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Complete Solutions for Industrial Valves

As a global leader of valve manufacturing, Neway (SSE:603699) is dedicated to the production, research, and development of industrial valves. Neway is committed to providing complete valve solutions to all industries through advanced engineering and innovation.

Neway's product line includes Ball, Gate, Globe, Check, Butterfly, Nuclear, Control, Subsea, Safety valves. Our high quality standards and innovative ability are recognized by many global end users and EPCs. Neway valves are utilized in a wide variety of industries and working conditions such as Gas, Oil, Refining, Chemical, Coal Chemical, Offshore, FPSO, Air Separation, LNG, Nuclear Power, Power Generation, and Pipeline Transmission applications.

Facilities & Service

Neway has developed a sophisticated multi-plant management system operating one valve assembly plant, one API6A valve plant, three foundries, and one R&D center. Our newest assembly plant was expanded in 2013, and it now covers 35,000 square meters.

Advanced software (ANSYS, FE-Safe, CF-Design, Siemens PLM and NX) is applied here at Neway for the Research & Development of products. We use SAP to control the traceability and status of all products during the manufacturing process. In order to ensure the safety, eco-friendliness, and reliability of our products, we use the most advanced fire-safe, cryogenic, high pressure, and fugitive emission test equipment.

As part of Neway's global strategy, to provide better service to our customers, we have established our overseas subsidiaries in North America, Brazil, Netherlands, Italy, Singapore, and Dubai along with over 80 agents and distributors worldwide.

High Quality, High Value

Neway is dedicated to the pursuit of "Zero Defect". We maintain a quality management system that encompasses our entire operation from order entry, to final inspection. Through Neway's continuous efforts, our products have achieved industrial certificates including ISO 9001, API Q1, API 6A, API 6D, CE/PED, ASME N & NPT, TA-Luft, ABS, CU-TR, and Fire-Safe approvals.

Introduction

This catalogue includes the latest developments in NEWAY Ball Valves with 4 different designs:

- **BT series:** Side entry cast steel trunnion mounted type
- **BS series:** Side entry forged steel trunnion mounted type
- **BE series:** Top entry trunnion mounted type
- **BW series:** Fully welded trunnion mounted type

All Ball Valves conform to BS5351 and API 6D, and are Fire-Safe tested and certified to API 6FA and API 607.

NORSOK



API Q1



API 6D



CE/PED

TA Luft



ABS

AD2000



Fire Safe Test

Neway recognizes the importance of valve quality for the safety and protection of personnel health and property. It is our quality commitment to focus our resources to provide our customers with first class products at a competitive price, that are designed, manufactured, inspected and tested in accordance with our customers specifications and that comply with all international standards.

With respect to the facts that the current industrial standards do not always take into consideration the likelihood and consequences of possible deterioration in service, related to specific service fluids or the external environment in which they operate. Our customers are requested to keep an open line of communication with our engineering department to identify and implement standards, that will provide valves with the possibility of deterioration in service, so as to ensure safety over the valves expected lifetime.

1



2



3



- 1 Metal to metal ball valve with Pneumatic actuator, 28" Class 300
- 2 Top entry trunnion mounted ballvalve
- 3 Pneumatically actuated Ball valve
- 4 Electric Ball Valves
- 5 Hydraulically operated Ball Valves



4



5

How to order

Example:



Neway figure numbers are designed to cover essential features. When ordering, please show the figure numbers and a detailed description to avoid misunderstanding of your requirements.

Following descriptions provide a basic guideline in valve specification:

① Valve Sizes

Full bore:											
In	2	2-1/2	3	3-1/2	4	5	6	8	10	12	14
mm	50	65	80	90	100	125	150	200	250	300	350
In	16	18	20	22	24	26	28	30	32	34	36
mm	400	450	500	550	600	650	700	750	800	850	900
In	38	40	42	44	48	52	54	56	60	--	--
mm	950	1000	1050	1100	1200	1300	1350	1400	1500		

6D Reduced Bore:

In	2x1-1/2	2-1/2x2	3x2	4x3	6x4	8x6	10x8	12x10	14x10	16x12	18x14	20x16	22x18	24x20
mm	50x40	65x50	80x50	100x80	150x100	200x150	250x200	300x250	350x250	400x300	450x350	500x400	550x450	600x500
In	26x20	28x24	30x24	32x26	34x28	36x30	38x32	40x34	42x36	46x40	48x42	54x42	56x48	60x48
mm	650x500	700x600	750x600	800x650	850x700	900x750	950x800	1000x850	1050x900	1150x1000	1200x1000	1350x1050	1400x1200	1500x1200

② Valve Types

Symbol	Valve Type	Symbol	Valve Type
BS	Side entry forged trunnion mounted type	BSP	Side entry double piston effect trunnion mounted type
BT	Side entry casting trunnion mounted type	BSE	Side entry Self relieving Double piston effect trunnion mounted type
BE	tope entry trunnion mounted type		

③ ASME Class

Code	1	3	4	6	8	9	15	25
Class (LB)	150	300	400	600	800	900	1500	2500

④ End Connections

Symbol	End
R	Raised face flanged end
J	RTJ flanged end
B	Butt-weld end

⑤ Operator

Symbol	Description	Symbol	Description
	Lever	BS	Bare shaft
G	Gear operator	H	Hydraulic actuator
M	Electric actuator	L	Gas over oil actuator
P	Pneumatic actuator	D	Electric over oil actuator

⑥ Body Materials

Steel Classification	Cast Material	Forging Material	Recommended Temperature Limits		Application
			°C	°F	
Carbon Steel	A216 Grade WCB	A105N	-29 to 425	-20 to 800	Steam, petroleum products, oil vapour, gas and general service
Carbon Steel	A216 Grade LCB	A350 Grade LF2	-46 to 350	-50 to 650	Low temperature
Carbon Steel	A216 Grade LCC	A350 Grade LF2	-46 to 350	-50 to 650	
Duplex Stainless Steel	A995 Grade 4A	A182 Grade F51	-51 to 315	-60 to 599	Corrosion resistance
Duplex Stainless Steel	A995 Grade 5A	A182 Grade F53	-51 to 315	-60 to 599	
Austenitic Stainless Steel	A351 Grade CF8M	A182 Grade F316	-196 to 815	-320 to 1500	High and low temperature corrosion resistance
Austenitic Stainless Steel	A351 Grade CF8	A182 Grade F304	-196 to 815	-320 to 1500	
Low Carbon Austenitic Stainless Steel	A351 Grade CF3M	A182 Grade F316L	-196 to 815	-320 to 1500	Cryogenic service is also available upon request
Low Carbon Austenitic Stainless Steel	A351 Grade CF3	A182 Grade F304L	-196 to 815	-320 to 1500	

⑦ Trim Codes

Seat Insert		O-ring		Stem		Ball		Seat	
Code	Material	Code	Material	Code	Material	Code	Material	Code	Material
1	PTFE	1	NBR	1	F6a	1	F6a	1	F6a
3	PEEK	2	VITON A	2	F304	2	F304	2	F304
5	DEVLON V	3	VITON AED	3	A105N/ENP	3	A105N/ENP	3	A105N/ENP
7	NYLON 12	4	VITON B	4	17-4PH	4	17-4PH	4	17-4PH
8	PCTFE	6	HNBR	5	AISI 4140/ENP	5	AISI 4140/ENP	5	AISI 4140/ENP
L	Lipseal	8	VITON GLT	6	F316	6	F316	6	F316
L	HNBR	V	FEPM	7	F304L	7	F304L	7	F304L
J	VITON	L	Lipseal	8	F316L	8	F316L	8	F316L
				9	LF2/ENP	9	LF2/ENP	9	LF2/ENP
				A	F51	A	F51	A	F51

Note: Other materials are available upon request.

