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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, Butterfly, Gate, Globe, Check, 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 Refining, Chemical, Coal Chemical, Offshore(including subsea), 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 largest 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 USA, 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 successfully achieved industrial certificates including ISO 9001, 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.

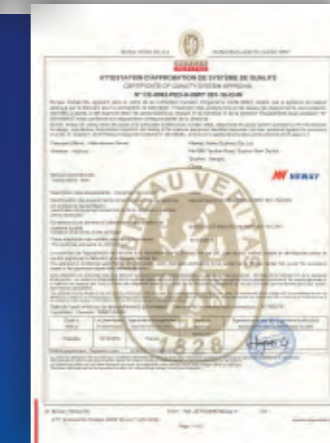
ISO 9001



API 6D



API 6A



CE/PED



TA Luft



ABS



AD2000



Fire Safe Test Certificate

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 customer's 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 seated ball valves with pneumatic actuator, 44" Class 300
- 2 Fully-welded pipeline ball valve, 56" Class 900
- 3 Top-entry ball valve with pneumatic actuator, 24" Class 300
- 4 Buried ball valves with gas over oil actuator
- 5 Trunnion mounted ball valves with electric actuator
- 6 Trunnion mounted ball valves with hydraulic actuator



4



5



6

# 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 Size

#### Full bore:

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

#### 6D Reduced Bore:

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

### ② Valve Type

Symbol	Valve Type	Symbol	Valve Type
BS	Side entry trunnion mounted type - forged	BE	tope entry trunnion mounted type
BT	Side entry trunnion mounted type - casting		

### ③ ASME Class

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

### ④ End Connection

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	C00	A105N	C40	-29 to 425	-20 to 800	Steam, petroleum products, oil vapour, gas and general service
Carbon Steel	A216 Grade LCB	L20	A350 Grade LF2	L70	-46 to 350	-50 to 650	Low temperature
Carbon Steel	A216 Grade LCC	L21	A350 Grade LF2	L70	-46 to 350	-50 to 650	
Duplex Stainless Steel	A995 Grade 4A	D03	A182 Grade F51	D40	-51 to 315	-60 to 599	Corrosion resistance
Duplex Stainless Steel	A995 Grade 5A	D10	A182 Grade F53	D41	-51 to 315	-60 to 599	
Austenitic Stainless Steel	A351 Grade CF8M	S01	A182 Grade F316	S41	-196 to 815	-320 to 1500	High and low temperature corrosion resistance
Austenitic Stainless Steel	A351 Grade CF8	S00	A182 Grade F304	S40	-196 to 815	-320 to 1500	
Low Carbon Austenitic Stainless Steel	A351 Grade CF3M	S03	A182 Grade F316L	S43	-196 to 815	-320 to 1500	Cryogenic service is also available upon request
Low Carbon Austenitic Stainless Steel	A351 Grade CF3	S02	A182 Grade F304L	S42	-196 to 815	-320 to 1500	

### ⑦ Trim Code

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

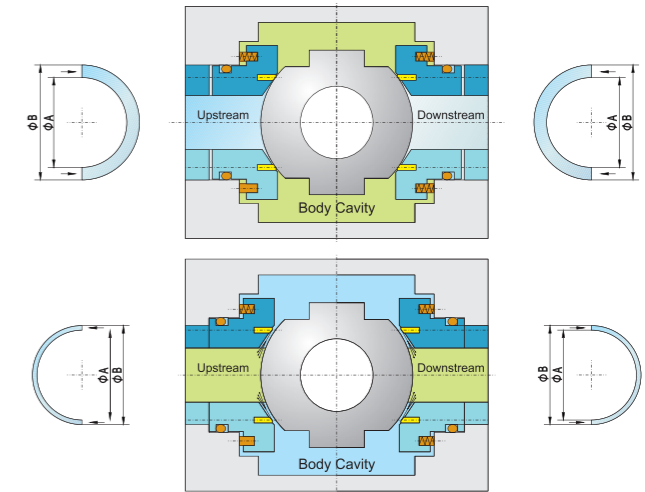
Valve Size		2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"	52"	54"	56"	60"	
API 6D Trunnion Mounted Ball Valve	Side Entry Cast Steel TM Ball Valve	150	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆													
		300	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆												
		600	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆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

## Self Relieving Seats (single piston effect)

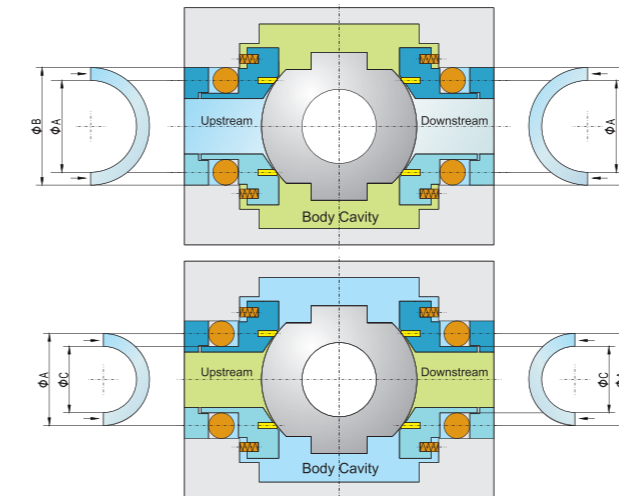
The single piston effect is the standard design for trunnion mounted ball valves. Pressure from both upstream and downstream sides pushes the seat rings against the ball.

