

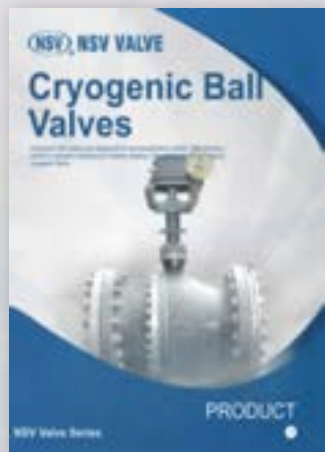
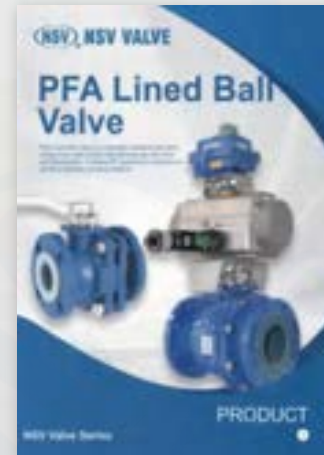
NSV® **NSV VALVE**



PRODUCT Ball Valve

Full series of precision ball valves, high-efficiency flow control, and tight sealing. Pressure & corrosion resistant, suitable for complex working conditions. Reliable industrial quality for stable fluid operation.

NSV Valve Series



Contact Us

0086-577-6737-8616
0086-577-6737-7337

info@nsvvalve.com

Puyi Road, Sangqiao Industrial Zone, Oubei
Street, Yongjia County, Zhejiang, China



COMPANY PROFILE



• Who We Are

NSV Valve is a young and dynamic organization, established in 2007, based in China. We are a Manufacturer and global trading and company supplier in the Valve industry specialized in standard & customized valves. Our clients and end-users are particularly operating in the market Petro-Chemical, Industrial Gas, Pulp & Paper, Chemical, Mechanical Construction, Power Generation, and Refining Etc.

• What We do

NSV Valve has been committed to manufacturing cast and forged steel industrial valves include Ball, GGC (Gate, Globe, Check, Strainer), Plug, Butterfly and Control valves (through our 5 workshops) that material are carbon steel, stainless steel, and also offer a wide range of materials such as Ni-Al-Bronze, Monel, Inconel, Duplex, Super Duplex, and Alloy Materials, with quality innovative designs, recognized by many global users and EPC's. All sizes, pressure classes, and metallurgical compositions are managed in house utilizing the strictest quality control measures to ensure the customer's total satisfaction.

• Why Choose NSV Valve

At the heart of our operations is our core philosophy: **New Innovation** · **Secure & Stable** · **Valve Solutions** three pillars that define everything we do.

- **New Innovation** - We don't just follow standards; we develop application-specific designs to solve unique challenges in oil & gas, LNG, power, and chemical industries.
- **Secure & Stable** - Every valve we deliver is built for safety and reliability, meeting rigorous international standards to protect your processes and assets.
- **Valve Solutions** - From standard API-certified products to fully customized ball, gate, globe, and butterfly valves, we provide the right solution for every project requirement.

We don't just manufacture valves; we provide security for critical flow control systems. By integrating advanced CNC machining, rigorous pressure testing, and a global supply chain mindset, we ensure that every valve bearing the NSV mark delivers on our promise: Innovation that solves. Security that protects. Solutions that deliver.

Whether you are looking for standard valves or custom solutions for complex projects, NSV Valve is your partner in flow control excellence.

CORPORATE CULTURE



COMPANY POSITIONING

- NSV Valve Corporation is a manufacturer and global trading company and supplier in the Valve industry specialized in standard & customized valves.



SENSE OF WORTH

- **N-New Innovation**
We develop advanced, application-specific valve designs to solve unique challenges in oil & gas, LNG, power, and chemical industries.
- **S-Secure & Stable**
Our valves are built for safety and stability, meeting international standards to protect your processes and assets.
- **V-Valve Solutions**
From standard to fully customized ball, gate, globe and plug valves etc, we deliver reliable solutions for every project requirement.



CORPORATE VISION

- To be the preferred global partner for innovative, reliable, and complete valve solutions — recognized for engineering excellence and customer-centric service.

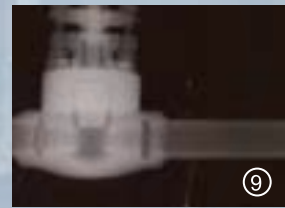




Quality Control

NSV developed an extensive and advanced inspection and test facilities to control the quality from rough casting/forging to final products. These facilities enable us to do Positive Material Identification (PMI), Radiographic test(RT), Ultra-sonic test(UT), Dye-penetration test, Magnetic particle test, Impact test, Tensile test, Hardness test, Fire-safe test, Cryogenic test, Vacuum test, Fugitive emission test, Pressure test.

1. All our valves are 100% Pressure tested prior to dispatch.
2. We can supply either 3.1B certification or Certificate of Conformity.
3. We accommodate other 3rd Party or user inspection by prior agreement.



- ① PMI Test
- ② Tensile Test
- ③ Magnetic Particle Test
- ④ Impact Test
- ⑤ Dye-penetration Test

- ⑥ Pressure Test
- ⑦ Ultrasonic Test
- ⑧ Fire-safe Test
- ⑨ RT Test
- ⑩ Cryogenic Test



PRODUCT WARRANTY

NSV will replace without charge or refund the purchase price of products provided by seller which prove to be defective in material or fabrication, provided in each case that 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 paragraph is instead of all other warranties, either expressed or implied. With respect to warranties, this paragraph states Buyer's exclusive remedy and seller's exclusive liability.

Conventional valve

Conventional Valve	Material	P-T	Standard																		
				1/2"	1"	1.5"	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	
				150	300	600	800	900	1500	2500											
Gate Valve	Carbon Steel Stainless Steel Alloy Steel	ASME B16.34	API600/ISO10434; API603; API602/ISO15761	150	300	600	800	900	1500	2500											
				150	300	600	800	900	1500	2500											
				150	300	600	800	900	1500	2500											
				150	300	600	800	900	1500	2500											
				150	300	600	800	900	1500	2500											
				150	300	600	800	900	1500	2500											
				150	300	600	800	900	1500	2500											
			BS1873; API603; API602/ISO15761	150	300	600	800	900	1500	2500											
				150	300	600	800	900	1500	2500											
				150	300	600	800	900	1500	2500											
				150	300	600	800	900	1500	2500											
				150	300	600	800	900	1500	2500											
BS1868; API603; API602/ISO15761	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
BS5351/ISO17292 API6D/ISO114313	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
	150	300	600	800	900	1500	2500														
API6D/ ISO14313	150	300	600																		
	150	300	600																		
	150	300	600																		
API609	150	300	600																		
	150	300	600																		
	150	300	600																		

Other size contact NSV sales team

Contents

01

Description

01-02

Floating Type, One piece, Side-entry

03-04

Floating Type, One piece, Top-entry

05-06

Floating Type, Two-piece, split body, side entry

07-08

02

Trunnion mounting ball valve

09-18

Metal seated ball valve

19-21

Fully welded ball valve

22-26

3PC Forged ball valve

27-28

Trunnion Mounted Top Entry Ball valve

29-39

03

Orbit Ball Valve

40-43

3-Way/4-Way Ball Valve

44-48

Mounting Pad Ball Valve

49

Jacket Ball Valve

50-51

DIN Ball Valve

52-54

■ Structural Characteristic

We use the Germany advanced technology and apply it in our new products by years of R&D, we develop Feiqiu special Top-entry ball valve. With technology up to domestic leading level, these products can compete with the international counterparts. Besides the features borne by the side installed fixed ball valve (see fixed ball valve), they are also given the features below:

1. One-piece valve body, top installed trunnion to fix and support, flanged or butt welded structure.
2. Inconel bellows spring makes the sealed metal seat moving toward the ball, providing the two way seal function of inlet and outlet.
3. Distinctive technology of retractable valve seat, inline replace ability of ball arm, valve stem sealing ring, metal seat and bellows spring, and torque down to the minimum for the ease of operation.
4. Ease of repair and installation, long performance life. Access for repair and replacement of trims may be done with no need to remove the valve from the pipeline, thus to lengthen the service life.
5. Low torque, reliable sealing, and spherical seat different from ordinary ball valves, which can automatically adjust the position of seal.
6. Preset platform and bolt holes for drive device, and to ISO5211. Drive device can be installed according to users' different requirements.
7. DBB (double block and bleed) function.
8. Hand operated top installed ball valve adopts high strength one-piece ball arm structure to ensure the precise positioning of the ball.
9. Anti-blowout protective structure of valve stem to enhance the operational safety of the valve.

■ Technical Specifications

Technical Specifications	API series
Design Specifications	API6D、API608、BS5351
Pressure-Temperature Ratings	ASME B16.34
Face-to-Face	API6D、ASME B16.10
Flanged Ends	ASME B16.5、ASME B16.47
Butt-welding Ends	ASME B16.25
Inspection and Test	API6D、API598
Fire-safe Test	API607、API 6FA
Castings Quality Inspection	MSS-SP-55

■ Torque Chart (N.M)

The torque ratings listed below are for the reference to choose a drive device. The properties of medium, trims and valve open frequency shall be considered as extra factors. For instance, valves with corrosion-resistant trims to deal with clean lubricating mediums, their torque may be lowered by 20%. However, to deal with stringent mediums like slurry, granular medium and oxygen, the torque may be increased by 50%. The operating torque of drawing-down valves is subject to the corresponding diameter to their neckings. (Specific options as per the actual).

Size		Pressure Class						
DN	NPS	150	300	400	600	900	1500	2500
50 × 40	1 1/2	61	81	85	102	149	—	—
50	2	68	108	97	136	203	333	562
80 × 50	3 × 2	68	108	97	136	203	333	562
80	3	149	244	204	305	422	811	1460
100 × 80	4 × 3	149	244	204	305	422	811	1460
100	4	244	407	422	453	583	1505	1923
150 × 100	6 × 4	244	407	422	453	583	1505	1923
150	6	323	544	647	1006	1299	2940	5840
200 × 150	8 × 6	323	544	647	1006	1299	2940	5840
200	8	647	955	1157	2532	2766	6489	12181

Size		Pressure Class						
DN	NPS	150	300	400	600	900	1500	2500
250 × 200	10 × 8	647	955	1157	2532	2766	6489	12181
250	10	882	1822	2178	3941	5446	12181	15281
300 × 250	12 × 10	882	1822	2178	3941	5446	12181	15281
350 × 250	14 × 10	882	1822	2178	3941	5446	12181	15281
300	12	1577	2591	3064	6893	7909	15564	19834
350 × 300	14 × 12	1577	2591	3064	6893	7909	15564	—
400 × 300	16 × 12	1577	2591	3064	6893	7909	15564	—
350	14	1873	3224	3853	6205	10948	23512	—
400 × 350	16 × 14	1873	3224	3853	6205	10948	23512	—
400	16	3050	5447	6529	8817	13682	27039	—
450 × 400	18 × 16	3050	5447	6529	8817	13682	27039	—
500 × 400	20 × 16	3050	5447	6529	8817	13682	27039	—
450	18	3819	6197	7461	11231	17705	37085	—
500	20	4508	7830	9348	14919	29866	40309	—
550	22	5490	9453	11302	16058	39324	—	—
600 × 500	24 × 20	4508	7830	9348	15140	29866	40309	—
600	24	6723	11457	15535	21840	40810	64671	—
650	26	9289	15139	17869	24889	51822	—	—
700	28	11647	18067	21063	28767	53515	—	—
750 × 600	30 × 24	6723	11457	15535	21840	40810	—	—
750	30	13558	19207	24966	34398	57057	—	—
800	32	15224	24095	28235	38880	61123	—	—
850	34	17846	30249	33291	41789	70277	—	—
900 × 750	36 × 30	13558	19207	24966	34398	57057	—	—
900	36	22032	33331	36227	51521	81349	—	—
1000	40	25972	36490	45269	60368	—	—	—
1050	42	27034	40425	53515	70277	—	—	—
1200	48	42606	64985	79311	112293	—	—	—