Product Range

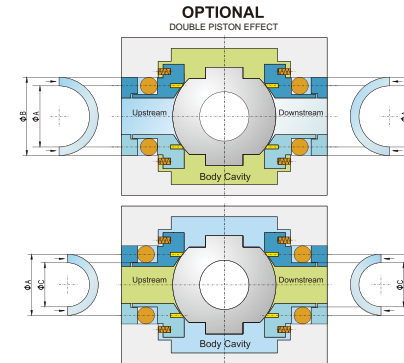
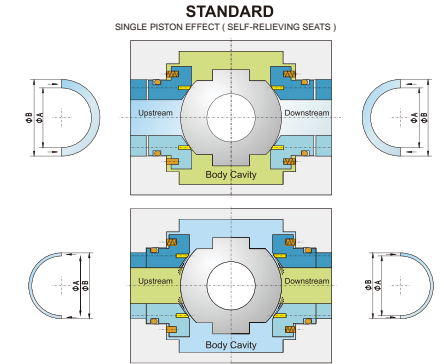
Valve Size		2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"	52"	54"	56"	60"	
API 6D Trunnion Mounted Ball Valve	Side Entry Cast Steel TM Ball Valve	150	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		300	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		600	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		900	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		1500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	2500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	Side Entry Forged Steel TM Ball Valve	150	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		300	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		600	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		900	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		1500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	2500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	Top Entry TM Ball Valve	150	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		300	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		600	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
900		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
1500		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
2500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		

Design Features

Self Relieving Seats (single piston effect)

The single piston effect is the standard design for trunnion mounted ball valves. Pressure from both upstream and downstream sides pushes the seat rings against the ball.

If the force created by the body cavity pressure is greater than the preloaded spring force plus the force created by the pressure from upstream or downstream side, the seats are pushed away from the ball. Thus, any overpressure in the body cavity is released automatically in the valves' fully open or fully closed position.



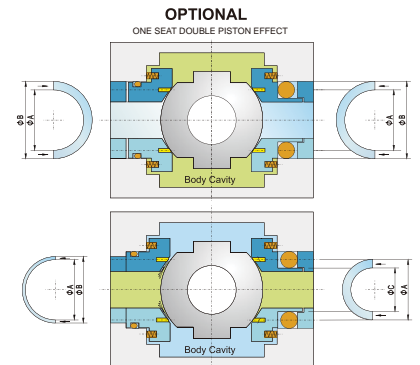
Double Piston Effect Seats (DIB-1)

Double piston effect seats are pressure energized in both directions. So the seat rings are always pushed against the ball by the pressure from upstream/downstream or from the cavity.

If the upstream seat fails, the downstream seat can still ensure a tight seal. Widely used in specific applications (high integrity required) or for some pipe pressure testing. Since double piston effect valves do not have the self-relieving function, the automatic cavity-pressure relief valve shall be provided, unless otherwise agreed.

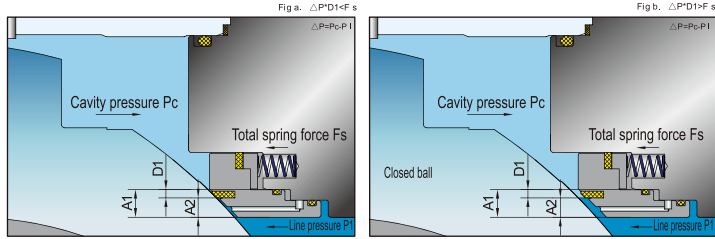
One Self-Relieving Seat and One Double Piston Effective Seat (DIB-2)

If the force created by the body cavity pressure is greater than the preloaded spring force plus the force created by the pressure from pipeline, the cavity pressure releases via the self-relieving seat, the double piston effect seat still functions a tight seal.



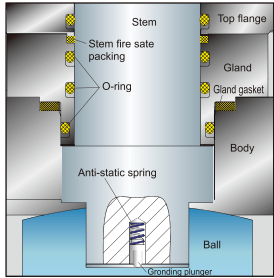
Design Features

Cavity Pressure Relief



When force created by cavity pressure (P_c) is lower than the force created by line pressure (P_l), i.e. $\Delta P \cdot D_1 < F_s$, then contact between ball and seat ring is assured to provide a tight seal.

When cavity pressure is higher than seat spring force plus line pressure, i.e. $P \cdot D_1 > F_s$, the self relieving action allows the valve seat to move slightly away from the ball surface. Therefore, any overpressure inside the body cavity is discharged into the pipeline to restore the balance between the body cavity and the pipeline (either upstream or downstream side).

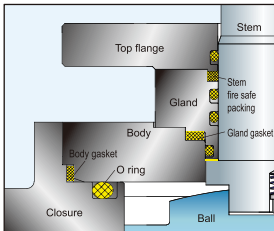


Anti Blow-out Stem

The stem is made separately from the ball. The lower end of the stem is designed with an integral shoulder to be blow-out-proof.

Anti-static Device

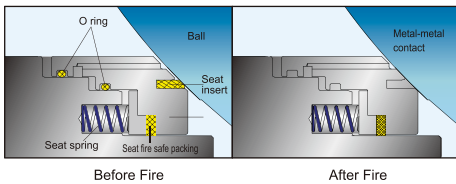
The Antistatic Device is a standard feature of the NEWAY ball valve. A spring-loaded pin assures the electrical continuity between the ball, stem and body, to avoid sparking during the turning of the stem to open and close the valve.



Super Fire safe design

External leakage prevention

Leakage from the valve stem area is prevented by two O-ring seals and a gland gasket. Leakage through the valve body connection is also blocked by an O-ring seal and a body gasket. After a fire deteriorated the O-rings, gland and body gasket, the firesafe stem packing prevents external leakage.



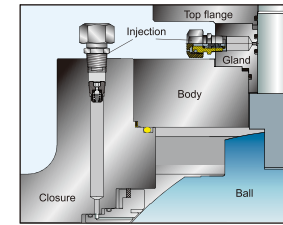
Internal leakage prevention

After the soft sealing materials are decomposed or deteriorated by fire, the edge of the metal seat preloaded by the seat spring comes into contact with the ball to shut off the process media and minimize internal leakage through the valve bore. Also the fire safe graphite packing is compressed by the seat spring to prevent process media leakage between the valve body and the seat.

