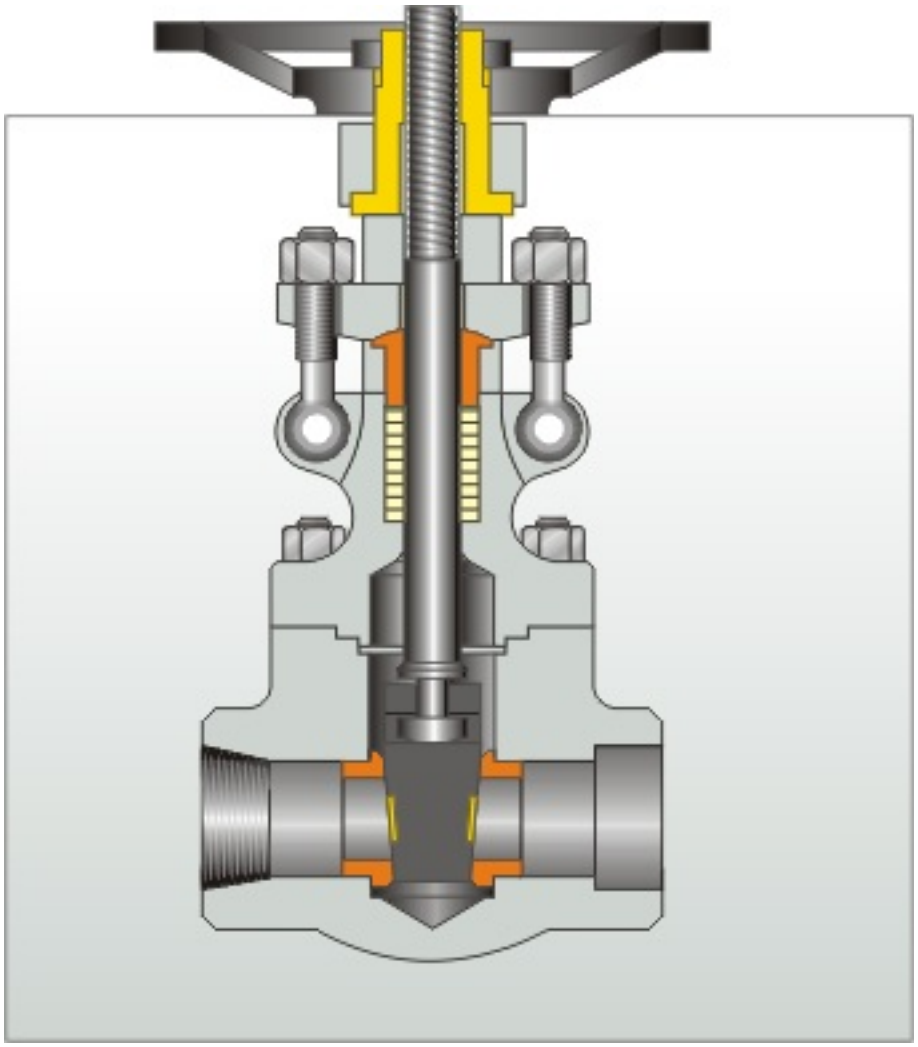
Design: BS 5352, API 602

SW dimension: ANSI B 16.11

NPT dimension: ANSI B 1.20.1

BW dimension: ANSI B 16.25

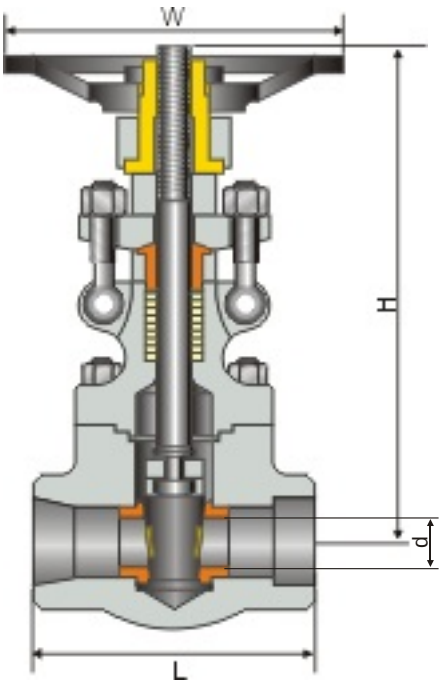
Flange dimension: ANSI B 16.5



Material of Parts

No	Part Name	Standard	Low Temp. NACE		Stainless Steel NACE	
1	Body	A105	LF2		304(L)	316(L)
2	Bonnet	A105	LF2		304(L)	316(L)
3	Stem	F6	316		304(L)	316(L)
4	Disc	F6	316		304(L)	316(L)
5	Seat Ring	F6-HFS	316-HFS		304-STL	316-STL
6	Bonnet Bolt	B7	L7M		B8(M)	B8(M)
7	Gasket	304+ Graphite	316+ Graphite		304+ Graphite	316+ Graphite
8	Gland	F6	316		304	316
9	Packing			Graphite		
10	Gland Flange			WCB		
11	Gland Bolt	B7	L7M		B8(M)	B8(M)
12	Gland Bolt Nut	2H	2HM		8(M)	8(M)
13	Gland Bolt Pin	410	304		410	410
14	Sleeve			410		
15	Sleeve Washer			410		
16	Handwheel			A197		
17	Nameplate			Aluminum		
18	Handwheel Nut			A108-1020		

FORGED STEEL GATE VALVE DIMENSIONS AND WEIGHTS



CLASS 800

Nominal R	Diameter F	d (mm)	L (mm)	H(Open,mm)	W(mm)	Weight(kgs)
15(1/2")	10(3/8")	10	79	161	100	2.22
20(3/4")	15(1/2")	13.6	92	163	100	2.39
25(1")	20(3/4")	18	111	196	125	4.29
32(1-1/4")	25(1")	24	120	223	160	5.70
40(1-1/2")	32(1-1/4")	29	120	251	160	7.05
50(2")	40(1-1/2")	36.8	140	290	180	10.9
65(2-1/2")	50(2")	46.5	178	330	200	16.8
80(3")	65(2-1/2")	51	185	370	220	24

