

MW NEWAY

Floating Ball Valves

Complete Solutions for Engineered Valves



NEWAY				ISO17292/BS5551			
SIZE	1/2	CLASS	600	BODY	F51		
SEAT	F51	BALL	F51	SEAT	NYLON-11		
HANDLE	MATERIAL	MOQ	1000	1000	TWOG	CF	
DESIGNED	BY	REV	DATE	04/04	REVISED	BY	
MANUFACTURED	IN	CHINA	BY	21444-030-13			

NEWAY		PN		TYPE		BALL		SEAT		SLUDDY	
DN	15	PN	100	TYPE	BALL	SEAT	F51	SLUDDY	CHINA		
BODY	F51	STEM	F51	BALL	F51	SEAT	NYLON-11	FLUID	GROUP		
TS	120	PT	156	DATE	04/04	REVISED	BY	CHALLENGE			
FIG.NO											

NEWAY VALVE

Cat. No.: E-FBV-2014

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Complete Solutions for Industrial Valves

As one of the leading valve manufacturers in the world, Neway specializes in the development of innovative designs through intensive research and development programs along with a commitment to excellence and engineering in manufacturing valve solutions for all industries.

Neway's main product lines include gate, globe, check, butterfly, and ball valves with quality innovative designs that are recognized by many global users and EPCs. These products have been installed throughout the world in gas, oil, refining, chemical, and marine, power generation, and pipeline transmission industrial applications.

Neway's Facilities

Neway's management structure is based on multi-plant manufacturing. We currently operate one R&D center, two valve assembly plants, and four specialized foundries in China. Our newest assembly plant was recently expanded in 2013, and it now covers nearly 35,000 square meters. Additionally, we have opened two overseas assembly plants in Mexico and Saudi Arabia.

Neway runs the most advanced manufacturing and management systems available. Our R&D software includes ANSYS, fe-safe, CF-Design, and SolidWorks. We are one of the few valve manufacturers performing Enterprise Resource Planning (ERP) using SAP ERP software in addition to utilizing automatic inventory management systems. Our in-house testing capabilities include fire-safe, cryogenic, high pressure gas and fugitive emission testing. These processes ensure that our products are safe, reliable, and environmentally-friendly.

Neway's goal is to occupy leading market positions through collaboration with value-adding business partners worldwide. In the last few years, Neway successively established new subsidiaries in Brazil, Dubai, Europe, Singapore, and the USA along with nearly 80 distributors around the world.

Quality Assurance

Neway is dedicated to the pursuit of having zero defect valves leave our facility. We perform active Six Sigma quality management to continually enhance process control management based on advanced statistical data analysis. Neway's industrial certificates include ISO 9001, CEIPED, TA-Luft, API 6A, API 6D, ABS, API Q1 and Fire Safe approvals.

Quality Commitment

ISO 9001

API 6D



API 6A



CE/PED



TA Luft



ABS



API 591



Fire Safe Test

Neway recognizes the important role a high quality valve plays in the safety and health of personnel as well as the protection of property. Neway concentrates its effort to provide customers with consistent products designed, manufactured, inspected, and tested in accordance with our customers' specifications at a competitive price in accordance with international standards.

Industry standards do not always consider all possible parameters when selecting valve products. Various decision making parameters such as special service fluids or external environments in which the valves operate are often not covered in standards and can negatively affect the valve's performance. Therefore, we recommend that our customers communicate with our engineering department about any specific question for their valve application. Using our experience in providing valves for various industries and media types, our valve optimization program continuously strives to provide valves that withstand deterioration in service and ensure proper valve selection that will remain operational during its intended commission lifetime.

Standard & Product Range

Introduction

In this catalog you will find the latest Neway Ball Valves, which include 4 different designs:

- BA series 1PC uni-body floating-type
- B series 2PC cast steel floating type
- BB series 2PC forged steel floating type
- BC series 3PC forged steel floating type

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

Reference Standard:

Pressure-Temperature Ratings		ASME B16.34
Shell Wall Thickness		ASME B16.34; ISO 17292 (BS 5351)
Face to Face Dimensions	Flange Connections	ASME B16.10
	Socket Weld & NPT	Neway Standard
End Connection Dimensions	Raised Face Flanged	ASME B16.5
	Butt-Weld	ASME B16.25
	Socket Weld & NPT	ASME B16.10
	NPT	ASME B1.20.1
Pressure Test		API 598 and ISO 14313 (API 6D)
Fire Test		API 607 and API 6FA
Marking Standard		MSS-SP 25
Surface Quality Visual Method		MSS-SP 55
Sour Service		NACE std. MR 0175 or MR 0103
Low Fugitive Emission		ISO 15848; TA-Luft

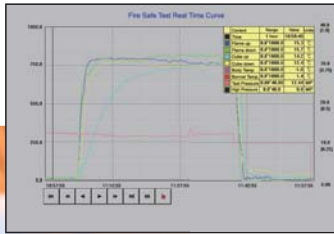
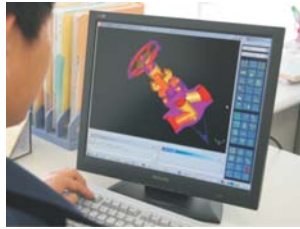
Product Range:

Valve Size		1/2"	3/4"	1"	1.5"	2"	2.5"	3"	4"	6"	8"	10"
BS5351 Floating Ball Valve	1PC	150	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		300	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	2PC	150	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		300	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		600	◆	◆	◆	◆	◆					
		900	◆	◆	◆	◆	◆					
		1500	◆	◆	◆	◆	◆					
		2500	◆	◆	◆							
	2PC	150	◆	◆	◆	◆	◆					
		300	◆	◆	◆	◆	◆					
		600	◆	◆	◆	◆	◆					
		900	◆	◆	◆	◆	◆					
		1500	◆	◆	◆	◆	◆					
		2500	◆	◆	◆	◆	◆					

Neway's technical research center utilizes the most advanced computer technology to improve existing product lines and develop new ones. A comprehensive internal computer network links the highly trained engineering team to manufacturing and administrative personnel so everyone can be updated instantly.

Neway's mission is to engineer safe and cost-effective valves. The latest AutoCAD and I-DEAS software is used by the product design and research team. The advanced finite element analysis feature enables virtual verification of new product designs prior to production. This dramatically reduces new product development time and ensures quality while controlling costs. All designs are rigorously tested in Neway's state-of-the-art flow loop to confirm and validate them. The end result is a final product that meets and exceeds international quality and safety standards sold at a competitive price.

Neway's technical personnel stands ready to support our customers, whether distributor, agent, or end user, with on-line and/or on-site technical support and training.



Fire safe certification is standard for all Neway ball valves. The soft seated ball valves are witnessed and certified by Lloyd's Register. Neway's computer controlled fire testing lab is capable of testing and certifying floating and trunnion mounted ball valves per API 6FA and API 607 standards.

Neway Owned Foundries



Neway understands that consistently producing high quality castings and forgings is the single most important factor in maintaining valve integrity and assuring a long operating life-cycle. Neway's valve castings have been certified by many end users as part of their quality assurance programs.

Whereas most other valve manufacturers outsource their valve casting, Neway has invested millions developing two state-of-the-art foundries to maintain stringent quality standards. Our Suzhou foundry specializes in large size sand castings using the organic ester water glass casting process, and our Dafeng foundry produces small sized investment castings using the lost wax casting method. Each foundry is equipped with a wide range of quality inspection equipment and instruments, including a spectrum analyzer, non-destructive testing equipment, and mechanical property testing equipment. Neway maintains stringent quality control throughout the entire valve foundry process to ensure that our stringent quality standards are maintained while providing our products at a competitive price. This extraordinary level of commitment to quality has made Neway the supplier of choice for many world class customers.



Supply Range & Capacity

Plant Name	Dafeng Foundry	Suzhou Foundry
Process Technology	Loss wax investment casting	Organic ester water glass casting
Size Range (in)	1/2" ~ 10"	2" ~ 64"
Pressure Rating	ANSI Class 150~600	ANSI Class 150~2500
Weight (Kg)	1 ~ 150	100 ~ 11000
Material	WCB, WCC, LCB, LCC, WC6, WC9, C5, C12, C12A, CF8, CF8M, CF3, CF3M, CN7M, Monel, Inconel, Duplex Steel, 4A	
Monthly Capacity (Ton)	600	750
Quality Certifications	ISO 9001, CE/PED, API W0	

Advanced Manufacturing

The latest computer technologies are also widely applied in our manufacturing facilities at Neway, including a large number of computer numeric controlled (CNC) machining centers, horizontal and vertical lathes, and drilling machines. These machines directly tie into Neway's ERP management system, resulting in significantly improved machining quality and timely order processing. Neway internally machines all of the parts for its valves through the 60" ball valve size, ensuring consistent quality and just-in-time (JIT) deliveries.



Quality Control



Neway houses its own extensive and advanced inspecting and testing department equipped with the latest equipment and instruments. Highly trained and certified technicians perform radiographic, ultrasonic, dye-penetrant, magnetic particle, PMI, impact, hardness, and tensile tests.

Neway also maintains state-of-the-art cryogenic, vacuum, fugitive emission, fire, and hydro testing facilities to ensure the highest product quality and performance.



Six-Sigma, zero defect policies, and continuous process improvements have allowed Neway to obtain numerous certifications such as ISO 9001 (issued by DNV), API 6A (no.6A-0716), API 6D (no.6D-0285), CE/PED (category IV, mode B+D, certificate under B.V.), ABS, TA-Luft, API591, and GOST.



Due to our extensive product portfolio, focus on quality, competitive delivery lead times, and economical pricing, Neway has earned many end user customer approvals, and is viewed as a world class manufacturer



Product Overview



3 PC Floating Valve



Pneumatic Actuator Ball Valve



2 Forged Steel Design



Extended Bonnet Temperature Service



Hastelloy Ball Valve



Pneumatic Actuator Ball Valve



1 PC Cast Steel Design



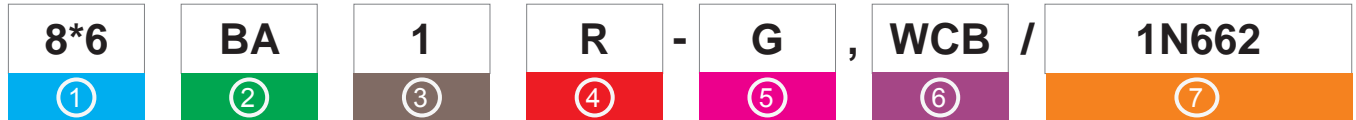
2 PC Cast Steel Design



Stainless Steel

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 any requirements.