Design Features

Double block and bleed

In the closed position, each seat shuts off the process media independently on each side, or simultaneously on both sides of the ball, the cavity can be vented / bled via vent or drain plugs on the valve body.

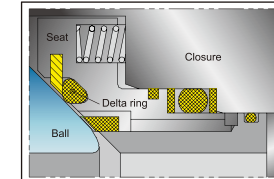
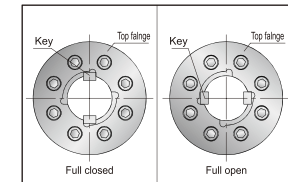


Emergency sealant injection system

For 6 inch and larger NEWAY Trunnion mounted ball valves, sealant injection fittings will be installed on both the stem and seats. When the sealing materials (soft seat or the stem o-ring) are damaged, the seat and stem leakage can be prevented by the sealant injected into these fittings. The fitting shall include a check valve secondary means of sealing. For 4 inch and below, it could be added upon requirement.

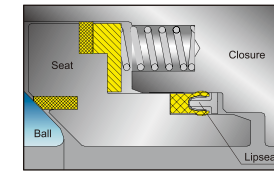
Internal stem stop design

During actuator installation, actuator's travel stop has to be adjusted according to the fully open and fully closed position of valve. This stem stop can help to find fully open and fully close position easily.



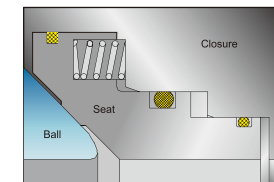
DELTA RING seat design (optional)

The material of delta ring is elastomer, which has better elasticity, can "absorb" the deviation in the ball, to obtain zero leakage easily, especially for large-sized ball or austenitic ball or full-welded ball valve. This is an optional design, not for standard.



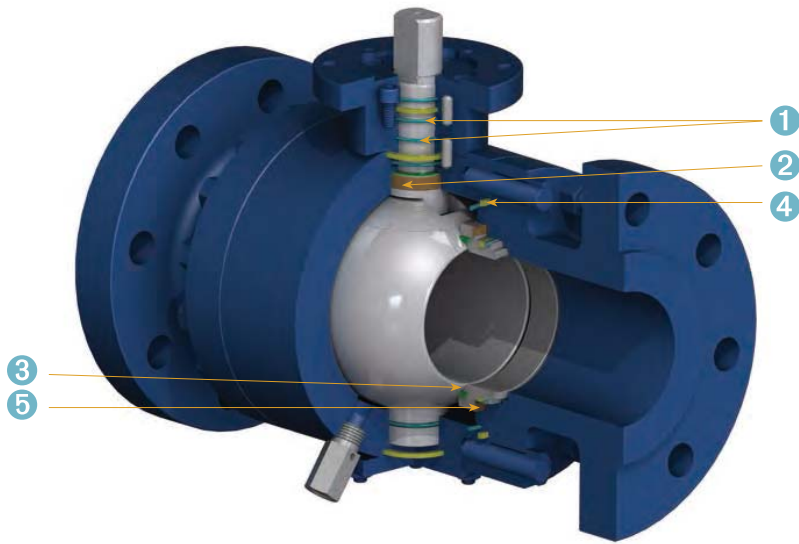
Lipseal design (optional)

Lipseal is the spring-energized seal including Elgiloy or Inconel spring and PTFE jacket. It's effective in a wide range of application, such as high resistance to corrosive chemical media, high sour gas, low temperature or cryogenic service.



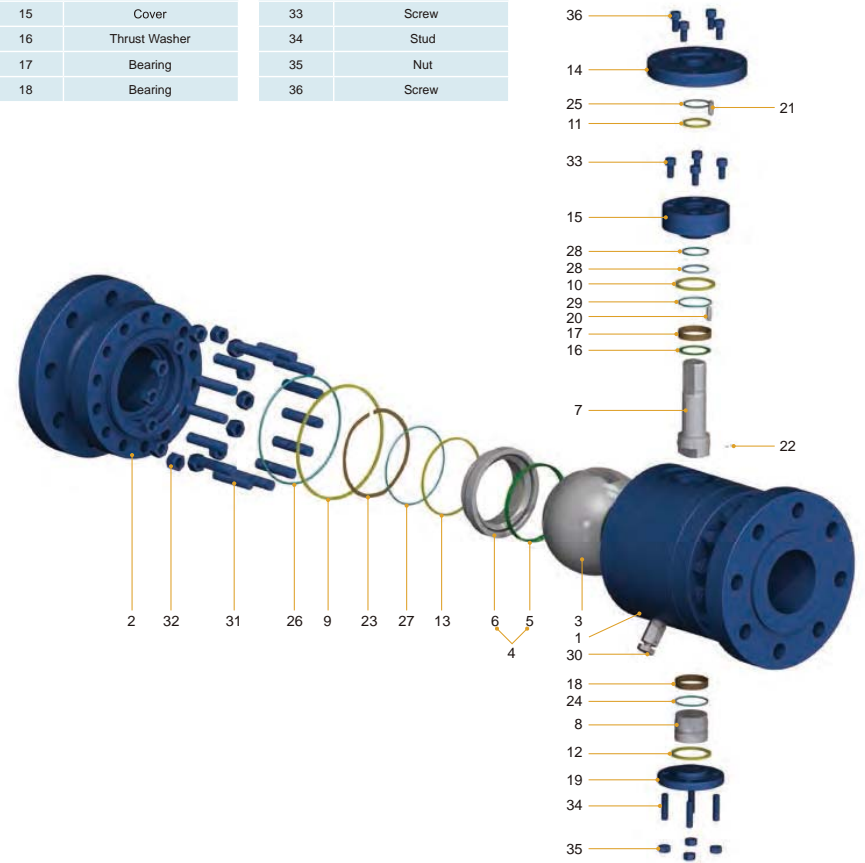
Metal-to-metal seat design (optional)

When valve is applied in the high abrasive or high temperature service, metal-to-metal seat shall be chosen.



- 1 Two O-ring Seals: Prevent leakage from stem area.
- 2 Blow-out Proof Stem : Safety feature that functions to assure stem sealing at all pressures.
- 3 Back-up Metal to Metal Sealing: When primary soft-seat material is deteriorated by fire, the metal-to-metal provides shutoff.
- 4 O-ring & Gasket Combination: Prevents leakage from body connection area.
- 5 Floating Spring-loaded Seats: Assure sealing even at low pressures.