Products Supply Range

Size		Pressure Class					
DN	NPS	150	300	600	900	1500	2500
50 × 40	2 × 2 1/2	●/△				☆/△	
50	2	●/△				☆/△	
80×50	3 × 2	●/△				☆/△	
80	3	☆/△				☆/△	
100×80	4 × 3	☆/△				☆/△	
100	4	☆/△				☆/△	
150×100	6 × 4	☆/△				☆/△	
150	6	●/☆/△/★		☆/△/★		☆/△/★	
200 × 150	8 × 6	☆/△/★		●/☆/△/★		☆/△/★	
200	8	☆/△/★		●/☆/△/★		☆/△/★	☆/△/★
250 × 200	10 × 8	☆/△/★				☆/△/★	☆/△/★
250	10	☆/△/★				☆/△/★	☆/△/★
300 × 250	12 × 10	☆/△/★				☆/△/★	☆/△/★
350 × 250	14 × 10	☆/△/★				☆/△/★	☆/△/★
300	12	☆/△/★				☆/△/★	☆/△/★
350 × 300	14 × 12	☆/△/★				☆/△/★	—
400 × 300	16 × 12	☆/△/★				☆/△/★	—
350	14	☆/△/★				☆/△/★	—
400 × 350	16 × 14	☆/△/★				☆/△/★	—
400	16	☆/△/★				☆/△/★	—
450 × 400	18 × 16	☆/△/★				☆/△/★	—
500 × 400	20 × 16	☆/△/★				☆/△/★	—
450	18	☆/△/★				☆/△/★	—
500	20	☆/△/★				☆/△/★	—
550	22	☆/△/★				☆/△/★	—
600 × 500	24 × 20	☆/△/★				☆/△/★	—
600	24	☆/△/★				☆/△/★	—
650	26	☆/△/★				—	
700	28	☆/△/★				—	
750 × 600	30 × 24	☆/△/★				—	
750	30	☆/△/★				—	
800	32	☆/△/★				—	
850	34	☆/★				—	
900 × 750	36 × 30	☆/△/★				—	
900	36	☆/★				—	
1000	40	☆/★			—		
1050	42	☆/★			—		
1200	48	☆/★			—		

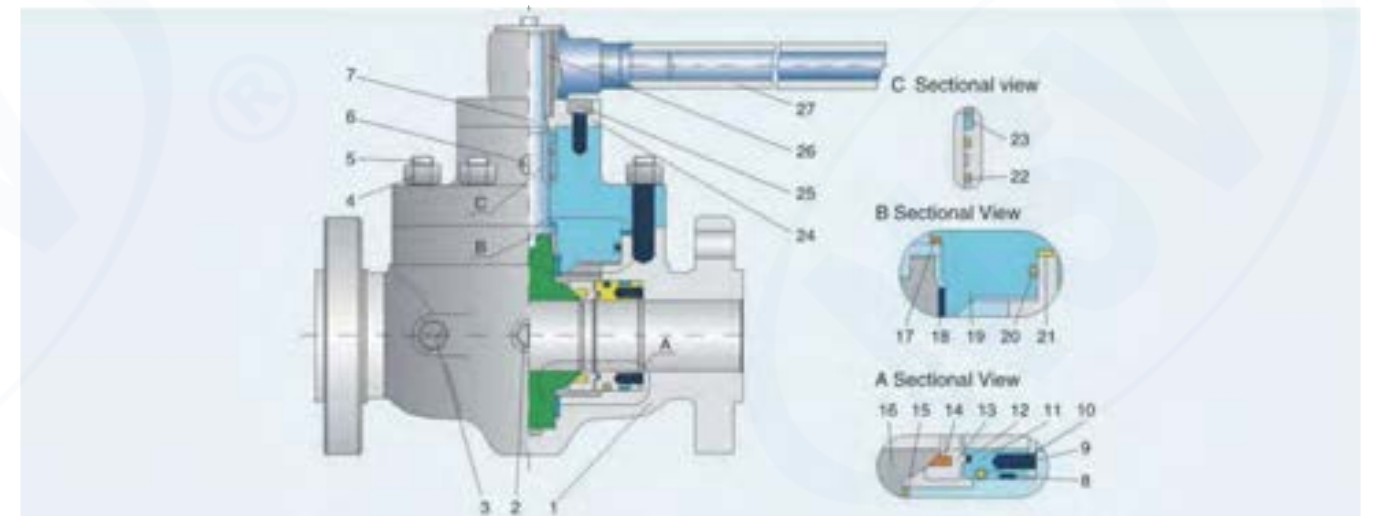
Note: ● Stands for handle operated valves
△ Stands for gearbox operated valves
☆ Stands for air operated valves
★ Stands for electric operated valves
— Stands for no option

It can be manufactured according to user's requirements if not covered in the table.

Performance Specification

Performance Specification		Pressure Class						
		150	300	400	600	900	1500	2500
Test Pressure (MPa)	Strength Test	2.94	7.67	10.20	15.30	22.98	38.30	63.83
	Sealing Test	2.16	5.62	7.48	11.23	16.85	28.08	46.81
	Air Test	0.6						
Applicable Temperature		-196℃ ~ 550 (Different materials for different working conditions)						
Applicable Medium		Water, Steam, Oil, Gas, Liquid Gas, Natural Gas etc						
Size Range		DN50 ~ 1200(NP2" ~ 48"), We can produce according to your special requirements.						
Body/Trim Material		Carbon Steel, Stainless Steel, Duplex Stainless Steel, Ni-Alloy Steel, Ti Material						
Ends Connection		Flange Connection, Butt-welded Connection						
Actuating Device		Lever, Gearbox, Electric, Pneumatic etc.						

Valve Structural Schematic Drawing (Manual Top Entry Ball Valve)

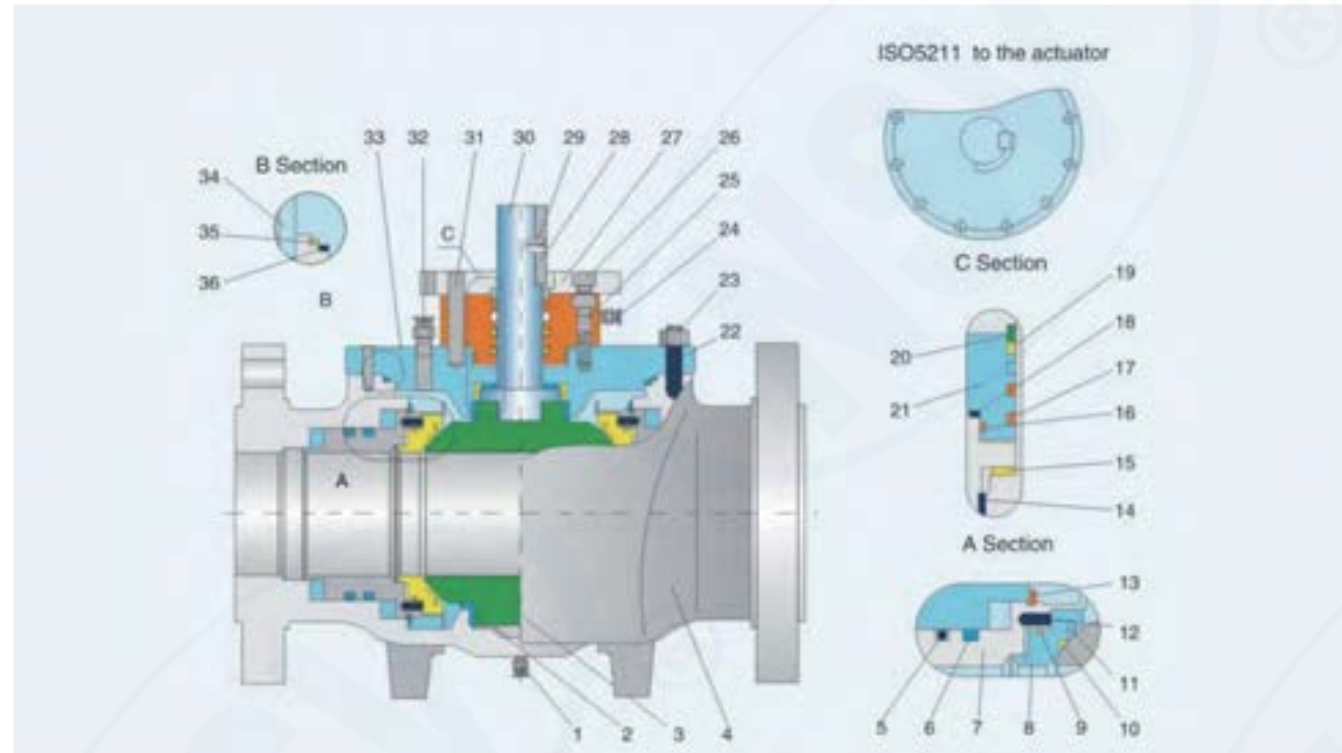


The Material of Main Parts

No.	Parts Name	Material			No.	Parts Name	Material		
		Carbon Steel	SS	Low Temperature Steel			Carbon Steel	SS	Low Temperature Steel
1	Body	A216 WCB	A351 CF8M	A352 LCC	15	Bushing	PTFE+CS	PTFE+SS	PTFE+SS
2	Drain Valve	A29 1025	SS	SS	16	Ball	A105+ENP	A182+E316	A350+LF3
3	Sealant Injection Valve	A29 1025	SS	SS	17	Flat Bushing	PTFE+CS	PTFE+SS	PTFE+SS
4	Nut	A194 2H	A194 8	A194 7	18	Bushing	PTFE+CS	PTFE+SS	PTFE+SS
5	Stud	A193 B7	A193 B8	A320 L7	19	Bonnet	A216 WCB	A351 CF8M	A352 LCC
6	Sealant Injection Valve	A29 1025	SS	SS	20	O-Ring	VITON		
7	Stem	A182 F6a	A182 F316	A182 F316	21	Gasket	Soft Graphite+SS		
8	Fire Safe Ring	Soft Graphite			22	O-Ring	VITON		
9	O-Ring	VITON			23	Packing	Soft Graphite		
10	Spring	INCONEL X-750			24	Cover	A29 4140+ENP	A182 F316	A350 LF3
11	Supporting Ring	A29 4140+ENP	A182 F316	A350 LF3	25	Screw	A193 B7	A193 B8	A320 L7
12	Gasket	Soft Graphite+SS			26	Key	A29 1045	A29 1045	A29 1045
13	Seat	A105+ENP A29 4140+ENP A182 F316 A350 LF3			27	Lever	Q235A		
14	Sealing Ring	PTFE, NYLON, PEEK, PCTFE, MOLON							

Notes: 1. Materials are available according to users' requirements and different working medium
2. Materials for Anti-sulfur valve shall be chosen according to NACE MR0175.

Valve Structural Schematic Drawing (Top Entry Ball Valve)



The Material of Main Parts

No.	Parts Name	Material		
		Carbon Steel	SS	Low Temperature Steel
1	Drain Valve	A29 1025	SS	SS
2	Bushing	PTFE+CS	PTFE+SS	PTFE+SS
3	Ball	A105+ENP	A182 F316	A350 LF3
4	Stem	A216 WCB	A351 CF8M	A352 LCC
5	O-Ring	VITON		
6	Fire Safe Ring	Soft Graphite		
7	Supporting Ring	A29 4140+ENP	A182 F316	A350 LF3
8	Seat	A105+ENP	A182 F316	A350 LF3
9	O-Ring	VITON		
10	O-Ring	VITON		
11	Sealing Ring	PTFE, NYLON, PCTFE, MOLON		
12	Spring	INCONEL X-750		
13	C Type Spring	17-4		
14	Bushing	PTFE+CS	PTFE+SS	PTFE+SS
15	Flat Bush Bearing	PTFE+CS	PTFE+SS	PTFE+SS
16	O-Ring	VITON		
17	O-Ring	VITON		
18	Gasket	Soft Graphite+SS		

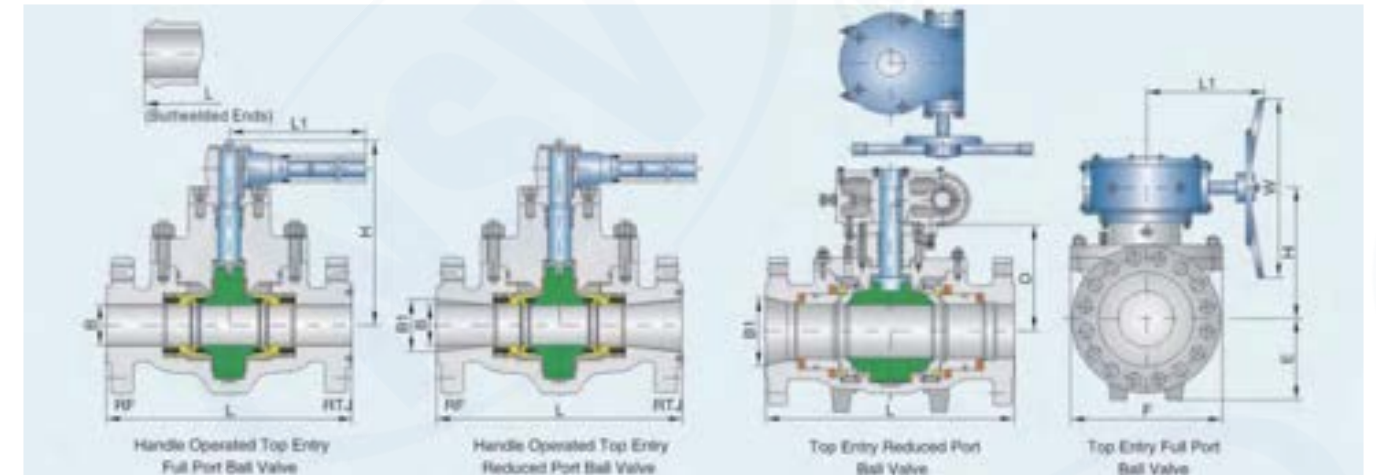
No.	Parts Name	Material		
		Carbon Steel	SS	Low Temperature Steel
19	Packing	Soft Graphite		
20	Gland	A182 F6a	A182 F6a	A350 LF3
21	Cover	A29 4140+ENP	A182 F6a	A320 L7
22	Stud	A193 B7	A193 B8	A194 7
23	Nut	A194 2H	A194 8	A350 LF3
24	Sealant Injection Valve	A29 1025	SS	SS
25	Screw	A193 B7	A193 B8	A320 L7
26	Screw	A193 B7	A193 B8	
27	Connecting Plate	A105		
28	Key	A29 1045		
29	Screw	A193 B7		
30	Stem	A182 F6a	A182 F316	A182 F316
31	Locating Pin	A182 F6a		
32	Sealant Injection Valve	A29 1025	SS	SS
33	Bonnet	A216 WCB	A351 CF8M	A352 LCC
34	Locating Pin	A182 F6a		
35	Gasket	Soft Graphite+SS		
36	O-Ring	VITON		

Note: 1. Materials are chosen according to the temperature & pressure for different working mediums.