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.

### STANDARD SINGLE PISTON EFFECT ( SELF-RELIEVING SEATS )



### OPTIONAL DOUBLE PISTON EFFECT



## Double Piston Effect Seats (DIB-1)

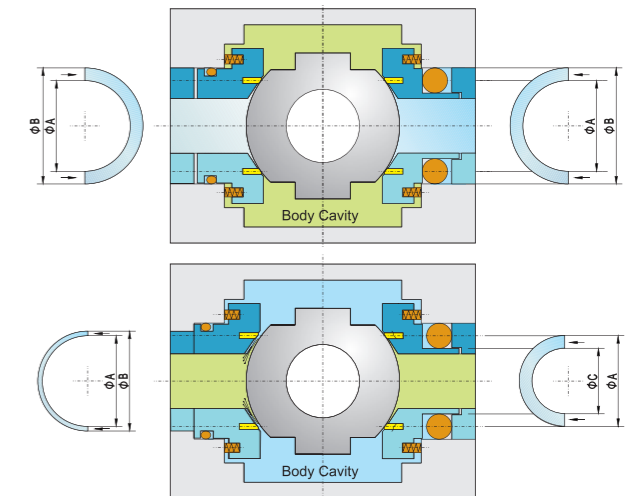
Double piston effect seats are pressure energized in both directions. So the seat rings are always pushed against the ball by the pressure from upstream/downstream or from the cavity.

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.

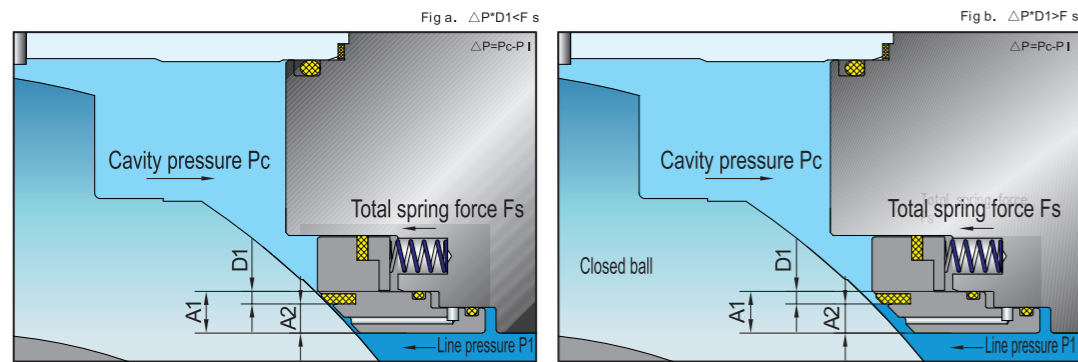
## One Self-Relieving Seat and One Double Piston Effective Seat (DIB-2)

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.

### OPTIONAL ONE SEAT DOUBLE PISTON EFFECT

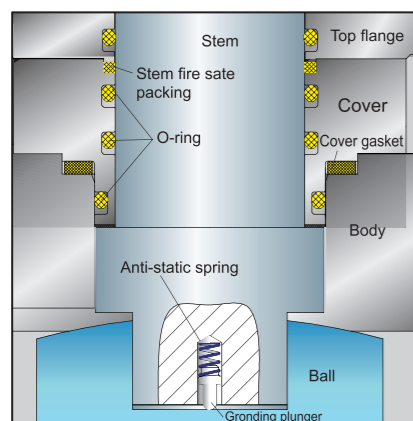


## Cavity Pressure Relief



When force created by cavity pressure ( $P_c$ ) is lower than the force created by line pressure ( $P_l$ ), i.e.  $\Delta P \cdot D1 < F_s$ , 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.  $P \cdot D1 > F_s$ , 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).

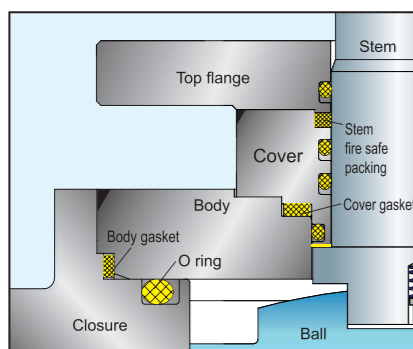


### Anti Blow-out Stem

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

### Anti-static Device

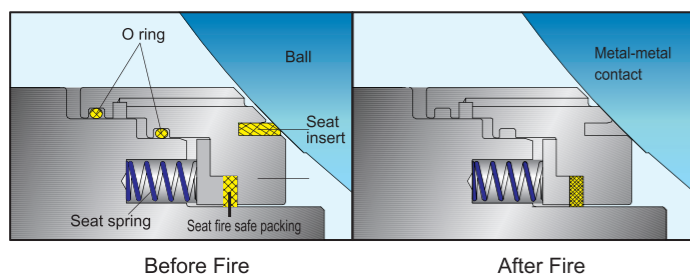
The Antistatic Device is a standard feature of the NEWAY ball valve. A spring-loaded pin assures the electrical continuity between the ball, stem and body, to avoid sparking during the turning of the stem to open and close the valve.