Item	Part	Item	Part
1	Body	19	Cover
2	Cap	20	Pin
3	Ball	21	Pin
4	Seat Assembly(5+6)	22	Anti-Static Device
5	Seat Insert	23	Spring
6	Seat Retainer	24	O-Ring
7	Stem	25	O-Ring
8	Trunnion	26	O-Ring
9	Spiral-wound Gaskets	27	O-Ring
10	Gasket	28	O-Ring
11	Gasket	29	O-Ring
12	Gasket	30	Vent Valve
13	Fire Safe Graphite Ring	31	Body Stud
14	Top Flange	32	Body Nut
15	Cover	33	Screw
16	Thrust Washer	34	Stud
17	Bearing	35	Nut
18	Bearing	36	Screw



BS Series Ball Valve (4") & below

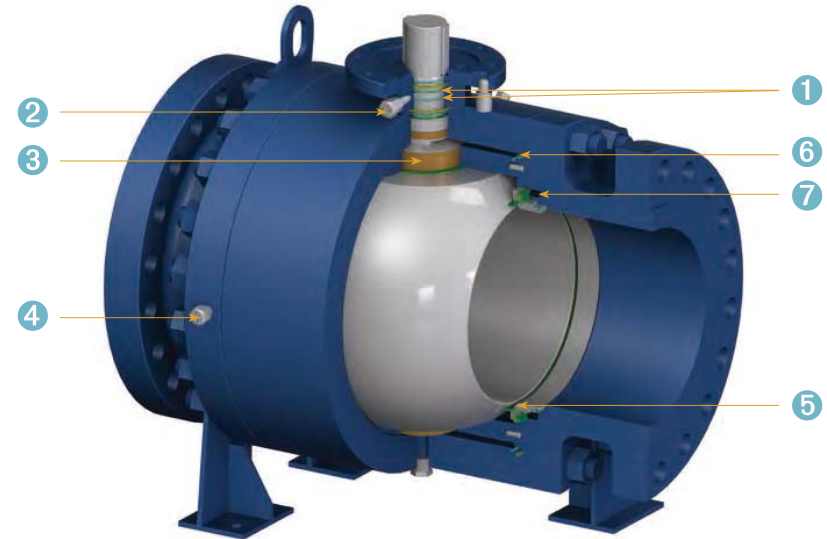
Material Specifications

Design Features

BS Series Ball Valve

Item	Part	Standard	Stainless Steel	Sour Service	Low Temperature Service
1	Body	ASTM A105N	ASTM A182 F316	ASTM A105N	ASTM A350 LF2
2	Cap	ASTM A105N	ASTM A182 F316	ASTM A105N	ASTM A350 LF2
3	Ball	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350 LF2/ENP
4	Seat Assembly(5+6)	5&6	5&6	5&6	5&6
5	Seat Insert	RPTFE/NYLON/PEEK	RPTFE/NYLON/PEEK	RPTFE/NYLON/PEEK	RPTFE/NYLON/PEEK
6	Seat Retainer	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350 LF2/ENP
7	Stem	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350 LF2/ENP
8	Trunnion	ASTM A182 F6a	ASTM A182 F316L	ASTM A182 F6a	ASTM A182 F6a
9	Spiral-wound Gaskets	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
10	Gasket	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
11	Gasket	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
12	Gasket	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
13	Fire Safe Graphite Ring	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
14	Top Flange	ASTM A105N	ASTM A182 F304	ASTM A105N	ASTM A350 LF2
15	Cover	ASTM A105N	ASTM A182 F316	ASTM A105N	ASTM A350 LF2
16	Thrust Washer	PTFE	PTFE	PTFE	PTFE
17	Bearing	316SS+PTFE+MoS2	316SS+PTFE+MoS2	316SS+PTFE+MoS2	316SS+PTFE+MoS2
18	Bearing	316SS+PTFE	316SS+PTFE	316SS+PTFE	316SS+PTFE
19	Cover	ASTM A105N	ASTM A182 F316	ASTM A105N	ASTM A350 LF2
20	Pin	Carbon Steel	Stainless Steel	Carbon Steel	Carbon Steel
21	Pin	Carbon Steel	Stainless Steel	Carbon Steel	Carbon Steel
22	Anti-Static Device	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
23	Spring	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
24	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
25	O-Ring	NBR	NBR	NBR	NBR
26	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
27	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
28	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
29	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
30	Vent Valve	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
31	Body Stud	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
32	Body Nut	ASTM A194-2H	ASTM A194-8	ASTM A194-2HM	ASTM A194-7M
33	Screw	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
34	Body Stud	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
35	Body Nut	ASTM A194-2H	ASTM A194-8	ASTM A194-2HM	ASTM A194-7M
36	Screw	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M

① -Please contact factory for materials supplied



- ① Two O-ring Seals: Prevent leakage from stem area.
- ② Emergency Sealant Injection Fitting: Allows external interventions to prevent stem leakage.
- ③ Blow-out Proof Stem : Safety feature that functions to assure stem sealing at all pressures.
- ④ Emergency Sealant Injection Fitting: Allows external intervention to prevent seat leakage.
- ⑤ Back-up Metal to Metal Sealing: When primary soft-seat material is deteriorated by fire, the metal-to-metal provides shutoff.
- ⑥ O-ring & Gasket Combination: Prevents leakage from body connection area.
- ⑦ Floating Spring-loaded Seats: Assure sealing even at low pressures.

BS Series Ball Valve (6") & above

Material Specifications

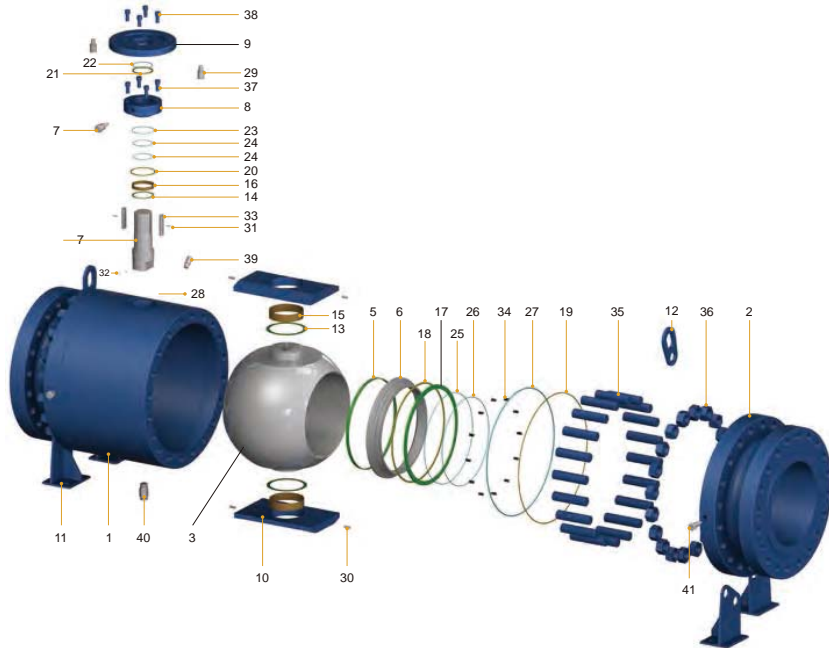
Item	Part	Item	Part
1	Body	22	O-Ring
2	Cap	23	O-Ring
3	Ball	24	O-Ring
4	Seat Assembly(5+6)	25	O-Ring
5	Seat Insert	26	O-Ring
6	Seat Retainer	27	O-Ring
7	Stem	28	Pin
8	Cover	29	Pin
9	Top Flange	30	Pin
10	Bearing Support	31	Pin
11	Support Legs	32	Anti-Static Device
12	Lifting Lugs	33	Key
13	Thrust Washer	34	Spring
14	Thrust Washer	35	Body Stud
15	Bearing	36	Body Nut
16	Bearing	37	Screw
17	Seat Follower	38	Screw
18	Gasket	39	Vent Valve
19	Gasket	40	Plug
20	Gasket	41	Injection
21	Fire Safe Graphite Ring	42	Injection