The following descriptions provide a basic guideline for valve specifications:

① Valve Sizes

Full Port:

in	3/8	1/2	3/4	1	1.25	1.5	2	2.5	3	3.5	4	5	6	8	10	12
mm	10	15	20	25	32	40	50	65	80	90	100	125	150	200	250	300

Reduced Port:

in	3/8*1/4	1/2*3/8	3/4*1/2	1*3/4	1-1/2*1	2*1-1/2	2-1/2*2	3*2	4*3	6*4	8*6	10*8	12*10
mm	10*6.4	15*10	20*15	25*20	40*25	50*40	65*60	80*85	100*80	150*100	200*150	250*200	300*250

② Valve Types

Symbol	Valve Type	Symbol	Valve Type
BA	Uni-body Floating ball valve-cast	BBA	Uni-body Floating ball valve-forged
B	2-pc Floating ball valve-cast	BB	2pc Floating ball valve-forged
BC	3pc Floating ball valve-forged	BCC	3pc Floating ball valve-cast

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	Symbol	End
R	Raised Face Flanged End	S	Socket Weld End
J	RTJ Flanged End	N	Threaded End
B	Butt-Weld End	SN	Socket Weld/Threaded End
F	Flat Face Flanged End	NC	55° Taper Threaded 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	C	Gear Operator (Operation Force ≤ 350N)

⑥ Body Materials

Material	A105	LF2	F316	F304	F316L	F304L	Alloy 20	F51
ASTM Ref	A105N	A350 LF2	A182 F316	A182 F304	A182 F316L	A182 F304L	Alloy 20	A182 F51

Material	WCB	LCB	CF8M	CF8	CF3M	CF3	CN7M	4A
ASTM Ref	A216 WCB	A352 LCB	A351 CF8M	A351 CF8	A351 CF3M	A351 CF3	A351 CN7M	A890 4A

⑦ Trim Codes

Seat		O-Ring		Stem		Ball		Packing	
Code	Material	Code	Material	Code	Material	Code	Material	Code	Material
1	PTFE	1	NBR	1	AISI 410	1	AISI 410	1	PTFE
2	NYLON1010	2	VITON	2	F304	2	F304	2	Graphite
3	PEEK	3	VITON AED	3	A105/ENP	3	A105/ENP	9	Garlock(low emission)
7	NYLON 12	4	VITON B	4	17-4PH	4	17-4PH		
8	PCTFE	5	HNBR-70	5	AISI 4140/ENP	5	AISI 4140/ENP		
C	FILLED PTFE	8	VITON GLT	6	F316	6	F316		
F	TFM1700	9	BUNA-N	9	LF2/ENP	9	LF2/ENP		
		N	None O-Ring	A	F51	A	F51		

Note: Other materials are available upon customer request.

Design Features

Blow-Out Proof Stem

The stem and ball are manufactured separately. The lower end of the stem is designed to be blow-out proof, assuring a reliable seal at all pressures. (Fig.1)

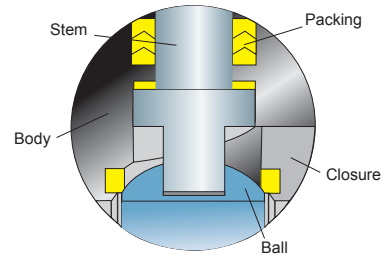


Figure 1

Anti-Static Device

The Anti-static device is a standard feature on all Neway ball valves. A springloaded pin assures electrical continuity between the ball, stem, and body, and prevents sparking during operation. (Fig.2)

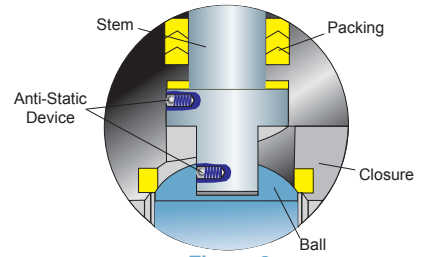
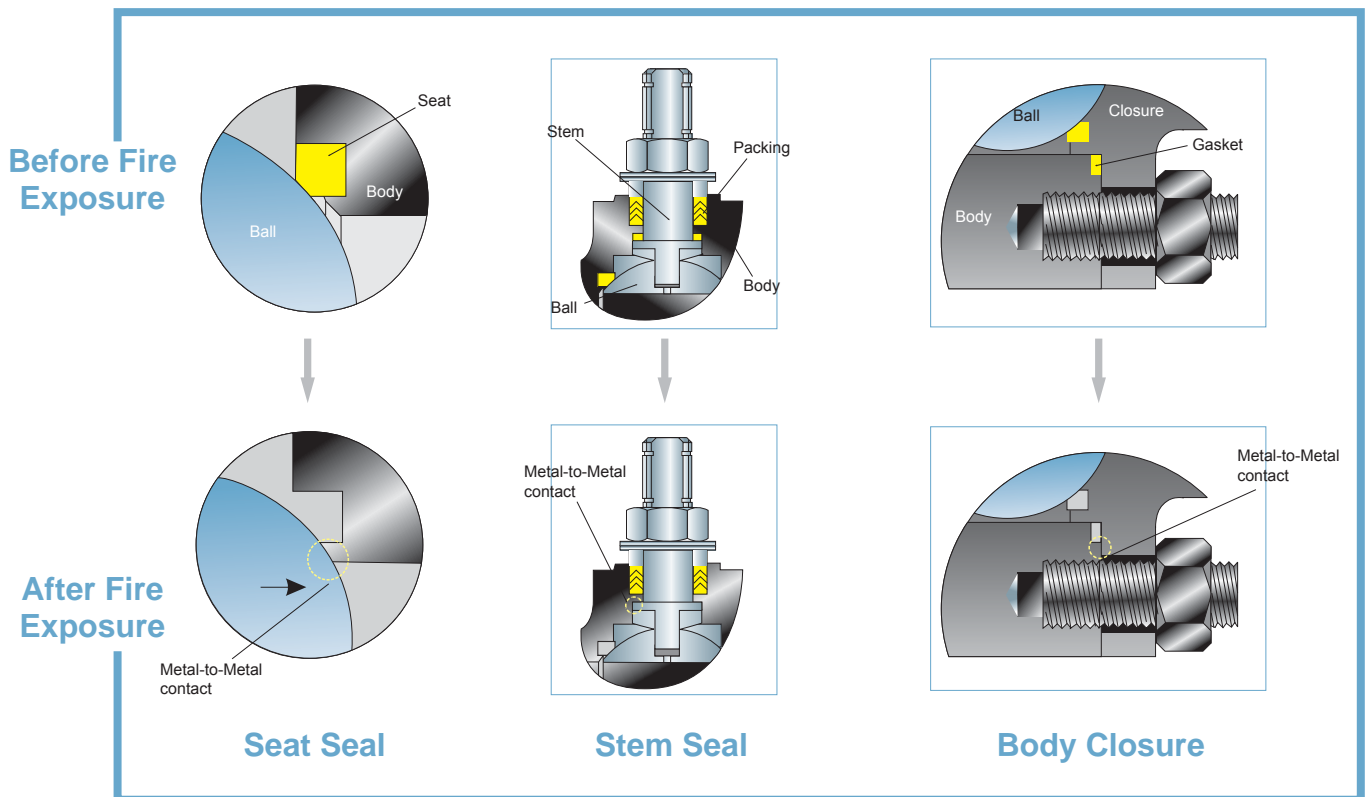


Figure 2

Fire Safe - Metal to Metal Sealing

When soft seats are exposed to fire, the edge of the metal seat comes into contact with the ball to shut off the flow of any process media and minimize internal leakage through the valve bore.

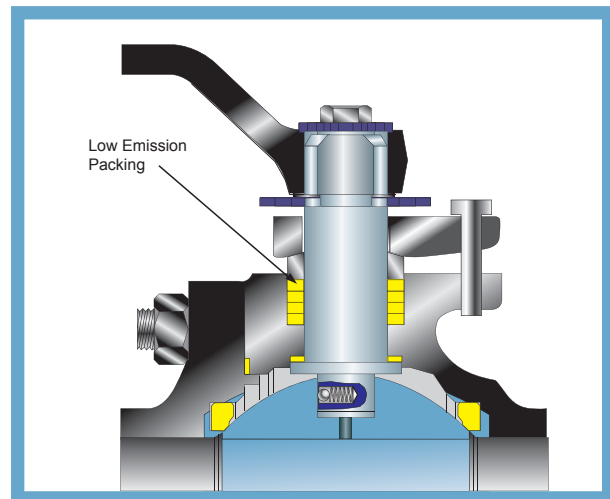
Additionally, the fire safe metal seat can prevent line pressure erosion on the soft seat and minimize soft seat creep deformation. All Neway floating ball valves are designed to be fire safe, and are tested and certified in accordance with API 607.



Emission control features are standard on all Neway BA, B, and BB series flanged floating ball valves. They are fitted with emission control packing to eliminate fugitive emissions. These are designed and tested to meet the 100 PPM maximum allowed emissions standard per the Shell ISO15848 test.

Eliminate Stem Leakage

Neway controls the finish of the stem's surface to be between Ra0.4 and Ra0.8 which ensures that the graphite packing will migrate into any stem microscratches, functioning as a lubricant to reduce stem torque. The surface of the stuffing box is controlled to be no more than Ra3.2. This rougher finish holds the packing ring in place, resulting in a better sealing performance.

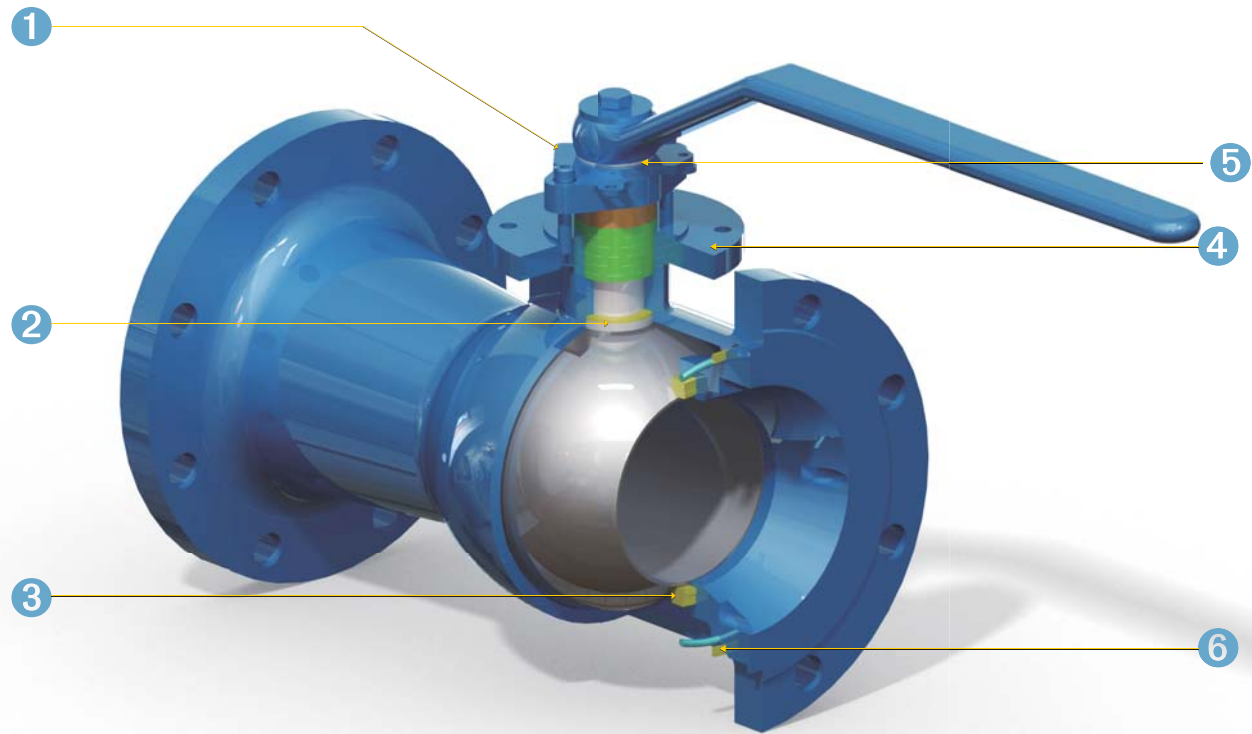


Low Emission Packing

Our low emission packing set combines a parallel and vertical layer of sealing elements made of graphite. These die-formed graphite rings feature heat resistance, low creep, and less relaxation from stress. This structure means low friction on rotary and rising stems, providing stabilized seal performance and long valve life cycle.



