

BALL VALVE SERIES



BALL VALVE SERIES Ball Valve Overview

Ball valve was available in the 1950s, with the rapid development of science and technology, the continuous improvement of production technology and product structure. In short decades, it has rapidly developed into a kind of main valve. In western developed industrial countries, the use of the ball valve is constantly rising year by year.

In our country, the ball valve is widely used in petroleum refining, long pipeline, chemical industry, paper making, pharmacy, water conservancy, electric power, municipal, industries and so on, holding the pivotal status in the national economy. It has 90 degrees of rotation movement, the cock body for a sphere with a round hole or tunnel through its axis.

Ball valve in the line is mainly used for cutting, distribution, and changing the flow direction of medium, it just has to rotate 90 degrees of operating and small rotational torque to close tightly. The ball valve is suitable to be used as switch and cutting off valves.

Floating ball valve adopts two pieces of split type or an integral body design, according to ISO17292 standard. This series of ball valve are usually used in low pressure condition (150 ~ 300 lb), the temperature ranging from 196 to 500 degrees Celsius. This series of valves are all made of fire prevention design, and according to the manufacturing API607 and manufacturing according to API607 and API6FA fire-proof test.

Fixed ball valve with two or three pieces of fission side mounted or jacket structure design, accords with API6D standard. Soft sealing ball valves can meet the working temperature - 46 ~ 200 degrees Celsius.

This series of fixed ball valve has double block and bleed function, and the tight sealing glue injection system ensures in urgent situation to block leakage from the stem and seat. Jacket type structure can realize online change in the component, and convenient maintenance. DBV trunnion mounted ball valve series include: two piece casting steel fission side type, jacket type casting steel, three pieces forged steel fission side mounted.

Welded ball valve adopts full welded body, especially suitable for gas transportation and storage industry. All welded body design making no conventional bolts to connect body and bonnet, ensures no hidden danger of body and bonnet leakage under any condition. In addition, forged steel valve body has the same size of the grain structure and uniform thickness to avoid the casting valve inherent defects of shrinkage cavity, air hole and so on.

Ball valve is widely used in recent years as a new type of valve, it has the following advantages:

1. The fluid resistance is small, its resistance coefficient with section of equal length.
2. Simple structure, small volume, light weight.
3. Compact and reliable, the ball valve sealing surface material widely using metals or fluorine plastic, with good sealing, also has been widely used in the vacuum system.
4. Easy to operate, open and close quickly, from open to close just rotate 90°, convenient for far distance control.
5. Easy maintenance, simple structure of ball valve, active sealing ring, making the remove and replacement more convenient.
6. When in fully open or fully closed position, the ball and seat sealing surface are separated with the medium, so as the medium goes through, it will not cause the valve sealing surface erosion.
7. Applicable scope is wide, size from small to several millimeters, big to a few meters, from high vacuum to high pressure force can be used. This valve shall generally be installed horizontally in the pipeline.



BALL VALVE SERIES

Ball Valve Codes

Product model of DBV valves is coded according to standard JB/T 308 "valves model designation method" and adjusted based on industry practises and product characteristics. As the product model does not fully present overall characteristics of the products, for special requirements, it is recommended that the user shall supplement it by words.

Example

Sample	DN200	Q	3	4	7	F	-	25	P
Code	I	II	III	IV	V	VI		VII	VIII
I	Valve Size		Sample						
NPS	Nominal Pipe Size		NPS2, NPS3"						
DN	Nominal Size		DN50, DN80						
II	Valve Type								
Q	Ball Valve								
BQ									
DQ									
FQ									
KQ									
PQ									
EQ									
WQ									
HQ									
III	Operated								
1	N/A for Lever Operated								
2	Electro-hydraulic Operated								
3	Worm-gear Operated								
6	Pneumatic Operated								
6s	Pneumatic Operated With Manual								
7	Hydraulic Operated								
7s	Hydraulic Operated With Manual								
8	Pneumatic-Hydraulic Operated								
9	General Electro Operated								
9B	Explosion-Proof Electro Operated								
IV	Type of Connection								
1	Female Threaded End								
2	Male Thread End								
4	Flange End								
6	Welding End								
7	Wafer Type								
8	Hoop End								
9	Compression Joint Type								
V	Type of Construction								
1	Floating Ball								
2									
4									
5									
V	Type of Construction								
7	Trunnion Ball								
6									
8									
9									
0	Half-ball Through								
VI	Material of Sealing Face								
F	Fluoro Plastic								
G	Ceramic								
H	Martensitic Stainless Steel								
M	Monel Metal								
N	Nylon								
PK	PEEK								
PL	PPL								
T	Copper Alloy								
X	Rubber								
Y	Stellite Alloy								
VII	Pressure Code		Sample						
NPS	Class		150Lb, 300Lb,...						
DN	公称压力数值的10倍=PN*10		16, 25,...						
VIII	Material of Shell								
C	Carbon Steel(class and up than PN 25 is not marked)								
H	Martensitic SS								
I	Chrome-Molybdenum steel								
P	Chromium-Nickel SS								
R	Chromium-Nickel-Molybdenum SS								
T	Copper & Copper Alloy								
Ti	Titanium & Titanium Alloy								
V	Chrome-Molybdenum-Vanadium Steel								

BALL VALVE SERIES

Technical Specifications/Main Parts and Materials

Technical Specifications

Design Basis		GB		API		ASME
Design Standard		GB/T 12237	GB/T 19672	API 608	API 6D	ASME B16.34
Face-to-Face Dimension		GB/T 12221	GB/T 19672	ASME B16.10	API 6D	ASME B16.10
ConnectionEnd*	Flanged	GB/T 9113		ASME B16.5/MSS SP-44/ASME B16.47*		
	Butt-Welding	GB/T 12224		ASME B16.25		
Material		NACE MR0175				
Test and Inspection		JB/T 9092	GB/T 19672	API 598	API 6D	ASME B16.34
Fire resistance test		JB/T 6899		API 6FA/API 607		

* The dimension of welded end connection can be designed and manufactured according to the buyers' request.

a. MSS SP-44 for size 22.
ASME B16.47 Series A for size 26 & over.

Main Parts and Materials

Conventional Type

Part Name	Carbon Steel		Low Temp. Steel		Stainless Steel	
	GB	ASTM	GB	ASTM	GB	ASTM
Body	WCB 25 A105	A216-WCB A105	LCB LCC 304 0Cr18Ni9	A352-LCB A352-LCC A350-LF2	CF8 CF8M 00Cr18Ni12Mo2	A351-CF8 A351-CF8M A182-F304 A182-F316
Bolt/Nut	35CrMo 45	A193-B7 A194-2H	304 304	A320-L7 A194-4	304 304	A193-B8 A194-8
Ball	25+ENP	A105+ENP	0Cr18Ni9	A350-LF2+ENP	0Cr18Ni9 00Cr17Ni12Mo2	A182-F304 A182-F316
Stem	1Cr13 2Cr13	A276-410 A276-420	304	A350-LF2 A276-304	304 316	A276-304 A276-316
Seat	Standard: PTFE OR NYLON Special: PEEK OR DEVLON		Standard: PTFE OR NYLON Special: PEEK OR DEVLON		Standard: PTFE OR NYLON Special: PEEK OR DEVLON	
O-Ring	NBR OR VITON		NBR OR VITON		VITON	
Gasket	Graphite+Stainless steel		Graphite+Stainless steel		Graphite+Stainless steel	

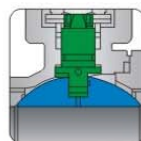
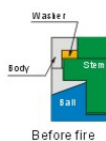
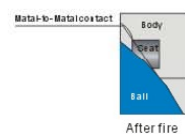
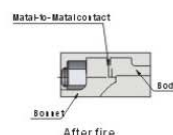
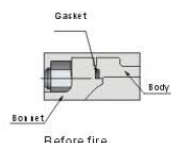
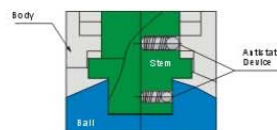
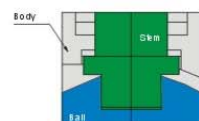
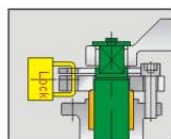
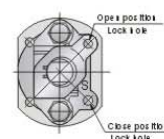
BALL VALVE SERIES

Floating Ball Valve

Structure Features

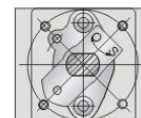
Use

It's mainly used for oil and natural gas storage and transportation, in chemical industry, metallurgy, paper making, food, shipbuilding and other industries to be as the opening and closing control devices of media, coupled with pneumatic or electrical device to achieve operation remotely, to ensure the operator safety.



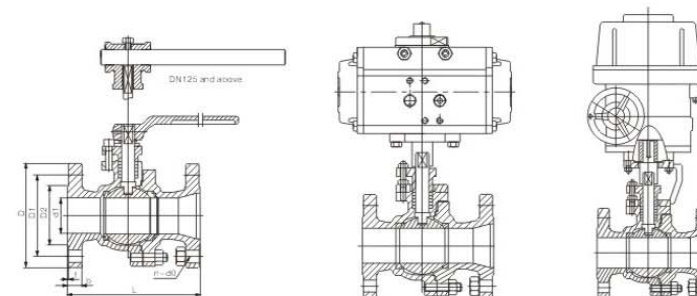
Standard ISO-5211 disk access design facilitate customer replacement operation at any time.

Connection with the implementation of ISO 5211 standard plate



BALL VALVE SERIES

Floating Ball Valve



MAIN CONNECTION DIMENSIONS

PN16

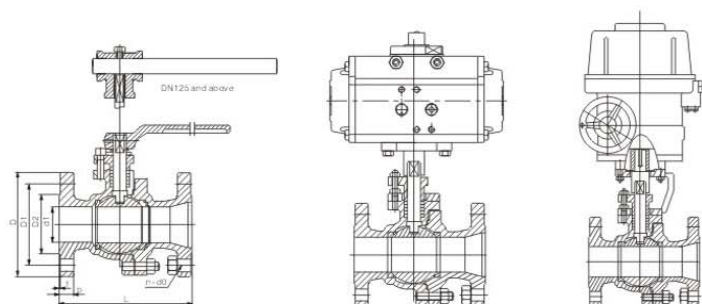
DN	d1	L	D	D1	D2	b	f	n-d0	H
20	20	130	105	75	55	14	2	4-14	75
25	25	140	115	85	65	14	2	4-14	85
32	32	165	140/135	100	78	16	2	4-18	110
40	40	165	150/145	110	85	16	3	4-18	135
50	50	203	165/160	125	100	16	3	4-18	142
65	65	222	185/180	145	120	18	3	4-18	173
80	80	241	200/195	160	135	20	3	8-18	183
100	100	305	220/215	180	155	20	3	8-18	255
125	125	356	250/245	210	185	22	3	8-18	264
150	150	394	285/280	240	210	24	3	8-23	290
200	200	457	340/335	295	265	26	3	12-23	395

PN25

20	20	152	105	75	55	16	2	4-14	75
25	25	165	115	85	65	16	2	4-14	85
32	32	178	140/135	100	78	18	2	4-18	110
40	40	190	150/145	110	85	18	3	4-18	135
50	50	216	165/160	125	100	20	3	4-18	142
65	65	241	185/180	145	120	22	3	8-18	173
80	80	283	200/195	160	135	22	3	8-18	183
100	100	305	230	190	160	24	3	8-23	250
125	125	381	270	220	188	28	3	8-25	315
150	150	403	300	250	218	30	3	8-25	340
200	200	502	360	310	278	34	3	12-25	395

BALL VALVE SERIES

Floating Ball Valve



MAIN CONNECTION DIMENSIONS

PN40

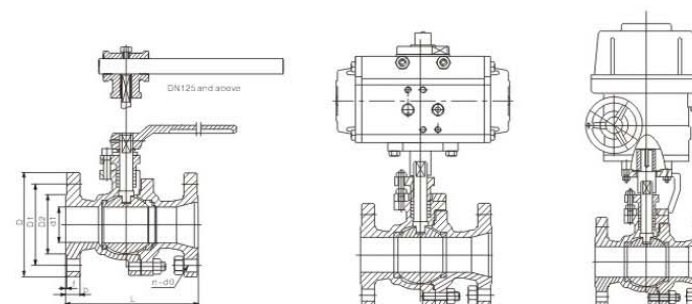
DN	d1	L	D	D1	D2	b	f	n-d0	H	f2	D6
20	20	130	105	75	55	16	2	4-14	75	4	51
25	25	140	115	85	65	16	2	4-14	85	4	58
32	32	165	140/135	100	78	18	2	4-18	110	4	66
40	40	165	150/145	110	85	18	3	4-18	135	4	76
50	50	203	165/160	125	100	20	3	4-18	142	4	88
65	65	222	185/180	145	120	22	3	8-18	173	4	110
80	80	241	200/195	160	135	22	3	8-18	183	4	121
100	100	305	235/230	190	160	24	3	8-23	255	4.5	150
125	125	356	270	220	188	28	3	8-25	264	4.5	176
150	150	394	300	250	218	30	3	8-25	290	4.5	204
200	200	457	375	320	282	38	3	12-30	395	4.5	260