CLASS 1500

Nominal R	Diameter F	d (mm)	L (mm)	H(Open,mm)	W(mm)	Weight(kgs)
15(1/2")	10(3/8")	10.5	111	191	125	4.4
20(3/4")	15(1/2")	13.5	111	192	125	5.1
25(1")	20(3/4")	18	120	219	160	6
32(1-1/4")	25(1")	24	120	243	160	7.2
40(1-1/2")	32(1-1/4")	29	140	296	180	11.4
50(2")	40(1-1/2")	36.8	178	316	200	16
60(2-1/2")	50(2")	45	180	370	200	23

CLASS 2500

Diameter F	d (mm)	L (mm)	H(Open,mm)	W(mm)	Weight(kgs)
15(1/2")	14	150	293	130	11
20(3/4")	14	150	300	130	11.3
25(1")	19	210	390	250	22.4
-	-	-	-	-	-
40(1-1/2")	30	235	435	300	38
50(2")	30	235	435	300	38

Os&y, Rising stem, Solid wedge, Bolted bonnet, Screwed or socket Weld end

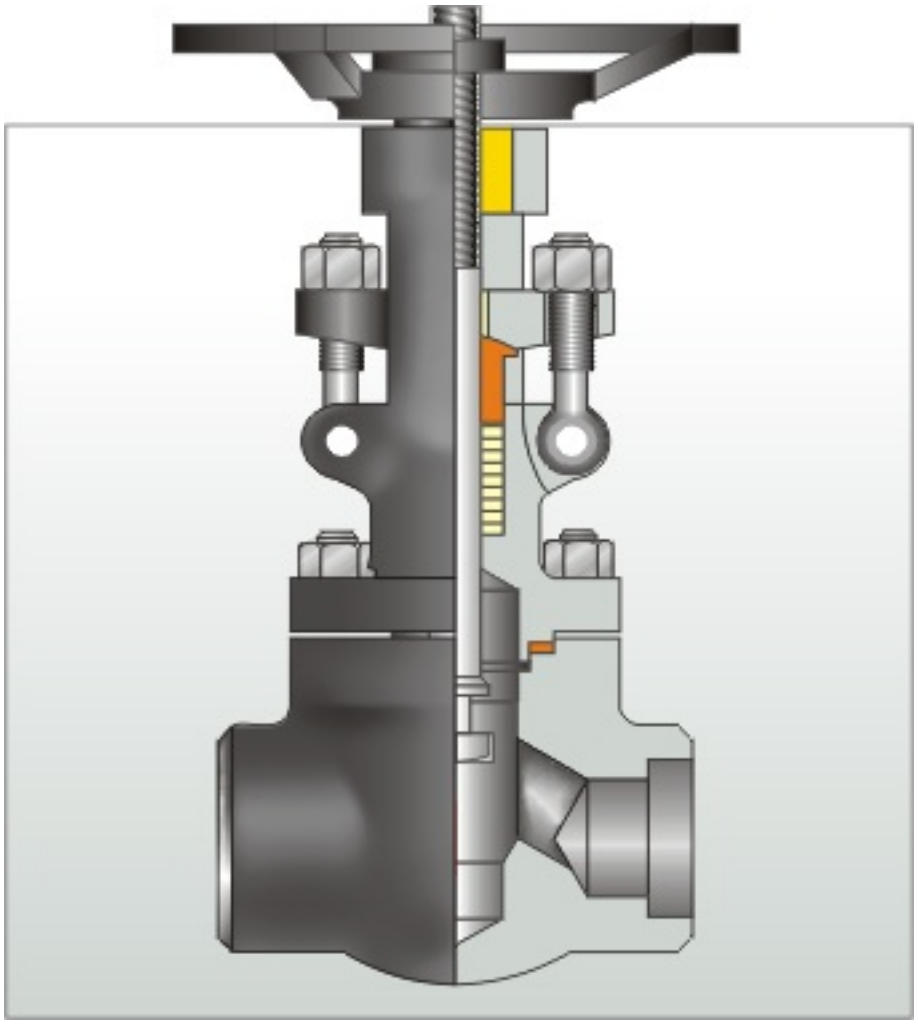
Design: BS 5352,API 602

SW dimension: ANSI B 16.11

NPT dimension: ANSI B 1.20.1

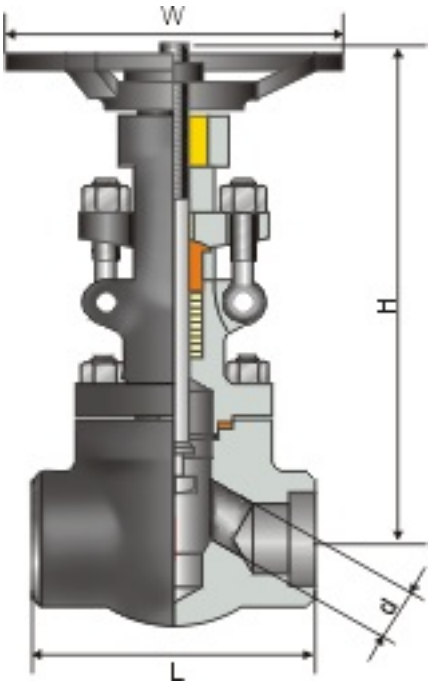
BW dimension: ANSI B 16.25

Flange dimension: ANSI B 16.5



Material of Parts

No	Part Name	Standard	Low Temp. NACE	Stainless Steel NACE	
1	Body	A105	LF2	304(L)	316(L)
2	Bonnet	A105	LF2	304(L)	316(L)
3	Stem	F6	316	304(L)	316(L)
4	Disc	F6	316	304(L)	316(L)
5	Bonnet Bolt	B7	L7M	B8(M)	B8(M)
6	Gasket	304+ Graphite	316+ Graphite	304+ Graphite	316+ Graphite
7	Gland	F6	316	304	316
8	Packing	Graphite			
9	Gland Flange	WCB			
10	Gland Bolt	B7	L7M	B8(M)	B8(M)
11	Gland Bolt Nut	2H	2HM	8(M)	8(M)
12	Gland Bolt Pin	410	304	410	410
13	Sleeve	410			
14	Handwheel	A197			
15	Nameplate	Aluminum			
16	Handwheel Washer	A108-1020			
17	Handwheel Nut	A194-2H			