### Super Fire safe design

#### External leakage prevention

Leakage from the valve stem area is prevented by two O-ring seals and a cover 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, cover and body gasket, the firesafe stem packing prevents external leakage.

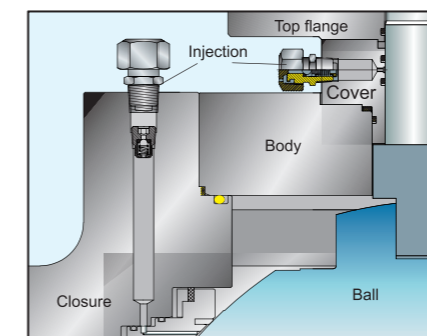


#### Internal leakage prevention

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.

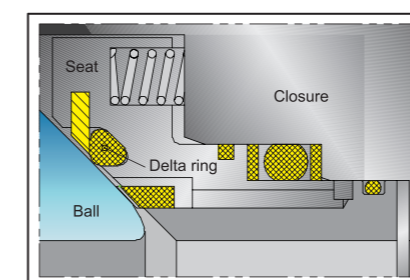
## Double block and bleed

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 / bleed via vent or drain plugs on the valve body.



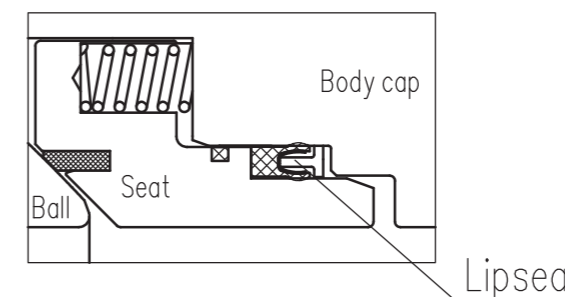
### Emergency sealant injection system

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.



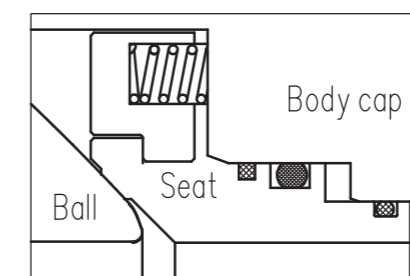
### DELTA RING seat design (optional)

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.



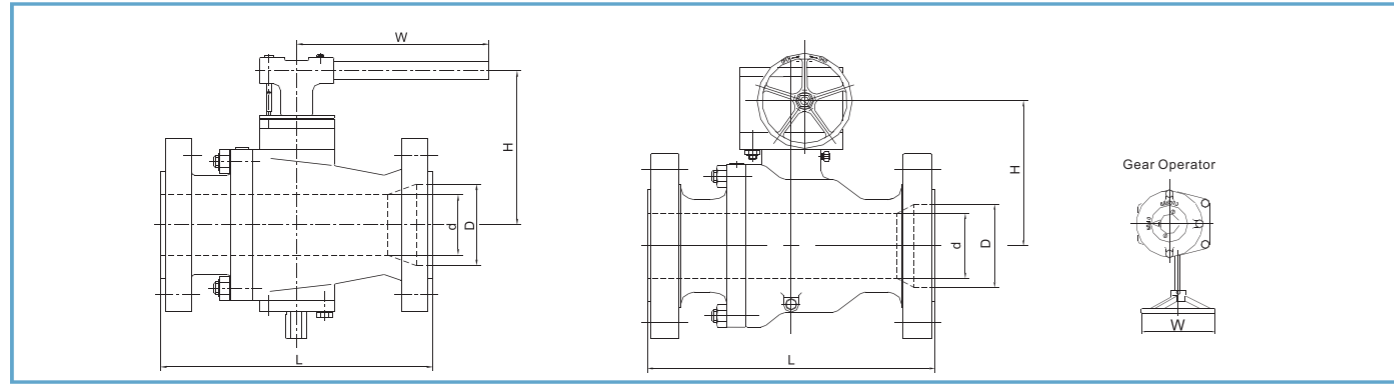
### Lipseal design (optional)

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.