PN64

20	20	190	131/125	90	68	20	2	4-18	75	4	51
25	25	216	140/135	100	78	22	2	4-18	85	4	58
32	32	229	155/15	110	82	24	2	4-23	110	4	66
40	40	241	170/165	125	95	24	3	4-23	135	4	76
50	50	292	180/175	135	105	26	3	4-23	142	4	88
65	65	330	205/200	160	130	28	3	8-23	173	4	110
80	80	356	215/210	170	140	30	3	8-23	183	4	121
100	100	406	250	200	168	32	3	8-25	250	4.5	150
125	125	-	295	240	202	36	3	8-30	315	4.5	176
150	150	495	345/340	280	240	38	3	8-34	340	4.5	204
200	200	597	405	345	300	44	3	12-34	395	4.5	260

BALL VALVE SERIES

Floating Ball Valve



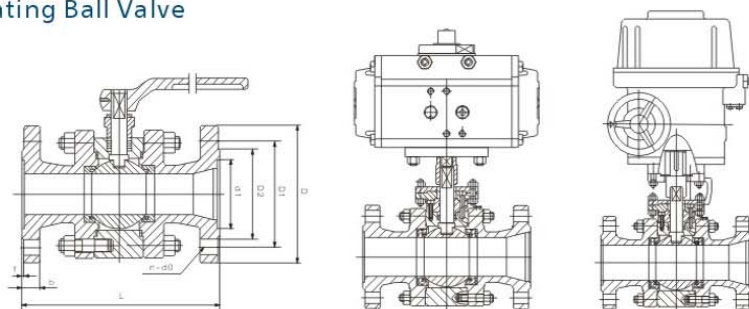
MAIN CONNECTION DIMENSIONS

PN20~110/Class150~600

ANSI	NPS(in)	DN	L	d1	D	D1	D2	n-φ	f	b	H
PN 20	1/2"	15	108	15	89	60.5	35	4-16	1.6	11.5	63
	3/4"	20	117	20	98	70	43	4-16	1.6	11.5	63
	1"	25	127	25	108	79.5	51	4-16	1.6	12	82
	1 1/4"	32	140	32	117	89	64	4-16	1.6	13	94
	1 1/2"	40	165	38	127	98.5	73	4-16	1.6	15	98
	2"	50	178	50	152	120.5	92	4-19	1.6	16	108
	2 1/2"	65	190	65	178	139.5	105	4-19	1.6	18	139.5
	3"	80	203	76	190	152.5	127	4-19	1.6	19	145
	4"	100	229	100	229	190.5	157	8-19	1.6	24	200
	5"	125	356	125	254	216	186	8-22	1.6	24	221
Class 150	6"	150	394	150	279	241.5	216	8-22	1.6	26	256
	8"	200	457	200	343	298.5	270	8-22	1.6	29	334
	10"	250	533	250	406	362	324	12-25	1.6	31	490
	1/2"	15	140	15	95	66.5	35	4-16	1.6	15	63
	3/4"	20	152	20	117	82.5	43	4-19	1.6	16	63
	1"	25	165	25	124	89	51	4-19	1.6	18	82
	1 1/4"	32	178	32	133	98.5	64	4-19	1.6	19	94
	1 1/2"	40	190	38	156	114.5	73	4-22	1.6	21	98
	2"	50	216	50	165	127	92	8-19	1.6	23	108
	2 1/2"	65	241	65	190	149	105	8-22	1.6	26	139.5
PN 50	3"	80	283	76	210	168.5	127	8-22	1.6	29	145
	4"	100	305	100	254	200	157	8-22	1.6	32	200
	5"	125	381	125	279	235	186	8-22	1.6	35	221
	6"	150	403	150	318	270	216	12-22	1.6	37	256
	8"	200	502	200	381	330	270	12-25	1.6	42	334
	1/2"	25	165	15	95	66.5	35	4-16	6.4	15	63
	3/4"	32	190	20	118	82.5	43	4-19	6.4	16	63
	1"	40	216	25	124	89	51	4-19	6.4	18	96
	1 1/4"	50	229	32	133	98.5	64	4-19	6.4	21	105
	1 1/2"	65	241	38	156	114.5	73	4-22	6.4	23	135
PN 110	2"	80	292	50	165	127	92	8-19	6.4	26	153
	2 1/2"	100	330	65	190	149	105	8-22	6.4	29	182
	3"	125	356	76	210	168	127	8-22	6.4	32	205
	4"	150	432	100	273	216	157	8-25	6.4	38	235
	1/2"	25	165	15	95	66.5	35	4-16	6.4	15	63
	3/4"	32	190	20	118	82.5	43	4-19	6.4	16	63
	1"	40	216	25	124	89	51	4-19	6.4	18	96
	1 1/4"	50	229	32	133	98.5	64	4-19	6.4	21	105
	1 1/2"	65	241	38	156	114.5	73	4-22	6.4	23	135
	2"	80	292	50	165	127	92	8-19	6.4	26	153

BALL VALVE SERIES

Floating Ball Valve



MAIN CONNECTION DIMENSIONS

JIS10K-JIS20K

Nominal pressure	Nominal diameter DN	Size (mm)							Weight(kg)		
		L	d1	D	D1	D2	b	f	Z-φd0	Manual	Gearbox
JIS 10K	15	108	14	95	70	51	12	1	4-15	3	-
	20	117	19	100	75	56	14	1	4-15	4	-
	25	127	25	125	90	67	14	1	4-19	5	-
	32	140	32	135	100	76	16	2	4-19	7	-
	40	165	38	140	105	81	16	2	4-19	8	-
	50	178	51	155	120	96	16	2	4-19	12	-
	65	190	64	175	140	116	18	2	4-19	18	-
	80	203	76	185	150	126	18	2	8-19	24	-
	100	229	102	210	175	151	18	2	8-19	38	53
	125	356	127	250	210	192	20	2	8-23	60	79
JIS 20K	150	394	152	280	240	212	22	2	8-23	82	102
	200	457	203	330	290	262	22	2	12-23	145	185
	250	533	254	400	355	324	24	2	12-25	-	280
	15	140	14	95	70	51	14	1	4-15	3	-
	20	152	19	100	75	56	16	1	4-15	5	-
	25	165	25	125	90	67	16	1	4-19	6	-
	32	178	32	135	100	78	18	2	4-19	8	-
	40	190	38	140	105	81	18	2	4-19	11	-
	50	216	51	155	120	96	18	2	8-19	15	-
	65	241	64	175	140	116	20	2	8-19	23	-
JIS 20K	80	283	76	200	160	132	22	2	8-23	33	52
	100	305	102	225	185	160	24	2	8-23	53	76
	125	381	127	270	225	195	26	2	8-25	82	124
	150	403	152	305	280	230	28	2	12-25	120	163
	200	503	203	350	305	275	30	2	12-25	212	267

BALL VALVE SERIES

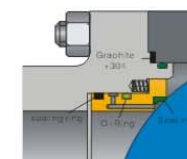
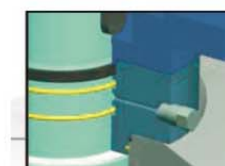
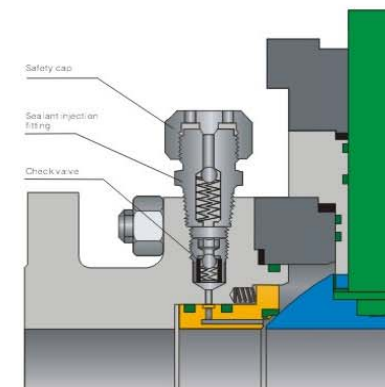
Construction and Features of Trunnion Ball Valve

Urgent Grease Injection Device

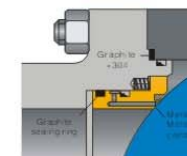
According to customers' requirement, the trunnion ball valves made by company are provided with devices for urgent grease injection, which are on both the stem and seat for the trunnion ball valves of DN>150mm (NPS6). When the O-ring of stem or the body seat ring is damaged due to accident, the medium leakage between seat and stem can be prevented by injecting the sealing grease through the device.

Blow-out Proof Stem

Blow-out proof structure is provided for the stem, which is positioned by the up-end cap and screw, being guaranteed not to be blown-out by the medium even if in abnormal risen pressure in the cavity.



Before Fire



After Fire

Fire Proof Design

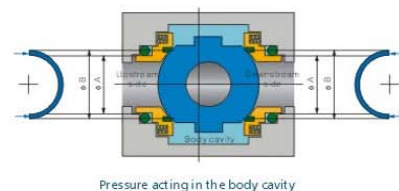
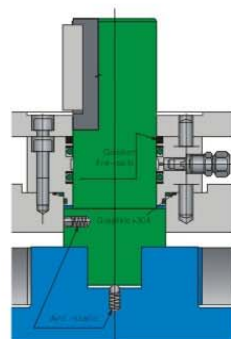
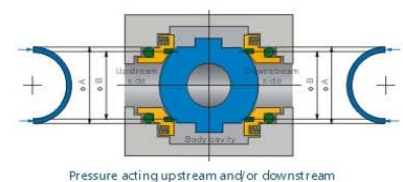
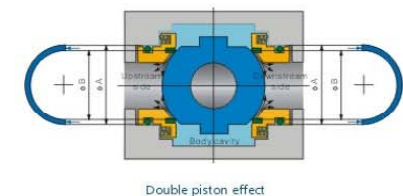
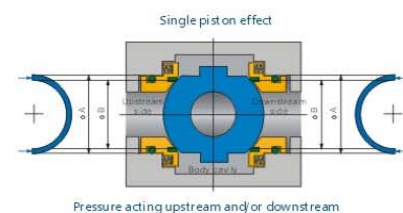
With the valve heated in a fire application, the nonmetal material parts such as seat sealing ring of PTFE, O-ring for the stem, and sealing gasket for body and bonnet, might be damaged due to high temperature. DBV special design of auxiliary metal to metal or the graphite seal is provided for the trunnion ball valve to effectively prevent both internal and external leakage of the valve. As required by customers, DBV fire safe design for the trunnion ball valve meets the requirement of API 607, API 6FA, BS 6755 and JB/T 6899.

BALL VALVE SERIES

Trunnion Mounted Ball Valve

Anti-static Design

By anti-static design, the ball, stem and body of the trunnion mounted ball valve forms a static channel through which the static electricity caused in the switching process of ball and seat will be guided to the ground. Thus it can prevent the valve from the potential fire and explosion risk.



Standard Single Piston Effect (self-relieving Seats)

Fluid pressure, both upstream and downstream, creates a resultant thrust that pushes the seat rings against the ball.

Fluid pressure acting in the body cavity creates a resultant thrust that pushes the seat rings away from the ball.

The single piston design permits the automatic release of any over pressure in the body cavity when the valve is in the fully open or fully closed position, therefore the seat rings are "self-relieving".

Optional Double Piston Effect

Fluid pressure, both upstream and downstream, as well as in the body cavity creates a resultant thrust that pushes the seat rings towards the ball.

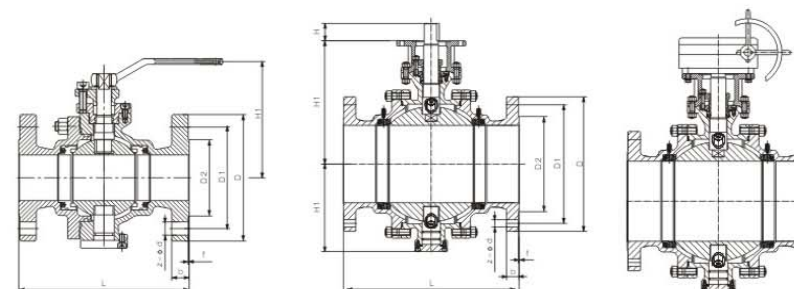
Valves with double piston effect seat rings require a relief valve in order to reduce the build-up of over pressure in the body cavity.