CLASS 800

Nominal R	Diameter F	d (mm)	L (mm)	H(Open,mm)	W(mm)	Weight(kgs)
15(1/2")	10(3/8")	9	79	164	100	2.28
20(3/4")	15(1/2")	13	92	164	100	2.37
25(1")	20(3/4")	17.5	111	203	125	4.3
32(1-1/4")	25(1")	23	120	224	160	5.75
40(1-1/2")	32(1-1/4")	30	152	260	160	7.8
50(2")	40(1-1/2")	35	172	300	180	12.5
60(2-1/2")	50(2")	46	200	355	200	17.5

CLASS 1500

Nominal R	Diameter F	d (mm)	L (mm)	H(Open,mm)	W(mm)	Weight(kgs)
15(1/2")	10(3/8")	12	111	207	125	3.7
20(3/4")	15(1/2")	15	111	207	125	4.6
25(1")	20(3/4")	20	120	240	160	6.5
32(1-1/4")	25(1")	28	152	258	160	7.6
40(1-1/2")	32(1-1/4")	32	172	330	180	11.6
50(2")	40(1-1/2")	40	200	355	200	15
60(2-1/2")	50(2")	45	220	370	240	21.9

CLASS 2500

Diameter F	d (mm)	L (mm)	H(Open,mm)	Kg	W(mm)
15(1/2")	11	150	293	10	130
20(3/4")	14	150	300	10.3	130
25(1")	19	210	390	22.4	250
40(1-1/2")	28	235	435	38	300
50(2")	35	235	435	38	300

MATERIALS

ASTM	Chemical Compositions %											Mechanical				Hardness	Charpy
Code	C ⩽	Mn ⩽	P ⩽	S ⩽	Si ⩽	Cr ⩽	Mo ⩽	Ni ⩽	Cu ⩽	V ⩽	Nb ⩽	Tensile MPa, ⩾	Yield MPa, ⩾	ElonGation %, ⩾	Reduce %, ⩾	Brinell HB, ⩽	J, ⩾
A105	0.35	0.60~1.05	0.035	0.040	0.010~0.35	0.30	0.12	0.4	0.40	0.08	0.02	485	250	30	30	187	
A182F11	0.05~0.15	0.30~0.60	0.030	0.030	0.50~1.00	1.00~1.50	0.44~0.65					415	205	20	45	121~174	
A182F22	0.05~0.15	0.30~0.60	0.040	0.040	0.50	2.00~2.50	0.87~14.13					415	205	20	35	170	
A182F304	0.08	2.00	0.045	0.030	1.00	18.0~20.0		8.0~11.0				515	205	30	50		
A182F304L	0.030	2.00	0.045	0.030	1.00	18.0~20.0		8.0~13.0				485	170	30	50		
A182F316	0.08	2.00	0.045	0.030	1.00	16.0~18.0	2.00~3.00	10.0~14.0				515	205	30	50		
A182F316L	0.030	2.00	0.045	0.030	1.00	16.0~18.0	2.00~3.00	10.0~15.0				485	170	30	50		
A182F51	0.030	2.00	0.030	0.020	1.00	21.0~23.0	2.5~3.5	4.5~6.5				620	450	25	45		
A182F6a	0.15	1.00	0.040	0.030	1.00	11.5~13.5		0.50				585	380	18	35	167~229	
A193B7	0.37~0.49	0.65~1.10	0.035	0.040	0.15~0.35	0.75~1.20	0.15~0.25					860	720	16	50	321	
A193B7M	0.37~0.49	0.65~1.10	0.035	0.040	0.15~0.35	0.75~1.20	0.15~0.25					690	550	18	50	235	
A193B8	0.08	2.00	0.045	0.030	1.00	18.0~20.0		8.0~11.0		0.25~		515	205	30	50	223	
A193B8M	0.08	2.00	0.045	0.030	1.00	16.0~18.0	2.00~3.00	10.0~14.0		0.35		515	205	30	50	223	
A193B16	0.36~0.47	0.45~0.70	0.035	0.040	0.15~0.35	0.80~1.15	0.50~0.65					860	720	18	50	321	
A1942H	⩾0.40	1.00	0.040	0.050	0.04											248~352	
A1942HM	⩾0.40	1.00	0.040	0.050	0.04			8.0~11.0								159~237	
A1948	0.08	2.00	0.045	0.030	1.00	18.0~20.0		10.0~14.0								126~300	
A1948M	0.08	2.00	0.045	0.030	1.00	16.0~18.0	2.00~3.00									126~300	
A216WCB	0.30	1.00	0.04	0.045	0.60	0.50	0.20	0.50				485~655	250	22	35		
A216WCC	0.25	1.20	0.04	0.045	0.60	0.50	0.2	0.50	0.30	0.03		485~655	275	22	35		
A217C5	0.20	0.40~0.70	0.04	0.045	0.75	4.00~6.50	0.45~0.65	0.50	0.30	0.03		620~795	415	18	35		
A217CA15	0.15	1.00	0.040	0.040	1.50	11.5~14.0	0.50	1.00	0.50			620~795	450	18	30		
A217WC6	0.05~0.20	0.50~0.80	0.04	0.045	0.60	1.00~1.50	0.45~0.65	0.50				485~655	275	20	35		
A217WC9	0.05~0.18	0.40~0.70	0.04	0.045	0.60	2.00~2.75	0.90~1.250		0.50			485~655	275	20	35		
A276410	0.08~0.15	1.00	0.040	0.030	1.00	11.5~13.5			0.50			480	275	20	45		
A276420	⩾0.15	1.00	0.040	0.030	1.00	12.0~14.0										241	
A320L7	0.38~0.048	0.75~1.00	0.035	0.040	0.15~0.35	0.80~1.10	0.15~0.25					860	725	16	50		Avg:27; min:20
A320L7M	0.38~0.048	0.75~1.00	0.035	0.040	0.15~0.358	0.80~1.10	0.15~0.25					690	550	18	50	235	Avg:27; min:20
A336F22	0.05~0.15	0.30~0.60	0.025	0.025	0.50	2.00~2.50	0.90~1.10					515~690	310	19	40		
A350LF1	0.30	0.60~1.35	0.035	0.040	0.15~0.30	0.30	0.12	0.40				415~585	205	28	38		Avg:18; min:14
A350LF2	0.30	0.60~1.35	0.035	0.040	0.15~0.30	0.30	0.12	0.40	0.40	0.08		485~655	250	30	30		Avg:20; min:16
A351CF3	0.03	1.50	0.040	0.040	2.00	1.70~21.0	0.50	8.0~12.0	0.40	0.08		485	205	35.0			
A351CF3M	0.03	1.50	0.040	0.040	1.50		2.0~3.00	9.0~13.0			0.02	485	205	30.0			
A351CF8	0.08	1.50	0.040	0.040	2.00	17.0~21.0	0.50	8.0~11.0			0.02	485	205	35.0			
A351CF8M	0.08	1.50	0.040	0.040	1.50		2.0~3.00	9.0~12.0				485	205	30.0			
A351CF8C	0.08	1.50	0.040	0.040	2.00	18.0~21.0	0.50	9.0~12.0				485	2085	30.0			
A351CN7M	0.07	1.50	0.040	0.040	1.50		2.0~3.00	12.0~27.5	03.0~4.0			425	170	35			
A352LC1	0.25	0.50~0.80	0.04	0.045	0.60	18.0~21.0	0.45~0.65	30.5				450~620	240	24	35		
A352LC2	0.25	0.50~0.80	0.04	0.045	0.60								275	24	35		Avg:18; min:14
A352LC3	0.15	0.50~0.80	0.04	0.045	0.60	18.0~21.0		2.00~3.00				485~655	275	24	35		Avg:20; min:16
A352LCB	0.30	1.00	0.04	0.045	0.60	0.50	0.20	3.00~4.00					240	24	35		Avg:20; min:16
A352LCC	0.25	1.20	0.04	0.045	0.60	19.0~22.5	0.20	0.50	0.30	0.03		485~655	275	22	35	139~202	Avg:18; min:14
A439D2	3.00	0.70~14.25	0.08		1.50~3.00	1.75~2.75		18.00~22.00		0.03		400~450~620	207	8.0			Avg:20; min:16
												485~655					