Low Emission Test

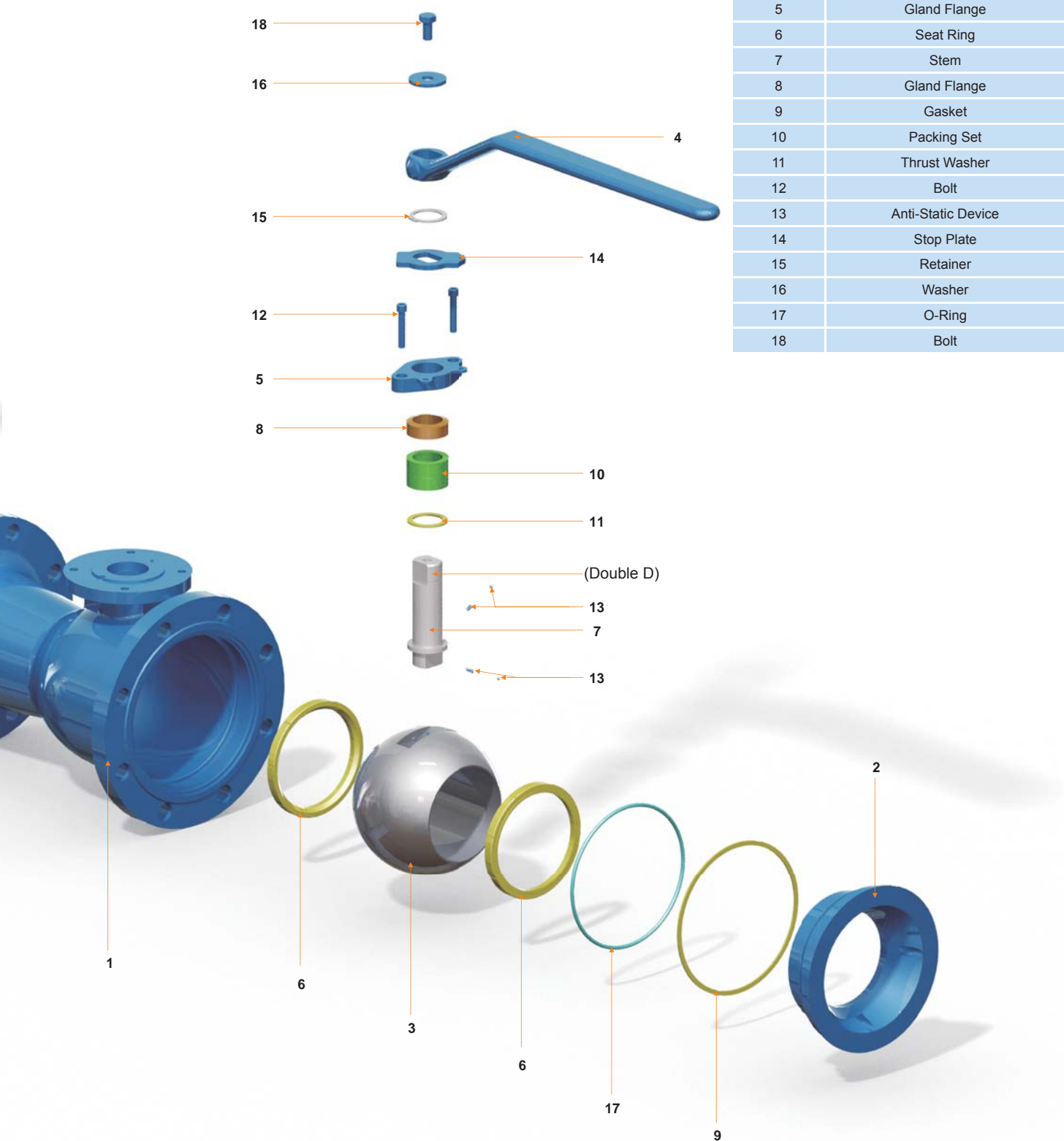


- 1 Line Flow Locking Device: Valve is equipped with a locking device to secure the lever's position and to maintain line flow.
- 2 Blow-out Proof Stem: The lower end of the stem is T-shaped to create an integral collar making the stem blowout-proof.
- 3 Fire Safe Design: Metal to metal sealing between the ball and the body shuts off valve flow when soft sealing materials are destroyed by fire.
- 4 ISO 5211 Mount Pad: Standardized connections simplify the installation of actuators.
- 5 Double "D" Stem Head: Assures the handle lever will always be mounted parallel to the media flow, indicating valve open and closed positions.
- 6 Emission-free Gasket: The primary gasket is composed of emission free graphite to eliminate leakage.

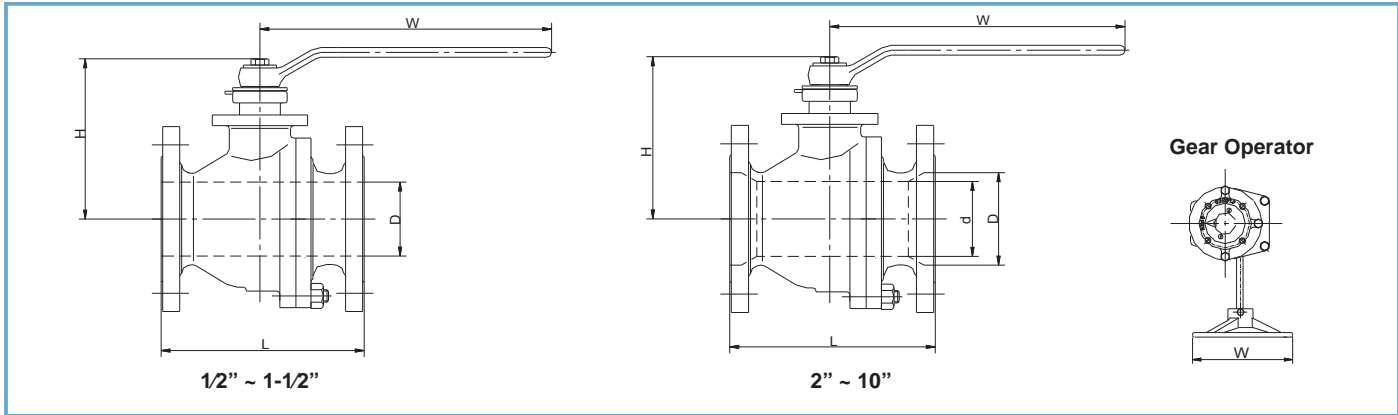
APPLICATIONS

- Refinery
- Petrochemical
- Paper
- Chemical
- Pharmaceutical
- Food and Beverage

Index No.	Part
1	Body
2	Bonnet
3	Ball
4	Lever
5	Gland Flange
6	Seat Ring
7	Stem
8	Gland Flange
9	Gasket
10	Packing Set
11	Thrust Washer
12	Bolt
13	Anti-Static Device
14	Stop Plate
15	Retainer
16	Washer
17	O-Ring
18	Bolt



No.	Part	Standard	Stainless Steel	Sour Service	Low Temperature Service
1	Body	ASTM A216-WCB	ASTM A351-CF8M	ASTM A216-WCB	ASTM A352-LCB
2	Bonnet	ASTM A216-WCB	ASTM A351-CF8M	ASTM A216-WCB	ASTM A352-LCB
3	Ball	ASTM A105N/ENP	ASTM A182-F316	ASTM A105N/ENP	ASTM A182-F316
4	Lever	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
5	Gland Flange	ASTM A216-WCB	ASTM A351-CF8	ASTM A216-WCB	ASTM A352-LCB
6	Seat Ring	PTFE	PTFE	PTFE	PTFE
7	Stem	ASTM A182-F6a	ASTM A182-F316	ASTM A182-F6a	ASTM A182-F316
8	Gland Flange	ASTM A276-420	ASTM A276-316	ASTM A276-420	ASTM A276-316
9	Gasket	316 S.S.+Graphite	316 S.S.+Graphite	316 S.S.+Graphite	316 S.S.+Graphite
10	Packing Set	Graphite	Graphite	Graphite	Graphite
11	Thrust Washer	PTFE	PTFE	PTFE	PTFE
12	Bolt	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
13	Anti-Static Device	S.S.	S.S.	S.S.	S.S.
14	Stop Plate	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
15	Retainer	Carbon Steel	S.S.	Carbon Steel	S.S.
16	Washer	Carbon Steel	S.S.	Carbon Steel	S.S.
17	O-Ring	Viton A	Viton A	Viton A	HNBR
18	Bolt	Carbon Steel	S.S.	Carbon Steel	S.S.



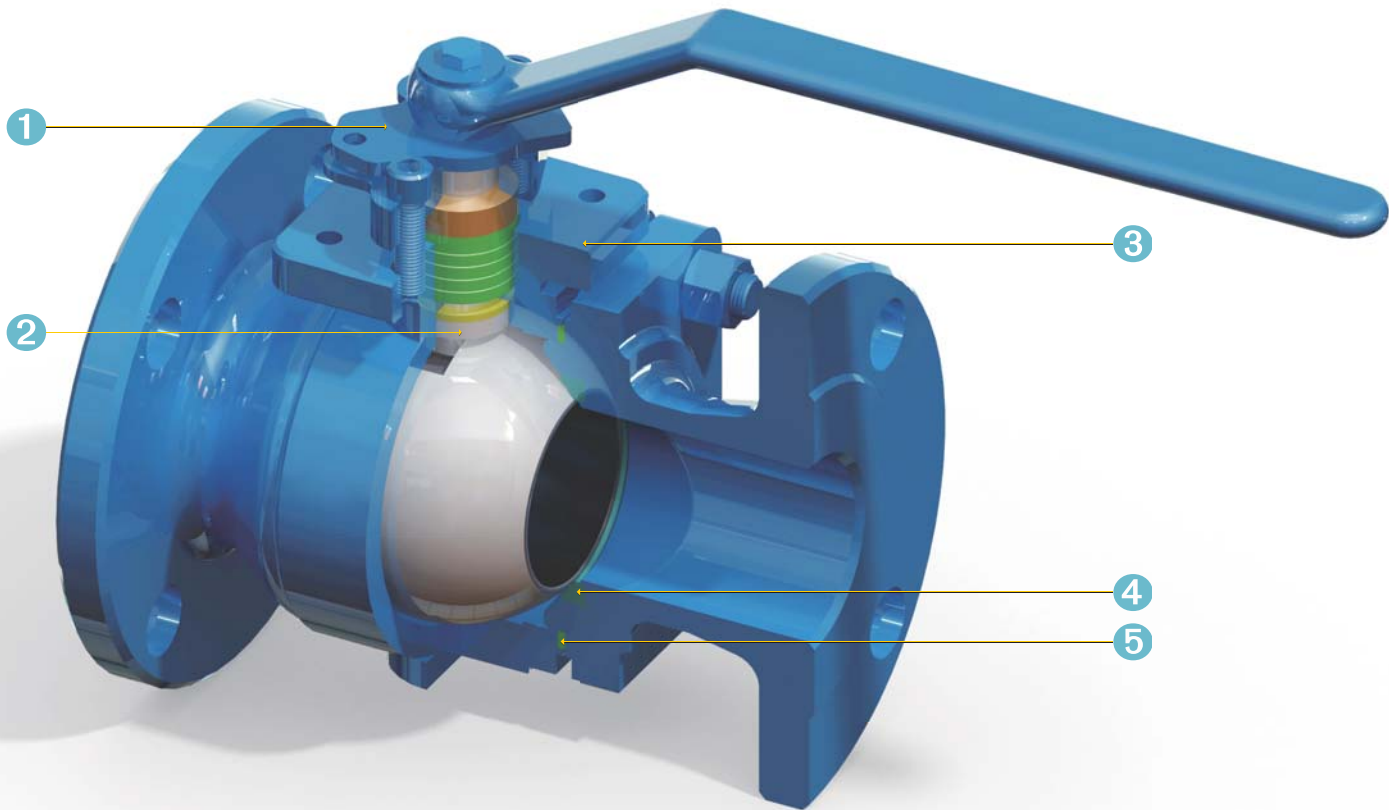
150 LB Dimensions

Size		d		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1/2	15	0.37	9	0.50	13	4.25	108	2.13	54	4.72	120	3.3	1.5
3/4	20	0.50	13	0.75	19	4.61	117	2.32	59	5.51	140	5.5	2.5
1	25	0.75	19	1.00	25	5.00	127	2.52	64	5.51	140	6.6	3.0
1 1/2	40	1.18	30	1.50	38	6.50	165	3.54	90	6.30	160	11.0	5.0
2	50	1.50	38	2.00	51	7.01	178	4.02	102	10.43	265	19.2	8.7
2 1/2	65	2.00	51	2.50	64	7.52	191	4.41	112	10.43	265	27.3	12.4
3	80	2.50	64	3.00	76	7.99	203	4.76	121	10.43	265	36.8	16.7
4	100	3.00	76	4.00	102	9.02	229	6.54	166	11.81	300	53.8	24.4
6	150	4.50	114	6.00	152	10.51	267	8.19	208	15.75	400	110.2	50.0
8	200	6.00	152	8.00	203	11.50	292	9.69	246	11.81	*300	222.7	101.0
10	250	7.36	187	10.00	254	12.99	330	11.93	303	16.00	*400	330.7	150.0