Installing Driving Platform Device

The trunnion ball valve each is equipped with a mounted yoke pad to install driving devices such as worm gear, pneumatic, electric, hydraulic and pneumatic-hydraulic actuators.

BALL VALVE SERIES

Trunnion Mounted Ball Valve

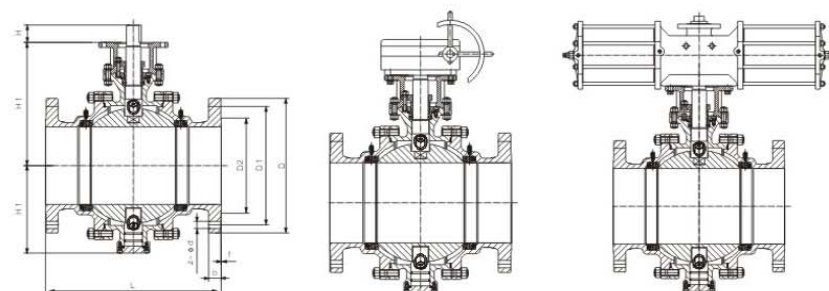


MAIN CONNECTION DIMENSIONS

PN 16

DN (mm)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	203	165	125	102	18	3	4-18	20	96	92
65	222	185	145	122	18	3	8-18	25	125	105
80	241	200	160	138	20	3	8-18	25	150	120
100	305	220	180	158	20	3	8-18	30	200	160
125	356	250	210	188	22	3	8-18	40	220	200
150	394	285	240	212	22	3	8-22	45	245	210
200	457	340	295	268	24	3	12-22	50	280	224
250	533	405	355	320	26	3	12-26	60	320	278
300	610	460	410	378	28	4	17-26	70	337	306
350	686	520	470	438	30	4	16-26	75	374	334
400	762	580	525	490	32	4	16-30	75	408	358
450	864	640	585	550	40	4	20-30	80	439	390
500	914	715	650	610	44	4	20-33	90	492	434
600	1067	840	770	725	54	5	20-36	105	588	523
700	1245	910	840	795	58	5	24-36	115	644	658
800	1372	1025	950	900	62	5	24-39	125	742	746
900	1524	1125	1050	1000	64	5	28-39	140	812	807
1000	1753	1255	1170	1115	68	5	28-42	150	900	898
1200	2134	1485	1390	1330	78	5	32-48	170	1097	1066
1400	2388	1685	1590	1530	84	5	36-48	200	1302	1253

BALL VALVE SERIES Trunnion Mounted Ball Valve

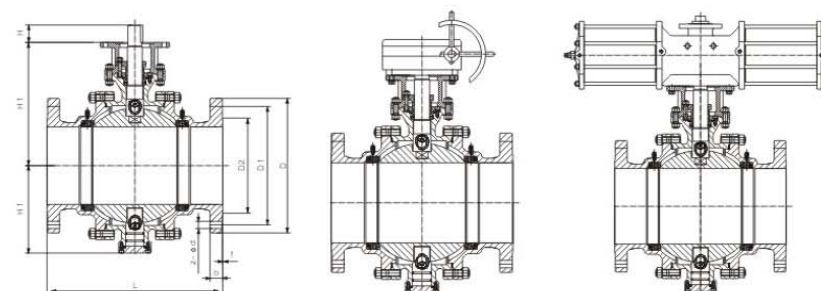


MAIN CONNECTION DIMENSIONS

PN25

DN (mm)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	216	165	125	102	20	3	4-18	20	96	92
65	241	185	145	122	22	3	8-18	25	125	105
80	283	200	160	138	24	3	8-18	25	150	120
100	305	235	190	158	24	3	8-22	30	200	160
125	381	270	220	188	26	3	8-26	40	220	200
150	403	300	250	218	28	3	8-26	45	245	210
200	502	360	310	278	30	3	12-26	50	280	224
250	568	425	370	335	32	3	12-30	60	320	278
300	648	485	430	395	34	4	16-30	70	337	306
350	762	555	490	450	38	4	16-33	75	374	334
400	838	620	550	505	40	4	16-36	75	408	358
450	914	670	600	555	46	4	20-36	80	439	390
500	991	730	660	615	48	4	20-36	90	492	434
600	1143	845	770	720	58	5	20-39	105	588	523
700	1346	960	875	820	60	5	24-42	115	644	658
800	1524	1085	990	930	66	5	24-48	125	742	746
900	1727	1185	1090	1030	70	5	28-48	140	812	807
1000	1930	1320	1210	1140	74	5	28-56	150	900	898
1200	2388	1530	1420	1350	86	5	32-56	170	1097	1066
1400	2642	1755	1640	1560	92	5	36-62	200	1302	1253

BALL VALVE SERIES Trunnion Mounted Ball Valve



MAIN CONNECTION DIMENSIONS

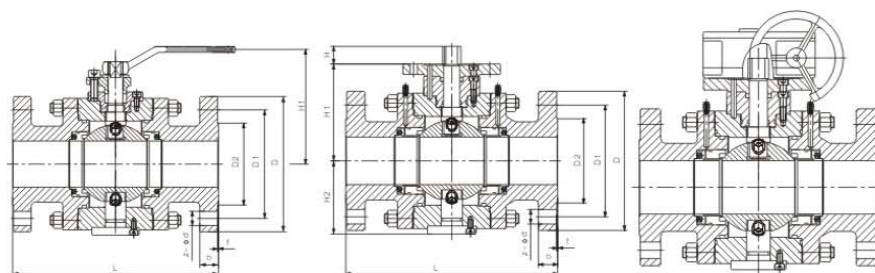
PN40

DN (mm)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	216	165	125	102	20	3	4-18	25	100	95
65	241	185	145	122	22	3	8-18	25	125	105
80	283	200	160	138	24	3	8-18	30	150	120
100	305	235	190	158	24	3	8-22	40	200	160
125	381	270	220	188	26	3	8-26	45	220	200
150	403	300	250	218	28	3	8-26	50	245	210
200	502	375	320	285	34	3	12-30	65	275	230
250	568	450	385	345	38	3	12-33	75	330	295
300	648	515	450	410	42	4	16-33	85	355	330
350	762	580	510	465	46	4	16-36	90	390	345
400	838	660	585	535	50	4	16-39	90	430	390
450	914	685	610	560	57	4	20-39	100	455	410
500	991	755	670	615	57	4	20-42	115	500	465
600	1143	890	895	735	72	5	20-48	135	590	545

PN63

DN (mm)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	292	180	135	102	26	3	4-22	25	102	98
65	330	205	160	122	26	3	8-22	25	130	115
80	356	215	170	138	28	3	8-22	30	165	128
100	406	250	200	158	30	3	8-26	40	210	160
125	432	295	240	188	34	3	8-30	45	230	180
150	495	345	280	218	36	3	8-33	50	250	200
200	597	415	345	285	42	3	12-36	50	288	255
250	673	470	400	345	46	3	12-36	55	330	308
300	762	530	460	410	52	4	16-36	70	378	348
350	826	600	525	465	56	4	16-39	85	394	360
400	902	670	585	535	60	4	16-42	95	430	410

BALL VALVE SERIES Trunnion Mounted Ball Valve



MAIN CONNECTION DIMENSIONS

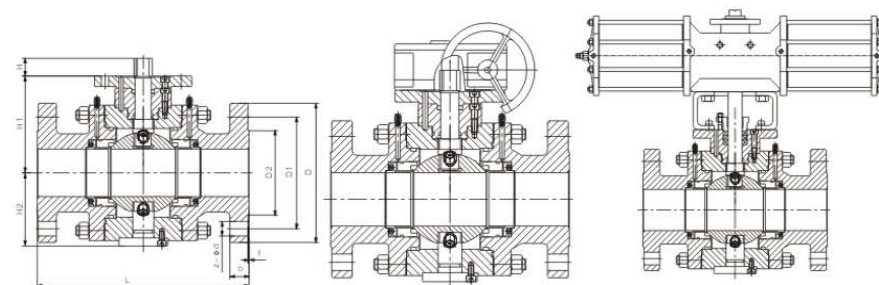
PN1 00

DN(mm)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	292	195	145	102	30	3	4-26	30	102	98
65	330	220	170	122	34	3	8-26	35	130	115
80	356	230	180	138	36	3	8-26	40	165	128
100	432	265	210	158	40	3	8-30	45	210	160
125	508	315	250	188	40	3	8-33	50	230	180
150	559	355	290	218	44	3	12-33	55	250	200
200	660	430	360	285	52	3	12-36	70	288	255
250	787	505	430	345	60	3	12-39	85	330	308
300	838	585	500	410	68	4	16-42	95	378	348
350	909	655	560	465	74	4	16-40	110	394	360

PN160

DN(mm)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	368	195	145	102	30	3	4-26	40	104	103
65	419	220	170	122	34	3	8-26	40	135	115
80	381	230	180	138	36	3	8-26	45	163	132
100	457	265	210	158	40	3	8-30	50	211	169
125	559	315	250	188	44	3	8-33	6	235	185
150	610	355	290	218	50	3	12-33	70	259	213
200	737	430	360	285	60	3	12-36	95	297	264
250	838	515	430	345	68	3	12-42	95	342	333
300	965	585	500	410	78	4	16-42	110	384	379

BALL VALVE SERIES Trunnion Mounted Ball Valve



MAIN CONNECTION DIMENSIONS

PN250

DN(mm)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	368	200	150	102	38	3	8-26	40	106	104
65	419	230	180	122	42	3	8-26	45	135	115
80	470	255	200	138	46	3	8-30	50	167	128
100	546	300	235	158	54	3	8-33	65	179	170
125	673	340	275	188	60	3	12-33	70	210	203
150	705	390	320	218	68	3	12-36	80	260	233
200	832	485	400	285	82	3	12-42	105	304	290
250	991	585	490	345	100	3	16-48	130	363	352
300	1130	690	590	410	120	4	16-52	145	417	425

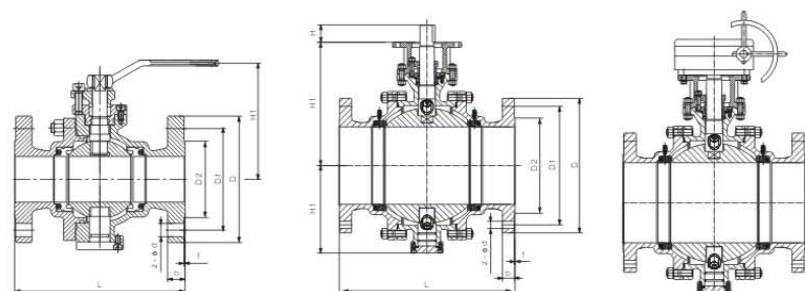
PN320

DN(mm)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	451	210	160	102	42	3	8-26	45	120	127
65	508	255	200	122	51	3	8-30	50	145	153
80	578	275	220	138	55	3	8-30	60	177	198
100	673	335	265	158	65	3	8-36	75	227	233
125	-	380	310	188	75	3	12-36	85	245	245
150	914	425	350	218	84	3	12-39	105	264	252
200	1022	525	440	285	103	3	16-42	130	383	339
250	1270	640	540	345	125	3	16-52	155	453	422

PN400

DN(mm)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	451	235	180	102	52	3	8-30	45	120	127
65	508	290	225	122	64	3	8-33	50	145	153
80	578	305	240	138	68	3	8-33	60	177	198
100	673	370	295	158	80	3	8-39	75	227	233
125	-	415	340	188	92	3	12-39	85	245	245
150	914	475	390	218	105	3	12-42	105	264	252
200	1022	585	490	285	130	3	16-48	130	383	339