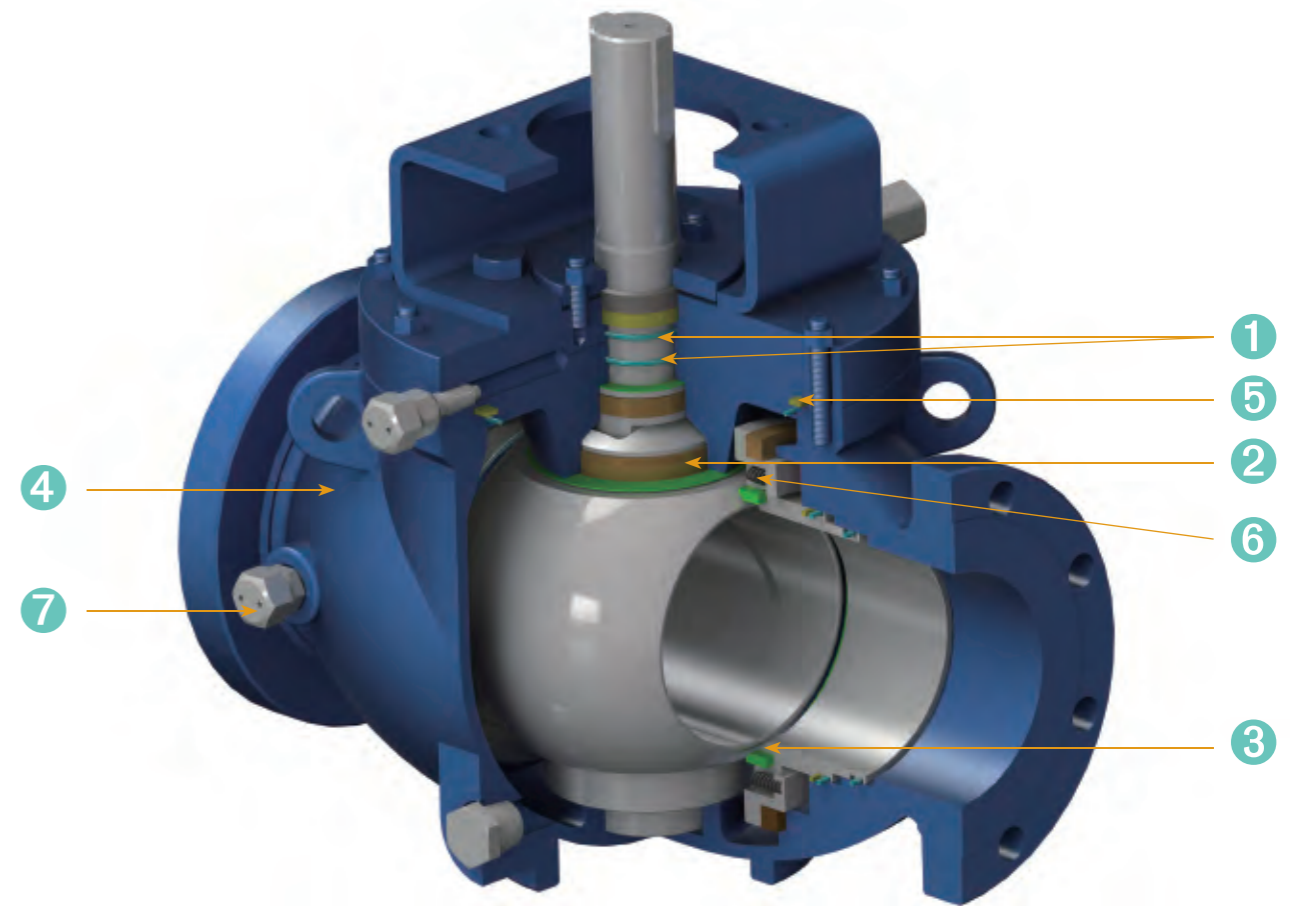


## Class 1500 Dimensions and weight

Full Port												
Size		d		L		H		W		Weight		
NPS	DN	in	mm	in	mm	in	mm	in	mm	lb	Kg	
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	