300 LB Dimensions

Size		d		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1/2	15	0.37	9	0.50	13	5.51	140	2.13	54	4.72	120	6.2	2.8
3/4	20	0.50	13	0.75	19	5.98	152	2.32	59	5.51	140	7.9	3.6
1	25	0.75	19	1.00	25	6.50	165	2.52	64	5.51	140	10.6	4.8
1 1/2	40	1.18	30	1.50	38	7.48	190	3.54	90	6.30	160	21.2	9.6
2	50	1.50	38	2.00	51	8.50	216	4.02	102	10.43	265	24.3	11.0
2 1/2	65	2.00	51	2.50	64	9.49	241	4.41	112	10.43	265	33.3	15.1
3	80	2.50	64	3.00	76	11.14	283	4.76	121	10.43	265	49.6	22.5
4	100	3.00	76	4.00	102	12.01	305	6.54	166	11.81	300	81.6	37.0
6	150	4.50	114	6.00	152	15.89	404	8.19	208	11.81	*300	159.8	72.5
8	200	5.67	144	8.00	203	16.50	419	9.69	246	15.75	*400	275.6	125.0
10	250	7.36	187	10.00	254	17.99	457	11.93	303	15.75	*400	451.9	205.0

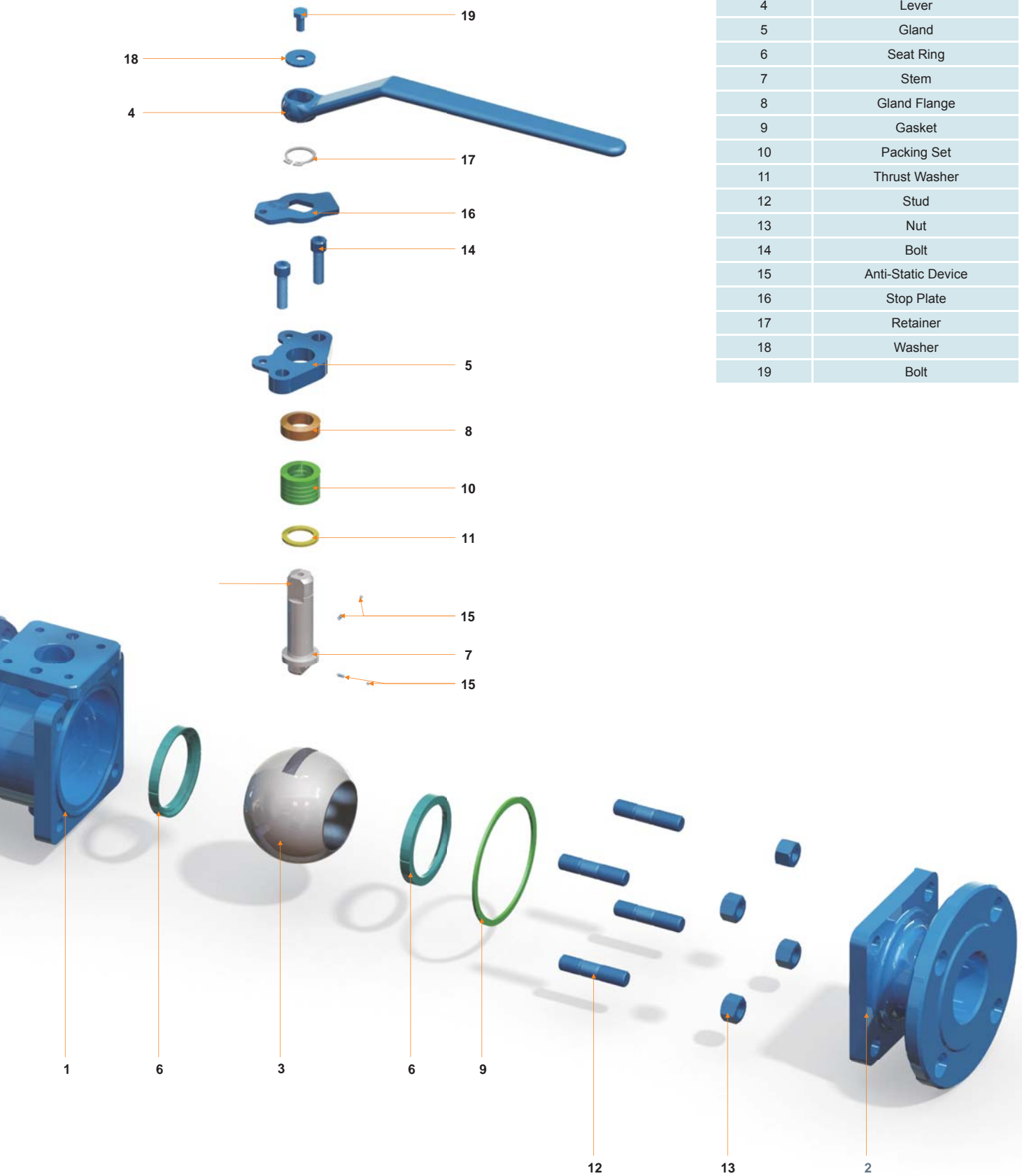
*Gear Operator



- ① Line Flow Locking Device: Valve is equipped with a locking device to secure the lever's position and to maintain line flow.
- ② Blow-out Proof Stem: The lower end of the stem is T-shaped to create an integral collar making the stem blowout-proof.
- ③ ISO 5211 Mount Pad: Standardized connections simplify the installation of actuators.
- ④ Fire Safe Design: Metal to metal sealing between the ball and the body shuts off valve flow when soft sealing materials are destroyed by fire.
- ⑤ Emission-free Gasket: The primary gasket is composed of emission free graphite to eliminate leakage.

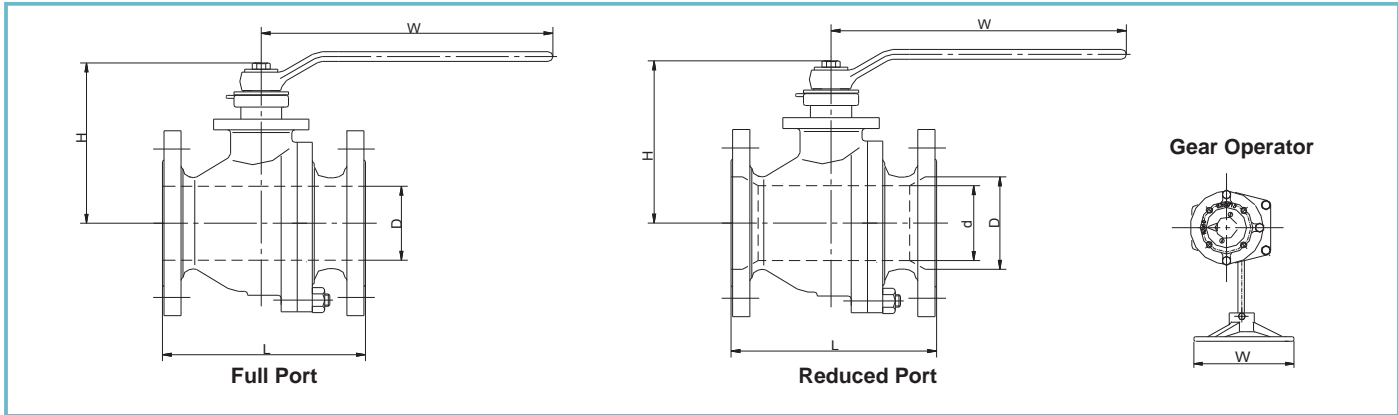
APPLICATIONS

- Refinery
- Petrochemical
- Power
- Chemical
- Pharmaceutical



Index No.	Part
1	Body
2	Bonnet
3	Ball
4	Lever
5	Gland
6	Seat Ring
7	Stem
8	Gland Flange
9	Gasket
10	Packing Set
11	Thrust Washer
12	Stud
13	Nut
14	Bolt
15	Anti-Static Device
16	Stop Plate
17	Retainer
18	Washer
19	Bolt

No.	Part	Standard	Stainless Steel	Sour Service	Low Temperature Service
1	Body	ASTM A216-WCB	ASTM A351-CF8M	ASTM A216-WCB	ASTM A352-LCB
2	Bonnet	ASTM A216-WCB	ASTM A351-CF8M	ASTM A216-WCB	ASTM A352-LCB
3	Ball	ASTM A105N/ENP	ASTM A182-F316	ASTM A105N/ENP	ASTM A182-F316
4	Lever	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
5	Gland Flange	ASTM A216-WCB	ASTM A351-CF8	ASTM A216-WCB	ASTM A352-LCB
6	Seat Ring	PTFE	PTFE	PTFE	PTFE
7	Stem	ASTM A182-F6a	ASTM A182-F316	ASTM A182-F6a	ASTM A182-F316
8	Gland Flange	ASTM A276-420	ASTM A276-316	ASTM A276-420	ASTM A276-316
9	Gasket	316 S.S.+Graphite	316 S.S.+Graphite	316 S.S.+Graphite	316 S.S.+Graphite
10	Packing Set	Graphite	Graphite	Graphite	Graphite
11	Thrust washer	PTFE	PTFE	PTFE	PTFE
12	Stud	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
13	Nut	ASTM A194-2H	ASTM A194-8	ASTM A194-2HM	ASTM A194-7M
14	Bolt	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
15	Anti-Static Device	S.S.	S.S.	S.S.	S.S.
16	Stop Plate	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
17	Retainer	Carbon Steel	S.S.	Carbon Steel	S.S.
18	Washer	Carbon Steel	S.S.	Carbon Steel	S.S.
19	Bolt	Carbon Steel	S.S.	Carbon Steel	S.S.