BALL VALVE SERIES Trunnion Mounted Ball Valve

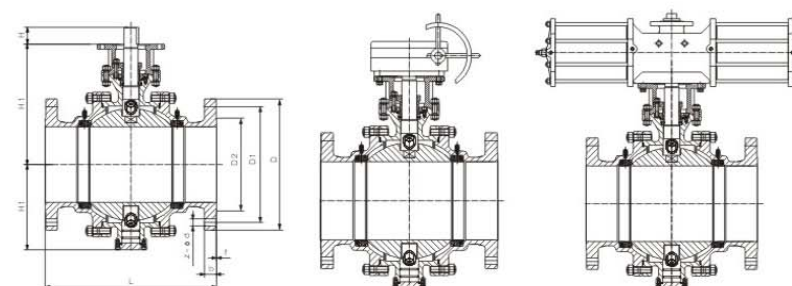


MAIN CONNECTION DIMENSIONS

PN20/Class150

DN(mm)	NPS(in)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	2	178	150	120.7	92.1	14.3	2	4-19	20	96	92
65	2 1/2	191	180	139.7	104.8	15.9	2	4-19	25	125	105
80	3	203	190	152.4	127.0	17.5	2	4-19	25	150	120
100	4	229	230	190.5	157.2	22.3	2	8-19	30	200	160
125	5	356	255	215.9	185.7	22.3	2	8-22	40	220	200
150	6	394	280	241.3	215.9	23.9	2	8-22	45	245	210
200	8	457	345	298.5	269.9	27.0	2	8-22	50	280	224
250	10	533	405	362.0	323.8	28.6	2	12-26	60	320	278
300	12	610	485	431.8	381.0	30.2	2	12-26	70	337	306
350	14	686	535	476.3	412.8	33.4	2	12-29	75	374	334
400	16	762	595	539.8	469.9	35.0	2	16-29	75	408	358
450	18	864	635	577.9	533.4	38.1	2	16-32	80	439	390
500	20	914	700	635.0	584.2	41.3	2	20-32	90	492	434
600	24	1067	815	749.3	692.2	46.1	2	20-35	105	588	523
650	26	1143	870	806.4	749	66.7	2	24-35	110	627	564
700	28	1245	925	863.6	800	69.9	2	28-35	115	644	658
750	30	1295	985	914.4	857	73.1	2	28-35	120	691	704
800	32	1372	1060	977.9	914	79.4	2	28-41	125	742	746
850	34	1473	1110	1028.7	965	81.0	2	32-41	135	759	773
900	36	1524	1170	1085.8	1022	88.9	2	32-41	140	812	807
1000	40	1753	1290	1200.2	1124	88.9	2	36-41	150	900	898
1050	42	1855	1345	1257.3	1194	95.3	2	36-41	160	943	937
1200	48	2134	1510	1422.4	1359	106.4	2	44-41	170	1097	1066
1350	54	2325	1685	1593.8	1511	119.1	2	44-48	185	1150	1120
1400	56	2388	1745	1651	1575	122.3	2	48-48	200	1302	1253
1500	60	2540	1855	1759	1676	130.2	2	52-48	220	1350	1300

BALL VALVE SERIES Trunnion Mounted Ball Valve



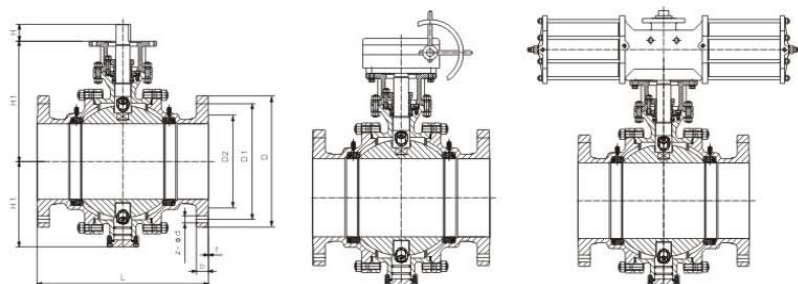
MAIN CONNECTION DIMENSIONS

PN50/Class300

DN(mm)	NPS(in)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	2	216	165	127.0	92.1	20.7	2	8-19	25	100	95
65	2 1/2	241	190	149.2	104.8	23.9	2	8-22	25	125	105
80	3	283	210	168.3	127.0	27.0	2	8-22	30	150	120
100	4	305	255	200.0	157.2	30.2	2	8-22	40	200	160
125	5	381	280	235.0	185.7	33.4	2	8-22	45	220	200
150	6	403	320	269.9	215.9	35	2	12-22	50	245	210
200	8	502	380	330.2	269.9	39.7	2	12-26	65	275	230
250	10	568	445	387.4	323.8	46.1	2	16-29	75	330	295
300	12	648	520	450.8	381.0	49.3	2	16-32	85	355	330
350	14	762	585	514.4	412.8	52.4	2	20-32	90	390	345
400	16	838	650	571.5	469.9	55.6	2	20-35	90	430	390
450	18	914	710	628.6	533.4	58.8	2	24-35	100	455	410
500	20	991	775	685.8	584.2	62.0	2	24-35	115	500	465
600	24	1143	915	812.8	692.2	68.3	2	24-42	135	590	545
650	26	1245	970	876.3	749	77.8	2	28-45	145	630	580
700	28	1346	1035	939.8	800	84.2	2	28-45	150	640	665
750	30	1397	1090	997.0	857	90.5	2	28-48	155	700	730
800	32	1524	1150	1054.1	914	96.9	2	28-51	160	745	765
850	34	1626	1205	1104.9	965	100.1	2	32-51	175	760	800
900	36	1727	1270	1168.4	1022	103.2	2	32-54	190	805	825
1000	40	1930	1240	1155.7	1086	124.0	2	32-45	210	90	920
1050	42	2032	1290	1206.5	1137	129.0	2	32-45	215	968	950
1200	48	2388	1465	1372	1302	146.5	2	32-51	235	1100	1100
1350	54	2578	1660	1549	1467	166.0	2	28-60	250	1225	1210
1400	56	2642	1710	1600	1518	171.0	2	28-60	275	1285	1270
1500	60	2946	1810	1702	1626	181.0	2	32-60	290	1350	1310

BALL VALVE SERIES

Trunnion Mounted Ball Valve



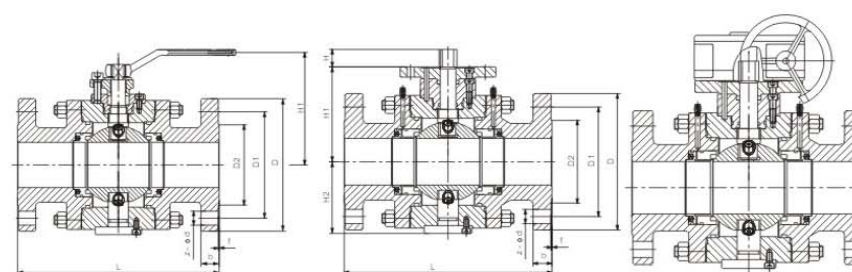
MAIN CONNECTION DIMENSIONS

PN63/Class400

DN(mm)	NPS(in)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	2	292	165	127.0	92.1	25.4	7	8-19	25	102	98
65	2 1/2	330	190	149.2	104.8	28.6	7	8-22	25	130	115
80	3	356	210	168.3	127.0	31.8	7	8-22	30	165	128
100	4	406	255	200.0	157.2	35.0	7	8-22	40	210	160
125	5	457	280	235.0	185.7	38.1	7	8-22	45	230	180
150	6	495	320	269.9	215.9	41.3	7	12-22	50	250	200
200	8	597	380	330.0	269.9	47.7	7	12-26	50	288	255
250	10	673	445	387.4	323.8	54.0	7	16-29	55	330	308
300	12	762	520	450.8	381.0	57.2	7	16-32	70	378	348
350	14	826	585	514.4	412.8	60.4	7	20-32	85	394	360
400	16	902	650	571.5	469.9	63.5	7	20-35	95	430	410
450	18	978	710	628.6	533.4	66.7	7	24-35	110	467	430
500	20	1054	775	685.8	584.2	69.9	7	24-38	120	500	492
600	24	1232	915	812.8	692.2	76.2	7	24-45	130	594	570
650	26	1308	970	876.3	749	88.9	7	28-48	150	630	618
700	28	1397	1035	939.8	800	95.3	7	28-51	180	665	692
750	30	1524	1090	997.0	857	101.6	7	28-54	190	741	800
800	32	1651	1150	1054.1	914	108.0	7	28-54	205	756	804
850	34	1778	1205	1104.9	965	111.2	7	28-54	215	782	817
900	36	1880	1270	1168.4	1022	114.3	7	32-54	225	869	945
1000	40	-	1270	1174.8	1092	130.2	7	32-51	235	916	980
1050	42	-	1320	1225.6	1143	133.4	7	32-51	255	995	1110
1200	48	-	1510	1403.4	1308	152.4	7	28-60	280	1132	1265
1350	54	-	1700	1581.2	1470	169.9	7	28-67	300	1200	1280
1400	56	-	1755	1632.0	1527	174.7	7	32-67	325	1290	1350
1500	60	-	1885	1752.6	1635	185.8	7	32-73	360	1380	1420

BALL VALVE SERIES

Trunnion Mounted Ball Valve



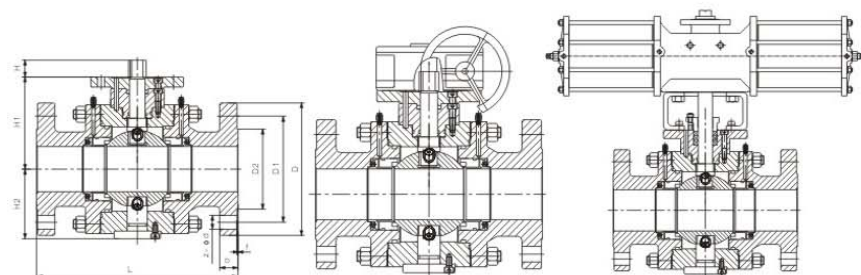
MAIN CONNECTION DIMENSIONS

PN110/Class600

DN(mm)	NPS(in)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	2	292	165	127.0	92.1	25.4	7	8-19	30	102	98
65	2 1/2	330	190	149.2	104.8	28.6	7	8-22	35	130	115
80	3	356	210	168.3	127.0	31.8	7	8-22	40	165	128
100	4	432	275	215.9	157.2	38.1	7	8-26	45	210	160
125	5	508	330	266.7	185.7	44.5	7	8-29	50	230	180
150	6	559	355	292.1	215.9	47.7	7	12-29	55	250	200
200	8	660	420	349.2	269.9	55.6	7	12-32	70	288	255
250	10	787	510	431.8	323.8	63.5	7	16-35	85	330	308
300	12	838	560	489.0	381.0	66.7	7	20-35	95	378	348
350	14	889	605	527.0	412.8	69.9	7	20-39	110	394	360
400	16	991	685	603.2	469.9	76.2	7	20-42	120	430	410
450	18	1092	745	654.0	533.4	82.6	7	20-45	130	467	430
500	20	1194	815	723.9	584.2	88.9	7	20-45	150	500	492
600	24	1397	940	838.2	692.2	101.6	7	24-51	180	594	570
650	26	1448	1015	914.4	749	108.0	7	28-51	190	630	618
700	28	1549	1075	965.2	800	111.2	7	28-54	205	665	692
750	30	1651	1130	1022.1	857	114.3	7	28-54	215	741	800
800	32	1778	1195	1079.5	914	117.5	7	28-60	225	756	804
850	34	1930	1245	1130.3	965	120.7	7	28-60	235	782	817
900	36	2083	1315	1193.8	1022	123.9	7	28-67	255	869	945
1000	40	2337	1320	1212.8	1111	158.8	7	32-60	280	916	980
1050	42	2387	1405	1282.7	1168	168.3	7	28-67	300	995	1110
1200	48	2540	1595	1460.5	1334	189.0	7	32-73	325	1132	1265
1350	54	2635	1780	1632.0	1492	209.6	7	32-80	360	1200	1280
1400	56	2667	1855	1695.4	1543	217.5	7	32-86	395	1290	1350
1500	60	2950	1995	1822.4	1657	233.4	7	28-92	450	1380	1420