ral 1000	ral 1001	ral 1002	ral 1003	ral 1004	ral 1005	ral 1006	ral 1007
ral 1011	ral 1012	ral 1013	ral 1014	ral 1015	ral 1016	ral 1017	ral 1018
ral 1019	ral 1020	ral 1021	ral 1023	ral 1024	ral 1027	ral 1028	ral 1032
ral 1033	ral 1034	ral 2000	ral 2001	ral 2002	ral 2003	ral 2004	ral 2008
ral 2009	ral 2010	ral 2011	ral 2012	ral 3000	ral 3001	ral 3002	ral 3003
ral 3004	ral 3005	ral 3007	ral 3009	ral 3011	ral 3012	ral 3013	ral 3014
ral 3015	ral 3016	ral 3017	ral 3018	ral 3020	ral 3022	ral 3027	ral 3031
ral 4001	ral 4002	ral 4003	ral 4004	ral 4005	ral 4006	ral 4007	ral 4008
ral 4009	ral 5000	ral 5001	ral 5002	ral 5003	ral 5004	ral 5005	ral 5007
ral 5008	ral 5009	ral 5010	ral 5011	ral 5012	ral 5013	ral 5014	ral 5015
ral 5017	ral 5018	ral 5019	ral 5020	ral 5021	ral 5022	ral 5023	ral 5024
ral 6000	ral 6001	ral 6002	ral 6003	ral 6004	ral 6005	ral 6006	ral 6007
ral 6008	ral 6009	ral 6010	ral 6011	ral 6012	ral 6013	ral 6014	ral 6015
ral 6016	ral 6017	ral 6018	ral 6019	ral 6020	ral 6021	ral 6022	ral 6024
ral 6025	ral 6026	ral 6027	ral 6028	ral 6029	ral 6032	ral 6033	ral 6034
ral 7000	ral 7001	ral 7001	ral 7002	ral 7003	ral 7004	ral 7005	ral 7006
ral 7008	ral 7009	ral 7010	ral 7011	ral 7012	ral 7013	ral 7015	ral 7016
ral 7021	ral 7022	ral 7023	ral 7024	ral 7026	ral 7030	ral 7031	ral 7032
ral 7033	ral 7034	ral 7035	ral 7036	ral 7037	ral 7038	ral 7039	ral 7040
ral 7042	ral 7043	ral 7044	ral 8000	ral 8001	ral 8002	ral 8003	ral 8004
ral 8007	ral 8008	ral 8011	ral 8012	ral 8014	ral 8015	ral 8016	ral 8017
ral 8019	ral 8022	ral 8023	ral 8024	ral 8025	ral 8028	ral 9001	ral 9002
ral 9003	ral 9004	ral 9005	ral 9010	ral 9011	ral9016	ral 9017	ral 9018

Note: For an exact reproduction of the colors it is advisable to doing refer a original RAL card.

Terms and Conditions

- Scope: These terms and conditions apply to all Petrostar valve products, and supersedes all previously published terms and conditions. Special terms and conditions printed on a buyer's order will only apply if they conform to the terms and conditions detailed on these pages or specially accepted by Petrostar. Terms and conditions of an order that change or modify those on this sheet shall not be binding on Petrostar valve Group.
- Approval: All quotations, contracts, orders, or agreements are subject to approval and/or acceptance by Petrostar Valve Group office. We reserve the right to correct clerical or stenographic errors in quotations, orders, invoices, and other contracts, agreements, or documents.
- Prices: Possession of price lists will not be accepted by Petrostar as an obligation, or offer to sell the goods listed therein to anyone. All prices contained therein are subject to change without notice, and supersede all previous lists. All orders will be invoiced at prices in effect at the time of shipment unless quoted in writing.
- Changes: Orders cannot be cancelled or specifications be changed without the consent of Petrostar Valve, and then only in terms indemnifying Petrostar Valve against loss.
- Quotations: Prices quoted are valid only for the duration indicated in the quotation. Quoted prices supersede all previous prices, quotations, or contracts, and are subject to change without notice. The delivery time mentioned in quotations is estimated period and subject to change at the time of order booking due to other order bookings.
- Cancellations: Orders placed with us cannot be cancelled without our prior written consent. A cancellation charge will be applicable. The charge details shall be available on request.
- Claims: All claims for shortages, corrections, or deductions must be made within 10 days after receipt of goods. Responsibility for goods lost or damaged in transit rests with carrier, and claims should be filed with the carrier by the consignee. Delivery of material to a common carrier shall be considered delivery to the buyer, and shall be at the buyers risk thereafter.
- Delivery Delays: We assume no responsibility for delays in delivery, or defaults resulting from strikes, work stoppages, fires, floods, accidents, war, inability to obtain materials, or any other cause unavoidable and beyond our control.
- Taxes: Petrostar valve Group's quotations and/or contracts do not include any municipal, state, or federal sales, excise, use occupational, or other taxes, and any such tax, if paid by us will be charged to the purchaser.
- Catalog Illustrations: Catalog illustrations are actual representations of a certain size of each product line, but do not necessarily represent all sizes in details. We reserve the right to institute changes in materials, designs, and specification without notice in keeping with our policy of continuing product improvement.
- Catalog Weights: Catalog weights represent average weights of products and are in no sense guaranteed.
- Special Orders: Orders for special goods must be in writing and accompanied with detailed prints and/or sets of specifications, unless specifications on the orders are definite and complete. Orders will not be entered with the factory unless this is adhered to. Cancellation charges will be as outlined in our quotations.