Material Specifications

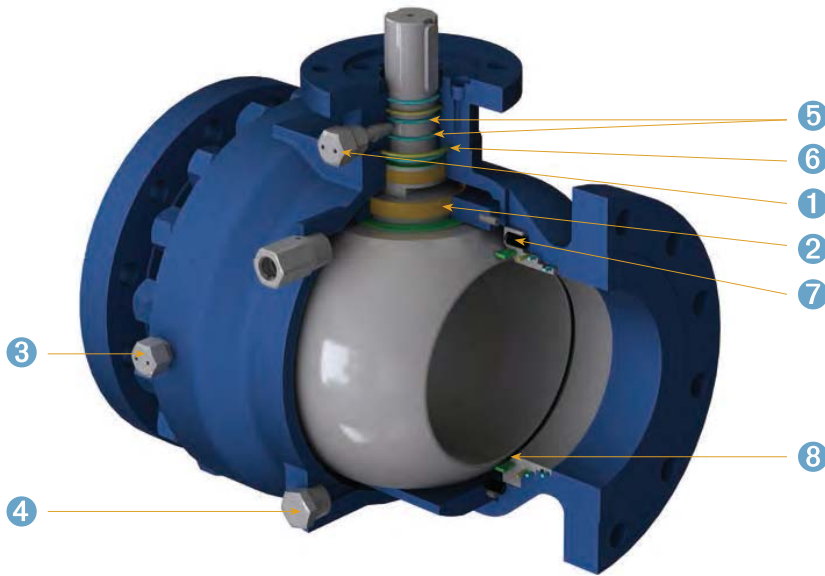
BS Series Ball Valve (6") & above

Item	Part	Standard	Stainless Steel	Sour Service	Low Temperature Service
1	Body	ASTM A105N	ASTM A182 F316	ASTM A105N	ASTM A350 LF2
2	Cap	ASTM A105N	ASTM A182 F316	ASTM A105N	ASTM A350 LF2
3	Ball	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350 LF2/ENP
4	Seat Assembly(5+6)	5&6	5&6	5&6	5&6
5	Seat Insert	RPTFE/NYLON/PEEK	RPTFE/NYLON/PEEK	RPTFE/NYLON/PEEK	RPTFE/NYLON/PEEK
6	Seat Retainer	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350 LF2/ENP
7	Stem	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350 LF2/ENP
8	Cover	ASTM A105N	ASTM A182 F316	ASTM A105N	ASTM A350 LF2
9	Top Flange	ASTM A105N	ASTM A182 F304	ASTM A105N	ASTM A350 LF2
10	Bearing Support	ASTM A588B/ENP	ASTM A351-CF3M	ASTM A588B/ENP	ASTM A588B/ENP
11	Support Legs	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
12	Lifting Lugs	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
13	Thrust Washer	PTFE	PTFE	PTFE	PTFE
14	Thrust Washer	PTFE	PTFE	PTFE	PTFE
15	Bearing	316SS+PTFE	316SS+PTFE	316SS+PTFE	316SS+PTFE
16	Bearing	316SS+PTFE+MoS2	316SS+PTFE+MoS2	316SS+PTFE+MoS2	316SS+PTFE+MoS2
17	Seat Follower	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350 LF2/ENP
18	Gasket	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
19	Gasket	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
20	Gasket	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
21	Fire Safe Graphite Ring	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
22	O-Ring	NBR	NBR	NBR	NBR
23	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
24	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
25	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
26	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
27	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
28	Pin	Carbon Steel	Stainless Steel	Carbon Steel	Stainless Steel
29	Pin	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
30	Pin	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
31	Pin	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
32	Anti-Static Device	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
33	Key	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
34	Spring	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
35	Body Stud	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
36	Body Nut	ASTM A194-2H	ASTM A194-8	ASTM A194-2HM	ASTM A194-7M
37	Screw	ASTM A193-B7	A2-70	ASTM A193-B7	ASTM A320-L7M
38	Screw	ASTM A193-B7	A2-70	ASTM A193-B7	ASTM A320-L7M
39	Vent Valve	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
40	Plug	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
41	Injection	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
42	Injection	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel

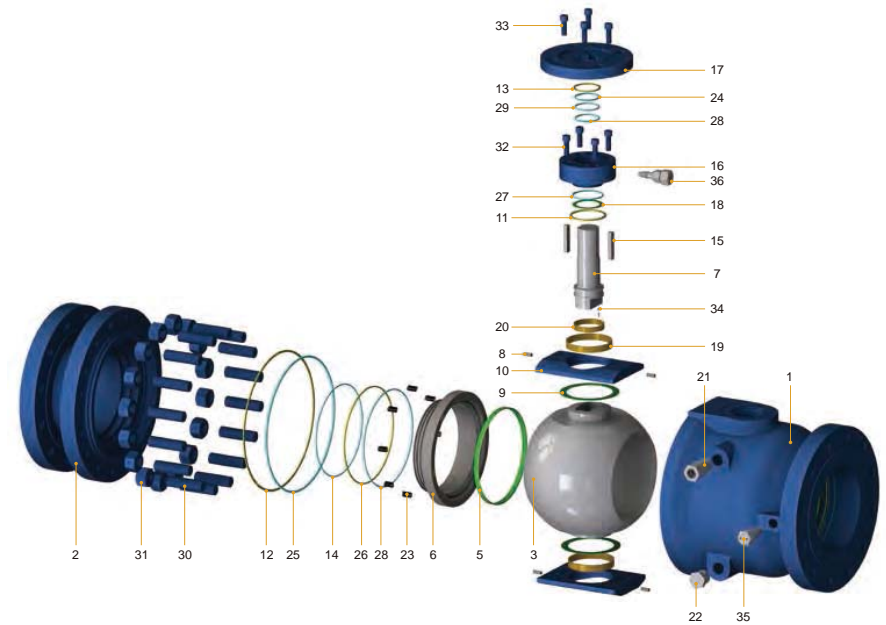
① -Please contact factory for materials supplied