150 LB Dimensions

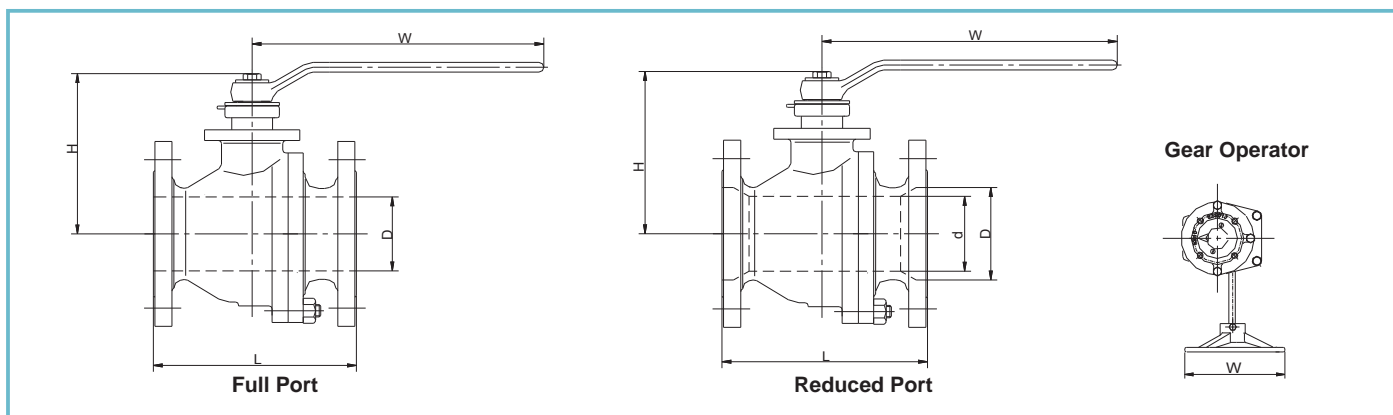
Full Port											
Size		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1/2	15	0.50	13	4.25	108	2.32	59	5.12	130	4.0	1.8
3/4	20	0.75	19	4.61	117	2.48	63	5.12	130	4.4	2.0
1	25	1.00	25	5.00	127	2.99	76	6.30	160	7.9	3.6
1 1/2	40	1.50	38	6.50	165	3.82	97	9.06	230	15.9	7.2
2	50	2.00	51	7.01	178	4.21	107	9.06	230	24.5	11.1
2 1/2	65	2.50	64	7.48	190	5.59	142	15.75	400	30.9	14.0
3	80	3.00	76	7.99	203	5.98	152	15.75	400	48.5	22.0
4	100	4.00	102	9.02	229	7.01	178	27.56	700	116.8	53.0
5	125	5.00	127	14.02	356	9.92	252	43.31	1100	127.9	58.0
6	150	6.00	152	15.51	394	10.71	272	11.81	*300	238.1	108.0
8	200	7.99	203	17.99	457	13.46	342	11.81	*300	429.9	195.0
10	250	10.00	254	20.98	533	13.58	345	15.75	*400	687.8	312.0
12	300	12.00	305	24.02	610	18.86	479	23.62	*600	762.8	346.0

Reduced Port													
Size		d		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
3/4x1/2	20x15	0.50	13	0.75	19	4.63	118	3.23	82	5.12	130	6.6	3.0
1x3/4	25x20	0.75	19	1.00	25	5.00	127	3.35	85	5.12	130	9.9	4.5
1 1/2x1	40x25	1.00	25	1.50	38	6.50	165	3.94	100	6.30	160	15.4	7.0
2x1 1/2	50x40	1.50	38	2.00	51	7.01	178	4.53	115	9.06	230	19.8	9.0
2 1/2x2	65x50	2.00	51	2.50	64	7.48	190	4.72	120	9.06	230	33.1	15.0
3x2	80x50	2.00	51	3.00	76	7.99	203	6.02	153	15.75	400	35.3	16.0
4x3	100x80	3.00	76	4.00	102	9.02	229	6.38	162	15.75	400	65.0	29.5
6x4	150x100	4.00	102	6.00	152	15.51	394	7.52	191	18.11	460	105.8	48.0
8x6	200x150	6.00	152	8.00	203	17.99	457	11.42	290	11.81	*300	271.2	123.0
10x8	250x200	8.00	203	10.00	254	20.98	533	13.39	340	11.81	*300	480.6	218.0
12x10	300x250	10.00	254	12.00	305	24.02	610	17.40	442	15.75	*400	507.1	230.0

*Gear Operator

B Series Ball Valve

Two-piece, split body, cast steel, side entry design

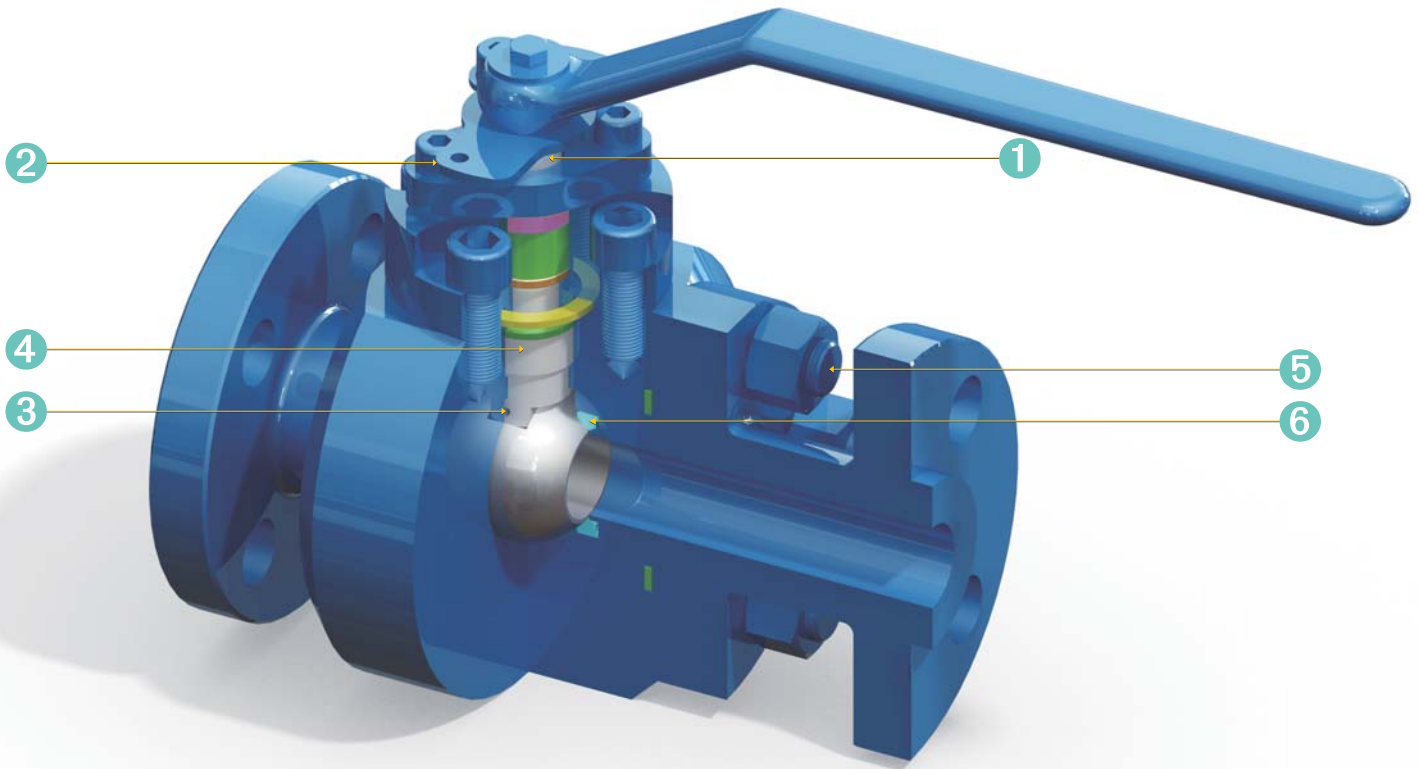


300 LB Dimensions

Full Port											
Size		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1/2	15	0.50	13	5.51	140	2.32	59	5.12	130	5.1	2.3
3/4	20	0.75	19	5.98	152	2.48	63	5.12	130	7.9	3.6
1	25	1.00	25	6.50	165	2.99	76	6.30	160	11.2	5.1
1 1/2	40	1.50	38	7.48	190	3.82	97	9.06	230	22.0	10.0
2	50	2.00	51	8.50	216	4.21	107	9.06	230	30.9	14.0
2 1/2	65	2.50	64	9.49	241	5.59	142	15.75	400	50.7	23.0
3	80	3.00	76	11.14	283	5.98	152	15.75	400	67.5	30.6
4	100	4.00	102	12.01	305	7.01	178	27.56	700	110.2	50.0
5	125	5.00	127	15.00	381	9.92	252	43.31	1100	205.0	93.0
6	150	6.00	152	15.87	403	10.71	272	11.81	*300	255.7	116.0
8	200	8.00	203	19.76	502	13.46	342	15.75	*400	517.0	234.5
10	250	10.00	254	22.36	568	13.58	345	15.75	*400	1086.9	493.0

Reduced Port													
Size		d		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
3/4x1/2	20x15	0.50	13	0.75	19	5.98	152	3.23	82	5.12	130	7.7	3.5
1x3/4	25x20	0.75	19	1.00	25	6.50	165	3.35	85	5.12	130	12.1	5.5
1 1/2x1	40x25	1.00	25	1.50	38	7.48	190	3.94	100	6.30	160	22.0	10.0
2x1 1/2	50x40	1.50	38	2.00	51	8.50	216	4.53	115	9.06	230	24.3	11.0
2 1/2x2	65x50	2.00	51	2.50	64	9.49	241	4.72	120	9.06	230	51.8	23.5
3x2	80x50	2.50	64	3.00	76	11.14	283	6.02	153	15.75	400	66.1	30.0
4x3	100x80	3.00	76	4.00	102	12.01	305	6.38	162	15.75	400	86.0	39.0
6x4	150x100	4.00	102	6.00	152	15.87	403	7.52	191	18.11	460	159.8	72.5
8x6	200x150	6.00	152	8.00	203	19.76	502	11.42	290	11.81	*300	326.3	148.0
10x8	250x200	8.00	203	10.00	254	22.36	568	13.39	340	15.75	*400	705.5	320.0

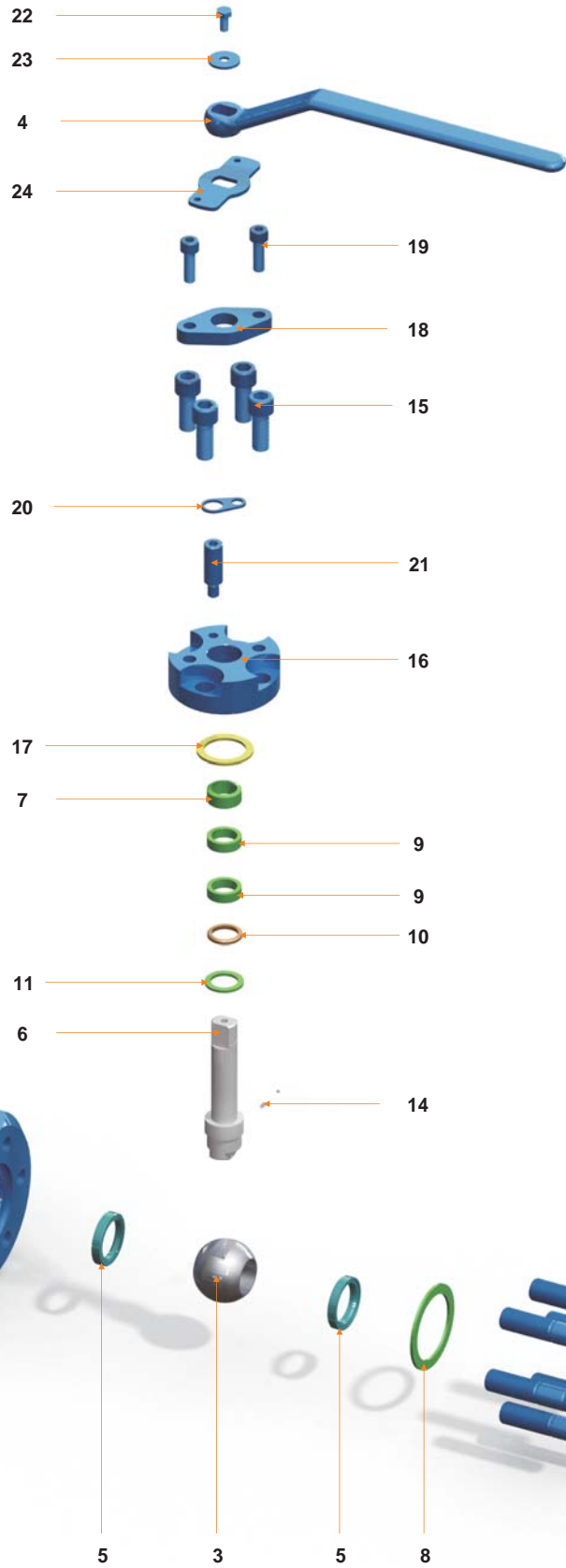
*Gear Operator



- ① Double "D" Stem Head: Assures the handle lever will always be mounted parallel to the media flow, indicating valve open and closed positions.
- ② Line Flow Locking Device: Valve is equipped with a locking device to secure the lever's position and to maintain line flow.
- ③ Anti-static Device: Spring-loaded pins assure electrical continuity between the ball, stem and body to avoid arcing caused by static buildup.
- ④ Blow-out Proof Stem: The lower end of the stem is T-shaped to create an integral collar making the stem blowout-proof.
- ⑤ Bolted Body / Flanged Adapter: Maintains seal integrity between the body and bonnet with properly torqued studs/knots.
- ⑥ Fire Safe Design: Metal to metal sealing between the ball and the body shuts off valve flow when soft sealing materials are destroyed by fire.