BALL VALVE SERIES

Trunnion Mounted Ball Valve



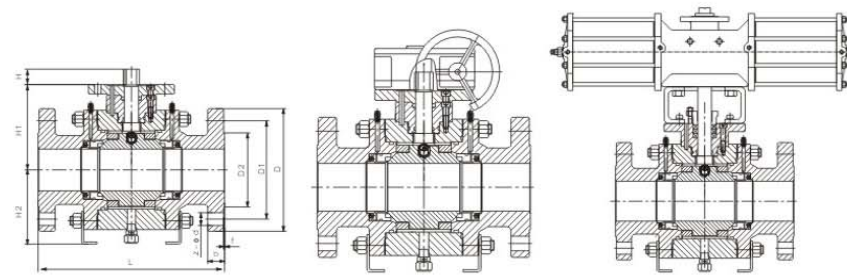
MAIN CONNECTION DIMENSIONS

PN150/Class900

DN(mm)	NPS(in)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	2	368	215	165.1	92.1	38.1	7	8-26	40	104	103
65	2 1/2	419	245	190.5	104.8	41.3	7	8-29	40	135	115
80	3	381	240	190.5	127.0	38.1	7	8-26	45	163	132
100	4	457	290	235.0	157.2	44.5	7	8-32	50	211	169
125	5	-	350	279.4	185.7	50.8	7	8-35	6	235	185
150	6	610	380	317.5	215.9	55.6	7	12-32	70	259	213
200	8	737	470	393.7	269.9	63.5	7	12-39	95	297	264
250	10	838	545	469.9	323.8	69.9	7	16-39	95	342	333
300	12	965	610	533.4	381.0	79.4	7	20-39	110	384	379
350	14	1029	640	568.8	412.8	85.8	7	20-42	120	398	368
400	16	1130	705	616.0	469.9	88.9	7	20-45	145	436	437
450	18	1219	785	685.8	533.4	101.6	7	20-51	165	484	497
500	20	1321	855	749.3	584.2	108.0	7	20-54	200	532	503
600	24	1549	1040	901.7	692.2	139.7	7	20-67	220	617	633
650	26	1651	1085	952.5	749	139.7	7	20-73	230	645	660
700	28	1753	1170	1022.4	800	142.9	7	20-80	245	674	706
750	30	1880	1230	1085.8	857	149.3	7	20-80	260	723	777
800	32	2032	1315	1155.7	914	158.8	7	20-86	270	784	809
850	34	2159	1395	1225.6	965	165.1	7	20-92	285	807	852
900	36	2286	1460	1289.0	1022	171.5	7	20-92	300	848	898
1000	40	2410	1510	1339.8	1162	196.9	7	24-92	330	920	960
1050	42	2515	1560	1390.6	1213	206.4	7	24-92	350	1000	1060
1200	48	2620	1785	1587.5	1384	233.4	7	24-105	400	1140	1200

BALL VALVE SERIES

Trunnion Mounted Ball Valve



MAIN CONNECTION DIMENSIONS

PN260/Class1500

DN(mm)	NPS(in)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	2	368	215	165.1	92.1	38.1	7	8-26	40	106	104
65	2 1/2	419	245	190.5	104.8	41.3	7	8-29	45	135	115
80	3	470	265	203.2	127.0	47.7	7	8-32	50	167	128
100	4	546	310	241.3	157.2	54.0	7	8-35	65	179	170
125	5	-	375	292.1	185.7	73.1	7	8-42	70	210	203
150	6	705	395	317.5	215.9	82.6	7	12-39	80	260	233
200	8	832	485	393.7	269.9	92.1	7	12-45	105	304	290
250	10	991	585	482.6	323.8	108.0	7	12-51	130	363	352
300	12	1130	675	571.5	381.0	123.9	7	16-55	145	417	425
350	14	1257	750	635.0	412.8	133.4	7	16-60	165	437	426
400	16	1384	825	704.8	469.9	146.1	7	16-68	185	475	493
450	18	1537	915	774.7	533.4	162.0	7	16-74	200	563	608
500	20	1664	985	931.8	584.2	177.8	7	16-80	220	617	645
600	24	1943	1170	990.6	692.2	203.2	7	16-94	245	698	724

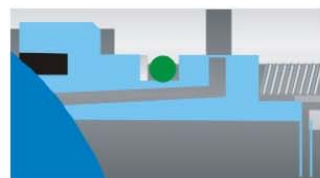
DN(mm)	NPS(in)	L	D	D1	D2	b	f	Z-d	H	H1	H2
50	2	451	235	171.4	92.1	50.9	7	8-29	45	120	127
65	2 1/2	508	265	196.8	104.8	57.2	7	8-32	50	145	153
80	3	578	305	228.6	127.0	66.7	7	8-35	60	177	198
100	4	673	355	273.0	157.2	76.2	7	8-42	75	227	233
125	5	-	420	323.8	185.7	92.1	7	8-48	85	245	245
150	6	914	485	368.3	215.9	108.0	7	8-54	105	264	252
200	8	1022	550	438.2	269.9	127.0	7	12-54	130	383	339
250	10	1270	675	539.8	323.8	165.1	7	12-67	155	453	422
300	12	1422	760	619.1	381.0	184.2	7	12-73	175	520	482

BALL VALVE SERIES

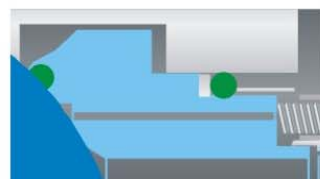
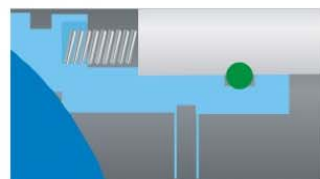
Full-welded Trunnion Pipeline Ball Valve

Structure Features

- Fully welded structure
- Designed in conformity with API 6D
- Floating self-centering seat structure with pre-tensioned spring elements
- Trunnion-mounted ball type
- Low torques
- Free of maintenance sealing structure
- Double block and bleed
- Single piston effect design (SPE) with self-relieving seat
- Optional double piston effect design (DPE)
- Optional sealing structure PMSS
- Dual and single adjustable stem seal
- Secondary sealant injection
- Blow-out protection at trunnions
- Drain and vent connections
- Electrostatic prevention
- Optional stem extension
- Fireproof design in conformity with API 6FA and BS 6755



Sealing system: soft-seated

Sealing system: PMSS, primary metal/metal/
secondary soft-seated

Sealing system: metal to metal

Design

All-welded ball type body structure makes the body light weight. The ideal ball type body can handle the higher pressure and bending moment, able to withstand the high internal and external pressure. Choose different material combinations to ensure that the valve is reliable in corrosive situations, such as acidic gases.

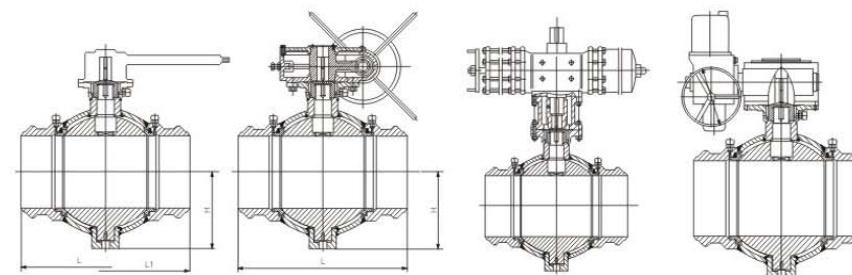
Replaceable Stem Seal

The stem seals on our ball valve can be replaced even when the pipeline is under maximum pressure.

The modular design enables us to provide various stem seal structure to meet your specific requirements.

BALL VALVE SERIES

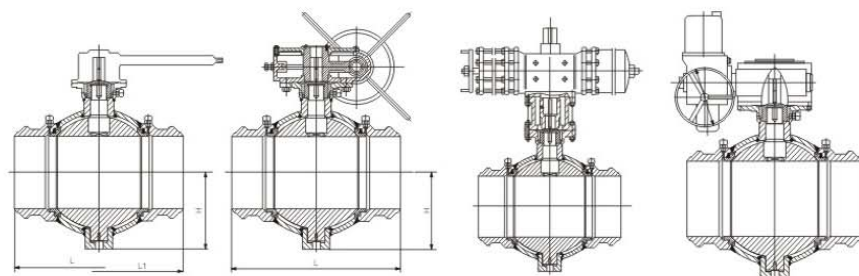
Full-welded Trunnion Pipeline Ball Valve



MAIN CONNECTION DIMENSIONS

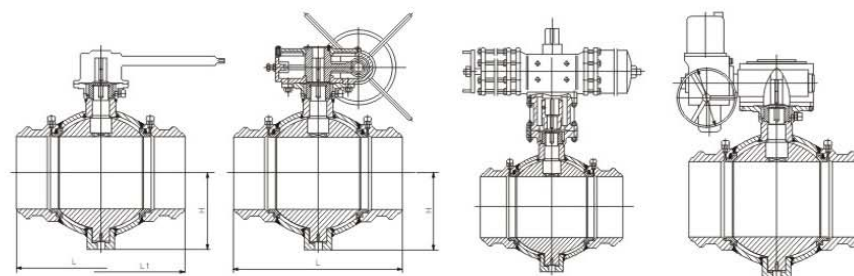
PN16/PN20/Class150

Full Bore		L (RF)	L1 (BW)	C	H	WT(kg)		Torque (N·M)
DN	NPS					Flange	BW	
50	2	178	216	103	100	18	20	57
65	2½	191	241	115	110	22	24.5	71
80	3	203	283	129	130	28	34	95
100	4	229	305	147	151	52	45	192
150	6	394	457	194	201	91	102	485
200	8	457	521	252	254	194	204	832
250	10	533	559	303	308	320	295	1105
300	12	610	635	424	368	549	499	1655
350	14	686	762	450	372	603	558	2695
400	16	762	838	485	407	749	703	3164
450	18	864	914	564	489	1055	998	3793
500	20	914	991	603	529	1501	1252	5500
550	22	991	1092	641	566	1578	1592	6650
600	24	1067	1143	676	602	2096	1932	7529
650	26	1143	1245	752	673	2903	2540	8693
700	28	1245	1346	787	708	3266	2948	10770
750	30	1295	1397	829	750	4309	3992	12365
800	32	1372	1524	860	786	5060	4598	14070
850	34	1473	1626	896	817	6123	5443	21148
900	36	1524	1727	936	858	6972	6577	22987
1000	40	1753	1956	1124	1020	8222	7476	26059
1050	42	1855	2083	1166	1061	9595	8709	28149
1200	48	2134	2388	1271	1166	13556	12437	42776
1400	56	2489	2489	1360	1280	21301	19773	65654
1500	60	2640	2640	1430	1350	--	--	85654
1600	64	--	--	--	--	--	--	--

BALL VALVE SERIES**Full-welded Trunnion Pipeline Ball Valve Spherical Body Type****MAIN CONNECTION DIMENSIONS**

PN25/PN40/PN50/Class300

Full Bore		Unit: mm							
DN	NPS	L (RF)	L1 (BW)	C	H	WT(Kg)		Torque (N · M)	
						Flange	BW		
50	2	216	216	103	100	23	20	99	
65	2½	241	241	115	110	27	29	124	
80	3	283	283	129	130	36	34	212	
100	4	305	305	147	151	57	45	335	
150	6	403	457	194	201	113	102	544	
200	8	502	521	252	254	206	204	1250	
250	10	568	559	303	308	340	295	1736	
300	12	648	635	424	368	578	499	2388	
350	14	762	762	450	372	621	558	3224	
400	16	838	838	485	407	782	703	5139	
450	18	914	914	564	489	1225	998	7970	
500	20	991	991	603	529	1542	1252	10570	
550	22	1092	1092	641	566	1837	1592	12140	
600	24	1143	1143	676	602	2445	1932	17240	
650	26	1245	1245	752	673	3005	2540	20340	
700	28	1346	1346	787	708	3504	2948	25069	
750	30	1397	1397	829	750	4536	3992	27640	
800	32	1524	1524	860	786	5402	4758	29550	
850	34	1626	1626	896	817	6668	5443	31558	
900	36	1727	1727	936	858	7494	7031	35170	
1000	40	1956	1956	1124	1020	9584	8776	39115	
1050	42	2083	2083	1166	1061	11084	9709	42414	
1200	48	2170	2170	1271	1166	15092	13037	71868	
1400	56	2743	2743	1360	1280	22905	20773	108550	

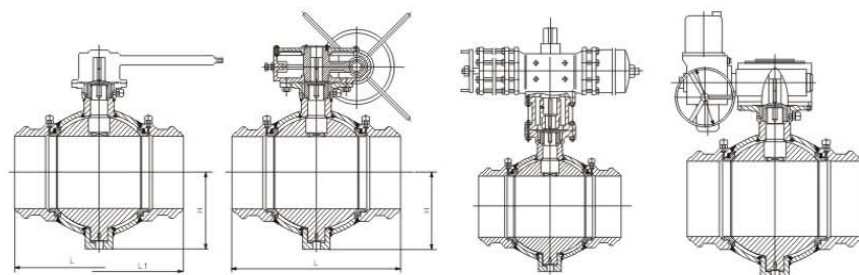
BALL VALVE SERIES**Full-welded Trunnion Pipeline Ball Valve Spherical Body Type****MAIN CONNECTION DIMENSIONS**