WARRANTY

Petrostar Valve Group warrants each product it manufactures, against defects in material and workmanship under normal use and service for a period of one year after date of shipment.

This warranty is made to the buyer, and does not extend to any other party unless the end user name is advised to Petrostar Valve Group at the time of order confirmation. The obligation of Petrostar Valve International under this warranty is limited to:
(a) replacement of any part or parts proven defective in material or workmanship .
(b) repair of the product in the factory or service center.
(c) refund of the purchase price.

This warranty does not extend to any claims for labor, consequential damages, down time, or any other loss, damage, or expense of any kind arising out of the defect. We do not allow claims for unauthorized repairs, labor, or material. We arenot responsible for loss of use, personal injury, lost profits, or any other damages whatsoever in connection with the warranties set forth.

No warranty shall apply to any product which has been modified or changed in design or function after leaving Petrostar's facilities or which is misused or operated beyond its design capabilities, or used for other than its intended purpose.

The buyer assumes all risk of this selection of proper materials according to the process and Petrostar assumes no responsibility of incompatibility of materials to the process medium.

The buyer shall permit Petrostar valve or its authorized representative to inspect the product so that it may determine its obligation. Petrostar valve shall be entitled to the return of the defective product or parts. Buyer must notify Petrostar valve promptly upon discover of any claimed defect.

No material may be returned without first obtaining written permission from Petrostar Valve International/ Group. The foregoing is the only warranty and no other is expressed or implied.

GOODS RETURN POLICY

This policy supersedes all other policies for return goods.

I. GOODS RETURNED AT CUSTOMER'S REQUEST:

- A. Material must be:

1. Of Petrostar Valve manufacture.
2. In clean, new and saleable condition. It must have been stored inside with proper protection from open weather and corrosive atmosphere and dust.
3. Shipped from one of our service centers within the 12 calendar months preceding the request for return, and the return will not cause inventory to exceed maximum allowable levels.
4. Personally inspected by a Petrostar valve's representative authorized in written by Petrostar valve Group office prior to its return.
5. Special or non-standard items are non-returnable.
6) The customer/ user shall send a written confirmation addressed to Petrostar valve group in their letter head with the signature of authorized signatory stating that "The product was not damaged by buyer or their client" .
7) All the freight and handling charges shall be on Customer's account.

- B. A Return Goods Card must be furnished by a Petrostar Valve's representative after inspection of the material, and must be returned with the shipment.
- C. Shipments received without a Return Goods Authorization Card will be refused. Customer will be responsible for any storage.
- D. Material returned which is not of Petrostar's manufacture, not in clean and saleable condition, or not authorized for return will be returned to the customer freight collect.

II. GOODS RETURNED BECAUSE OF ANY WRONG SUPPLY OR QUALITY RELATED PROBLEMS.

- A. Material must be in a clean & new condition.
- B. The customer/ user shall send a written confirmation addressed to Petrostar valve group in their letter head with the signature of authorized signatory stating that "The product was not damaged by buyer or their client"
- C. Return shipment should be made freight collect.
- D. Full credit will be allowed as soon as the material is received and inspected by Petrostar valve Office.
- E. Customer must receive Return Goods authorization prior to the return of the material. Return Goods Authorization Card must accompany shipment. Shipments received without Return Goods Authorization Card will be refused. Return Goods Authorization Card should be attached to the packing list. All requests to return material to Petrostar valve must be submitted in writing to our General/Sales/ Operations Manager for authorization.