2. It can be available to choose the materials according to user's requirements, besides the listed material in the chart.

3. Materials in accordance with NACE MR-01-75(latest edition) are available for sour gas service.

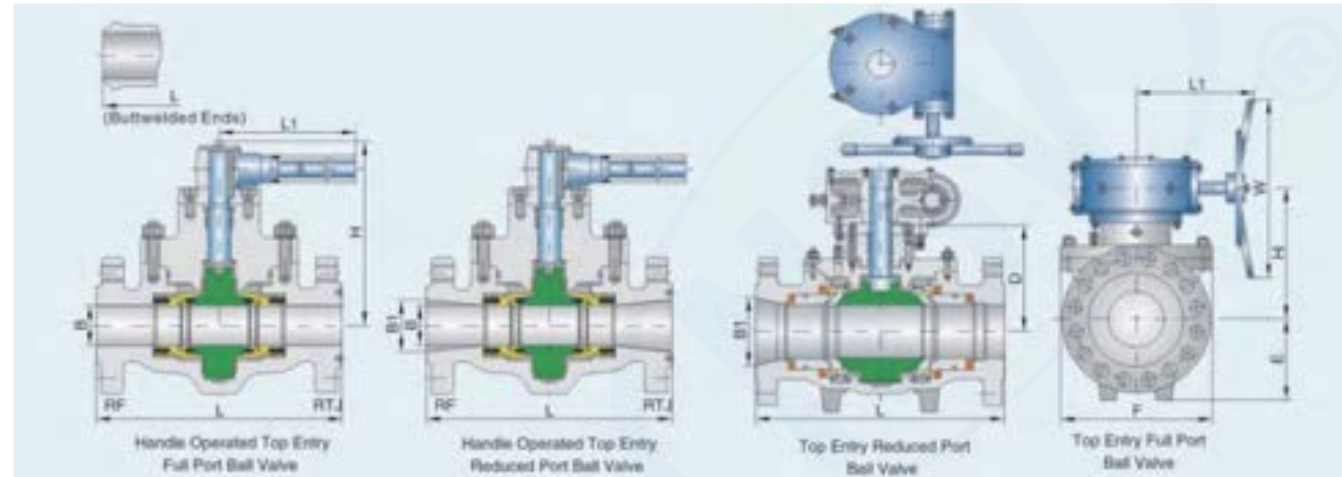
Remarks: RF stands for Raised Flange Connection; BW stands for Buttwelded Ends Connection; RTJ stands for Ring Joint Connection.



Main Outline Dimensions

Class 150 Full Port													mm
DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg) RF
		RF	BW	RTJ									
50	2	178	191	216	51	51	—	85	180	212	450	—	28
80	3	203	216	283	77	77	—	112	230	228	600	—	55
100	4	229	241	305	102	102	—	145	283	272	600	—	105
150	6	394	406	457	152	152	281	220	325	333	297	350	235
200	8	457	470	521	203	203	320	260	405	384	360	500	430
250	10	533	546	559	254	254	360	311	490	424	360	500	475
300	12	610	622	635	305	305	403	366	570	467	340	700	610
350	14	686	699	762	337	337	453	428	660	517	340	700	795
400	16	762	775	838	387	387	459	450	700	549	545	700	1160
450	18	864	876	914	438	438	502	473	755	577	575	700	1570
500	20	914	927	991	489	489	551	580	870	626	575	700	2000
550	22	991	1062	1092	540	540	578	590	955	653	575	700	2830
600	24	1067	1080	1143	591	591	606	600	1030	696	579	700	3300
650	26	1143	1168	1245	635	635	675	635	1075	765	570	700	3970
700	28	1245	1270	1346	686	686	735	700	1165	825	579	700	4755
750	30	1295	1321	1397	736	736	795	775	1250	865	579	700	5820
800	32	1372	1400	1524	781	781	840	825	1325	1012	605	620	7240
850	34	1473	1502	1626	832	832	875	880	1410	1047	605	620	7960
900	36	1524	1552	1727	876	876	931	930	1475	1103	605	620	9300
1000	40	1753	—	1956	978	978	1015	1025	1640	1170	950	1400	12950
1050	42	1855	—	2083	1022	1022	1065	1080	1710	1220	950	1400	15200
1200	48	2134	—	2388	1168	1168	1180	1225	1940	1335	950	1400	22750

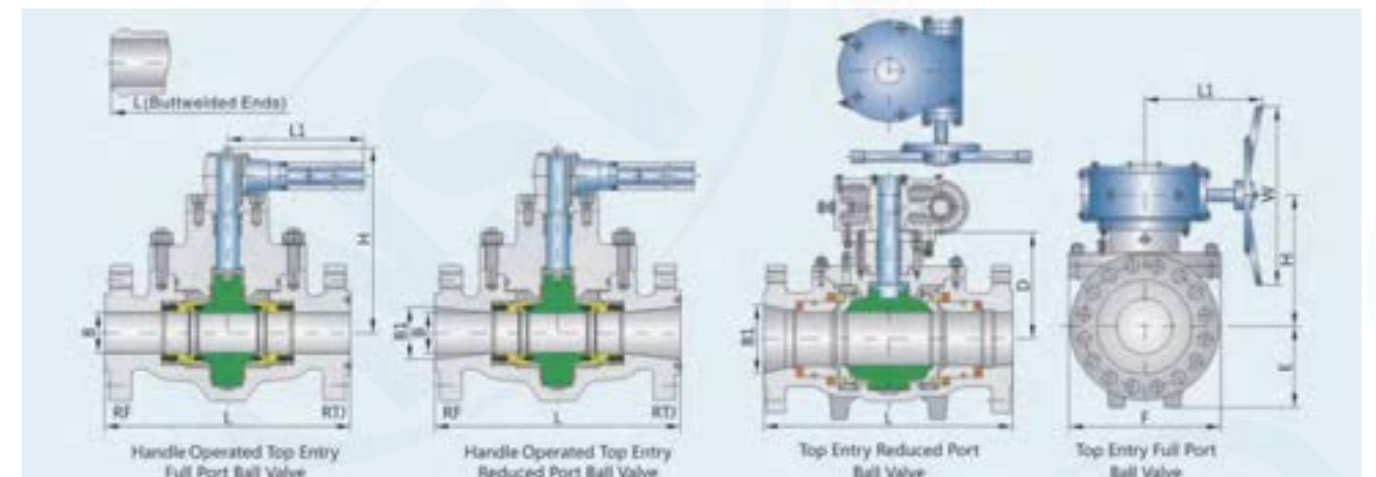
Class 150 Reduced Port													mm
DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg) RF
		RF	BW	RTJ									
50×40	2×11/2	178	191	216	38	51	—	85	180	212	450	—	25
80×50	3×2	203	216	283	51	77	—	85	180	212	450	—	37
100×80	4×3	229	241	305	77	102	—	112	230	228	600	—	75
150×100	6×4	394	406	457	102	152	—	145	283	272	600	—	140
200×150	8×6	457	470	521	152	203	281	220	325	333	297	350	265
250×200	10×8	533	546	559	203	254	320	260	405	384	360	500	480
300×250	12×10	610	622	635	254	305	360	311	490	424	360	500	510
350×250	14×10	686	699	762	254	337	360	311	490	424	360	500	690
350×300	14×12	686	699	762	305	337	403	366	570	467	340	700	820
400×300	16×12	762	775	838	305	387	403	366	570	467	340	700	970
400×350	16×14	762	775	838	387	337	453	428	660	517	340	700	955
450×400	18×16	864	876	914	387	438	450	450	700	549	545	700	1295
500×400	20×16	914	927	991	387	489	459	450	700	549	545	700	1590
500×450	20×18	914	927	991	438	489	502	473	755	577	575	700	1800
600×500	24×20	1067	1080	1143	489	591	551	580	870	626	575	700	2440
750×600	30×24	1295	1321	1397	591	736	606	600	1030	696	579	700	4100
900×750	36×30	1524	1552	1727	736	876	795	775	1250	865	579	700	7200



■ Main Outline Dimensions

Class 300 Full Port														mm
DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg) RF	
		RF	BW	RTJ										
50	2	216	216	232	51	51	—	85	180	212	450	—	33	
80	3	283	283	298	77	77	—	112	230	228	600	—	64	
100	4	305	305	321	102	102	—	145	283	272	1000	—	123	
150	6	403	403	419	152	152	281	220	325	345	360	500	275	
200	8	502	521	518	203	203	330	260	405	385	340	700	505	
250	10	568	559	584	254	254	371	311	490	426	340	700	557	
300	12	648	635	664	305	305	418	366	570	473	340	700	715	
350	14	762	762	778	337	337	470	428	660	530	545	700	932	
400	16	838	838	854	387	387	477	450	700	537	545	700	1360	
450	18	914	914	930	438	438	522	473	755	597	575	700	1840	
500	20	991	991	1010	489	489	573	580	880	663	579	700	2340	
550	22	1092	1092	1114	540	540	600	590	965	690	579	700	3320	
600	24	1143	1143	1165	591	591	631	600	1040	721	579	700	3870	
650	26	1245	1245	1270	635	635	702	635	1085	874	605	620	4655	
700	28	1346	1346	1372	686	686	764	700	1175	919	950	1400	5575	
750	30	1397	1397	1422	736	736	827	775	1265	982	950	1400	6825	
800	32	1524	1524	1553	781	781	874	825	1340	1029	950	1400	8490	
850	34	1626	1626	1654	832	832	910	880	1425	1065	950	1400	9335	
900	36	1727	1727	1756	876	876	968	930	1490	1123	950	1400	10900	
1000	40	1956	1956	—	978	978	1056	1025	1655	1211	950	1400	15185	
1050	42	2083	2083	—	1022	1022	1107	1080	1725	1262	950	1400	17820	
1200	48	2170	2170	—	1168	1168	1228	1225	1960	1499	1045	1400	26675	