APPLICATIONS

- Refinery
- Petrochemical
- Power
- Chemical
- Pharmaceutical
- Paper

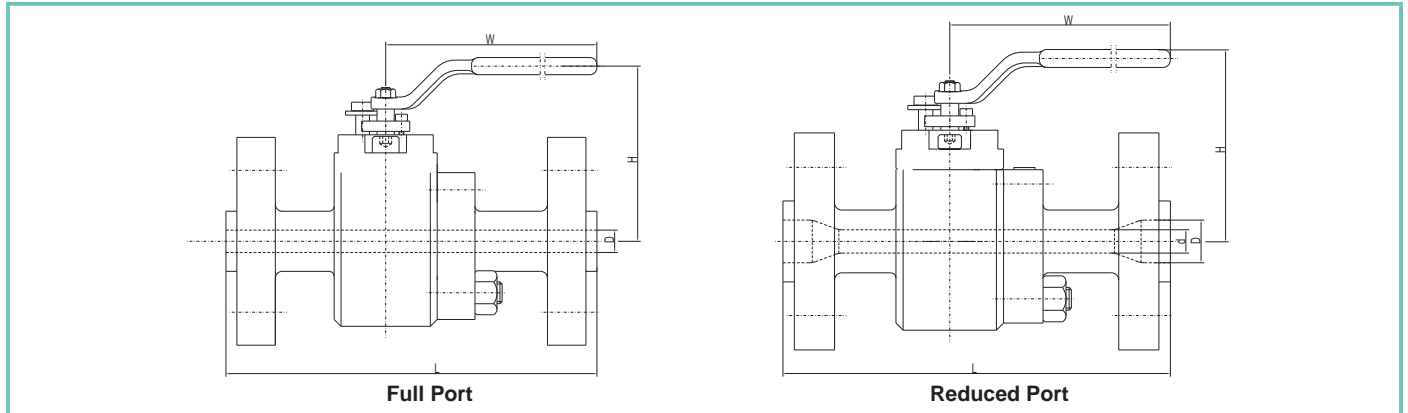


Index No.	Part
1	Body
2	Bonnet
3	Ball
4	Lever
5	Seat Ring
6	Stem
7	Gland
8	Gasket
9	Packing Set
10	Space Ring
11	Thrust Washer
12	Stud
13	Nut
14	Anti-Static Device
15	Bolt
16	Gland Cap
17	Gasket
18	Gland Flange
19	Bolt
20	Locking Plate
21	Screw
22	Bolt
23	Washer
24	Stop Plate

No.	Part	Standard	Stainless Steel	Sour Service	Low Temperature Service
1	Body	ASTM A105N	ASTM A182-F316	ASTM A105N	ASTM A350-LF2
2	Bonnet	ASTM A105N	ASTM A182-F316	ASTM A105N	ASTM A350-LF2
3	Ball	ASTM A105N/ENP	ASTM A182-F316	ASTM A105N/ENP	ASTM A182-F316
4	Lever	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
5	Seat Ring	PTFE	PTFE	PTFE	PTFE
6	Stem	ASTM A182-F6a	ASTM A182-F316	ASTM A182-F6a	ASTM A182-F316
7	Gland	ASTM A276-420	ASTM A276-316	ASTM A276-420	ASTM A276-316
8	Gasket	316 S.S.+Graphite	316 S.S.+Graphite	316 S.S.+Graphite	316 S.S.+Graphite
9	Packing Set	Graphite	Graphite	Graphite	Graphite
10	Space Ring	ASTM A276-420	ASTM A276-316	ASTM A276-420	ASTM A276-316
11	Thrust Washer	PTFE	PTFE	PTFE	PTFE
12	Stud	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
13	Nut	ASTM A194-2H	ASTM A194-8	ASTM A194-2HM	ASTM A194-7M
14	Anti-Static Device	S.S.	S.S.	S.S.	S.S.
15	Bolt	Carbon Steel	S.S.	Carbon Steel	S.S.
16	Gland Cap	ASTM A105N	ASTM A182-F316	ASTM A105N	ASTM A350-LF2
17	Gasket	316 S.S.+Graphite	316 S.S.+Graphite	316 S.S.+Graphite	316 S.S.+Graphite
18	Gland Flange	ASTM A216-WCB	ASTM A351-CF8	ASTM A216-WCB	ASTM A352-LCB
19	Bolt	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
20	Locking Plate	S.S.	S.S.	S.S.	S.S.
21	Screw	S.S.	S.S.	S.S.	S.S.
22	Bolt	Carbon Steel	S.S.	Carbon Steel	S.S.
23	Washer	Carbon Steel	S.S.	Carbon Steel	S.S.
24	Stop Plate	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel

BB Series Ball Valve

Two-piece, split body, forged steel, side entry design



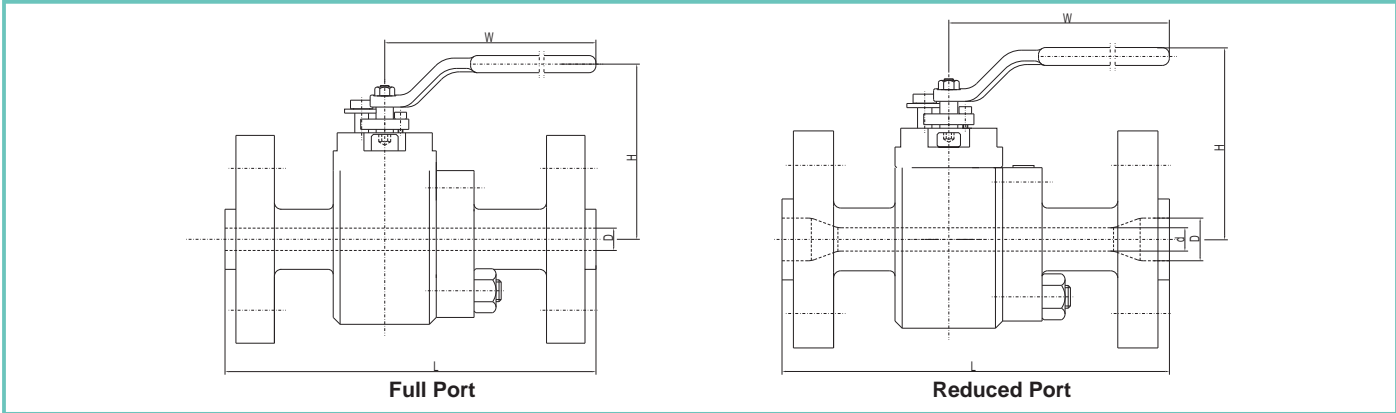
600 LB Dimensions

Full Port											
Size		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1/2	15	0.50	12.7	6.50	165	4.21	107	5.91	150	7.7	3.5
3/4	20	0.75	19	7.52	191	5.08	129	7.09	180	12.8	5.8
1	25	1.00	25.4	8.50	216	5.93	150.5	9.06	230	14.3	6.5
1 1/2	40	1.50	38	9.49	241	7.72	196	11.81	300	29.1	13.2
2	50	2.00	51	11.50	292	9.00	228.5	13.78	350	63.9	29.0

Reduced Port													
Size		d		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1/2x3/8	15x10	0.37	9.5	0.50	12.7	6.50	165	3.15	80	4.45	113		
3/4x1/2	20x15	0.50	12.7	0.75	19	7.52	191	4.21	107	5.91	150	11.0	5.0
1x3/4	25x20	0.75	19	1.00	25.4	8.50	216	5.08	129	7.09	180	11.7	5.3
1 1/2x1	40x25	1.00	25.4	1.50	38	9.49	241	5.93	150.5	9.06	230	23.4	10.6
2x1 1/2	50x40	1.50	38	2.00	51	11.50	292	7.72	196	11.81	300	55.1	25.0

900 LB Dimensions

Full Port											
Size		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1/2	15	0.50	12.7	8.50	216	4.21	107	5.91	150	18.7	8.5
3/4	20	0.75	19	9.02	229	5.08	129	7.09	180	24.3	11.0
1	25	1.00	25.4	10.00	254	5.93	150.5	9.06	230	35.3	16.0
1 1/2	40	1.50	38	12.01	305	7.72	196	11.81	300	72.8	33.0
2	50	2.00	51	14.49	368	9.00	228.5	14.57	370	99.2	45.0



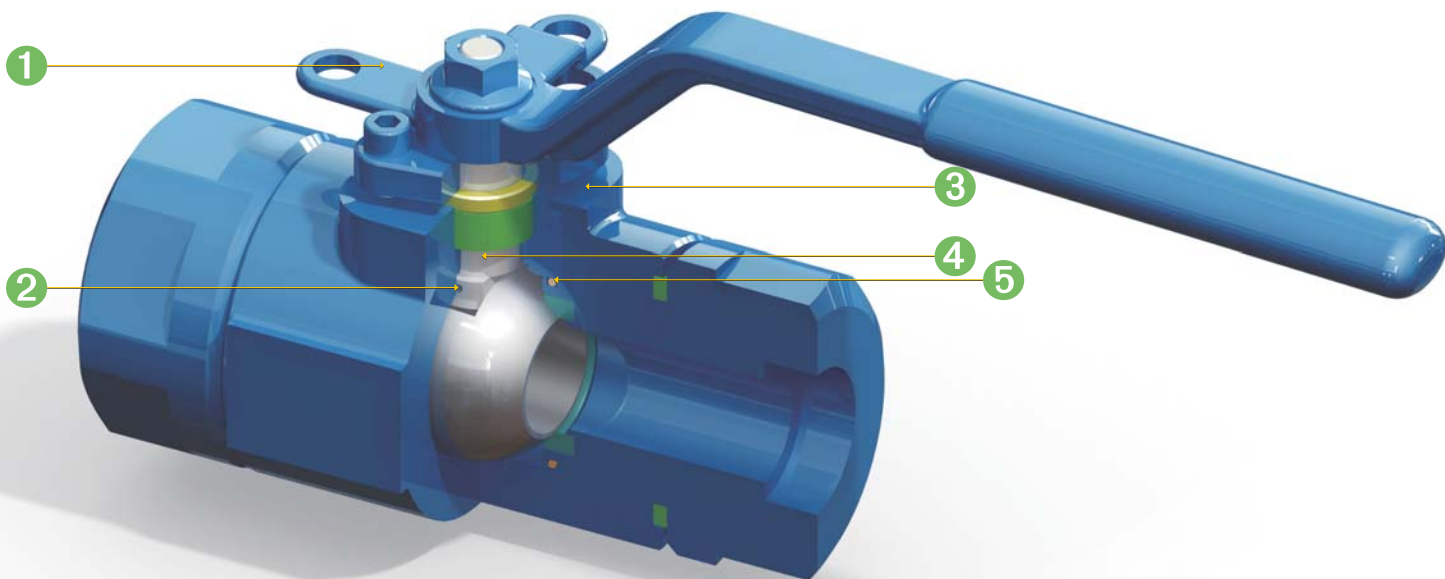
900 LB Dimensions

Reduced Port													
Size		d		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1/2x3/8	15x10	0.37	9.5	0.50	12.7	8.50	216	3.15	80	4.45	113	0.0	
3/4x1/2	20x15	0.50	12.7	0.75	19	9.02	229	4.21	107	5.91	150	22.0	10.0
1x3/4	25x20	0.75	19	1.00	25.4	10.00	254	5.08	129	7.09	180	33.1	15.0
1 1/2x1	40x25	1.00	25.4	1.50	38	12.01	305	5.93	150.5	9.06	230	0.0	
2x1 1/2	50x40	1.50	38	2.00	51	14.49	368	7.72	196	11.81	300	88.2	40.0