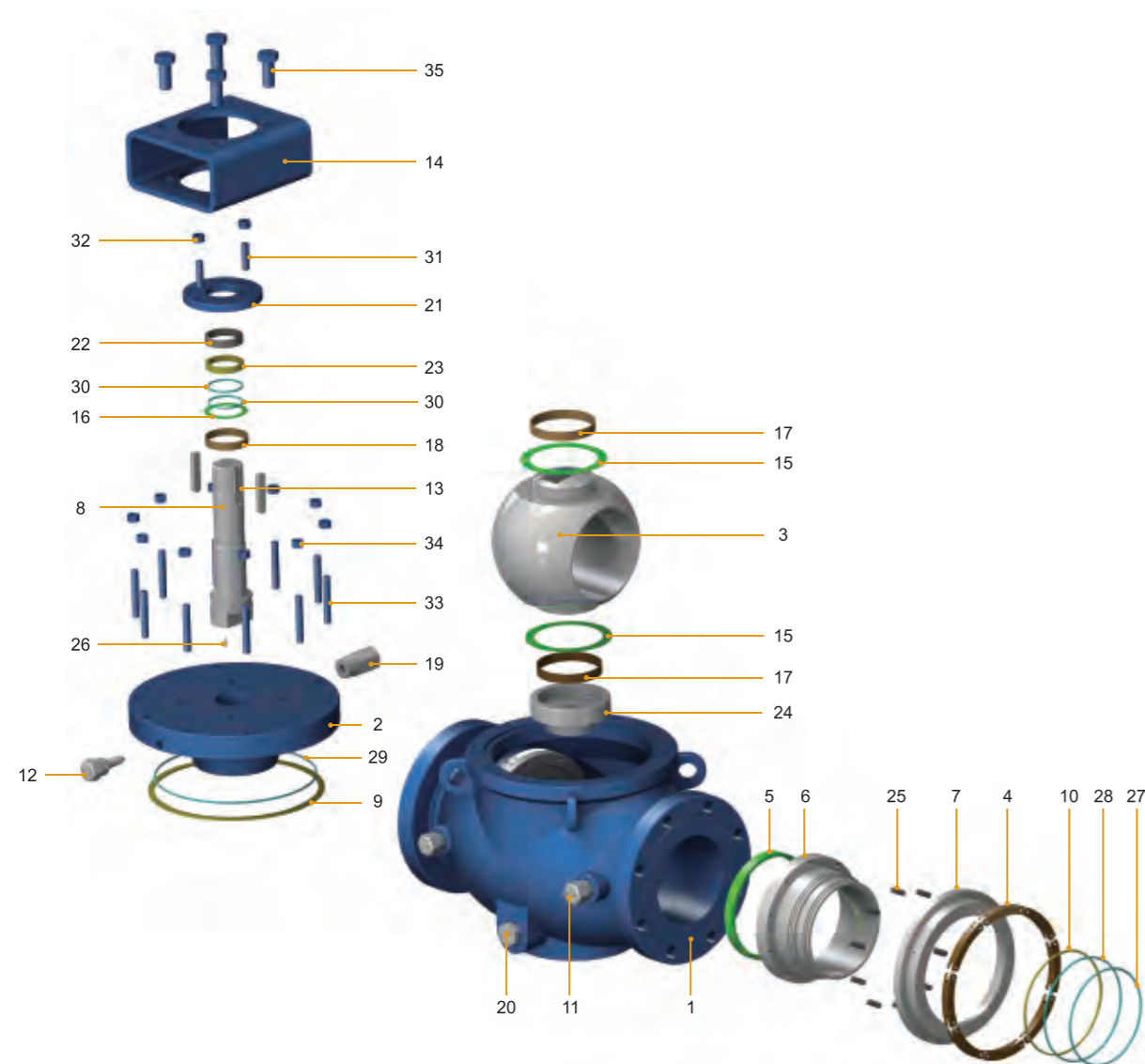
Reduced Port													
Size		d		D		L		H		W		Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
3*2	80*50	2.01	51	2.99	76	18.50	470	9.92	252	29.53	750	216.0	98
4*3	100*80	2.99	76	4.02	102	21.50	546	11.81	300	59.06	1500	304.2	138
6*4	150*100	4.02	102	5.75	146	27.76	705	10.71	272	19.69	*500	634.9	288
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

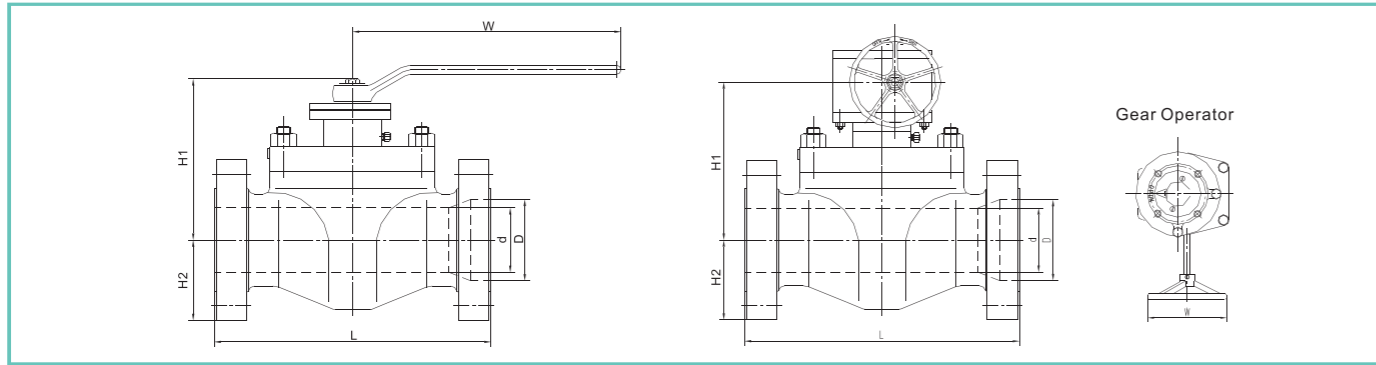


- 1 Two O-ring Seals: Prevent leakage from stem area.
- 2 Blow-out Proof Stem : Safety feature that functions to assure stem sealing at all pressures.
- 3 Back-up Metal to Metal Sealing: If primary soft-seat materials are burned, the metal-to-metal provides shutoff.
- 4 One-piece Body: Same rigidity 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	Bonnet	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	Carbon Steel (Non-Sour)	Stainless Steel	Carbon (Sour)	Low Temperature Carbon Steel
1	Body	ASTM A216-WCB	ASTM A351-CF8M	ASTM A216-WCB	ASTM A352-LCB
2	Bonnet	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	Stainless 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