PN63/PN64/Class400

Full Bore								Unit: mm	
DN	NPS	L (RF)	L1 (BW)	L2 (RTJ)	C	H	WT(Kg)		Torque (N • M)
							Flange	BW	
50	2	292	292	295	103	100	27	20	124
65	2½	330	330	333	115	112	31	27	155
80	3	356	356	359	129	130	39	34	265
100	4	406	406	410	147	151	68	45	467
150	6	495	495	498	194	201	136	102	650
200	8	597	597	600	252	254	249	204	1806
250	10	673	673	676	303	308	386	295	2638
300	12	762	762	765	424	368	635	499	2929
350	14	826	826	829	450	382	748	558	3971
400	16	902	902	905	528	453	1009	803	6307
450	18	978	978	981	564	489	1293	998	9165
500	20	1054	1054	1060	641	562	1701	1361	12155
550	22	1143	1143	1153	680	600	2155	1792	15175
600	24	1232	1232	1241	716	636	2540	2155	21550
650	26	1308	1308	1321	752	673	3221	2540	25426
700	28	1397	1397	1410	787	708	3883	2948	31336
750	30	1524	1524	1537	829	750	4808	4002	34550
800	32	1651	1651	1667	915	822	5925	4983	36937
850	34	1778	1778	1794	998	894	6985	5679	39447
900	36	1880	1880	1895	1039	935	8165	7131	43962
1000	40	1981	1981	--	1124	1020	11567	10092	48894
1050	42	2057	--	--	1166	1061	13041	11226	50300
1200	48	2311	--	--	1372	1219	17592	15286	80302

BALL VALVE SERIES

Full-welded Trunnion Pipeline Ball Valve Spherical Body Type



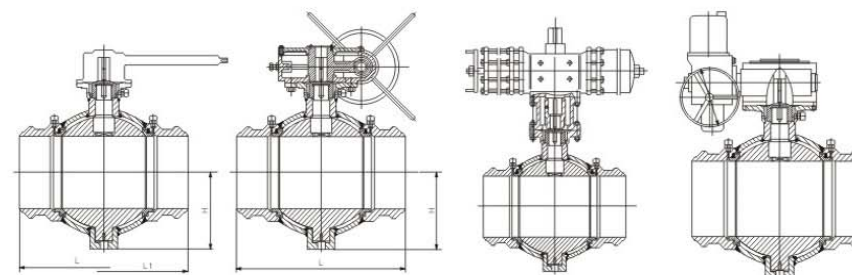
MAIN CONNECTION DIMENSIONS

PN100/PN110/Class600

Full Bore		Unit: mm							
DN	NPS	L (RF)	L1 (BW)	L2 (RTJ)	C	H	WT(Kg)		Torque (N · M)
							Flange	BW	
50	2	292	292	295	103	100	27	20	168
65	2½	330	330	333	115	112	31	25	210
80	3	356	356	359	129	130	39	34	360
100	4	432	432	435	147	151	75	45	572
150	6	559	559	562	194	201	163	102	912
200	8	660	660	664	252	254	295	204	2177
250	10	787	787	791	303	308	454	295	3093
300	12	838	838	841	424	368	685	499	4282
350	14	889	889	892	450	382	866	558	7458
400	16	991	991	994	528	453	1089	803	9310
450	18	1092	1092	1095	564	489	1340	998	14693
500	20	1194	1194	1200	641	562	1860	1361	20011
550	22	1295	1295	1305	680	600	2449	1792	24785
600	24	1397	1397	1407	716	636	2971	2155	31226
650	26	1448	1448	1461	752	673	3538	2540	35184
700	28	1549	1549	1562	889	784	4309	3039	38987
750	30	1651	1651	1664	931	826	5443	4137	41832
800	32	1778	1778	1794	958	860	6285	4850	63865
850	34	1930	1930	1946	998	894	7269	5579	71720
900	36	2083	2083	2099	1039	935	8664	7031	89020
1000	40	2337	2337	2366	1220	1067	12143	10433	109900
1050	42	2439	2439	2467	1262	1109	13835	11567	121165
1200	48	2540	2540	2540	1435	1300	18511	15011	145345
1400	56	2949	2949	2949	1615	1505	27858	25358	169230

BALL VALVE SERIES

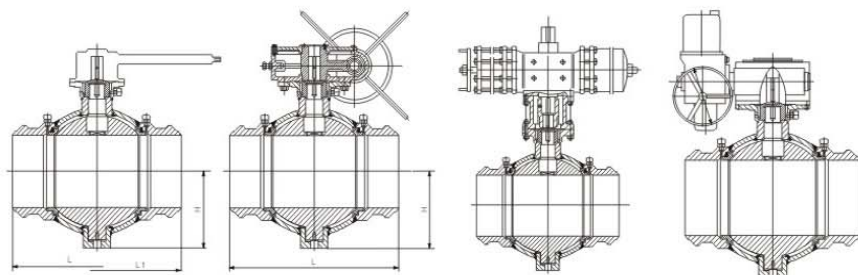
Full-welded Trunnion Pipeline Ball Valve Spherical Body Type



MAIN CONNECTION DIMENSIONS

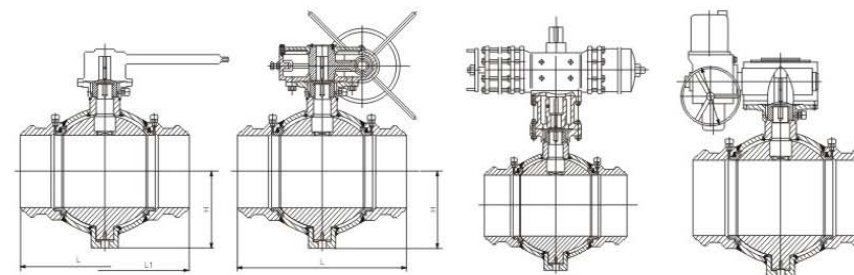
PN150/PN160/Class900

Full Bore		Unit: mm							
DN	NPS	L (RF)	L1 (BW)	L2 (RTJ)	C	H	WT(Kg)		Torque (N · M)
							Flange	BW	
50	2	368	368	371	103	100	45	20	228
65	2½	419	419	422	116	110	53	35	263
80	3	381	381	384	131	124	64	54	512
100	4	457	457	460	168	172	113	86	946
150	6	610	610	613	209	213	238	186	1784
200	8	737	737	740	252	254	549	268	4116
250	10	838	838	841	382	327	601	458	5910
300	12	965	965	968	424	368	1021	612	10137
350	14	1029	1029	1038	522	442	1474	977	14141
400	16	1130	1130	1140	563	483	1814	1111	18866
450	18	1219	1219	1232	604	524	2404	1792	22400
500	20	1321	1321	1334	742	615	3221	2381	28544
550	22	--	--	--	--	--	--	--	--
600	24	1549	1549	1568	817	713	4763	2926	43276
650	26	1651	1651	1673	845	743	5285	3245	48580
700	28	1753	1753	1775	882	880	6511	4230	60000
750	30	1880	1880	1902	931	826	7938	5216	76000
800	32	2032	2032	2054	1003	905	9037	6355	90195
850	34	2159	2159	2188	1058	940	10357	7486	100460
900	36	2286	2286	2315	1134	981	11612	8538	131875

BALL VALVE SERIES**Full-welded Trunnion Pipeline Ball Valve Spherical Body Type****MAIN CONNECTION DIMENSIONS**

PN250/PN260/Class1500

Full Bore		Unit: mm							
DN	NPS	L (RF)	L1 (BW)	L2 (RTJ)	C	H	WT(Kg)		Torque (N · M)
							Flange	BW	
50	2	368	368	371	103	100	45	20	390
65	2½	419	419	422	115	110	62	35	448
80	3	470	470	473	131	124	82	54	931
100	4	546	546	549	168	172	136	86	1524
150	6	705	705	711	209	213	324	186	2934
200	8	832	832	841	342	278	703	488	7215
250	10	991	991	1000	405	385	907	714	10990
300	12	1130	1130	1146	452	440	1474	828	16103
350	14	1257	1257	1276	522	442	1905	1157	24518
400	16	1384	1384	1407	563	483	2449	1338	29630
450	18	1537	1537	1559	704	576	2880	2325	34392
500	20	1664	1664	1686	742	615	4200	2733	40918
550	22	--	--	--	--	--	--	--	--
600	24	--	--	1972	817	713	7371	4264	65351

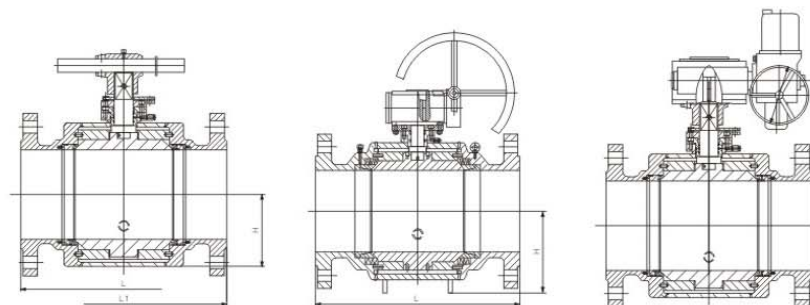
BALL VALVE SERIES**Full-welded Trunnion Pipeline Ball Valve Spherical Body Type****MAIN CONNECTION DIMENSIONS**

PN420/Class2500

Full Bore		Unit: mm							
DN	NPS	L (RF)	L1 (BW)	L2 (RTJ)	C	H	WT(Kg)		Torque (N · M)
							Flange	BW	
50	2	451	451	454	119	115	52	43	589
65	2½	508	508	514	130	128	78	62	736
80	3	578	578	584	145	144	107	85	1577
100	4	673	673	683	175	184	214	173	1965
150	6	914	914	927	318	248	428	334	5501
200	8	1022	1022	1038	391	326	950	760	11786
250	10	1270	1270	1292	459	378	1325	983	13222
300	12	1422	1422	1445	498	423	2044	1478	20075

BALL VALVE SERIES

Tube Shape Body Full Welded Trunnion Ball Valve

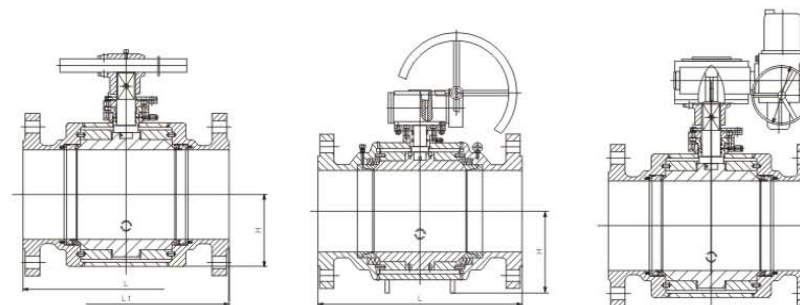
**MAIN CONNECTION DIMENSIONS**

PN16/PN20/Class150

Full Bore							Unit: mm
DN	NPS	L (RF)	L1 (BW)	C	H	WT(Kg)	Torque (N · M)
50	2	178	216	105	100	28	57
65	2 1/2	191	241	130	110	39	71
80	3	203	283	155	125	49	95
100	4	229	305	200	160	88	192
150	6	394	457	250	185	160	485
200	8	457	521	278	222	248	832
250	10	533	559	323	280	379	1105
300	12	610	635	340	303	571	1655
350	14	686	762	375	330	759	2695
400	16	762	838	410	355	1150	3164
450	18	864	914	440	390	1192	3793
500	20	914	991	495	430	1769	5500
550	22	991	1092	525	475	2367	6650
600	24	1067	1143	585	520	3450	7529
650	26	1143	1245	630	560	4050	8693
700	28	1245	1346	645	650	4830	10770
750	30	1295	1397	690	700	5960	12365
800	32	1372	1524	740	745	7480	14070
850	34	1473	1626	760	775	8032	21148
900	36	1524	1727	810	805	9100	22987
1000	40	1753	1956	895	900	14100	26059
1050	42	1790	2083	950	935	15320	28149
1200	48	1995	2388	1095	1070	22000	42776
1400	56	2489	2489	1300	1250	34150	65654
1500	60	2640	2640	1380	1350	42500	85654
1600	64						