1500 LB Dimensions

Full Port													
Size		D		L		H		W		Weight			
in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg		
1/2	15	0.50	12.7	8.50	216	4.21	107	5.91	150	15.0	6.8		
3/4	20	0.75	19	9.02	229	5.08	129	7.09	180	24.3	11.0		
1	25	1.00	25.4	10.00	254	5.93	150.5	9.06	230	35.3	16.0		
1 1/2	40	1.50	38	12.01	305	7.72	196	11.81	300	71.9	32.6		
2	50	2.00	51	14.49	368	9.00	228.5	14.57	370	141.1	64.0		

Reduced Port													
Size		d		D		L		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1/2x3/8	15x10	0.37	9.5	0.50	12.7	8.50	216	3.15	80	4.45	113	0.0	
3/4x1/2	20x15	0.50	12.7	0.75	19	9.02	229	4.21	107	5.91	150	22.0	10.0
1x3/4	25x20	0.75	19	1.00	25.4	10.00	254	5.08	129	7.09	180	33.1	15.0
1 1/2x1	40x25	1.00	25.4	1.50	38	12.01	305	5.93	150.5	9.06	230	61.7	28.0
2x1 1/2	50x40	1.50	38	2.00	51	14.49	368	7.72	196	11.81	300	90.4	41.0

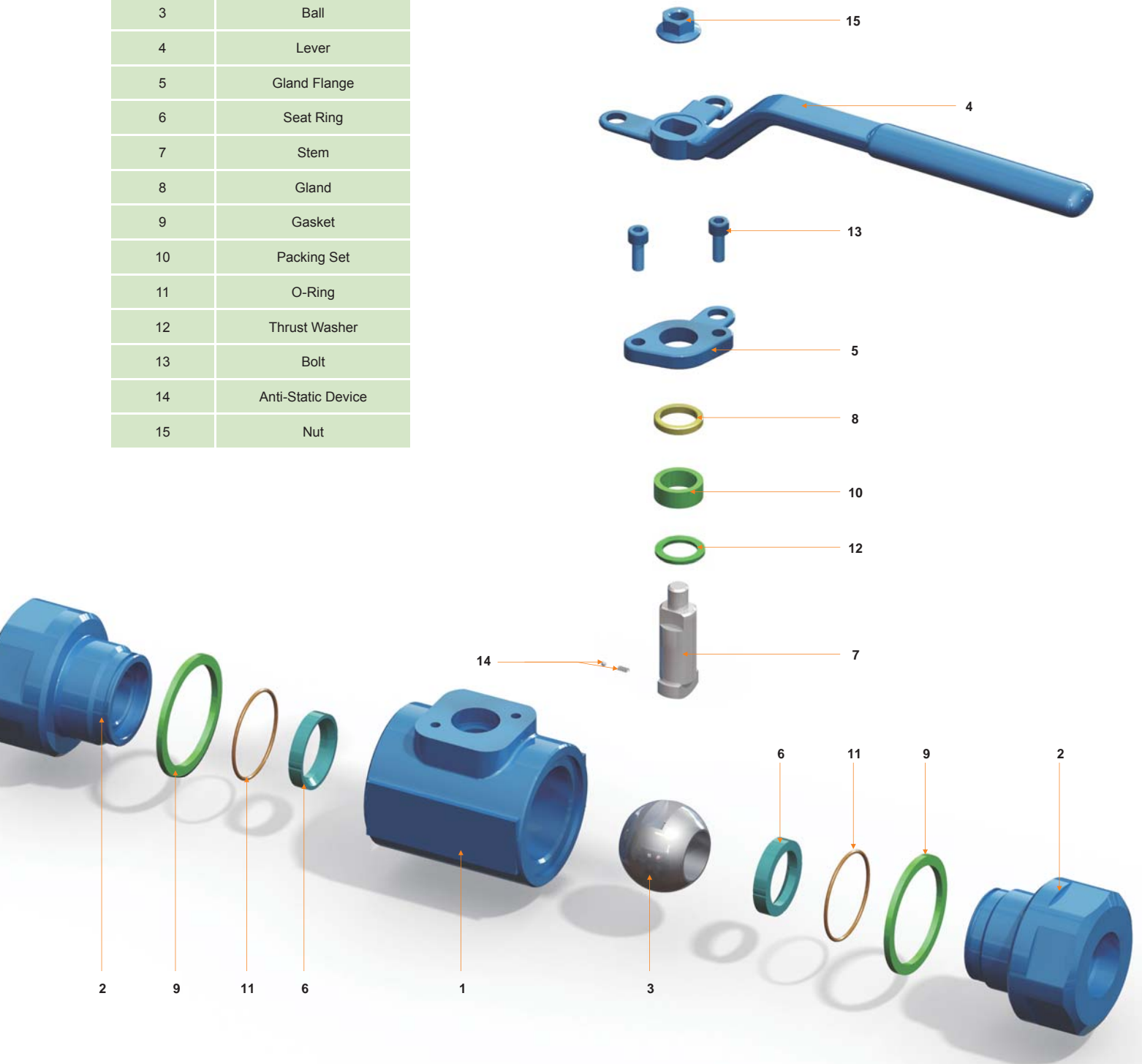


- ① Line Flow Locking Device: Valve is equipped with a locking device to secure the lever's position and to maintain line flow.
- ② Anti-static Device: Spring-loaded pins assure the electrical continuity between the ball, stem and body to avoid arcing caused by static buildup.
- ③ ISO 5211 Mount Pad: Standardized connections simplify the installation of actuators.
- ④ Blow-out Proof Stem: The lower end of the stem is T-shaped to create an integral collar making the stem blowout-proof.
- ⑤ O-ring Seal Design: Protects the threads connecting the body and the bonnet from crevice corrosion.

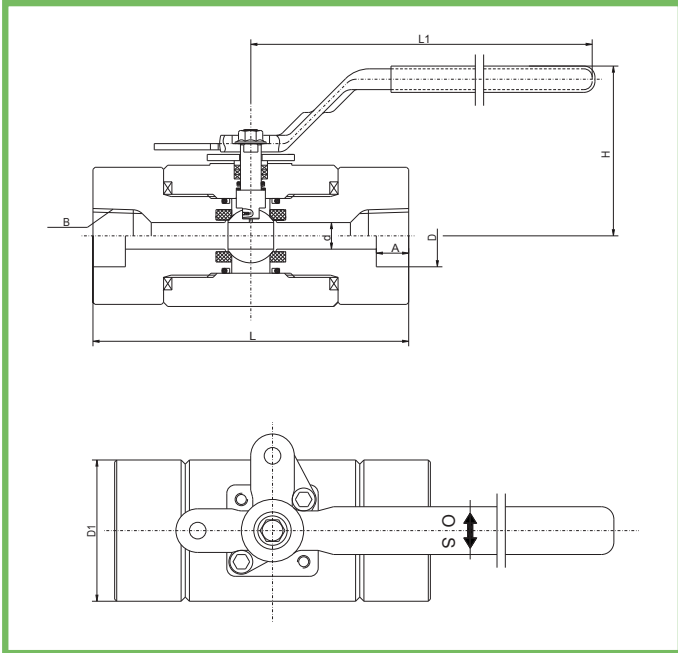
APPLICATIONS

- Refinery
- Chemical
- Power
- Petrochemical

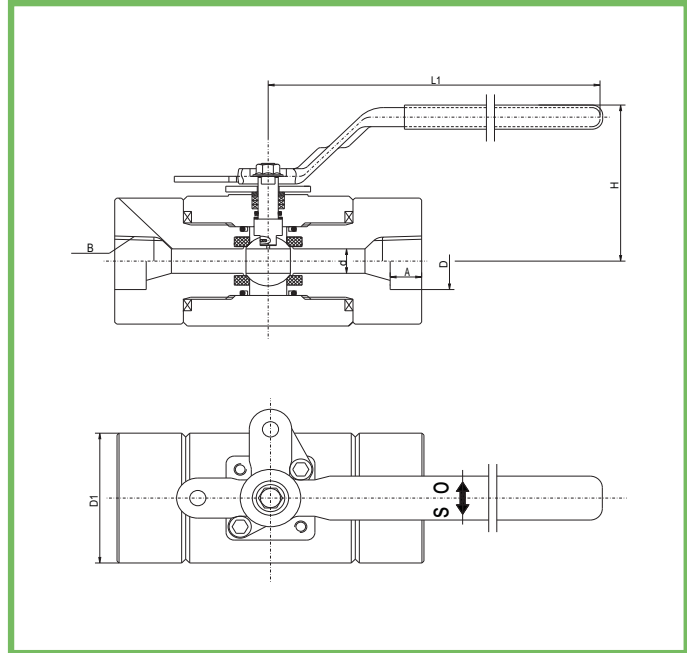
Index No.	Part
1	Body
2	Bonnet
3	Ball
4	Lever
5	Gland Flange
6	Seat Ring
7	Stem
8	Gland
9	Gasket
10	Packing Set
11	O-Ring
12	Thrust Washer
13	Bolt
14	Anti-Static Device
15	Nut



No.	Part	Standard	Stainless Steel	Sour Service	Low Temperature Service
1	Body	ASTM A105N	ASTM A182-F316	ASTM A105N	ASTM A350-LF2
2	Bonnet	ASTM A105N	ASTM A182-F316	ASTM A105N	ASTM A350-LF2
3	Ball	ASTM A105N/ENP	ASTM A182-F316	ASTM A105N/ENP	ASTM A182-F316
4	Lever	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
5	Gland Flange	ASTM A216-WCB	ASTM A351-CF8	ASTM A216-WCB	ASTM A352-LCB
6	Seat Ring	PTFE	PTFE	PTFE	PTFE
7	Stem	ASTM A182-F6a	ASTM A182-F316	ASTM A182-F6a	ASTM A182-F316
8	Gland	ASTM A276-420	ASTM A276-316	ASTM A276-420	ASTM A276-316
9	Gasket	316 S.S.+Graphite	316 S.S.+Graphite	316 S.S.+Graphite	316 S.S.+Graphite
10	Packing Set	Graphite	Graphite	Graphite	Graphite
11	O-Ring	Viton AED	Viton AED	Viton AED	Viton AED
12	Thrust Washer	PTFE	PTFE	PTFE	PTFE
13	Bolt	ASTM A193-B7	ASTM A193-B8	ASTM A193-B7M	ASTM A320-L7M
14	Anti-Static Device	S.S.	S.S.	S.S.	S.S.
15	Nut	Carbon Steel	S.S.	Carbon Steel	S.S.