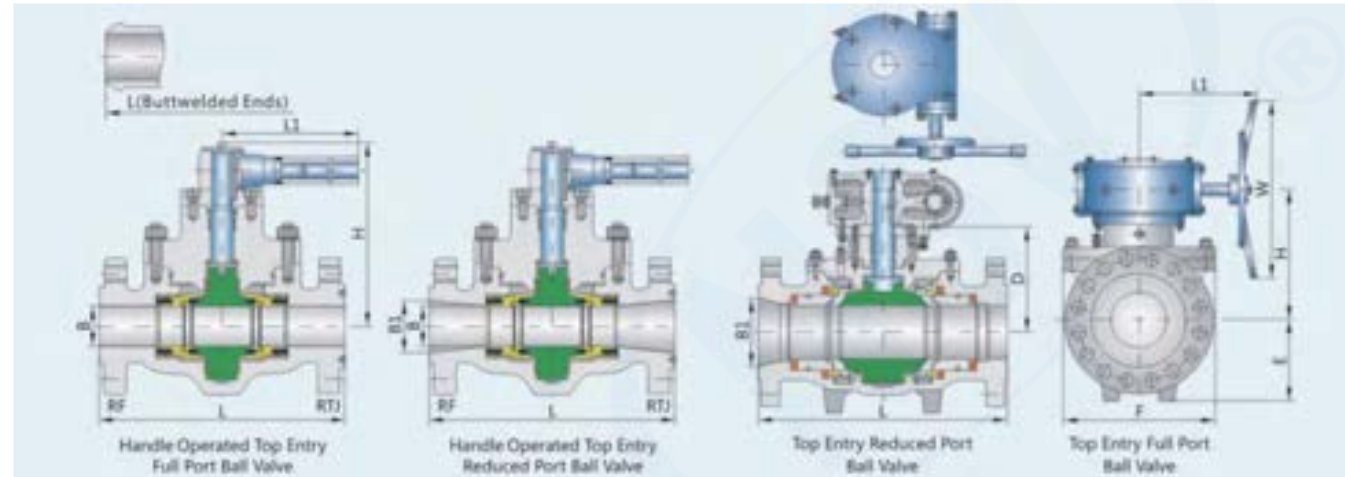
Class 300 Reduced Port														mm
DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg) RF	
		RF	BW	RTJ										
50 x 40	2 x 1 1/2	216	216	232	38	51	—	85	180	212	450	—	29	
80 x 50	3 x 2	283	283	298	51	77	—	85	180	212	450	—	43	
100 x 80	4 x 3	305	305	321	77	102	—	112	230	228	600	—	88	
150 x 100	6 x 4	403	403	419	102	152	—	145	283	272	1000	—	164	
200 x 150	8 x 6	502	521	518	152	203	281	220	325	345	360	500	311	
250 x 200	10 x 8	568	559	584	203	254	330	260	405	385	340	700	563	
300 x 250	12 x 10	648	635	664	254	305	371	311	490	426	340	700	598	
350 x 250	14 x 10	762	762	778	254	337	371	311	490	426	340	700	809	
350 x 300	14 x 12	762	762	778	305	337	418	366	570	473	340	700	960	
400 x 300	16 x 12	838	838	854	305	387	418	366	570	473	340	700	1135	
400 x 350	16 x 14	838	838	854	387	337	470	428	660	530	545	700	1120	
450 x 400	18 x 16	914	914	930	387	438	477	450	700	537	545	700	1518	
500 x 400	20 x 16	991	991	1010	387	489	477	450	700	537	545	700	1865	
500 x 450	20 x 18	991	991	1010	438	489	522	473	755	597	575	700	2110	
600 x 500	24 x 20	1143	1143	1165	489	591	573	580	880	663	579	700	2860	
750 x 600	30 x 24	1397	1397	1422	591	736	631	600	1040	721	579	700	4810	
900 x 750	36 x 30	1727	1727	1756	736	876	827	775	1265	982	950	1400	8440	



■ Main Outline Dimensions

Class 600 Full Port														mm
DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg) RF	
		RF	BW	RTJ										
50	2	292	292	295	51	51	—	85	180	212	600	—	37	
80	3	356	356	359	77	77	—	112	230	228	600	—	72	
100	4	432	432	435	102	102	—	145	283	250	1000	—	137	
150	6	559	559	562	152	152	281	220	325	336	1000	700	302	
200	8	660	660	664	203	203	340	260	415	395	340	700	560	
250	10	787	787	791	254	254	355	311	505	415	340	700	710	
300	12	838	838	841	305	305	401	366	585	461	545	700	910	
350	14	889	889	892	337	337	451	428	680	526	575	700	1190	
400	16	991	991	994	387	387	493	450	730	568	575	700	1735	
450	18	1092	1092	1095	438	438	539	473	784	629	575	700	2350	
500	20	1194	1194	1200	489	489	592	580	900	682	579	700	3000	
550	22	1295	1295	1305	540	540	621	590	890	711	579	700	4240	
600	24	1397	1397	1407	591	591	653	600	1070	808	950	1400	4950	
650	26	1448	1448	1461	635	635	725	635	1115	880	950	1400	5950	
700	28	1549	1549	1562	686	686	790	700	1210	945	950	1400	7130	
750	30	1651	1651	1664	736	736	850	775	1300	1005	950	1400	8730	
800	32	1778	1778	1794	781	781	900	825	1380	1055	950	1400	10850	
850	34	1930	1930	1946	832	832	940	880	1460	1095	950	1400	11930	
900	36	2083	2083	2099	876	876	1000	930	1535	1155	950	1400	13950	
1000	40	2337	2337	2337	978	978	1090	1025	1700	1360	1045	1400	16420	
1050	42	2437	2437	2437	1022	1022	1140	1080	1775	1410	1045	1400	22350	
1200	48	2540	2540	2540	1168	1168	1270	1225	2015	1570	1080	1400	32340	

Class 600 Reduced Port													mm
DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg) RF
		RF	BW	RTJ									
50 × 40	2 × 1 1/2	292	292	295	38	51	–	85	180	212	450	–	33
80 × 50	3 × 2	356	356	359	51	77	–	85	180	212	600	–	48
100 × 80	4 × 3	432	432	435	77	102	–	112	230	228	1000	–	97
150 × 100	6 × 4	559	559	562	102	152	–	145	283	250	1000	–	181
200 × 150	8 × 6	660	660	664	152	203	281	220	325	336	340	700	340
250 × 200	10 × 8	787	787	791	203	254	340	260	415	395	340	700	625
300 × 250	12 × 10	838	838	841	254	305	355	311	505	415	545	700	760
350 × 250	14 × 10	889	889	892	254	337	355	311	505	415	545	700	1030
350 × 300	14 × 12	889	889	892	305	337	401	366	585	461	545	700	1230
400 × 300	16 × 12	991	991	994	305	387	401	366	585	461	545	700	1450
400 × 350	16 × 14	991	991	994	387	337	451	428	680	526	575	700	1430
450 × 400	18 × 16	1092	1092	1095	387	438	493	450	730	568	575	700	1940
500 × 400	20 × 16	1194	1194	1200	387	489	493	450	730	568	575	700	2380
500 × 450	20 × 18	1194	1194	1200	438	489	539	473	784	629	579	700	2700
600 × 500	24 × 20	1397	1397	1407	489	591	592	580	900	682	579	700	3660
750 × 600	30 × 24	1651	1651	1664	591	736	653	600	1070	808	950	1400	6150
900 × 750	36 × 30	2083	2083	2099	736	876	850	775	1300	1005	950	1400	10800



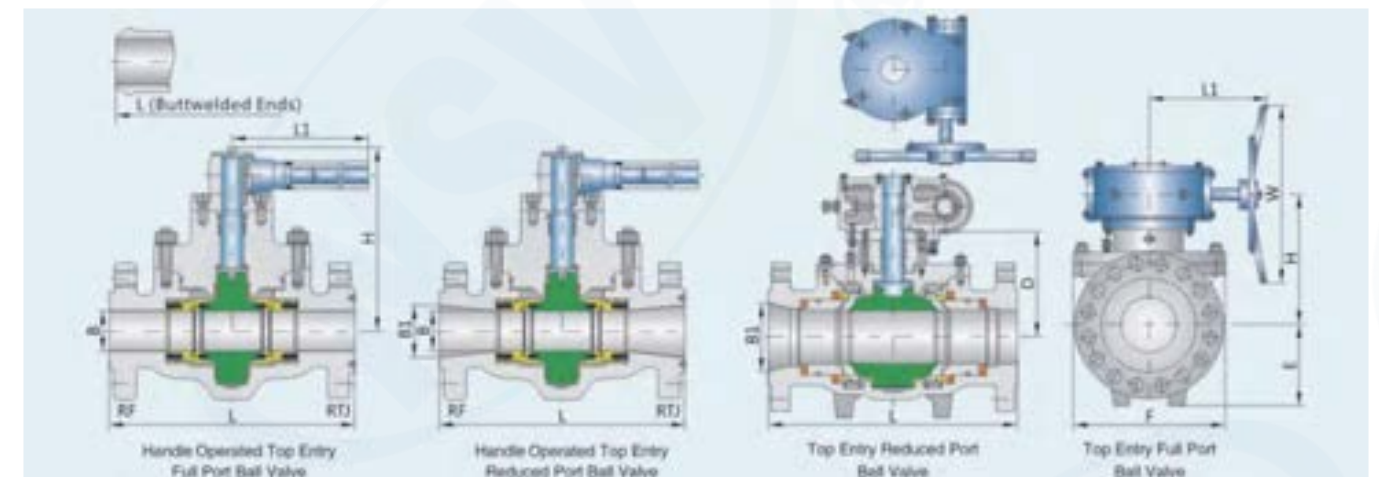
■ Main Outline Dimensions

Class 900 Full Port

DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg) RF
		RF	BW	RTJ									
50	2	368	368	371	51	51	—	85	195	215	600	—	52
80	3	381	381	384	77	77	—	112	240	193	1000	—	108
100	4	457	457	460	102	102	227	145	295	291	360	—	200
150	6	610	610	613	152	152	258	225	330	313	340	500	456
200	8	737	737	740	203	203	318	260	425	378	545	700	845
250	10	838	838	841	254	254	370	320	525	430	545	700	1070
300	12	965	965	968	305	305	418	375	600	493	575	700	1675
350	14	1029	1029	1038	324	324	470	440	695	545	575	700	1800
400	16	1130	1130	1140	375	375	515	465	750	605	579	700	2650
450	18	1219	1219	1232	425	425	560	485	800	650	579	700	3550
500	20	1321	1321	1334	473	473	620	600	925	775	950	1400	4530
600	24	1549	1549	1568	571	571	680	620	1095	835	950	1400	7450
650	26	1651	1651	1674	619	619	760	655	1145	915	950	1400	8925
700	28	1753	1753	1775	667	667	824	720	1240	979	950	1400	10695
750	30	1880	1880	1902	714	714	886	800	1335	1157	950	1400	13095
800	32	2032	2032	2054	762	762	938	848	1415	1209	1045	1400	16200
850	34	2159	2159	2188	810	810	980	905	1495	1251	1045	1400	17800
900	36	2286	2286	2315	857	857	1042	957	1570	1313	1045	1400	20930

Class 900 Reduced Port

DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg) RF
		RF	BW	RTJ									
50 × 40	2 × 1 1/2	368	368	371	38	51	—	85	195	215	450	—	49
80 × 50	3 × 2	381	381	384	51	77	—	85	195	215	600	—	70
100 × 80	4 × 3	457	457	460	77	102	—	112	240	193	1000	—	146
150 × 100	6 × 4	610	610	613	102	152	227	145	295	291	360	—	273
200 × 150	8 × 6	737	737	740	152	203	258	225	330	313	340	500	573
250 × 200	10 × 8	838	838	841	203	254	318	260	425	378	545	700	943
300 × 250	12 × 10	965	965	968	254	305	370	320	525	430	545	700	1150
350 × 250	14 × 10	1029	1029	1038	254	324	370	320	525	430	545	700	1550
350 × 300	14 × 12	1029	1029	1038	324	305	418	375	600	493	575	700	1855
400 × 300	16 × 12	1130	1130	1140	305	375	418	375	600	493	575	700	2185
400 × 350	16 × 14	1130	1130	1140	324	375	470	440	695	545	575	700	2160
450 × 400	18 × 16	1219	1219	1232	375	425	515	465	750	605	579	700	2925
500 × 400	20 × 16	1321	1321	1334	375	473	515	465	750	605	579	700	3590
500 × 450	20 × 18	1321	1321	1334	425	473	560	485	800	650	579	700	4100
600 × 500	24 × 20	1549	1549	1568	473	571	620	600	925	775	950	1400	5520
750 × 600	30 × 24	1880	1880	1902	571	714	680	620	1095	835	950	1400	9225
900 × 750	36 × 30	2286	2286	2315	714	857	886	800	1335	1157	950	1400	15700



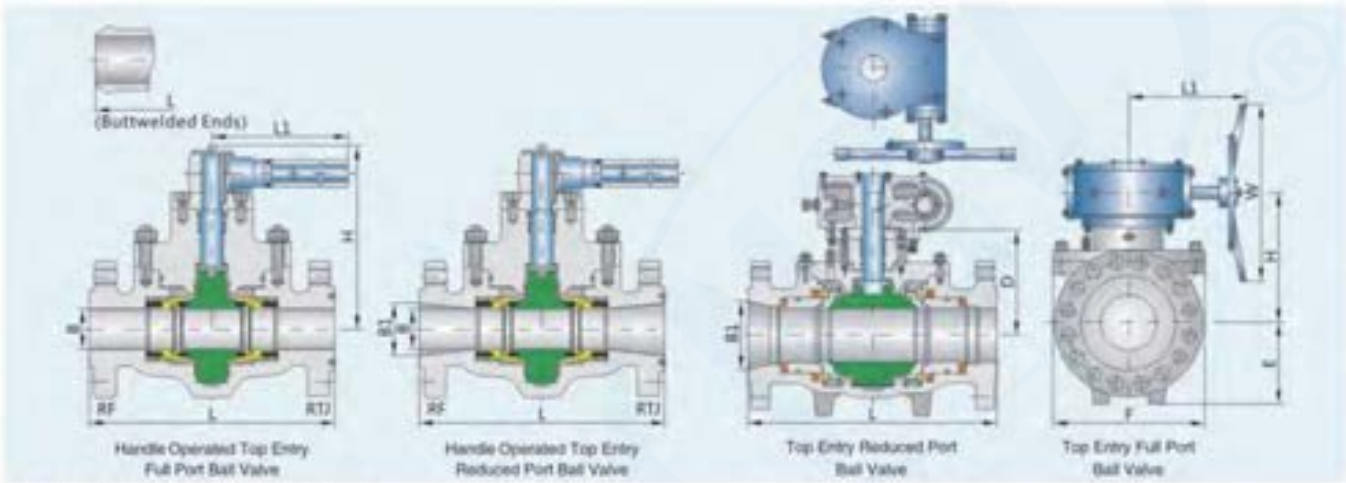
■ Main Outline Dimensions

Class 1500 Full Port

DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg) RF
		RF	BW	RTJ									
50	2	368	368	371	51	51	—	85	205	179	600	—	52
80	3	470	470	473	77	77	—	120	250	201	1000	—	152
100	4	546	546	549	102	102	240	155	310	295	340	700	280
150	6	705	705	711	146	146	273	240	370	333	545	700	640
200	8	832	832	841	194	194	335	280	455	410	575	700	1180
250	10	991	991	1000	241	241	385	340	565	460	575	700	1500
300	12	1130	1130	1146	289	289	436	400	670	511	575	700	2065
350	14	1257	1257	1276	317	317	485	467	730	575	579	700	2700
400	16	1384	1384	1407	362	362	530	495	790	620	579	700	3980
450	18	1537	1537	1559	407	407	585	520	840	740	950	1400	5325
500	20	1664	1664	1686	457	457	640	639	965	795	950	1400	6800
600	24	2043	2043	2071	534	534	708	640	1145	979	1045	1400	11900