UNS/ ASTM-JIS COMPARISON LIST

UNS DESIGNATION	GRADE	BAR		CASTING		FORGING	
		JIS	ASTM	JIS	ASTM	JIS	ASTM
		G4303	A276	G5121	A351	G3214	A182
S20910	AUSTENITIC STEELS						
S21800	22Cr-12Ni5Mn-2Mo-V-N-0.04C		XM-19		CG6MMN		F XM-19
S21904	17Cr-8.5Mo-8Mn-4Si-N-0.08C		____		CF102MnN		
S24000	20Cr-6.5Ni-9Mn-N-0.08C		XM-11				F XM-11
S24100	18Cr-3Ni-13Mn-N-0.06C		XM-29				
JIS	18Cr-1.5Ni-13Mn-N-0.1C		XM-28				
S30200	17Cr-7Ni-0.1C		SUS 301				
JIS	18Cr-8Ni-0.1C	SUS 302	302	SCS 12	(A743 CF-20)	SUS F 304	(A473 302)
S30400	18Cr-8Ni-0.06C	SUS 304		SCS 13		SUS F 304	
JIS	18Cr-8Ni-0.06C	SUS 304	304	SCS 13A	CF8, 8A	SUS F 304L	F 304
S30403	18Cr-9Ni-Lo,C	SUS 304L		SCS 19		SUS F 304L	
S30409	18Cr-9Ni-Lo,C	SUS 304L	304L	SCS 19A	CF3, 3A	SUS F 304H	F 304L
S30430	18Cr-8Ni-0.07C		(A479 304H)		CF 10		F 304H
S30451	18Cr-9Ni-3.5Cu-0.06C	SUSXM7	XM-7				
S30452	18Cr-8Ni-0.15N-0.06C	SUS 304N1	304N				F 304N
S30453	18Cr-8Ni-0.25N-0.06C	SUS 304N2	XM-21				
___	18Cr-9Ni-0.15N-0Lo,C	SUS 304LN	304LN				F 304LN
S30600	18Cr-13Ni-0.06C	SUS 305J1					
S30800	18Cr-15Ni-4Si-0.009C						F 46
S30815	20Cr-11Ni-0.06C		308		(A743 CG12)		(A473 308)
S30880	20Cr-10Ni-1.15Si-N-Ce-0.08C		_____				F45
S30900	21Cr-10Ni-2Mn-Si-0.06C		ER308				
S30908	22Cr-12Ni-0.1C		309	SCS 17	CH20		(A473 309)
S30909	22Cr-12Ni-0.06C	SUS 309S	309S		CH8		(A473 309S)
S30940	22Cr-12NI-0.07C				CH10		(A336 F 309H)
S31000	22Cr-12NI-Cb-0.06C		309Cb			SUS F 310	
S31008	25Cr-20Ni-0.1C		310	SCS18	CK20		F310
S31040	25Cr-20Ni-0.06C	SUS 310S	310S				(A473 310S)
S31254	25Cr-20Ni-Cb-0.06C		310Cb				
S31400	20Cr-18Ni-6.5Mo-N-Cu-0.01C		____		CK3MCuN		F44
JIS	25Cr-20Ni-2Si-0.15C		314			SUS F 316	(A473 314)
S31600	18Cr-12Ni-2.5Mo-0.06C	SUS 316		SCS 14		SUS F 316	
JIS	18Cr-12Ni-2.5Mo-0.06C	SUS 316	316	SCS 14A	CF8M	SUS F 316L	F316
S31603	18Cr-12Ni-2.5Mo-Lo,C	SUS 316L		SCS 16		SUS F 316L	
S31609	18Cr-12Ni-2.5Mo-Lo,C	SUS 316L	316L	SCS 16A	CF3M, 3MA	SUS F 316H	F316L
S31635	18Cr-12Ni-2.5Mo-0.07C		(A479 316H)		CF10M		F316H
S31640	18Cr-12Ni-2.5Mo-Ti-0.06C		316Ti				
S31651	18Cr-13Ni-2Mo-Cb-0.06C		316Cb	SCS 22	CF10MC		
S31653	18Cr-12Ni-2.5Mo-0.15N-0.06C	SUS 316N	316N				F316N
S31654	18Cr-12Ni-2.5Mo-0.15N-Lo, C	SUS 316LN	316LN		(A743 CF-3MN)		F316LN
JIS	18Cr-12Ni-2.5Mo-0.2N-Lo, C		____		(A743 CF-3MN)		
JIS	18Cr-12Ni-2Mo-2Cu-0.06C	SUS 316J1		BCS 15			
S31700	18Cr-12Ni-2Mo-2Cu-Lo, C	SUS 316J1L		BCS 20			
S31703	18Cr-12Ni-3.5Mo-0.06C	SUS 317	317		CGBM		F317
S31725	18Cr-12Ni-3.5Mo-Lo, C	SUS 317L					F317L
S32100	18Cr-16Ni-5Mo-Lo, C	SUS 317L	___			SUS F 321	
S32109	18Cr-9Ni-Ti-0.06C	SUS 321	321			SUS F 321H	F321
S33100	18Cr-9Ni-Ti-0.07C		(A479 321H)				F321H
S34700	8Cr-20Ni-1Si-Mn-0.15C					SUS F 347	F10
S34709	18Cr-9Ni-Cb-0.06C	SUS 347	347	SCS 21	CFBC	SUS F 347H	F347
S34800	18Cr-9Ni-Cb-0.07C		(A479 347H)				F347H
JIS	18Cr-9Ni-Cb-0.06C		318				F348
_____	18Cr-13Ni-4Si-0.06C	SUS XM15J1					
_____	20Cr-24Ni-3Mo-2Cu-3Si-0.05C				(A743 CN-7MS)		
_____	20Cr-29Ni-2.5Mo-3.5Cu-0.05C			SCS 23	CN7M		
_____	20Cr-33Ni-Min-Si-Cb-0.01C				CT15C		
_____	21Cr-24Ni-5Mo-Lo, C				(A743 CN-3M)		
_____	25Cr-20Ni--0.03C				HK30		
_____	25Cr-20Ni--0.04C				HK40		
	FERRITIC-AUSTENTIC STEELS						
S31100	25Cr-6Ni--0.04C		XM-26				
S31200	25Cr-6Ni-2Mo-N-Lo,C						F50
S31803	25Cr-6Ni-3Mo-N-Lo,C		_____	SCS 10			F51
_____	25Cr-5Ni-2Mo-3Cu-0.02C				CD4MCu		
S32900	25Cr-4.5Ni-2Mo-0.06C			SCS 11			