Item	Part	Item	Part
1	Body	19	Thrust Washer
2	Cap	20	Bearing
3	Ball	21	Vent Valve
4	Seat Assembly(5+6)	22	Plug
5	Seat Insert	23	Spring
6	Seat Retainer	24	O-Ring
7	Stem	25	O-Ring
8	Pin	26	O-Ring
9	Thrust Washer	27	O-Ring
10	Bearing Support	28	O-Ring
11	Gasket	29	O-Ring
12	Gasket	30	Body Stud
13	Fire Safe Graphite Ring	31	Body Nut
14	Fire Safe Graphite Ring	32	Screw
15	Key	33	Screw
16	Cover	34	Anti-Static Device
17	Top Flange	35	Injection
18	Thrust Washer	36	Injection

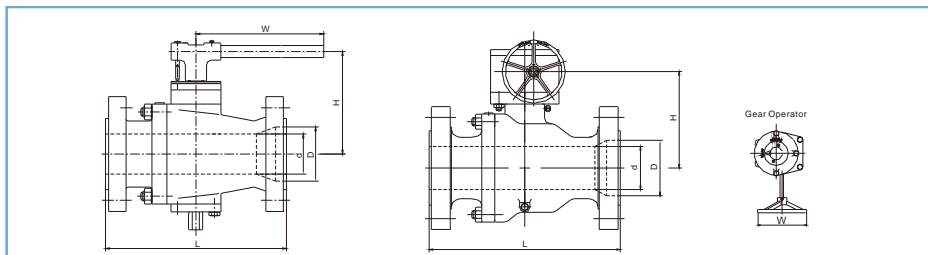


- 1 Emergency Sealant Injection Fitting: Prevents leakage from the stem.
- 2 Blow-out Proof Stem: Stem functions as the backseat to assure stem sealing at all pressures.
- 3 Emergency Sealant Injection Fitting: Prevents leakage from the seat.
- 4 Drain plug : Relieves the body cavity.
- 5 Double Sealing O-rings: Prevents leakage from stem area.
- 6 O-ring & Gasket Combination: Prevents leakage from body connection area.
- 7 Floating Spring: Loaded seats assure sealing, even at low pressures.
- 8 Metal-to-Metal Sealing: When soft seats are deteriorated by fire, seat float to shut off the line media.



BT Series Ball Valve

split body, cast steel, side entry design



Class 1500 Dimensions and weight

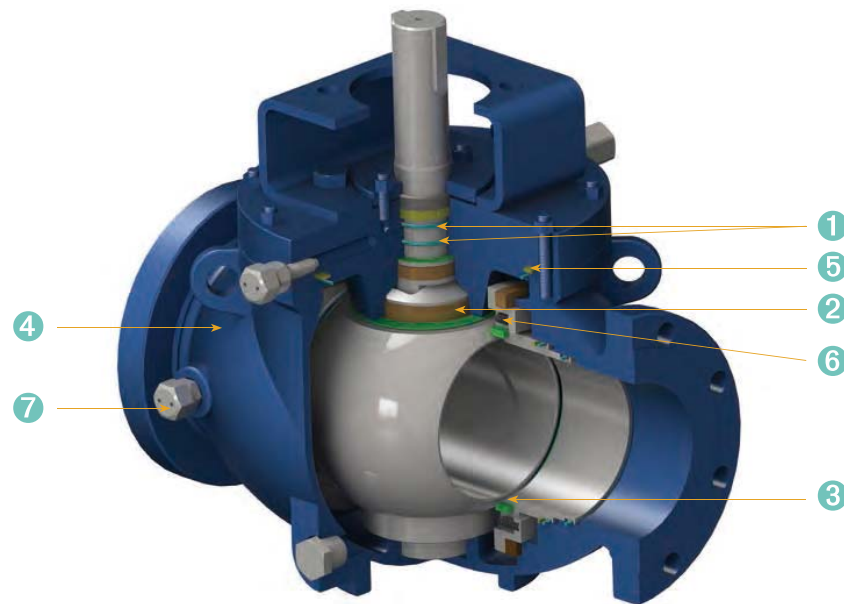
Full Port											
Si e		d		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	g
2	50	2.01	51	14.49	368	9.92	252	29.53	750	189.6	86
3	80	2.99	76	18.50	470	11.81	300	59.06	1500	299.8	136
4	100	4.02	102	21.50	546	10.71	272	19.69	*500	487.2	221
6	150	5.75	146	27.76	705	13.43	341	19.69	*500	855.4	388
8	200	7.64	194	32.76	832	19.41	493	19.69	*500	1278.7	580
10	250	9.49	241	39.02	991	22.24	565	19.69	*500	2089.9	948
12	300	11.38	289	44.49	1130	27.56	700	19.69	*500	2949.7	1338
14	350	12.52	318	49.49	1257	29.41	747	19.69	*500	3853.6	1748
16	400	14.25	362	54.49	1384	31.30	795	24.02	*610	4911.8	2228
18	450	16.02	407	60.51	1537	34.53	877	24.02	*610	6283.1	2850
20	500	17.99	457	65.51	1664	38.78	985	24.02	*610	10714.3	4860

Reduced Port													
Si e		d		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	g
3 2	80 50	2.01	51	2.99	76	18.50	470	9.92	252	29.53	750	216.0	98
4 3	100 80	2.99	76	4.02	102	21.50	546	11.81	300	59.06	1500	304.2	138
6 4	150 100	4.02	102	5.75	146	27.76	705	10.71	272	19.69	*500	634.9	288
8 6	200 150	5.75	146	7.64	194	32.76	832	13.43	341	19.69	*500	987.7	448
10 8	250 200	7.64	194	9.49	241	39.02	991	19.41	493	19.69	*500	1649.0	748
12 10	300 250	9.49	241	11.38	289	44.49	1130	22.24	565	19.69	*500	2248.7	1020
14 12	350 300	11.38	289	12.52	318	49.49	1257	27.56	700	19.69	*500	3086.4	1400
16 14	400 350	12.52	318	14.25	362	54.49	1384	29.41	747	19.69	*500	4012.3	1820
18 16	450 400	14.25	362	16.02	407	60.51	1537	31.30	795	24.02	*610	5132.3	2328
20 18	500 450	16.02	407	17.99	457	65.51	1664	34.53	877	24.02	*610	9082.9	4120