Class 1500 Reduced Port

DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg) RF
		RF	BW	RTJ									
50 × 40	2 × 1 1/2	368	368	371	38	51	—	85	205	179	450	—	49
80 × 50	3 × 2	470	470	473	51	77	—	85	205	179	600	—	98
100 × 80	4 × 3	546	546	549	77	102	—	120	250	201	1000	—	205
150 × 100	6 × 4	705	705	711	102	146	240	155	310	295	340	700	382
200 × 150	8 × 6	832	832	841	146	194	273	240	370	333	545	700	720
250 × 200	10 × 8	991	991	1000	194	241	335	280	455	410	575	700	1320
300 × 250	12 × 10	1130	1130	1146	241	289	385	340	565	460	575	700	1600
350 × 250	14 × 10	1257	1257	1276	241	317	385	340	565	460	575	700	2170
350 × 300	14 × 12	1257	1257	1276	317	317	436	400	565	460	575	700	2780
400 × 300	16 × 12	1384	1384	1407	289	362	436	400	670	511	575	700	3280
400 × 350	16 × 14	1384	1384	1407	317	362	485	467	670	511	579	700	3240



■ Main Outline Dimensions

Class 2500 Full Port

DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg)RF
		RF	BW	RTJ									
50	2	451	451	454	44.5	44.5	198	105	270	250	297	300	120
80	3	578	578	584	63.5	63.5	250	127	350	305	340	700	246
100	4	673	673	683	89	89	305	156	400	360	340	700	470
150	6	914	914	927	133	133	355	240	480	430	575	700	937
200	8	1022	1022	1038	181	181	438	280	530	513	575	700	1410
250	10	1270	1270	1292	226	226	530	365	720	620	590	700	2600
300	12	1422	1422	1445	267	267	590	430	860	740	505	620	4200

Class 2500 Reduced Port

DN (mm)	NPS (in)	L			B	B1	D	E	F	H	L1	W	Weight (kg)RF
		RF	BW	RTJ									
50×40	2×1 1/2	451	451	454	38	44.5	-	93	250	150	600	-	80
80×50	3×2	578	578	584	44.5	63.5	198	105	270	250	297	300	160
100×80	4×3	673	673	683	63.5	89	250	127	350	305	340	700	300
150×100	6×4	914	914	927	89	133	305	156	400	360	340	700	670
200×150	8×6	1022	1022	1038	133	181	355	240	480	430	575	700	1150
250×200	10×8	1270	1270	1292	181	226	438	280	530	513	575	700	2100
300×250	12×10	1422	1422	1445	226	267	530	365	720	620	590	700	3300

SUMMARY

The valve is suitable for use in petrochemical industry, liquefied petroleum gas storage, refinery, natural gas, compressor system, oil and gas transportation pipeline, light industry, textile and other industries.

STRUCTURAL FEATURES

1、Top Entry Structure

The valve adopts the top entry structure. The most distinctive difference between this kind of valve and others is that the online maintenance function can be realized without the need of removing the valve from the pipeline.

WORK PRINCIPLE

Opening Of Orbit Ball Valve

When it is at the closed position, the ball is closely pressed onto the seat under the mechanical pressure of stem. When the handwheel is turned counterclockwise, the stem will move upward, and the angular plane at the bottom of stem will make the ball sealing face leave the seat. The stem will continue rising and interact with the guide pin in the stem spiral groove to make the ball turn 90° it out friction until the stem rises to the ultimate position and the ball hole is aligned with the valve channel.

2、Integral Structure

The body adopts the integral structure, so as to ensure that it has enough strength and rigidity under the maximum rated working pressure. The valve trims have been carefully designed and selected to ensure reliability under various service conditions. The sufficient wall thickness and the connection bolts of high strength are very helpful to the maintenance and servicing of valves and are able to endure pipeline stress.

3、Lower Torque Operation

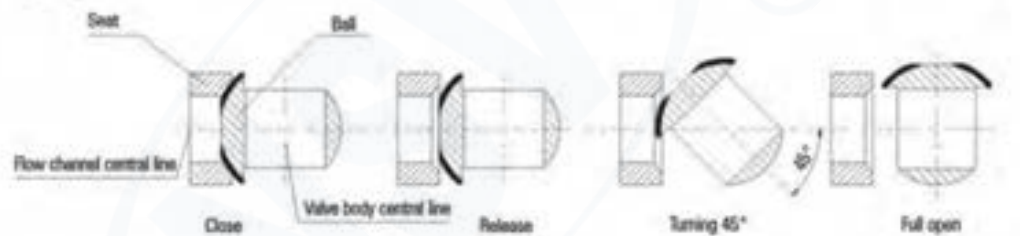
The stem structure is specially designed and there is no friction between seat and ball sealing faces. Therefore the stem can turn easily with low opening and closing torque.

Closing Of Ball Valve

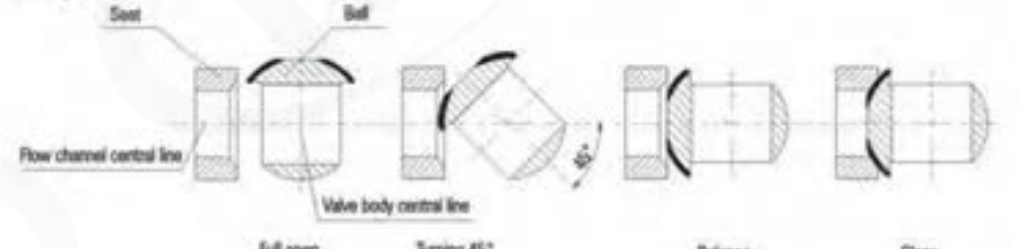
During the closing, turn the handwheel clockwise, the stem will move downward and make the ball start rotation. Continue turning the handwheel, and the stem will make the stem and ball turn 90° together under the action of guide pin in the spiral groove embedded in the stem. When it is nearly closed, the ball has turned 90° without contact with the seat. The stem will continue moving downward, the ball sways to press the seat so as to make the sealing face in the seat produce elastic deformation and closely fit the ball sealing face, and therefore, ensuring safe and reliable zero leakage.

Opening And Closing Schematic Diagram

Opening Process

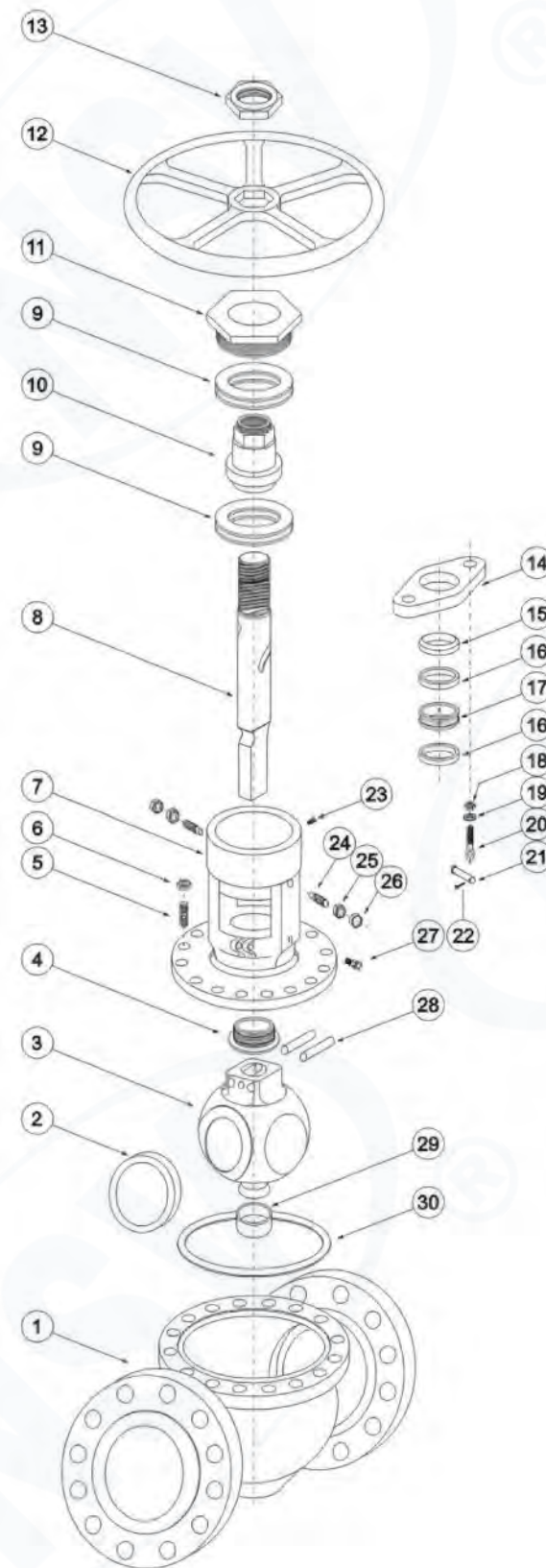


Closing Process



ORBIT BALL VALVE

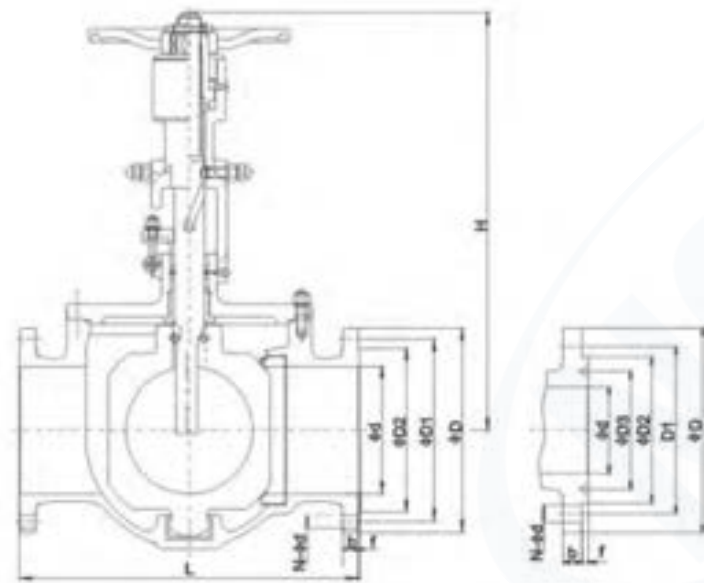
1	Body
2	Seat
3	Ball
4	Upper bearing
5	Stud
6	Hexagon nut
7	Bonnet
8	Stem
9	Rolling bearing
10	Stem nut
11	Gland
12	Handwheel
13	Anchor nut
14	Packing gland
15	Bushing
16	Packing
17	Lantern ring
18	Hexagon nut
19	Flat washer
20	Eye bolt
21	Pin
22	Forelock
23	Oil cap
24	Holding screw
25	Hexagon nut
26	Cap nut
27	Sealant injection valve
28	Rolling pin
29	Locating bush
30	Metal wound gasket