**Class 600 Dimensions and weight**

Size		D		L		H1		H2		W		Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1-1/2	40	1.50	38	9.49	241	8.23	209	2.76	70	15.75	400	66.1	30
2	50	2.01	51	11.50	292	7.68	195	4.33	110	15.75	400	83.8	38
3	80	2.99	76	14.02	356	9.45	240	4.33	110	29.53	750	176.4	80
4	100	4.02	102	17.01	432	11.02	280	6.89	175	39.37	1000	330.7	150
6	150	5.98	152	22.01	559	12.01	305	7.68	195	11.81	*300	652.6	296
8	200	7.99	203	25.98	660	15.75	400	11.02	280	11.81	*300	965.6	438
10	250	10.00	254	30.98	787	17.13	435	11.22	285	19.69	*500	1325.0	601
12	300	12.01	305	32.99	838	17.32	440	12.60	320	23.62	*600	1377.9	625
14	350	13.27	337	35.00	889	19.88	505	13.39	340	23.62	*600	2711.6	1230
16	400	15.24	387	39.02	991	23.23	590	16.14	410	23.62	*600	3384.0	1535
18	450	17.24	438	42.99	1092	27.56	700	17.52	445	23.62	*600	4706.8	2135
20	500	19.25	489	47.01	1194	30.51	775	20.08	510	23.62	*600	5820.1	2640
24	600	23.27	591	55.00	1397	33.07	840	25.20	640	23.62	*600	8730.2	3960

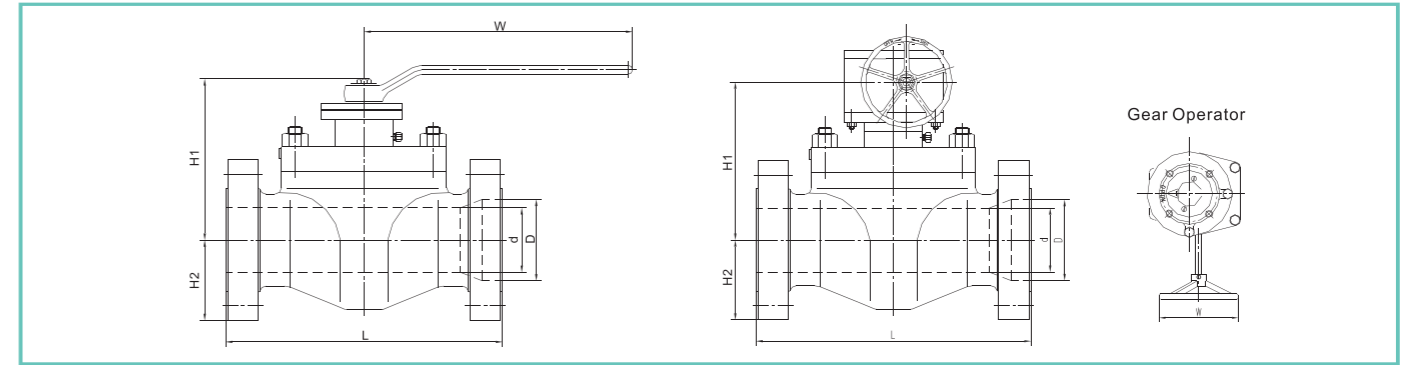
Size		d		D		L		H1		H2		W		Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
2*1-1/2	50*40	1.50	38	2.01	51	11.50	292	8.23	209	2.76	70	15.75	400	88.2	40
3*2	80*50	2.01	51	2.99	76	14.02	356	7.68	195	4.33	110	15.75	400	119.0	54
4*3	100*80	2.99	76	4.02	102	17.01	432	9.45	240	4.33	110	29.53	750	218.3	99
6*4	150*100	4.02	102	5.98	152	22.01	559	11.02	280	6.89	175	39.37	1000	467.4	212
8*6	200*150	5.98	152	7.99	203	25.98	660	12.01	305	7.68	195	11.81	*300	670.2	304
10*8	250*200	7.99	203	10.00	254	30.98	787	15.75	400	11.02	280	11.81	*300	1124.3	510
12*10	300*250	10.00	254	12.01	305	32.99	838	17.13	435	11.22	285	19.69	*500	1988.5	902
14*12	350*300	12.01	305	13.27	337	35.00	889	17.32	440	12.60	320	23.62	*600	2403.0	1090
16*14	400*350	13.27	337	15.24	387	39.02	991	19.88	505	13.39	340	23.62	*600	2888.0	1310
18*16	450*400	15.24	387	17.24	438	42.99	1092	23.23	590	16.14	410	23.62	*600	3615.5	1640
20*18	500*450	17.24	438	19.25	489	47.01	1194	27.56	700	17.52	445	23.62	*600	5357.1	2430
24*20	600*500	19.25	489	23.27	591	55.00	1397	30.51	775	20.08	510	23.62	*600	7583.8	3440