*Gear Operator

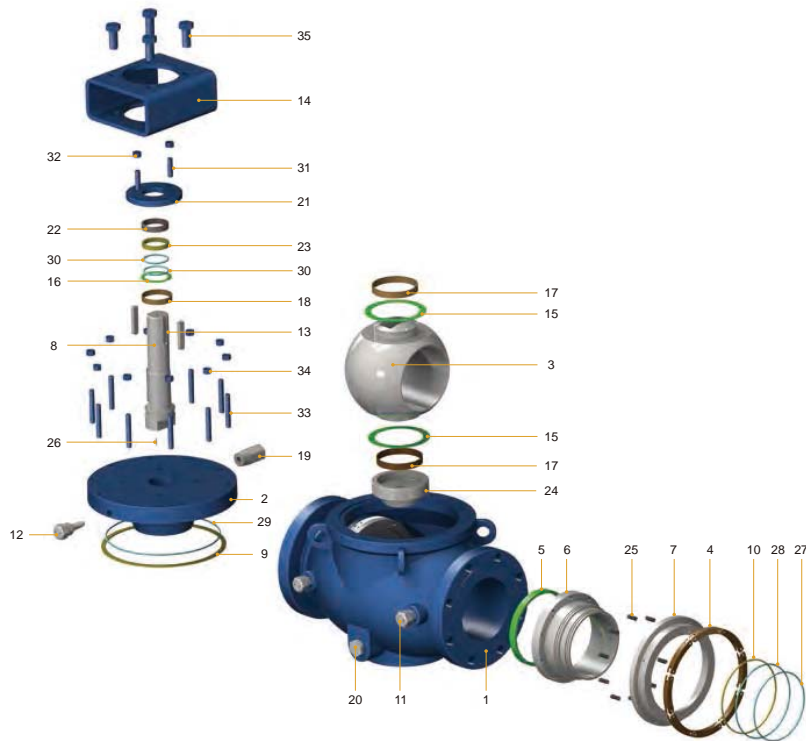
Design Features

BE Series Ball Valve



- 1 Two O-ring Seals: Prevent leakage from stem area.
- 2 Blow-out Proof Stem : Safety feature that functions to assure stem sealing at all pressures.
- 3 Back-up Metal to Metal Sealing: If primary soft-seat materials are burned, the metal-to-metal provides shutoff.
- 4 One-piece Body: Same rigidity as that of pipe.
- 5 O-ring & Gasket Combination: Prevents leakage from body connection area.
- 6 Floating Spring-loaded Seats: Assure sealing even at low pressures.
- 7 Emergency Sealant Injection Fitting: Allows external intervention to prevent seat leakage.

Item	Part	Item	Part
1	Body	19	Vent Valve
2	Cap	20	Plug
3	Ball	21	Gland Flange
4	Supporting Ring	22	Gland
5	Seat Insert	23	Packing
6	Seat Retainer	24	Trunnion
7	Spring Seat	25	Seat Spring
8	Stem	26	Anti-Static Device
9	Gasket	27	O-Ring
10	Fire safe Graphite Ring	28	O-Ring
11	Injection	29	O-Ring
12	Injection	30	O-Ring
13	Key	31	Stud
14	Yoke	32	Nut
15	Thrust Washer	33	Body Stud
16	Thrust Washer	34	Body Nut
17	Bearing	35	Screw
18	Bearing		



Item	Part	Standard	Stainless Steel	Sour Service	Low Temperature Service
1	Body	ASTM A216-WCB	ASTM A351-CF8M	ASTM A216-WCB	ASTM A352-LCB
2	Cap	ASTM A105N	ASTM A182 F316	ASTM A105N	ASTM A350-LF2
3	Ball	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350-LF2/ENP
4	Supporting Ring	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
5	Seat Insert	RPTFE/NYLON/PEEK	RPTFE/NYLON/PEEK	RPTFE/NYLON/PEEK	RPTFE/NYLON/PEEK
6	Seat Retainer	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350-LF2/ENP
7	Spring Support	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350-LF2/ENP
8	Stem	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350-LF2/ENP
9	Gasket	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
10	Fire Safe Graphite Ring	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
11	Injection	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
12	Injection	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
13	Key	Carbon Steel	Carbon Steel	Carbon Steel	Stainless Steel
14	Yoke	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
15	Thrust Washer	PTFE	PTFE	PTFE	PTFE
16	Thrust Washer	PTFE	PTFE	PTFE	PTFE
17	Bearing	316SS+PTFE	316SS+PTFE	316SS+PTFE	316SS+PTFE
18	Bearing	316SS+PTFE	316SS+PTFE	316SS+PTFE	316SS+PTFE
19	Vent Valve	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
20	Drain	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
21	Gland Flange	ASTM A105N	Stainless Steel	ASTM A105N	ASTM A350-LF2
22	Gland	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
23	Packing	316SS+Graphite	316SS+Graphite	316SS+Graphite	316SS+Graphite
24	Trunnion	ASTM A105N/ENP	ASTM A182 F316	ASTM A105N/ENP	ASTM A350-LF2/ENP
25	Spring	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
26	Anti-Static Device	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
27	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
28	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
29	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
30	O-Ring	HNBR/VITON	HNBR/VITON	HNBR/VITON	HNBR/VITON
31	Stud	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
32	Nut	ASTM A194-2H	ASTM A194-8	ASTM A194-2HM	ASTM A194-7M
33	Body Stud	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
34	Body Nut	ASTM A194-2H	ASTM A194-8	ASTM A194-2HM	ASTM A194-7M
35	Screw	Carbon Steel	Stainless Steel	Carbon Steel	ASTM A320-L7M

Seat

Properties		PTFE	N LON	PEE	PCTFE	DEVLON V
Temperature Range °F		-328-428	-58-248	-148-500	-328-302	-148-302
Temperature Range °C		-100-200	-50-120	-100-260	-200-150	-100-150
Pressure Rating		150-600	150-1500	150-2500	150-600	150-1500
Mechanical Property	Hardness (D)	58	72	88	85	78
	Tensile Strength(MPa)	14-34	55.2	134	35.9	79.9
	Tensile Elongation(Break, %)	350	250	2.2	150	5.4
Physical Property	Specific Gravity (g/cm ³)	2.17	1.02	1.44	2.12	1.14
	Water Absorption 24hrs(%)	0.00	1	0.06	0.00	0.1
	Water Absorption saturation	<0.01	1.60	.2	<0.01	3
Service Application		Chemical & low temperature	High Pressure & Hydrocarbon	High pressure & temperature	Cryogenic	High Pressure & Hydrocarbon

Sealing

Type	HNBR	VITON	FF M
Temperature Range F	-40-302	-4-392	-4-620
Temperature Range C	-40-150	-20-200	-20-327
Specific Gravity (g/cm ³)	1.34	1.85	2
Hardness (shore A)	75	75	75

* Other elastomer materials are available upon request.