BALL VALVE SERIES

Tube Shape Body Full Welded Trunnion Ball Valve

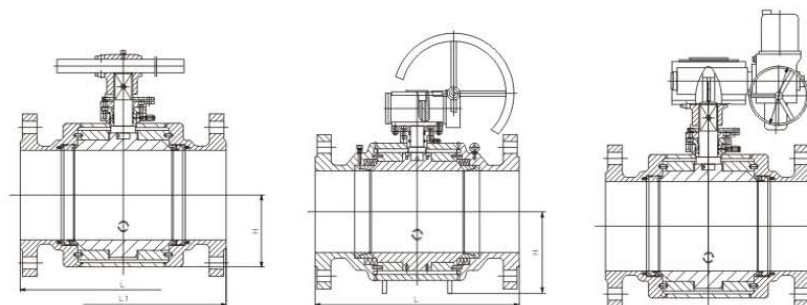
**MAIN CONNECTION DIMENSIONS**

PN25/PN40/PN50/Class300

Full Bore							Unit: mm
DN	NPS	L (RF)	L1 (BW)	C	H	WT(Kg)	Torque (N · M)
50	2	216	216	105	100	29	99
65	2 1/2	241	241	130	110	40	124
80	3	283	283	155	125	57	212
100	4	305	305	200	160	97	335
150	6	403	457	250	203	185	544
200	8	502	521	278	232	287	1250
250	10	568	559	333	298	507	1736
300	12	648	635	360	333	740	2388
350	14	762	762	395	350	1038	3224
400	16	838	838	433	398	1452	5139
450	18	914	914	460	410	1648	7970
500	20	991	991	505	470	2207	10570
550	22	1092	1092	530	485	2797	12140
600	24	1143	1143	590	550	3940	17240
650	26	1245	1245	635	585	4670	20340
700	28	1346	1346	645	670	5780	25069
750	30	1397	1397	700	730	6600	27640
800	32	1524	1524	750	770	7940	29550
850	34	1626	1626	760	800	9100	31558
900	36	1727	1727	810	825	10150	35170
1000	40	1956	1956	905	920	13800	39115
1050	42	2083	2083	960	955	16120	42414
1200	48	2170	2170	1100	1105	24070	71868
1400	56	2743	2743	1300	1275	38200	108550

BALL VALVE SERIES

Tube Shape Body Full Welded Trunnion Ball Valve

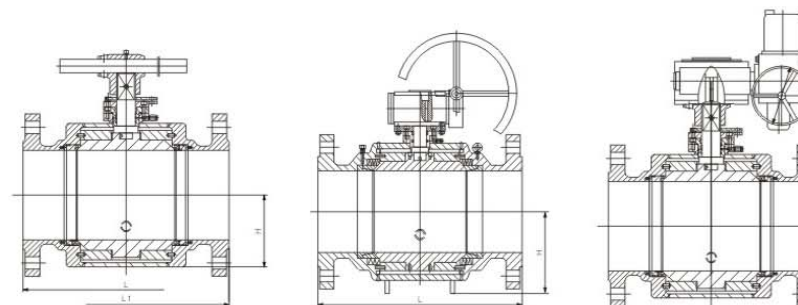
**MAIN CONNECTION DIMENSIONS**

PN63/PN64/Class400

Full Bore							Unit: mm	
DN	NPS	L (RF)	L1 (BW)	L2 (RTJ)	C	H	WT(kg)	Torque (N·M)
50	2	292	292	295	105	100	25	124
65	2½	330	330	333	135	115	35	155
80	3	356	356	359	165	130	56	265
100	4	406	406	410	210	162	90	467
150	6	495	495	498	243	203	249	650
200	8	597	597	600	285	257	458	1806
250	10	673	673	676	323	310	676	2638
300	12	762	762	765	370	350	939	2929
350	14	826	826	829	385	360	1166	3971
400	16	902	902	905	428	413	1397	6307
450	18	978	978	981	465	430	1960	9165
500	20	1054	1054	1060	500	490	2649	12155
550	22	1143	1143	1153	540	510	3286	15175
600	24	1232	1232	1241	590	570	3936	21550
650	26	1308	1308	1321	630	620	4990	25426
700	28	1397	1397	1410	660	690	5718	31336
750	30	1524	1524	1537	705	750	6850	34550
800	32	1651	1651	1667	748	780	7766	36937
850	34	1778	1778	1794	775	815	9507	39447
900	36	1880	1880	1895	810	840	11077	43962
1000	40	2250	2250	--	910	940	14138	48894
1050	42	--	--	--	965	980	16679	50300
1200	48	--	--	--	1100	1120	23179	80302

BALL VALVE SERIES

Tube Shape Body Full Welded Trunnion Ball Valve

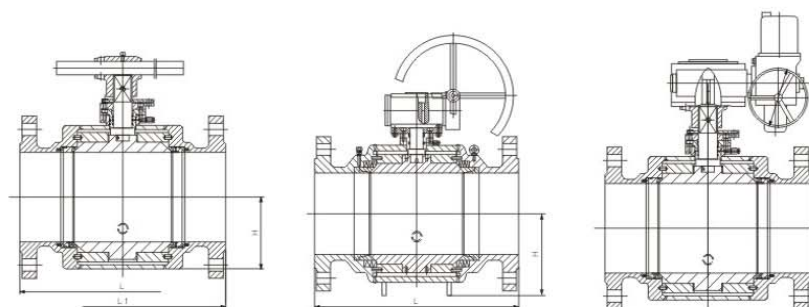
**MAIN CONNECTION DIMENSIONS**

PN100/PN110/Class600

Full Bore							Unit: mm	
DN	NPS	L (RF)	L1 (BW)	L2 (RTJ)	C	H	WT(kg)	Torque (N·M)
50	2	292	292	295	105	100	33	168
65	2½	330	330	333	135	115	43	210
80	3	356	356	359	165	130	64	360
100	4	432	432	435	210	162	124	572
150	6	559	559	562	253	203	255	912
200	8	660	660	664	290	257	487	2177
250	10	787	787	791	333	310	760	3093
300	12	838	838	841	380	350	984	4282
350	14	889	889	892	395	360	1266	7458
400	16	991	991	994	433	413	1532	9310
450	18	1092	1092	1095	470	430	2097	14693
500	20	1194	1194	1200	505	490	2640	20011
550	22	1295	1295	1305	545	510	3790	24785
600	24	1397	1397	1407	595	570	4740	31226
650	26	1448	1448	1461	635	620	5650	35184
700	28	1549	1549	1562	665	690	6760	38987
750	30	1651	1651	1664	710	750	8380	41832
800	32	1778	1778	1794	755	780	9740	63865
850	34	1930	1930	1946	780	815	11340	71720
900	36	2083	2083	2099	815	840	13300	89020
1000	40	2337	2337	2366	915	940	18340	109900
1050	42	2439	2439	2467	970	980	21550	121165
1200	48	2540	2540	2540	1105	1120	31500	145345
1400	56	2949	2949	2949	1300	1290	48050	169230

BALL VALVE SERIES

Tube Shape Body Full Welded Trunnion Ball Valve

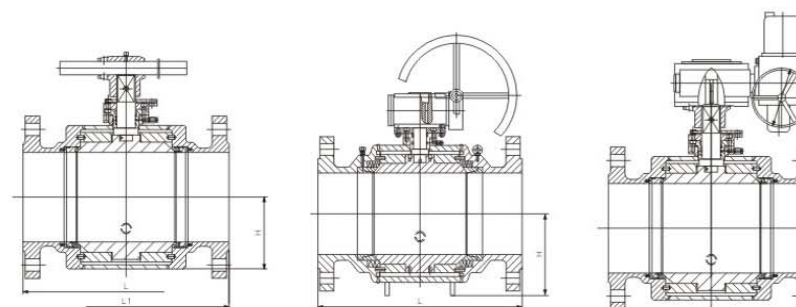
**MAIN CONNECTION DIMENSIONS**

PN150/PN160/Class900

Full Bore								Unit: mm
DN	NPS	L (RF)	L1 (BW)	L2 (RTJ)	C	H	WT(kg)	Torque (N·M)
50	2	368	368	371	105	110	50	228
65	2½	419	419	422	135	118	61	263
80	3	381	381	384	165	130	76	512
100	4	457	457	460	210	167	150	946
150	6	610	610	613	260	251	367	1784
200	8	737	737	740	295	280	600	4116
250	10	838	838	841	345	340	1027	5910
300	12	965	965	968	384	390	1558	10137
350	14	1029	1029	1038	400	442	1765	14141
400	16	1130	1130	1140	440	490	2157	18866
450	18	1219	1219	1232	482	500	2860	22400
500	20	1321	1321	1334	530	500	4220	28544
550	22	--	--	--	--	--	--	--
600	24	1549	1549	1568	615	630	7150	43276
650	26	1651	1651	1673	650	650	8040	48580
700	28	1753	1753	1775	670	710	10840	60000
750	30	1880	1880	1902	725	780	12210	76000
800	32	2032	2032	2054	785	810	14992	90195
850	34	2159	2159	2188	805	850	17230	100460
900	36	2286	2286	2315	845	900	19920	131875
1000	40	2283	2100	2311	955	980	24251	--
1050	42	2438	2200	2461	986	990	28660	--
1200	48	2769	2300	2797	1150	1199	36156	--

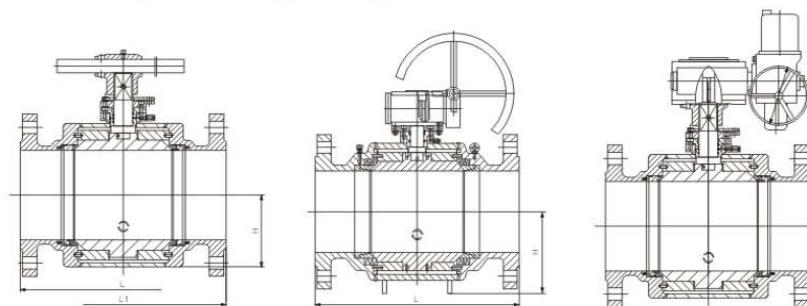
BALL VALVE SERIES

Tube Shape Body Full Welded Trunnion Ball Valve

**MAIN CONNECTION DIMENSIONS**

PN250/PN260/Class1500

Full Bore								Unit: mm
DN	NPS	L (RF)	L1 (BW)	L2 (RTJ)	C	H	WT(kg)	Torque (N·M)
50	2	368	368	371	105	105	53	390
65	2½	419	419	422	138	120	63	448
80	3	470	470	473	165	130	98	931
100	4	546	546	549	215	167	200	1524
150	6	705	705	711	260	270	485	2934
200	8	832	832	841	300	300	827	7215
250	10	991	991	1000	365	360	1507	10990
300	12	1130	1130	1146	420	423	2272	16103
350	14	1257	1257	1276	440	460	2880	24518
400	16	1384	1384	1407	480	510	4120	29630
450	18	1537	1537	1559	550	600	6260	34392
500	20	1664	1664	1686	620	650	9120	40918
550	22	--	--	--	--	--	--	--
600	24	--	--	1972	700	720	14320	65351

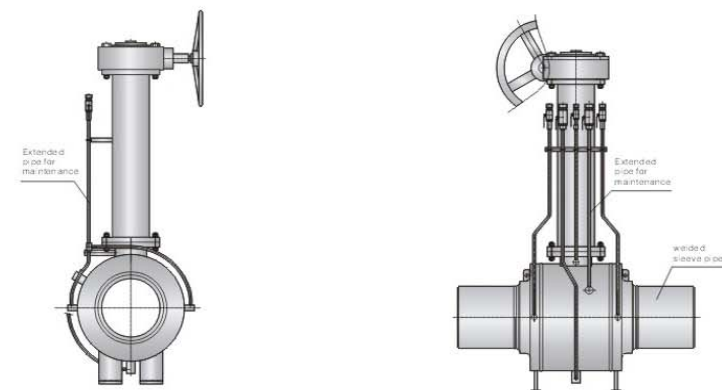
BALL VALVE SERIES**Direct Buried (Buried) Style Fully Welded Ball Valve****MAIN CONNECTION DIMENSIONS**

PN420/Class2500

Full Bore

Unit: mm

DN	NPS	L (RF)	L1 (BW)	L2 (RTJ)	C	H	WT(kg)	Torque (N·M)
50	2	451	451	454	120	125	90	589
65	2 1/2	508	508	514	140	160	152	736
80	3	578	578	584	175	200	200	1577
100	4	673	673	683	225	230	385	1965
150	6	914	914	927	260	250	778	5501
200	8	1022	1022	1038	380	340	1352	11786
250	10	1270	1270	1292	450	425	2137	13222
300	12	1422	1422	1445	515	480	3267	20075

BALL VALVE SERIES**Direct Buried (Buried) Style Fully Welded Ball Valve****Valve design for buried working situation**

For buried valves, we use extended stem and pipe for maintaining use(vent pipe of the two sides port+ injection pipe of the two side seats+ drain pipe of the body) and control valve to realize the purpose of operating the valve upper the ground. The valve is protected by tar painting or epoxy and also taking measures such as jumper and cathode protection to adjust to the buried using circumstance.