\* Gear Operator

**Class 900 Dimensions and weight**

Size		D		L		H1		H2		W		Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1-1/2	40	1.50	38	12.01	305	8.46	215	3.15	80	15.75	400	88.2	40
2	50	2.01	51	14.49	368	7.87	200	4.72	120	29.53	750	114.6	52
3	80	2.99	76	15.00	381	9.45	240	5.12	130	39.37	1000	191.8	87
4	100	4.02	102	17.99	457	11.02	280	6.89	175	59.06	1500	352.7	160
6	150	5.98	152	24.02	610	13.78	350	8.66	220	11.81	*300	848.8	385
8	200	7.99	203	29.02	737	15.35	390	10.24	260	15.75	*400	1234.6	560
10	250	10.00	254	32.99	838	18.90	480	12.20	310	23.62	*600	1807.8	820
12	300	12.01	305	37.99	965	21.18	538	16.14	410	23.62	*600	2480.2	1125

\* Gear Operator



**Class 900 Dimensions and weight**

Size		d		D		L		H1		H2		W		Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
2*1-1/2	50*40	1.50	38	2.01	51	14.49	368	8.46	215	3.15	80	15.75	400	97.0	44
3*1-1/2	80*40	2.01	51	2.99	76	15.00	381	7.87	200	4.72	120	29.53	750	123.5	56
4*3	100*80	2.99	76	4.02	102	17.99	457	9.45	240	9.45	240	39.37	1000	207.2	94
6*4	150*100	4.02	102	5.98	152	24.02	610	11.02	280	11.02	280	59.06	1500	498.2	226
8*6	200*150	5.98	152	7.99	203	29.02	737	13.78	350	13.78	350	11.81	*300	1058.2	480
10*8	250*200	7.99	203	10.00	254	32.99	838	15.35	390	15.35	390	15.75	*400	1433.0	650
12*10	300*250	10.00	254	12.01	305	37.99	965	18.90	480	18.90	480	23.62	*600	1913.6	868

\* Gear Operator

**Class 1500 Dimensions and weight**

Size		D		L		H1		H2		W		Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
1-1/2	40	1.50	38	12.01	305	8.66	220	3.54	90	15.75	400	88.2	40
2	50	2.01	51	14.49	368	8.07	205	4.72	120	29.53	750	132.3	60
3	80	2.99	76	18.50	470	8.27	210	4.92	125	39.37	1000	253.5	115
4	100	4.02	102	21.50	546	9.65	245	6.30	160	11.81	*300	427.7	194
6	150	5.75	146	27.76	705	13.19	335	10.04	255	15.75	*400	1278.7	580
8	200	7.64	194	32.76	832	16.81	427	13.39	340	19.69	*500	1657.8	752
10	250	9.49	241	39.02	991	19.76	502	15.00	381	23.62	*600	2634.5	1195
12	300	11.38	289	44.49	1130	20.98	533	17.24	438	23.62	*600	4784.0	2170

Size		d		D		L		H1		H2		W		Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
2*1-1/2	50*40	1.50	38	2.01	51	14.49	368	8.66	220	3.54	90	15.75	400	97.0	44
3*1-1/2	80*40	2.01	51	2.99	76	18.50	470	8.07	205	4.72	120	29.53	750	180.8	82
4*3	100*80	2.99	76	4.02	102	21.50	546	8.27	210	4.92	125	39.37	1000	330.7	150
6*4	150*100	4.02	102	5.75	146	27.76	705	9.65	245	6.30	160	11.81	*300	650.4	295
8*6	200*150	5.75	146	7.64	194	32.76	832	13.19	335	10.04	255	15.75	*400	1521.2	690
10*8	250*200	7.64	194	9.49	241	39.02	991	16.81	427	13.39	340	19.69	*500	2050.3	930
12*10	300*250	9.49	241	11.38	289	44.49	1130	19.76	502	15.00	381	23.62	*600	2954.1	1340

\* Gear Operator



Seat Insert

Properties		PTFE	NYLON	PEEK	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 <sup>3</sup> )	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

Seal Ring

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

\* Other elastomer materials are available upon request.

Operating Torque

Size	Class 150(NYLON)		Class 300(NYLON)		Class 400(NYLON)		Class 600(NYLON)		Class 900(NYLON)		Class 1500(NYLON)		Class 2500(PEEK)	
	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:

1. Torque is calculated based on normal temperature.
2. 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.
3. Torque may be changed depending on fluids and trim materials.