Flow Coefficient (Cv value) Specification

Operating Torque

In	Class 150(N LON)		Class 300(N LON)		Class 400(N LON)		Class 600(N LON)		Class 900(N LON)		Class 1500(N LON)		Class 2500(PEE)	
	N m	Ft Lbs	N m	Ft Lbs	N m	Ft Lbs	N m	Ft Lbs	N m	Ft Lbs	N m	Ft Lbs	N m	Ft Lbs
1-1/2	40	29.52	50	36.90	58	42.81	80	59.05	130	95.95	240	177.14	290	214.04
2	50	36.90	70	51.66	75	55.35	120	88.57	180	132.85	250	184.52	380	280.46
3	60	44.28	100	73.81	150	110.71	240	177.14	400	295.23	530	391.17	780	575.69
4	100	73.81	210	154.99	330	243.56	500	369.03	670	494.50	900	664.26	1300	959.48
6	420	309.99	600	442.84	650	479.74	900	664.26	1820	1343.27	2040	1505.65	4850	3579.60
8	700	516.64	1100	811.87	1300	959.48	1500	1107.09	2560	1889.44	4790	3535.32	6900	5092.63
10	1100	811.87	1800	1328.51	2000	1476.13	2750	2029.67	4510	3328.66	8230	6074.26	13600	10037.65
12	1600	1180.90	2500	1845.16	3153	2327.11	3600	2657.03	6824	5036.54	10340	7631.57	23100	17049.25
14	1950	1439.22	3200	2361.80	3800	2804.64	4700	3468.89	8250	6089.02	12120	8945.32		
16	2500	1845.16	3500	2583.22	4000	2952.25	5470	4037.20	9940	7336.34	14920	11011.89		
18	3400	2509.41	5510	4066.72	7000	5166.44	9000	6642.56	14630	10797.86	27230	20097.44		
20	4600	3395.09	7500	5535.47	9000	6642.56	11000	8118.69	20000	14761.25	32830	24230.59		
22	5200	3837.93	9000	6642.56	11000	8118.69	14630	10797.86	25400	18746.79	39420	29094.43		
24	6774	4999.64	11150	8229.40	13450	9926.94	17950	13248.22	29900	22068.07	46320	34187.06		
26	8000	5904.50	13360	9860.52	14700	10849.52	21640	15971.67	34950	25795.29	55430	40910.81		
28	8600	6347.34	14200	10480.49	18200	13432.74	24340	17964.44	38780	28622.07	70650	52144.12		
30	9233	6814.53	16660	12296.12	20230	14931.01	32510	23994.41	46610	34401.10	75000	55354.69		
32	11810	8716.52	19500	14392.22	28240	20842.89	37600	27751.15	58230	42977.38				
34	13330	9838.37	21380	15779.78	31140	22983.27	41800	30851.02	63750	47051.49				
36	14214	10490.82	29375	21680.59	35520	26215.98	47570	35109.64	72600	53583.34				

Note

- Torque is calculated based on normal temperature.
- Torque shown in this table is to be used as a guide for actuator selection. A safety factor of 1.3-1.5 is recommended for actuator sizing.
- Torque may be changed depending on fluids and trim materials.

Flow Coefficient (Cv value) Specification

Si e (inch)	Class 150	Class 300	Class 600	Class 900	Class 1500
1/2	25	25	20	16	16
3/4	56	56	48	34	34
1	95	95	64	55	55
1-1/2	308	308	308	165	165
2	500	430	370	320	320
3	1360	1100	1020	920	820
4	2500	2000	1850	1760	1600
6	5300	5250	4400	4300	4150
8	10750	10100	8450	8475	8010
10	17500	16820	14250	14160	13220
12	26750	25950	22550	21200	18800
14	31850	30900	28500	26700	24180
16	44000	42600	38150	36600	33150
18	58000	55870	51150	49000	45703
20	75500	72500	68500	64600	60750
22	91770	86850	80150		
24	113400	109340	98860		

Notes

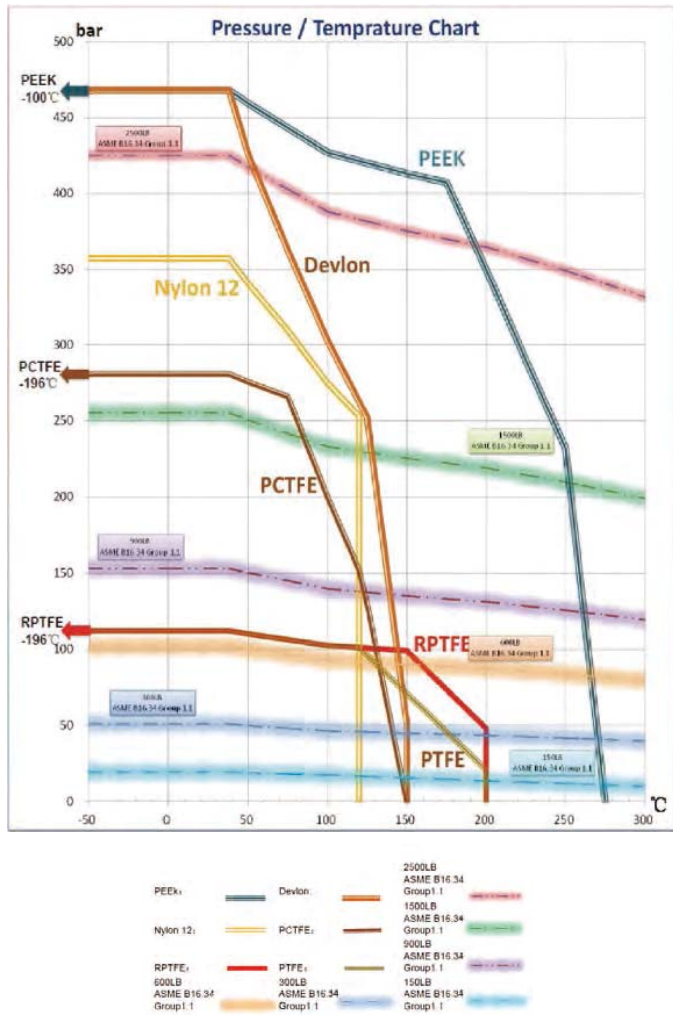
- All sizes belong to full port.
- Pressure ratings are per API 6D.

Method of Calculating Flow

The Flow Coefficient C_v value is the flow rate of water (gallons/minute) through a fully open valve with a pressure drop of 1 psi to find the flow of liquid through the valve with C_v, using the following formulas.

Liquid Flow: $L = C_v(P/G)^{1/2}$
 L Flow rate of liquid (gal./min.)
 P differential pressure across the valve
 G = specific gravity of liquid (for water, G=1)

Gas Flow: $G = 61C_v(P2/P)^{1/2}$
 G Flow rate of gas (CFH at STP)
 P2 outlet pressure (psia)
 g = specific gravity of gas (for air, g=1.0)



Seller will replace without charge or refund the purchase price of products provided by Seller which prove to be defective in material or workmanship, provided in each case that the product is properly installed and is used in the service for which Seller recommends it and that written claim, specifying the alleged defect, is presented to the Seller within 18 months from the date of shipment or 12 months after installation, whichever occurs first. Seller shall in no event bear any labor, equipment, engineering or other costs incurred in connection with repair or replacement. The warranty stated in this paragraph is in lieu of all other warranties, either expressed or implied. With respect to warranties, this paragraph states Buyer's exclusive remedy and seller's exclusive liability.

Note: Other materials are available upon request.

If the operating condition is beyond the range above, please contact NEWAY's technical team. NEWAY reserves the right to update without notice.

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