SPECIAL ALLOY STEEL

TYPE OF STEEL	GRADE	BAR		CASTING	FORGING
		JIS	ASTM	ASTM	ASTM
Carpenter 20	Cr-Ni-Fe-Mo-Cu-Cb		B473 NO8020		B462 NO8020
Alloy 20 Cb-3	35Ni-20Cr-2.5Mo-39Fe-35Cu-Cb-0.05C			A 351 CN7N	
CN7M, SCS 23	29Ni-20Cr-2.5Mo-45Fe-35Cu-0.05C			A 743 CM-7MS	
CN-7MS	24Ni-19Cr-2.5Mo-49Fe-2Cu-3Si-0.05C				
Carpenter 20 Mod	Ni-Fe-Cr-Mo				
Alloy 20 Mod	26Ni-22Cr-5Mo-47Fe-Ti-0.03C		B621 NO8320		B621 NO8320
CN-3M	25Ni-21Cr-5Mo-49Fe-Lo, C			A 743 CM-3M	
Nickel	Ni				
Alloy 200	99Ni-0.1C	H 4562 NNCB	B160 NO2200		B160 NO2200
Alloy 201	99Ni-0.01C	H 4562 NNCB	B160 NO2201		B160 NO2201
CZ-100	97Ni-0.8C			A 494 CZ-100	
Duranickel 301	95Ni-4.5A1-Ti-0.2C	H 4562 NDB			
Monel	Ni-Cu				
Alloy 400	69Ni-31Cu-0.2C(Si<0.5) (S<0.024)	H 4553 NCuB	B164 NO4400		B164 NO4400
Alloy 405	69Ni-31Cu-0.2C(Si<0.5) (S:0025 - 0.06)		B164 NO4405		B164 NO4405
M-35-1	70Ni-30Cu-0.25C(Si<1.25)			A 494 M-351	
M-35-2	70Ni-30Cu-0.25C(Si<2.00)			A 494 M-35-2	
N-30H	67Ni-31Cu-3Si-0.2C			A 494 M-30H	
M-25S	66Ni-30Cu-4Si-0.15C			A 494 M-25S	
M-30C	66Ni-30Cu-1.5Si-2Cb-0.2C			A 494 M-30C	
Inconel	Ni-Cr-Fe(Ni-Cr-Mo-Cb)				
Alloy 600	77Ni-15Cr-8Fe-0.1C	G 4901 NCF 600	B 166 NO6600		B 564 NO6600
CY 40	77Ni-15Cr-(8Fe)-0.3C			A 494 CY-40	
Alloy 625	65Ni-22Cr-9Mo-4Cb-0.08C		B 446 NO6625		B 564 NO6625
CW-6MC	65Ni-22Cr-9Mo-4Cb-0.04C			A 494 CW-6MC	
Inconel 601	61Ni-23Cr-14Mo-1.5A1-0.08C	G 4901 NCF 601			
Inconel 609	62Ni-23Cr-9Fe-0.03C	B 166 NO6690			
Inconel X-750	73Ni-16Cr-7Fe-1Cb-2.5Ti-A1-0.06C	G 4901 NCF 750	B 637 NO7750		B 637 NO7750
Inconel 751	73Ni-16Cr-7Fe-1Ni-2.5Ti-A1-0.08C	G 4901 NCF 751			
CY5SnBiM	76Ni-13Cr-3Mo-4Bi-4Sn-0.03C			A 494 CY5SnSim	
Incoloy	Ni-Fe-Cr(Ni-Fe-Cr-Mo-Cu)				
Alloy 800	33Ni-21Cr-46Fe-A1-Ti-0.08C	G 4901 NCF 800	B 408 NO8800		B 564 NO8800
Alloy 800H	33Ni-21Cr-46Fe-A1-Ti-0.075C	G 4901 NCF 800H	B 406 NO8810		B 564 NO8810
Alloy 825	42Ni-22Cr-3Mo-30Fe-2Cu-1Ti-0.03C	G 4901 NCF 825	B 425 NO8825		B 425 NO8825
Hastelloy B	Ni-Mo				
Alloy B	67Ni-28Mo-5Fe-V-0.03C		B 335 N10001		B 335 N10001
A-12MV	67Ni-28Mo-5Fe-V-0.1C			A 494 N-12MV	
Alloy B-2	72Ni-28Mo-0.01C		B 335 N10665		B 335 N10665
N-7M	68Ni-32Mo-0.05C			A 494 N-7M	
Hastelloy C	Ni-Mo-Cr				
Alloy C-276	58Ni-16Cr-16Mo-6Fe-4W-0.005C		B 574 N10276		B 335 N10276
CW-12MW	58Ni-16Cr-16Mo-6Fe-4W-0.01C			A 494 CW-12MW	
Alloy C-4	68Ni-16Cr-16Mo-0.008C		B 574 NO6455		B 574 NO6455
CW-2M	68Ni-16Cr-16Mo-0.01C			A 494 CW-12M	
Alloy C-22	58Ni-21Cr-14Mo-4Fe-3W-0.008C		B 574 NO6022		B 574 NO6022
CW-6M	62Ni-19Cr-19Mo-0.05C			A 494 CW-6M	
Hastelloy G	Ni-Cr-Fe-Mo-Cu				
Alloy G	46Ni-22Cr-6.5Mo-20Fe-5Mn-2Cu-0.03C		B 581 NO6007		B 581 NO6007
Alloy G-2	50Ni-25Cr-6Mo-17Fe-1Cu-1Ti-Lo, C		B 581 NO6975		B 581 NO6975
Alloy G-30	44Ni-30Cr-5Mo-15Fe-2Cu-1Cb-3W-Lo, C		B 581 NO6030		B 581 NO6030
Alloy G-3	49Ni-22Cr-7Mo-20Fe-2Cu-0.08C		B 581 NO6985		B 581 NO6985
Hastelloy N	Ni-Mo-Cr-Fe				
Alloy N	76Ni-7Cr-17Mo-0.06C		B 573 N10003		B 573 N10003
Hastelloy X	Ni-Cr-Mo-Fe				
Alloy X	48Ni-22Cr-9Mo-19Fe-1.5Co-W-0.1C		B 572 NO6002		B 572 NO6002
Js 700	Ni-Fe-Cr-9Mo-Cb				
Alloy 700	25Ni-21Cr-4.5Mo-49Fe-Cb-0.02C		B 581 NO 700 8		B 672 NO8700
CN-3M	25Ni-21Cr-5Mo-49Fe-Lo, C			A 743 CN-3M	
904L	Ni-Fe-Cr-9Mo-Cb				
Alloy 904L	26Ni-21Cr-4.5Mo-47Fe-1.5Cu-0.01C		B 649 NO8904		B 649 NO8904
RA-330	Ni-Fe-Cr-Si				
Alloy 330	36Ni-19Cr-44Mo-1Si-0.06C		B 511NO8330		B 511NO8330
Nimonic 80A	Ni-Cr				
Nimonic 80A	76Ni-20Cr-2Ti-1.5A1-0.08C	G 4901 NCF 80A	B 637 NO7080		B 637 NO7080
IN-102	Ni-Cr-Fe-Cb-Mo-W				
IN-102	66Ni-15Cr-3Mo-7Fe-3Cb-3W-A1-Ti-MgB-Zr-0.06C		B518 NO6102		
Affcorr	Ni-Cr-Mo-W				
Affcorr	55Ni-31Cr-10.5Mo-2.5W-Cb-0.1C		B 756 NO6110		B 564 NO6110

ORDER CODING.