ORBIT BALL VALVE

Part Materials And Main Parameters

Nominal diameter (in)			NPS2 ~ 20				
Nominal pressure (MPa)			Class150 ~ Class600				
Materials of parts	No.	Part name	Materials				
			Carbon steel		Stainless steel		
	1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	2	Seat	ASTM A105+HF	ASTM A182 304+HF	ASTM A182 316+HF	ASTMA182 304L+HF	ASTMA182 316L+HF
	3	Ball	ASTM A105+HF	ASTM A182 304+HF	ASTM A182 316+HF	ASTMA182 304L+HF	ASTMA182 316L+HF
	4	Upper bearing sleeve	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	5	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	6	Hexagon nut	A194 2HM	A194-8	A194-8M	A194-8	A194-8M
	7	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	8	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	9	Rolling bearing	bearing steel	bearing steel	bearing steel	bearing steel	bearing steel
	10	Stem nut	A429 D-2	A429 D-2	A429 D-2	A429 D-2	A429 D-2
	11	Nut gland	ASTM A105	ASTM A105	ASTM A105	ASTM A105	ASTM A105
	12	Handwheel	QT400-17	QT400-17	QT400-17	QT400-17	QT400-17
	13	Anchor nut	A194 2HM	A194 2HM	A194 2HM	A194 2HM	A194 2HM
	14	Packing gland	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB
	15	Bushing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
	16	Packing	Graphite				
	17	Lantern ring	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
	18	Hexagon nut	A194 2HM	A194 2HM	A194 2HM	A194 2HM	A194 2HM
	19	Flat washer	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025
	20	Eye bolt	A193 B7M	A193 B7M	A193 B7M	A193 B7M	A193 B7M
	21	Pin	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035
	22	Forelock	A3	A3	A3	A3	A3
	23	Oil bowl	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	24	Holding screw	A193 B7M	A193 B7M	A193 B7M	A193 B7M	A193 B7M
	25	Hexagon nut	A194 2HM	A194 2HM	A194 2HM	A194 2HM	A194 2HM
	26	Cap nut	A194 2HM	A194 2HM	A194 2HM	A194 2HM	A194 2HM
	27	Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	28	Rolling pin	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
29	Locating bush	TF-2	TF-2	TF-2	TF-2	TF-2	
30	Metal wound gasket	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite	
Applicable service conditions		Applicable media	Water, steam, oil, gas, liquefied gas, natural gas	Nitric acid	Acetic acid	Strong Oxidizer	Urea
		Applicable temperature	-29 ~ + 425 ℃				
Design and manufacturing		API 6D					
Face-to-face dimensions		ASME B16.10、API 6D					
Type of connection		Flange	ASME B16.5		Butt welding	ASME B16.25	
Pressure test		API 598、API 6D					
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric					



Pressure rating	Nominal Diameter		d	Flanged		Butt welding	Raised face flange							H	Weight
	Class	NPS		DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	D3	f		b
150	2"	50	50	292	295	292	150	120.5	92	-	2	14.5	4-Φ19	360	28
	3"	80	75	356	359	356	190	152.5	127	-	2	17.5	4-Φ19	490	41
	4"	100	100	406	410	406	230	190.5	157	-	2	22.5	8-Φ19	525	55
	6"	150	150	403	419	457	280	241.5	216	-	2	24	8-Φ22	611	115
	8"	200	201	597	600	597	345	298.5	270	-	2	27	8-Φ22	750	215
	10"	250	252	673	676	673	405	362	324	-	2	29	12-Φ25	826	270
	12"	300	303	762	765	762	485	432	381	-	2	30.5	12-Φ25	920	385
	14"	350	334	826	829	826	535	476	413	-	2	33.5	12-Φ29	990	502
	16"	400	385	902	905	902	595	540	470	-	2	35	16-Φ29	1090	876
	18"	450	436	978	981	978	635	578	533	-	2	38.5	16-Φ32	1200	980
20"	500	487	1054	1060	1054	700	635	584	-	2	41.5	20-Φ32	1320	1240	
300	2"	50	50	292	295	292	165	127	92	-	2	21	8-Φ19	360	32
	3"	80	75	356	359	356	210	168.5	127	-	2	27	8-Φ22	490	48
	4"	100	100	406	410	406	255	200	157	-	2	30.5	8-Φ22	525	65
	6"	150	150	403	419	457	320	270	216	-	2	35	12-Φ22	611	130
	8"	200	201	597	600	597	380	330	270	-	2	40	12-Φ25	750	235
	10"	250	252	673	676	673	445	387.5	324	-	2	46.5	16-Φ29	826	305
	12"	300	303	762	765	762	520	451	381	-	2	49.5	16-Φ32	920	410
	14"	350	334	826	829	826	585	514.5	413	-	2	52.5	20-Φ32	990	550
	16"	400	385	902	905	902	650	571.5	470	-	2	56	20-Φ35	1090	925
	18"	450	436	978	981	978	710	628.5	533	-	2	59	24-Φ35	1200	1135
20"	500	487	1054	1060	1054	775	686	584	-	2	62	24-Φ35	1320	1365	
600	2"	50	50	292	295	292	165	127	92	-	7	26	8-Φ19	430	50
	3"	80	75	356	359	356	210	168.5	127	-	7	32	8-Φ22	490	74
	4"	100	100	432	435	432	275	216	157	-	7	38.5	8-Φ25	570	101
	6"	150	150	559	562	559	355	292	216	-	7	48	12-Φ29	645	202
	8"	200	201	660	664	660	420	349	270	-	7	56	12-Φ32	780	364
	10"	250	252	787	791	787	510	432	324	-	7	64	16-Φ35	860	473
	12"	300	303	838	841	838	560	489	381	-	7	67	20-Φ35	985	636
	14"	350	334	889	892	889	605	527	413	-	7	70	20-Φ39	1050	853
	16"	400	385	991	994	991	685	603	470	-	7	77	20-Φ41	1160	1434
	18"	450	436	1092	1095	1092	745	654	533	-	7	83	20-Φ44	1275	1759
20"	500	487	1194	1200	1194	815	724	584	-	7	89	24-Φ44	1410	2116	

Notes: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

3-WAY/4-WAY BALL VALVE

USAGE

The three-way/four-way ball valve is used for switching, converging and diverging pipeline medium flow direction. It is widely applied in metallurgy, mine, petroleum, chemical industry, electric power, light industry, shipping

industry and automation control systems, suitable for service conditions such as switching, mixing and diverging of fluid, gas and powder.

STRUCTURAL CHARACTERISTICS

The three-way/four-way ball valve is provided with reliable sealing and smooth flow channel so as to ensure accuracy of opening and closing through small fluid pressure loss and stable flow channel. According to the

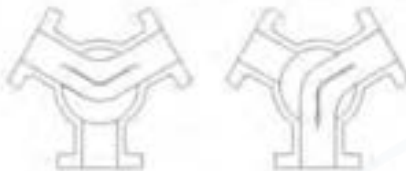
forms of flow channel, the valve can be classified into "Y" pattern three-way ball valve, "L" pattern three-way ball valve, "T" pattern three-way ball valve and "LL" pattern four-way ball valve.

"Y" pattern Three-way Ball Valve (q42 Type)

The form of flow channel is "Y" pattern, which can effectively realize switching from service condition 1 to

service condition 2. It is mainly used for switching "Y" pattern pipeline flow direction.

Two service conditions of "Y" pattern three-way ball valve



"L" Pattern Three-way Ball Valve (q44 Floating Type, Q49 Trunnion Type)

The "L" pattern three-way ball valve is used for switching pipeline medium flow direction. It can connect two flow channels that are vertical with each other. The

ordinary "L" pattern floating three-way ball valve may not be suitable for some service conditions, which shall be paid special attention to when users select it.

Two service conditions of "L" pattern three-way ball valve

Several service conditions for which the ordinary "L" pattern floating three-way ball valve is not suitable



3-WAY/4-WAY BALL VALVE

STRUCTURAL FEATURES

“T” Pattern Three-way Ball Valve (q45 Floating Type, Q48 Trunnion Type)

The “T” pattern three-way ball valve is used for switching, converging and diverging medium flow direction. The “T” pattern ball channel can make three channels connect with each other or two of them connect with each other to realize two, three or four kinds of functions. Different valve designs are adopted to realize different functions. Therefore, users shall make

detailed descriptions to the service requirements when selecting and ordering the “T” pattern three-way ball valve, so that our company can make designs and configurations correctly. The ordinary “T” pattern floating three-way ball valve may not be suitable for some service conditions, which shall be paid special attention to when users select it.

Several service conditions of “T” pattern three-way ball valve



Several service conditions for which the ordinary “T” pattern floating three-way ball valve is not suitable

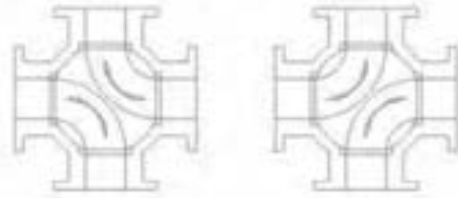


“LL” Pattern Four-way Ball Valve

The “LL” pattern four-way ball valve is provided with four seats to realize switching from service condition 1 to service condition 2. It can simultaneously switch the flow direction of two media, which realizes the effect of multiple functions in one valve with convenience and swiftness.

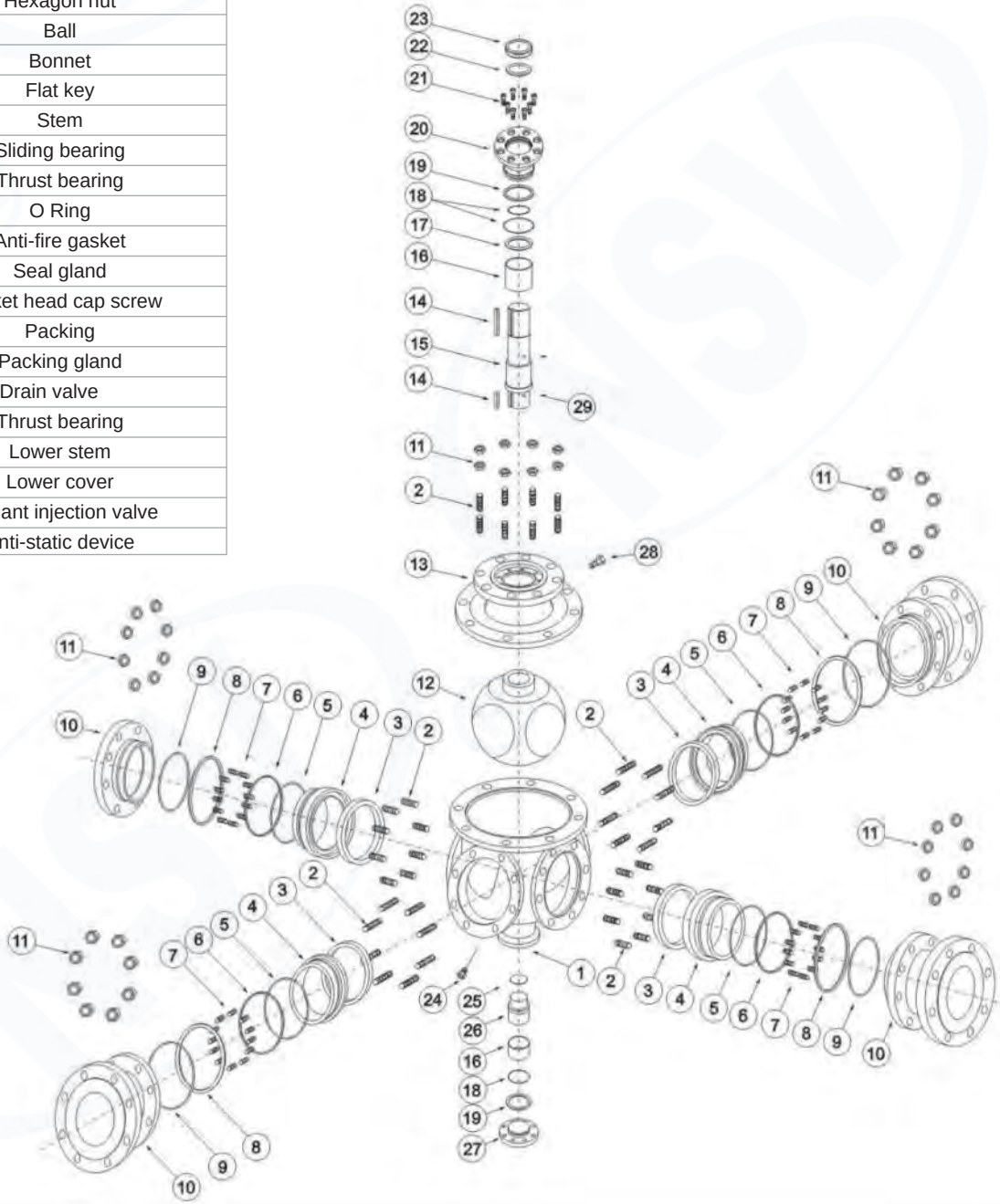
The work form is shown as follows:
1. When A(C) is the inlet, the two connections of A→B (C→D) or A→C (C→A) can be realized.
3. A cannot be realized.
3. A→D (C→B) 或 D→A (B→C) is impossible.