Full Port



Reduced Port

800/1500/2500 LB

Dimensions

Full Port																		
Size		d		L		H		L1		A		D		D1		B	Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		lb	Kg
1/4	8	0.25	6.4	0.25	6	2.99	76	1.60	41	3.94	100	0.37	9.5	0.56	14.2	1/4-18NPT	0.6	1.4
3/8	10	0.38	10	0.37	9	3.31	84	1.76	45	4.72	120	0.37	9.5	0.69	17.6	3/8-18NPT	0.9	1.9
1/2	15	0.50	13	0.51	13	4.09	104	2.44	62	5.91	150	0.37	9.5	0.86	21.8	1/2-14NPT	1.2	2.7
3/4	20	0.75	19	0.79	20	5.00	127	3.23	82	7.09	180	0.49	12.5	1.07	27.2	3/4-14NPT	2.9	6.3
1	25	1.00	25	0.98	25	6.18	157	3.94	100	9.06	230	0.49	12.5	1.33	33.9	1-11.5NPT	5.4	12.0
1-1/2	40	1.50	38	1.50	38	7.76	197	5.31	135	11.81	300	0.49	12.5	1.92	48.8	1-1/2-11.5NPT	14.3	31.6
2	50	2.00	51	2.01	51	8.27	210	6.50	165	14.57	370	0.63	16.0	2.41	61.2	2-11.5NPT	24.6	54.1

Reduced Port																		
Size		d		L		H		L1		A		D		D1		B	Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		lb	Kg
3/4×1/2	20×15	0.25	6.4	0.25	6	2.99	76	1.60	40.6	3.94	100	0.37	9.5	0.69	17.6	3/8-18NPT	0.5	1.2
1×3/4	25×20	0.37	9.5	0.37	9	3.31	84	1.76	44.8	4.72	120	0.37	9.5	0.86	21.8	1/2-14NPT	0.8	1.7
3/4×1/2	20×15	0.51	13	0.51	13	4.09	104	2.44	62	5.91	150	0.49	12.5	1.07	27.2	3/4-14NPT	1.1	2.4
1×3/4	25×20	0.79	20	0.79	20	5.00	127	3.23	82	7.09	180	0.49	12.5	1.33	33.9	1-11.5NPT	2.7	5.9
1-1/2×1	40×25	0.98	25	0.98	25	6.18	157	3.94	100	9.06	230	0.49	12.5	1.92	48.8	1-1/2-11.5NPT	5.1	11.3
2×1-1/2	50×40	1.50	38	1.50	38	7.76	197	5.31	135	11.81	300	0.63	16	2.41	61.2	2-11.5NPT	14.0	30.9

Seat

Properties		PTFE	NYLON	PEEK	PCTFE	DEVLON V-API
Temperature Range F		-328~428	-328~248	-148~500	-328~302	-148~302
Temperature Range C		-200~220	-50~120	-100~160	-200~150	-100~150
Pressure Rating		150~600	150~1500	150~2500	150~1500	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	2.17	1.02	1.44	2.12	1.14
	Water Absorption 24hrs(%)	0	1	0.06	0	0.1
	Water Absorption Saturation	<0.01	1.6	0.2	<0.01	3
Service Application		Chemical & Low Temperature	High Pressure & Hydrocarbon	High Pressure & Temperature	Cryogenic	High Pressure & Hydrocarbon

Sealing

Type	NBR	HNBR	VITON	FFKM	EPDM
Temperature Range F	-22~230	-40~302	-4~392	-4~620	-58~302
Temperature Range C	-30~110	-40~150	-20~150	-20~327	-50~150
Specific Gravity	1.31	1.34	1.85	2	0.87
Hardness (shore A)	75	75	75	75	75

Flow Coefficient (C_v Value) Specification

Size(inch)	150LB	300LB	600LB	900LB	1500LB
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	
4	2500	2000	1850		
6	5300	5250			
8	10750	10100			
10	17500	16820			
12	26750	25950			

Notes:

1. All sizes are full port
2. Pressure Ratings are according to ASME B16.34

Method of Calculating Flow

The Flow Coefficient C_v of a valve is the flow rate of water (gallons/minute) through a fully opened valve, with a pressure drop of 1 psi across the valve. To find the flow of liquid from the C_v, use the following formulas:

Liquid Flow;

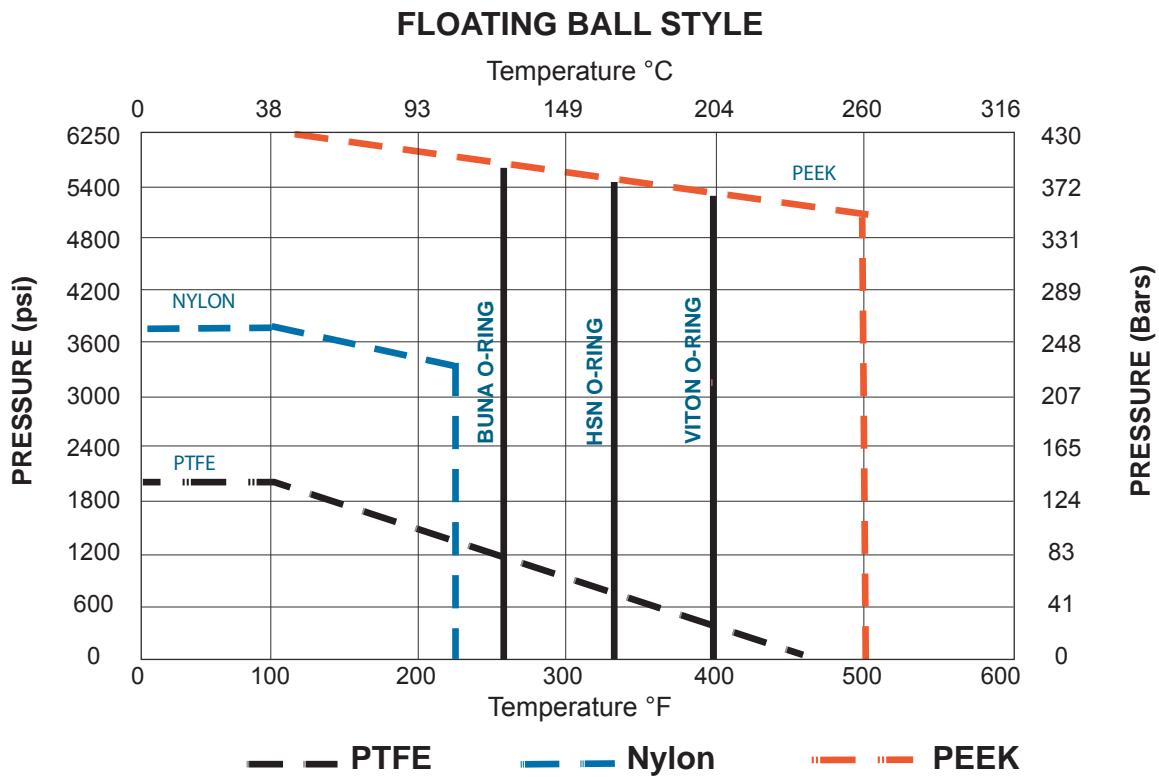
$$Q_L = C_v (P/G)^2$$

Q_L = Flow rate of liquid (gal/min)
P = differential pressure across the valve
G = specific gravity of liquid (for water, G = 1)

Gas Flow;

$$Q_g = 61C_v (P_2/P/g)^{1/2}$$

(For non-critical flow, P/P < 1.0)
Q_g = Flow rate of gas (CFH at STP)
P₂ = outlet pressure (psia)
g = specific gravity of gas (for air, g = 1.0)



O-Ring materials for floating ball valves are for seat and stem. All body/bonnet seals are graphite.
 Above ratings are for soft seal components. Please consult ASME B16.34 for Body and Closure Pressure/Temperature ratings.

Operating Torque

in.	150LB		300LB		400LB		600LB	
	N·m	Ft/Lbs	N·m	Ft/Lbs	N·m	Ft/Lbs	N·m	Ft/Lbs
1/4	5	3.688	6	4.426	8	5.901	12	8.851
3/8	5	3.688	6	4.426	8	5.901	12	8.851
1/2	6	4.426	9	6.638	11	8.114	16	11.802
3/4	10	7.376	12	8.851	13.8	10.179	20	14.752
1	15	11.064	20	14.752	29	21.390	42	30.979
1-1/4	32	23.603	42	30.979	50	36.88	60	44.256
1-1/2	40	29.504	60	44.256	62	45.731	90	66.384
2	50	36.88	70	51.632	90	66.384	130	95.888
2-1/2	80	59.008	90	66.384	104	76.710	150	110.64
3	90	66.384	120	88.512	138	101.789	200	147.52
4	180	132.768	230	169.648	255	188.088	370	272.912
5	340	250.784	420	309.792				
6	670	494.192	930	685.968				
8	1100	811.36	1930	1423.568				
10	2000	1475.2	4500	3319.2				
12	3200	2360.32						

in.	800LB		900LB		1500LB		2500LB	
	N·m	Ft/Lbs	N·m	Ft/Lbs	N·m	Ft/Lbs	N·m	Ft/Lbs
1/4	15	11.064	15	11.064	22	16.227	32	23.603
3/8	15	11.064	15	11.064	22	16.227	32	23.603
1/2	19	14.014	20	14.752	32	23.603	56	41.306
3/4	33	24.341	35	25.816	60	44.256	95	70.072
1	65	47.944	80	59.008	140	103.264	175	129.08
1-1/4	105	77.448	115	84.824	155	114.328		
1-1/2	130	95.888	140	103.264	171	126.130		
2	187	137.931	200	147.52	420	309.792		
2-1/2	280	206.528	320	236.032				
3	403	297.253	431	317.906				

Notes:

1. Torque is calculated based on normal temperature, with RTPFE seat for 150-300LB and NYLON seat for 600-100LB.
2. For cryogenic service, torque shall be increased 2~2.5 times.
3. 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.
4. Torque may be changed according to different fluid and trim material.

Product Warranty

Seller will replace without charge or refund the purchase price of products which prove to be defective in material or workmanship; provided that the product is properly installed and is used in the service for which the Seller recommends it and that the 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 any repairs 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 the Buyer's exclusive remedy and seller's exclusive liability.



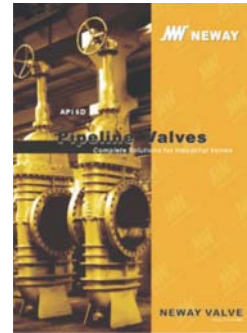
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Cat.no.:E-FBV



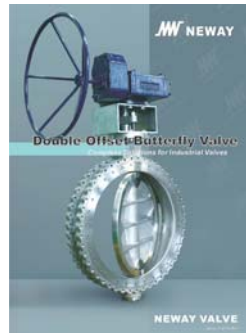
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Cat.no.:E-DOV



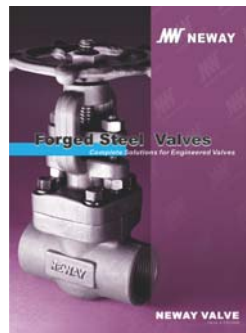
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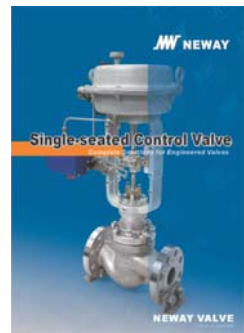
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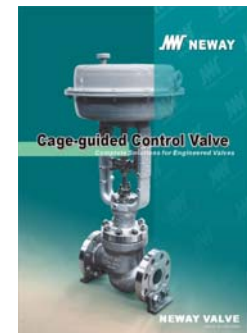
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Cat.no.:E-FSV



Cat.no.:E-CSS



Cat.no.:E-CSC

NW NEWAY
NEWAY VALVE (SUZHOU) CO., LTD.

No.999 Xiangjiang Road, Suzhou New District, P.R. China
 Post Code:215129
 Tel: 86-512-666-51365
 Fax: 86-512-666-51360
 E-Mail: neway@neway.com.cn
<http://www.newayvalve.com>

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