Flow Coefficient (Cv value) Specification

Size	Class 150	Class 300	Class 600	Class 900	Class 1500	Class 2500
1/2	17	15	14	12	12	11
3/4	43	38	34	31	31	28
1	86	76	66	61	61	56
1-1/2	227	211	187	167	167	148
2	423	384	330	294	294	181
3	1139	965	860	832	749	434
4	2416	2093	1759	1710	1564	995
6	5241	5183	4400	4212	3918	3107
8	10471	9991	8713	8245	6921	5240
10	17709	17154	14573	14123	11376	8451
12	26241	25460	22389	20864	16835	12295
14	32857	31176	28863	24483	20967	—
16	44474	42409	38998	33741	27901	—
18	57002	55420	50703	44491	35761	—
20	73076	70180	63936	55915	45445	—
22	88907	85757	78750	—	—	—
24	113639	109796	99314	—	—	—

Notes:

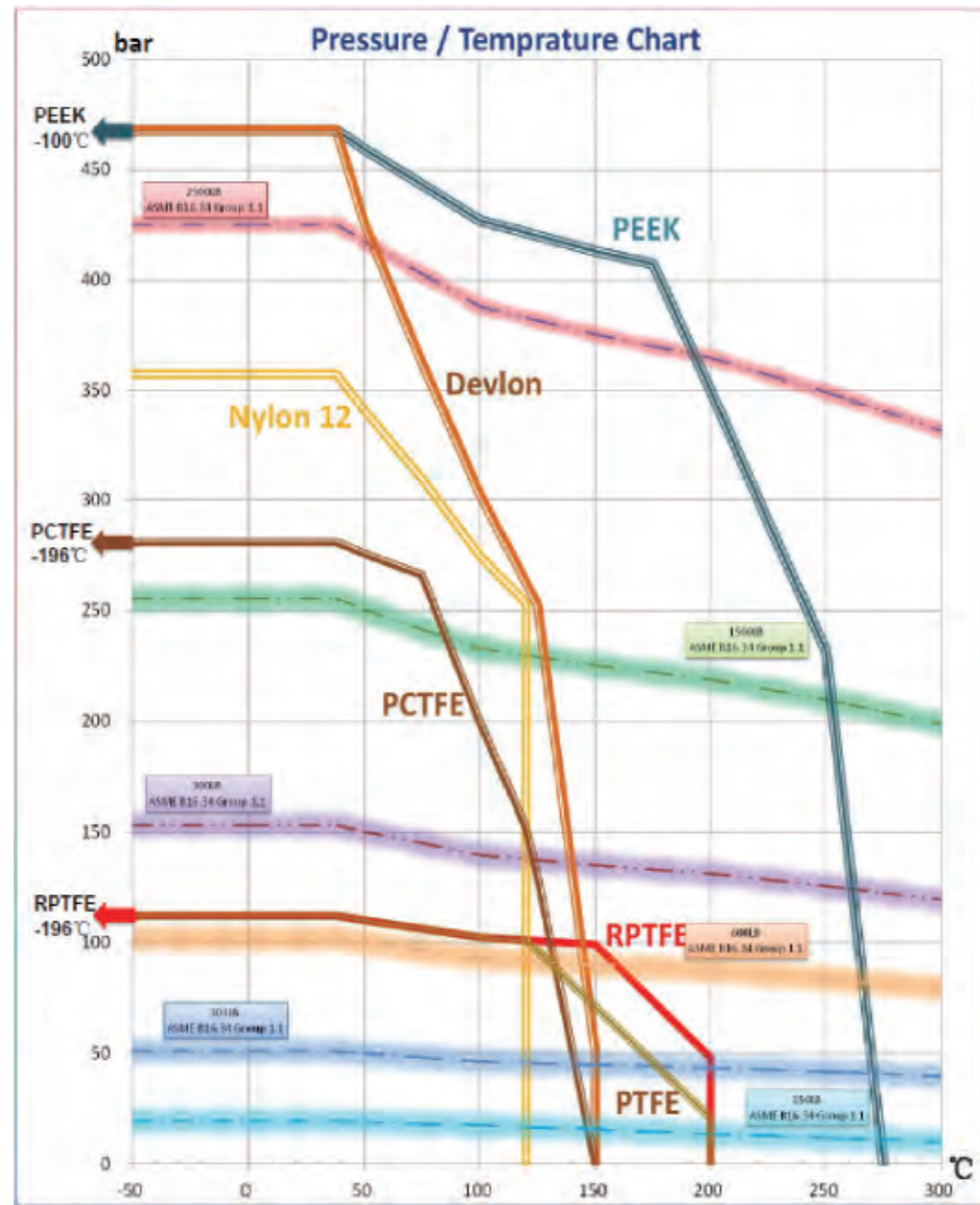
1. All sizes belong to full port.
2. Pressure ratings are per API 6D.
3. Method of Calculating Flow  
The Flow Coefficient C<sub>v</sub> value is the flow rate of water (gallons/minute) through a fully open valve with a pressure drop of 1 psi to find the flow of liquid through the valve with C<sub>v</sub>, using the following formulas.

Liquid Flow:

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

Gas Flow:

$Qg = 61Cv(P2P/g)^{1/2}$   
 (For non-critical flow, P/P<1.0)  
 QL = 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.