Service conditions of “LL” pattern four-way ball valve



T PATTERN THREE-WAY BALL VALVE

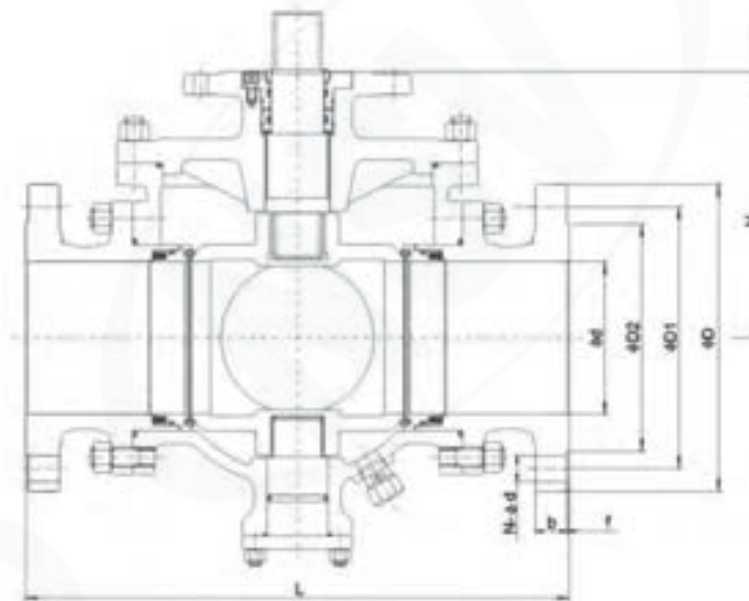
1	Body
2	Stud
3	Seat
4	Seat ring
5	O Ring
6	Anti-fire packing
7	Spring
8	Anti-fire gasket
9	O Ring
10	Bonnet
11	Hexagon nut
12	Ball
13	Bonnet
14	Flat key
15	Stem
16	Sliding bearing
17	Thrust bearing
18	O Ring
19	Anti-fire gasket
20	Seal gland
21	Socket head cap screw
22	Packing
23	Packing gland
24	Drain valve
25	Thrust bearing
26	Lower stem
27	Lower cover
28	Sealant injection valve
29	Anti-static device



T PATTERN THREE-WAY BALL VALVE

Part Materials And Main Parameters

Nominal diameter (in)			NPS2 ~ 20				
Nominal pressure (MPa)			Class150 ~ Class300				
Materials of parts	No.	Part name	Materials				
			Carbon steel		Stainless steel		
	1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	2	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	3	Seat	PTFE/NYOLN/PEEK/PPL				
	4	Seat Ring	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	5	O Ring	VITON				
	6	Anti-fire Packing	Graphite				
	7	Spring	17-7PH				
	8	Anti-fire Gasket	SST+Graphite				
	9	O Ring	VITON				
	10	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	11	Hexagon Nut	A194 2HM	A194-8	A194-8M	A194-8	A194-8M
	12	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	13	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	14	Flat Key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
	15	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	16	Sliding Bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
	17	Thrust Bearing	PTFE				
	18	O Ring	VITON				
	19	Anti-fire Gasket	SST+Graphite				
	20	Seal Gland	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	21	Socket Head Cap Screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	22	Packing	Graphite				
	23	Packing Gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
	24	Drain Valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	25	Thrust Bearing	PTFE				
	26	Lower Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	27	Lower Cover	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
28	Sealant Injection Valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts	
29	Anti-static Device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts	
Applicable service conditions		Applicable media	Water, steam, oil, gas, liquefied gas, natural gas	Nitric acid	Acetic acid	Strong Oxidizer	Urea
		Applicable temperature	≤120 ℃（PTFE）、≤80 ℃(NYLON) ≤250 ℃(PEEK)、≤250 ℃(PPL)				
Design and manufacturing			API 608、API 6D				
Type of connection		Flange	ASME B16.5			Wafer	ASME B16.5
Pressure test		API 598、API 6D					
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric					



Pressure rating	Nominal Diameter		d	L	Flanged						H	Weight (kg)
					D	D1	D2	D3	f	b	N-φd	
150	2"	50	50	260	150	120.5	92	-	2	14.5	4-Φ19	205
	3"	80	75	320	190	152.5	127	-	2	17.5	4-Φ19	245
	4"	100	100	370	230	190.5	157	-	2	22.5	8-Φ19	305
	6"	150	150	510	280	241.5	216	-	2	24	8-Φ22	340
	8"	200	201	580	345	298.5	270	-	2	27	8-Φ22	425
	10"	250	252	670	405	362	324	-	2	29	12-Φ25	450
	12"	300	303	760	485	432	381	-	2	30.5	12-Φ25	530
	14"	350	334	850	535	476	413	-	2	33.5	12-Φ29	630
	16"	400	385	980	595	540	470	-	2	35	16-Φ29	680
	18"	450	436	1080	635	578	533	-	2	38.5	16-Φ32	625
	20"	500	487	1220	700	635	584	-	2	41.5	20-Φ32	670
	24"	600	589	1360	815	749.5	682	-	2	46.5	20-Φ35	705
300	2"	50	50	260	165	127	92	-	2	21	8-Φ19	205
	3"	80	75	320	210	168.5	127	-	2	27	8-Φ22	245
	4"	100	100	370	255	200	157	-	2	30.5	8-Φ22	305
	6"	150	150	510	320	270	216	-	2	35	12-Φ22	340
	8"	200	201	580	380	330	270	-	2	40	12-Φ25	425
	10"	250	252	670	445	387.5	324	-	2	46.5	16-Φ29	450
	12"	300	303	760	520	451	381	-	2	49.5	16-Φ32	530
	14"	350	334	850	585	514.5	413	-	2	52.5	20-Φ32	630
	16"	400	385	980	650	571.5	470	-	2	56	20-Φ35	680
	18"	450	436	1080	710	628.5	533	-	2	59	24-Φ35	625
	20"	500	487	1220	775	686	584	-	2	62	24-Φ35	670
	24"	600	589	1360	915	813	682	-	2	68.5	24-Φ41	705

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

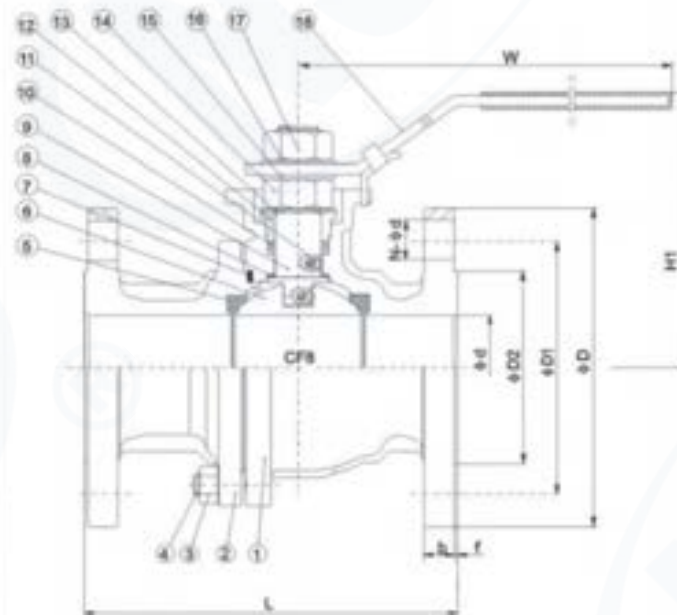
MOUNTING PAD BALL VALVE

The valve has such advantages as small fluid resistance, rapid opening and closing, compact structure, small volume, light weight and good sealing performance. The body and bonnet are subjected to silical precise casting. It adopts ISO 5211 platform design, and the two disc springs can compress the packing automatically. It is designed with the

blow-out proof stem and anti-static structure. It is suitable for water, gas, oil, natural gas and other acid and alkaline corrosive media. Suitable temperature is less than or equal to 200℃. The driving modes include: manual operation, worm gear transmission, pneumatic operation and electric operation.

Main Parts And Materials

NO.	Part Name	Material	
1	Body	ASTM A351 CF8	ASTM A351 CF8M
2	Bonnet	ASTM A351 CF8	ASTM A351 CF8M
3	Stud	A320 B8	A320 B8M
4	Hexagon nut	A194-8	A194-8M
5	Seat	PTFE	
6	Ball	ASTM A182 304	ASTM A182 316
7	Fireproof sealing gasket	SST+Graphite	
8	Thrust bearing	PTFE	
9	Stem	ASTM A182 304	ASTM A182 316
10	Packing	Graphite	
11	Anti-static device	Combined parts	Combined parts
12	Packing bushing	ASTM A182 304	ASTM A182 316
13	Gland	ANSI 1025	ANSI 1025
14	Hexagon nut	A194-8	A194-8
15	Handle gland	ANSI 1025	ANSI 1025
16	Gasket	ANSI 1025	ANSI 1025
17	Hexagon nut	A194-2HM	A194-2HM
18	Handle	Combined parts	Combined parts



Main size

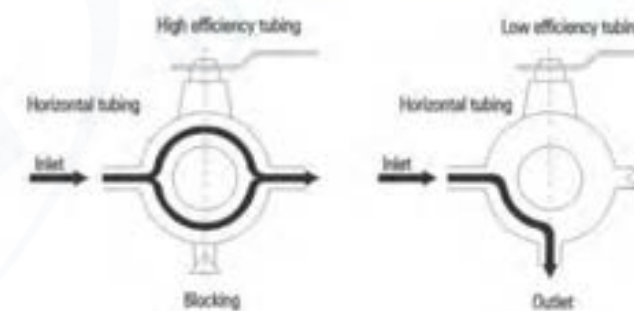
Pressure class	Nominal Diameter (in)		d	L	RF						H1	W
	NPS	DN			D	D1	D2	f	b	N-φd		
150	1/2"	15	13	108	90	60.5	35	2	9	4-φ16	79	140
	3/4"	20	19	117	100	70	43	2	10	4-φ16	84	140
	1"	25	25	127	110	79.5	51	2	11	4-φ16	95	180
	1 1/4"	32	32	140	115	89	64	2	11	4-φ16	103	180
	1 1/2"	40	38	165	125	98.5	73	2	13	4-φ16	111	200
	2"	50	50	178	150	120	92	2	14.5	4-φ19	120	200
	3"	80	75	203	190	152	127	2	17.5	4-φ19	163	300
	4"	100	100	229	230	190.5	157	2	22.5	8-φ19	182	400
300	6"	150	150	394	280	241.5	216	2	24	8-φ22	280	800
	8"	200	201	457	345	298.5	270	2	27	8-φ22	448	1100
	1/2"	15	13	140	95	66.5	35	2	13	4-φ16	79	140
	3/4"	20	19	152	115	82.5	43	2	14.5	4-φ19	84	140
	1"	25	25	165	125	89	51	2	16	4-φ19	95	180
	1 1/4"	32	32	178	135	98.5	64	2	17.5	4-φ19	103	180
	1 1/2"	40	38	190	155	114.5	73	2	19.5	4-φ22	111	200
	2"	50	50	216	165	127	92	2	21	8-φ19	120	200
	3"	80	75	283	210	168.5	127	2	27	8-φ22	163	300
	4"	100	100	305	255	200	157	2	30.5	8-φ22	182	400
	6"	150	150	403	320	270	216	2	35	12-φ22	280	800
	8"	200	201	502	380	330	270	2	40	12-φ25	448	1100

JACKET BALL VALVE

Structural Features And Usage

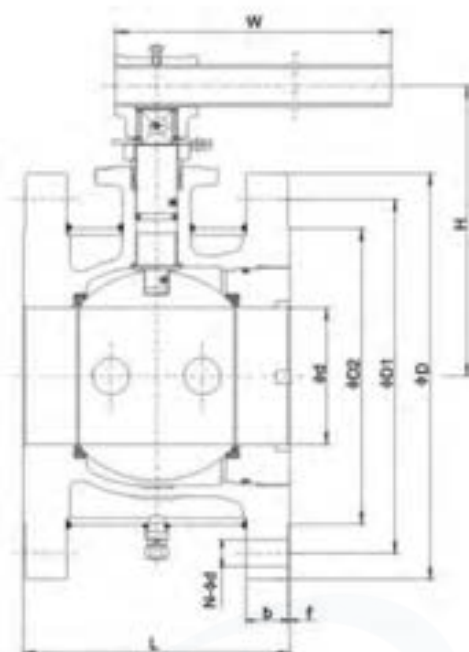
The jacket ball valve has such features as small fluid resistance, compact structure, light weight, good heat and cold insulation performance, flexible opening and closing. The jacket ball valve adopts the integral structure, so it is much smaller than the ordinary ball valve, and its weight is much lighter with good sealing performance. The media that are allowed to pass the jacket include 1MPa steam or cooled water, or special design can be made according to user requirements. It is mainly used in various systems in petroleum, chemical industry, metallurgy, pharmacy, food and other industries for transporting media of high viscosity that will be solidified under normal temperature.