	TYPE		CLASS		CONNECTION		DESIGN	
A	Floater, Reduced Bore, Unibody, Side entry	1	Class150	R	RF	1	Firesafe NACE
B	2Pc, Floater side entry BV, Full Bore, Bolted body	3	Class 300	F	FF	2	Firesafe
C	2Pc, Floater side entry BV, Reduced Bore, Bolted Body	6	Class 600	J	RTJ	3	NACE
D	3Pc, Floater Side entry BV, Full Bore, Bolted Body	8	Class 800	S	SW	4	Standard
E	3Pc, Floater Side entry BV, RB, Bolted Body	9	Class 900	B	BW		
F	2PcTrunnion, FB, Side entry, Bolted Body, DB&B	15	Class 1500	N	NPT		
G	2PcTrunnion, RB, Side entry, Bolted Body, DB&B	25	Class 2500	O	NPT/SW		
H	3PcTrunnion, FB, Side entry, Bolted Body,DB&B	K1	1000WOG	D	D Flanged		
J	3pcTrunnion, RB, Side entry, Bolted body, DB&B	K2	2000WOG	L	Lug Type		
K	Top entry BV, FB, Bolted body, Bolted Body, DB&B	K3	3000WOG	W	Wafer		
L	Top entry BV, RB, Bolted Body, Bolted Body, DB&B	10	PN10	X	Other		
M	Welded BV, FB, DB&B, Sealant Injection, Trunnion	16	PN16				
N	Welded BV, RB, DB&B, Sealant Injection, Trunnion	20	PN20				
GB	Gate,B. Bonnet, OS&Y, BG, Rising stem, Non rising HW	25	PN25				
GW	Gate,W. Bonnet, OS&Y, BG, Rising stem, Non rising HW	40	PN40				
GP	Gate, P. Seal, OS&Y, BG, Rising stem, Non rising HW						
LB	Globe,B. Bonnet, OS&Y, BG, Rising stem & HW						
LW	Globe,W. Bonnet, OS&Y, BG, Rising stem & HW						
LP	Globe, P. Seal, OS&Y, BG, Rising stem & HW						
CB	Swing Check, B. Cover						
CW	Swing Check, W. Cover						
CP	Swing Check, P. Seal						
DP	Dual Plate Check, Integral seat, Spring loaded						
PV	Piston Check Valve, integral seat, spring loaded						
BV	Ball Check Valve, integral seat, spring loaded						
RB	Resiliant Butterfly, concentric design						
HB	Double offset Butterfly, Bolted gland						
TB	Triple Offset Butterfly, Bolted gland						
TG	T C Gate Valve, BB, OS&Y, BG, Rising stem, NR HW						
HW	Needle Valve, Bar stock design, T handle						
S	Special Valve						
-s	Special feature						

GENERAL SPECS:-

1) All Flanged Ball valves shall be NACE and Fire safe
2) All flanged Ball valves are with Locking facility
3) Trunnion ball valves are with sealant injection facility
4) All Trunnion ball valves are with spring assisted seats
5) All Ball valves are with anti-blow out stem
6) 2" and above ball valves are with Bolted gland.
7) Standard forged steel GGC valves are with integral seat
8) API 602 forged Gate valves are with Solid wedge.
9) 2" and above size Gate valves are with Tappered H wedges
10) Body joint gasket for 300 # and above valves are metallic
11) Metal seated butterfly valves are with Tripple Offset design
12) Class 300 and 600 butterfly valves are HP type.
13) Class 2500 GGC Valves are Pressure seal bonnet type

ORDER CODING.

BODY		TRIM		STEM		SEAT&SEAL(BV & BLY)		OPERATOR	
A	WCB	1	13% Cr	a	F6a	R	RTFE+Viton/Grap	L	Lever Operator
B	A105	2	SS304	b	SS 304	Ny	Nylon+Viton/Grap	G	Gear Operator
C	LCC	2h	304SS+F STL	c	SS 304L	D	Derlin+Viton/Grap	P	Pneumatic Actuator
D	LF2	2s	304SS+1/2 STL	d	SS 316	P	PEEK+Viton/Grap	H	Hydraulic Actuator
E	LCB	5	13%Cr+ F STL	f	SS 316L	C	C.Graph+Viton/Grap	E	Electrical actuator
F	CF8	8	13%Cr+ F STL	g	SS 410	M	Metal+Viton/Grap	W	Wheel Operated
G	F304	9	Monel	h	SS 416	K	RTFE+PTFE	O	Gas Over Oil
H	CF3	10	SS316	i	SS 630	E	EPDM		
I	F304L	10h	SS316+F STL	j	SS 431	B	Buna-N		
J	CF8M	11	Monel+1/2 STL	k	4140	V	Viton		
K	F316	12	SS316+1/2 STL	l	17-4 PH	N	Neoprene		
L	CF3M	13	Alloy 20	m	Monel	T	PTFE		
M	F316L	14	Alloy 20+1/2 STL	n	F51	S	Stellited		
N	A890-4A	15	SS304L	o	F53	(O)	Special/Other		
O	F51	15h	SS304L +F STL	p	F55				
P	A890-5A	15s	SS304L +1/2 STL	q	Alloy 20				
Q	F53	16	SS316L	r	Hastelloy				
R	A890-6A	16h	SS316L+F STL	s	Inconel				
S	F55	16s	SS316L+1/2 STL	x	Special				
T	Ductile Iron	17	SS347	-e	ENP Coating				
U	A126	17h	SS347+F STL						
V	CN7M	17s	SS347+1/2 STL						
W	WCC	19	Hastelloy						
Y	CF8C	19h	Hastelloy+F STL						
Z	CG8M	19s	Hastelloy+1/2 STL						
Aa	C5	20	Inconel						
Ab	C12	20h	Inconel+F. STL						
Ac	C12A	20s	Inconel+1/2 STL						
Ba	WC1	A	A105+ENP						
Bb	WC6	B	WCB+ENP						
Bc	WC9	C	WC9+ENP						
Ca	LC1	D	CF8						
Cb	LC2	E	CF8M						
Cc	LC3	F	A536						
		G	B148						
X	Special	H	CA15+SS410						
-e	ENP coated	X	Special						
		(e)	ENP Coating						

TRIM DATA :-

1) 1) Stem material shall be same material as Trim unless specifically requested otherwise. (e.g Trim 12 valve will have SS 316 stem.)
2) 2) Wedge or disc shall be same or superior material as body and trim material will be overlaid
3) 3) ENP Coating shall be minimum 75 Micron thick
4) Stelliting on 1/2 stellited valves are always on body seat by default


STAR
30
300
LCB

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