The installation and tubing of the jacket ball valve shall be made according to the followings



Part Materials And Main Parameters

Nominal diameter (in)			NPS 1/2~8				
Nominal pressure (MPa)			Class150~Class300				
Material s parts	No.	Part Name	Materials				
			Carbon steel		Stainless steel		
	1	Body	ASTM A216 • WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	2	Seat			PTFE/PPL		
	3	Ball	ASTM A105 • ENP	ASTM A182 304L	ASTM A182 316L	ASTM A182 304L	ASTM A182 316L
	4	Stem	ASTM A182 F6a	ASTM A182 304L	ASTM A182 316L	ASTM A182 304L	ASTM A182 316L
	5	Packing			Graphite		
Applicable service conditions		Applicable media	Water, steam, oil, gas, liquefied petroleum gas and natural gas etc"	NPS 1/2~8	NPS 1/2~8	NPS 1/2~8	NPS 1/2~8
		Applicable temperature	≤150℃ (PTFE)、≤250℃ （PPL）				
Design and manufacturing			API 608				
Face-to-face dimensions			ASME B16.10				
Type of connection			Flange	ASME B16.5		Wafer	ASME B16.5
Pressure test			API 598				
Transmission mode			Manual, worm and worm gear transmission, pneumatic, electric				



Pressure rating	Nominal Diameter		Flanged		d	L	Raised face flange						W	H	Weight (kg)
	NPS	DN	NPS	DN			D	D1	D2	f	b	N-Φd			
150	1/2"	15	½"×1¼"	15×32	13	108	115	89	64	2	11	4-Φ16	140	140	3
	3/4"	20	¾"×1½"	20×40	19	117	125	98.5	73	2	13	4-Φ16	140	150	4
	1"	25	1"×2"	25×50	25	127	150	120.5	92	2	14.5	4-Φ19	150	160	6
	1¼"	32	1¼"×2"	32×50	32	140	150	120.5	92	2	14.5	4-Φ19	180	180	8
	1½"	40	1½"×2½"	40×65	38	165	180	139.5	105	2	16	4-Φ19	200	180	10
	2"	50	2"×3"	50×80	50	178	190	152.5	127	2	17.5	4-Φ19	250	200	14
	3"	80	3"×6"	80×150	75	229	280	241.5	216	2	24	8-Φ22	350	220	25
	4"	100	4"×8"	100×200	100	254	345	298.5	270	2	27	8-Φ22	500	250	36
	6"	150	6"×10"	150×250	150	292	405	362	324	2	29	12-Φ25	800	290	98
8"	200	8"×14"	200×350	201	330	535	476	413	2	33.5	12-Φ29	1000	330	160	
300	1/2"	15	½"×1¼"	15×32	13	108	135	98.5	64	2	17.5	4-Φ19	140	150	4
	3/4"	20	¾"×1½"	20×40	19	117	155	114.5	73	2	19.5	4-Φ22	140	160	5
	1"	25	1"×2"	25×50	25	127	165	127	92	2	21	8-Φ19	150	180	8
	1¼"	32	1¼"×2"	32×50	32	140	165	127	92	2	21	8-Φ19	180	200	10
	1½"	40	1½"×2½"	40×65	38	165	190	149	105	2	24	8-Φ22	200	200	13
	2"	50	2"×3"	50×80	50	178	210	168.5	127	2	27	8-Φ22	250	220	18
	3"	80	3"×6"	80×150	75	229	320	270	216	2	35	12-Φ22	350	240	36
	4"	100	4"×8"	100×200	100	254	380	330	270	2	40	12-Φ25	500	270	58
	6"	150	6"×10"	150×250	150	292	445	387.5	324	2	46.5	16-Φ29	800	320	120
8"	200	8"×14"	200×350	201	330	585	514.5	413	2	52.5	20-Φ32	1000	370	212	

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

- **Product structural features**

Ball valve according to DIN is applicable to the cutting and connection of pipelines medium that are used in various industries such as petroleum, chemical industry, pharmacy, chemical fertilizer, electric power industry etc under nominal pressure of PN1.6-10MPa and working temperature within -196-250°C.

- Main structural features

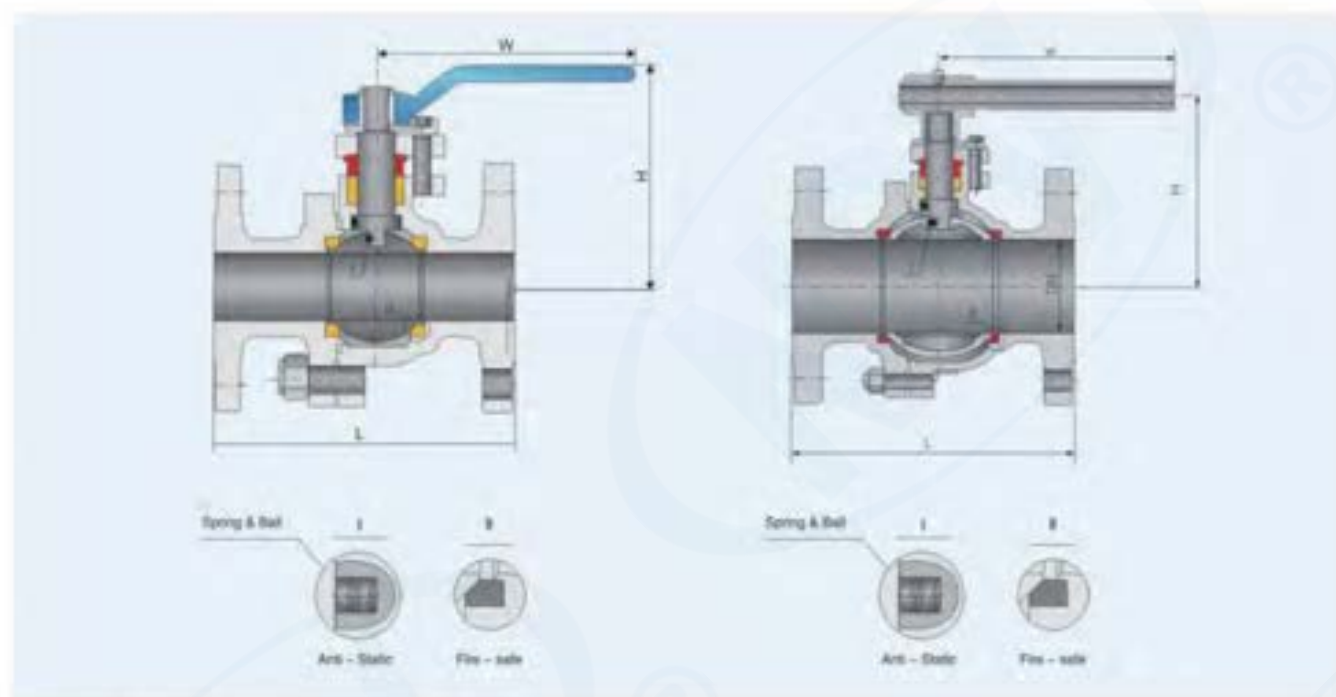
1. The product has indication of open-close and locking system;
2. The stem has function of anti-blow out, anti fire-safe and anti-static function;
3. The part material flange, and butting weld end dimension may be selected according to current operation condition and user's requirement, so that meeting the requirement of various engineering.

- **Technical specification**

Structural Formation: Bolted, split body, side entry
Driving Manner: Hand-Operated
Driving Manner: Electric-Actuated
Design Standard: DIN3356
Face to Face: DIN3202, EN558-1
Flange Ends: DIN2543-2545, EN1092-1
Test & Inspection: DIN3230, ISO 5208
Notes: The size of serial, valve connecting flange can be design according to customers' requirement

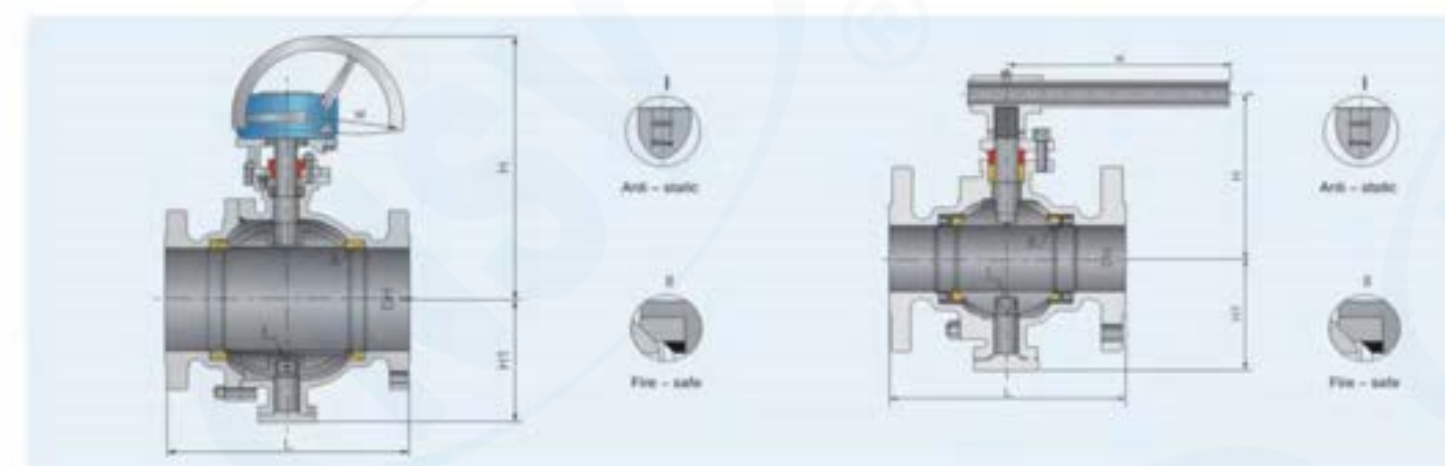
- Products performance specification

Nominal Pressure(MPa)	Shell Test (MPa)	Sealing Test (MPa)	Suitable Temp(°C)	Suitable Medium
1.6	2.4	1.76	-196~150°C	Water Oil & Gas
2.5	3.75	2.75		
4.0	6.0	4.4		
6.4	9.6	7.04		
10.0	10.5	11		



■ Main dimensions of Floating Ball Valve

PN 16												
DN	15	20	25	32	40	50	65	80	100	125	150	200
L	130	140	150	165	180	200	220	250	280	320	360	400
H	78	84	95	150	150	190	195	215	250	285	330	370
H1	140	160	180	250	300	350	350	400	600	600	800	1000
WT(Kg)	3	4	5	10	14	20	25	30	40	65	73	85
PN 25												
DN	15	20	25	32	40	50	65	80	100	125	150	200
L	130	140	150	165	180	200	220	250	280	320	360	400
H	78	84	95	150	150	190	195	215	250	285	330	370
H1	140	160	180	250	300	350	350	400	600	600	800	1000
WT(Kg)	3	4	5	10	14	20	25	30	40	65	73	85
PN 40												
DN	15	20	25	32	40	50	65	80	100	125	150	200
L	130	140	150	165	180	200	220	250	280	403	403	502
H	82	100	104	150	150	190	195	215	250	260	275	335
H1	140	160	180	250	300	350	350	400	600	600	800	800
WT(Kg)	3	4	5	10	14	20	25	50	70	80	85	101



■ Main dimensions of Trunnion Ball Valve

PN 16/25																		
DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
L	R F	179	191	203	229	356	394	457	533	610	686	762	846	914	1067	1245	1372	1524
	B W	216	241	283	305	381	457	521	559	635	762	838	914	991	1143	1346	1524	1727
H		107	125	152	178	300	330	398	495	580	625	670	698	840	1050	1100	1150	1247
H1		102	114	127	152	184	219	273	360	395	430	470	550	580	700	800	950	1100
W		230	400	400	650	1050	105	600	600	800	800	800	800	800	800	800	800	800
WT(Kg)		12	16	22	35	58	74	205	322	460	576	864	1280	1600	3540	4500	5940	7540
PN 40																		
DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
L	R F	216	241	283	305	381	403	502	568	648	762	838	914	991	1143	1346	1524	1727
	B W	216	241	283	305	381	457	521	559	635	762	838	914	991	1143	1346	1524	1727
H		107	125	152	178	300	330	398	495	580	625	670	698	840	1050	1100	1150	1247
H1		102	114	127	152	184	219	273	360	395	430	470	550	580	700	800	950	1100
W		230	400	400	650	1050	1050	600	600	800	800	800	800	800	800	800	800	800
WT(Kg)		15	24	30	55	87	118	255	370	533	640	1030	1542	2100	4200	5300	7860	8684
PN 64																		
DN	50	65	80	100	150	200	250	300	350	400	500	600	700					
L	R F	292	330	356	406	495	597	673	762	826	902	1054	1232	1397				
	H	108	155	197	235	300	374	445	512	550	615	810	1010	1180				
H1		114	124	133	159	250	294	395	445	500	530	660	800	900				
W		600	600	600	600	600	800	800	800	800	800	800	800	800				
WT(Kg)		23	35	49	91	192	355	640	880	1100	1540	2800	5300	5700				
PN 100																		
DN	50	65	80	100	150	200	250	300	350	400	500	600	700					
L	R F	292	330	356	432	559	660	787	838	889	991	1194	1397	1579				
	H	108	155	197	235	300	374	445	512	550	615	810	1010	1180				
H1		114	124	133	159	250	294	395	445	500	530	660	800	900				
W		600	600	600	600	600	800	800	800	800	800	800	800	800				
WT(Kg)		23	38	55	102	232	290	710	960	1700	1970	3250	5800	6700				