Feature

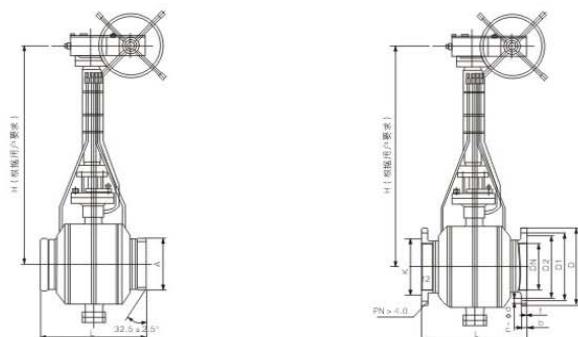
The simple structure of the tube type body makes it easy to assemble and to make the mold needed to produce the blank. Also this ensures the convenience to fix the ball with the support plate.

Welding Type of the Tube Shape Body

3pc body is connected by welding two symmetrical vertical seams or 2pc body is connected by welding one vertical seam. Characteristic: this structure has a wonderful structure which is convenient to assemble the stem part, and it is quite suitable for the full-welded valve with a large diameter.

BALL VALVE SERIES

Direct Buried (Buried) Style Fully Welded Ball Valve



MAIN CONNECTION DIMENSIONS

1.6MPa

Nominal Diameter	Butt welding connection size(mm)		Flange connection dimension(mm)								
	L	A	L	D	D1	D2	b	f	K	f2	n-φd
50	216	65	178	165	125	99	16	2	-	-	4-18
65	241	80	190	185	145	118	18	2	-	-	4-18
80	283	95	203	200	160	132	20	2	-	-	8-18
100	305	115	229	220	180	156	22	2	-	-	8-18
150	457	165	394	285	240	211	24	2	-	-	8-22
200	521	225	457	340	295	266	24	2	-	-	12-22
250	559	280	533	405	355	319	26	2	-	-	12-26
300	635	330	610	460	410	370	28	2	-	-	12-26
350	762	385	686	520	470	429	30	2	-	-	16-26
400	838	440	762	580	525	480	32	2	-	-	16-26
450	914	490	864	640	585	548	40	2	-	-	16-30
500	991	550	914	715	650	609	44	2	-	-	20-30
600	1143	660	1067	715	650	609	44	2	-	-	20-33
700	1346	765	1245	960	820	820	50	5	-	-	20-36
800	1524	870	1372	1085	928	928	54	5	-	-	24-36
900	1727	970	1524	1185	1028	1028	58	5	-	-	24-39
1000	1780	1080	1721	1320	1140	1140	62	5	-	-	28-39
1200	2100	1290	2032	1530	1350	1350	70	5	-	-	28-42
1400	2250	1500	2300	1755	1560	1560	76	5	-	-	32-48

BALL VALVE SERIES

Cryogenic Ball Valve

Structure Characteristics

1, The materials of compression parts can endure the expansion and shrinkage resulted from the temperature variation of medium, and seal structure is away from permanent deformation under temperature changes. To work under the conditions below -100°C, the parts of valve shall be subject to sub-zero treatment before finishing machining. Namely, have the parts cooled in liquid nitrogen box, when the temperature of parts reaches -196°C, keep the temperature for 1-2h, then take them out to have them to the normal temperature naturally, and do in this way twice.

2, Bonnet is shaped long-necked for the purpose to protect the function of packing box, making packing box somewhat away from low temperature to ensure good seal of packing. Besides, it can be wound with cold insulating materials to prevent loss of cold energy.

The length of neck(H, see the page 49) depends on service temperature and the thickness of cold insulating material. When the seal effect of packing turns lower, fill in grease to form up oil seal layer in the middle of packing box (see combined packing structure) to lower the differential pressure of packing box and enhance the dependability of seal.

3, To serve a temperature below -100°C, the material of valve stem shall be treated with chrome plating or nitriding to enhance the surface hardness of valve stem and the dependability of packing.

4, Cryogenic ball valve takes a structure to avoid abnormal pressure rise. As the medium in cryogenic valve is gasified and rapidly expanded in volume, the pressure will go extremely high. When the pressure in the middle cavity of valve rises, the middle cavity and the inlet side can be communicated, or a relief can be mounted at the inlet side of valve, thus to ensure the safe use of valves.

5, The gaskets used on cryogenic ball valves may function dependable seal and restoration under normal and cryogenic or under the conditions of temperature changes.

Purpose

Cryogenic ball valves are mainly used in the chemical equipment of ethylene and LNG etc. to handle cryogenic liquid medium like ethylene, liquid oxygen, liquid hydrogen and so on. These types of inflammable and explosive medium can be volumetrically expanded by several hundred times when being gasified under temperature rise, and are difficult to manufacture due to their highly penetrative and leaky properties.

Technical Specifications

Standard	GB	API
Design codes	GB/T 12227	ASME B16.34
Applications of cryogenic technology	JB/T 7794	BS6364
Pressure-temperature rating	GB/T 12224	ANSI B16.34
Face to face dimension	GB/T 12221	ASME B16.10
Flange	GB/T 9113/HG 20596	ASME B16.5
Test and Inspection	JB/T 9092*	API 598*

*Cryogenic ball valves shall be subject to pressure test under low temperature after under normal temperature, with its principle shown at the diaphragm of cryogenic ball valves.

BALL VALVE SERIES

Cryogenic Ball Valve

Main Parts And Materials

Part Name	Material
Body	Cast steel, Cast stainless steel
Bonnet	Cast steel, Cast stainless steel
Stem	Martensitic stainless steel, Austenitic stainless steel
Ball	Martensitic stainless steel, Austenitic stainless steel
Seal ring	Reinforced PTFE, Carbon fibre, PEEK

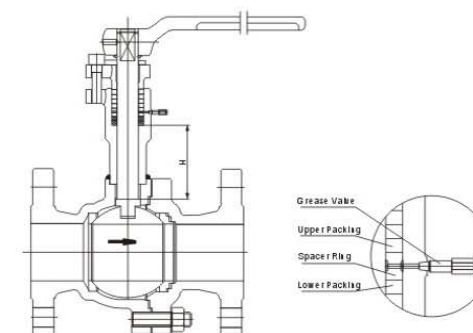
Extended Neck Dimensions of the Cryogenic Ball Valve Bonnet (for reference)

Nominal Size		Neck Dimension (mm)			Nominal Size		Pressure
DN	NPS	≥-60℃	≥-100℃	<-100℃	DN	in	PN1.6-10.0MPa 150Lb., 300Lb.
15	1/2	90	110	130	15	1/2	△/●
20	3/4	100	110	140	20	3/4	△/●
25	1	100	120	150	25	1	△/●
32	1 1/4	110	120	150	32	1 1/4	△/●
40	1 1/2	110	130	160	40	1 1/2	△/●
50	2	110	130	170	50	2	△/★/●
65	2 1/2	120	140	180	65	2 1/2	△/★/●
80	3	120	150	190	80	3	△/★/●
100	4	130	160	200	100	4	△/★/●
125	5	130	160	200	125	5	△/★/●
150	6	140	170	220	150	6	△/★/●
200	8	140	170	220	200	8	△/★/●
250	10	150	180	240	250	10	△/★/●
300	12	150	180	240	300	12	△/★/●
350	14	160	190	250	350	14	△/★/●
400	16	160	190	250	400	16	△/★/●

Note: ★ Stands for electrical operated valves; △ Stands for pneumatic operated valves;
 ● Stands for lever operated valves;
 Those not covered in the table can be made according to users' requirements.

BALL VALVE SERIES

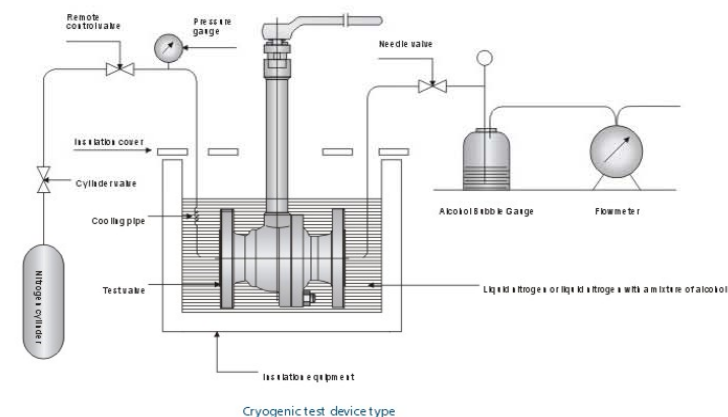
Cryogenic Ball Valve



Double packing combination chart

Pressure Test of Cryogenic Ball Valve

According to the requirements of certain standards, the test of cryogenic ball valves shall be carried out under both normal and cryogenic. With its principle as following:



Cryogenic test device type

Main External Dimensions & Weight

The main overall connection dimensions of cryogenic ball valve may be referred to side-mounted floating ball valve and trunnion ball valve, which adding with the extended neck length to be the cryogenic ball valve length, so dimension list is omitted here.

BALL VALVE SERIES

Eccentric Half Ball Valve

Product Overview

Eccentric half ball valve is developed based on absorbing from the overseas' wafer large flow through valve, the structure is eccentric-tight principle through transmission gear to achieve the purpose of tightening, adjusting and closing. Vice-seal is metal surface ring with hard surface contact sealing. In double eccentric structure valve ball will be located in ball storing room and make the flow cross-section large and the valve will not be washed. When closed the valve ball will not be washed and when open the valve ball surface will be asymptotic along valve seat to remove the scaling obstacles and achieve reliable seal. It is effective especially to the mixed flow transportation separated out of two mixed flowing scaling solids. The second feature is that the half ball of valve is double metal and different alloy surfacing on the base metal, the valve seat is also surfacing by special treatment to form different kinds of sealing surface of anti-corrosion, wear-resistant,

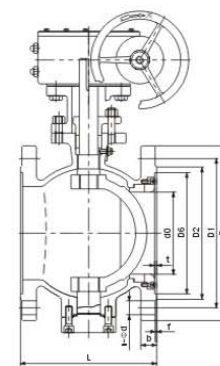
high-strength and so on to meet the needs of different occasions. The third feature is tight seal to achieve zero leakage at transmission of harmful gases. The forth feature is that the spool of vice seal trim is left with compensation amount. After the valve seat is wore (the hardness of valve seat is lower than that of the valve ball), when moving a little after closing, the seal will be still reliable to extend the useful life. Besides, the valve is still useful when the users screw off the pressed nut or adjust or change the valve seat to avoid the short-coming of whole unit valve discarded due to steel invalidation for many existing valves. So surfacing different alloy (or assembly ball) double metal vice-seal can be applied to different industrial sectors of wear-resistant, corrosion-resistant, high temperature and so on as well as strictly seal requirements.

Technical Specifications

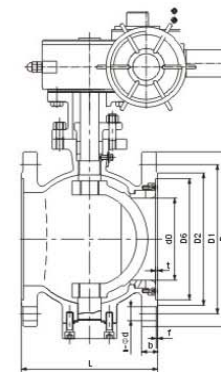
Design Standard	GB/T12237
Face to Face Dimensions	GB/T12221
Flange Dimension	GB/T9113
Test and Inspection	JB/T9092

BALL VALVE SERIES

Eccentric Half Ball Valve



Worm gear operated



Electric driven

MAIN CONNECTION DIMENSIONS

PN0.6MPa

DN	L	D	D1	D2	f	b	n-Φd
50	178	140	110	90	3	16	4-14
65	190	160	130	110	3	16	4-14
80	203	185	150	125	3	18	4-18
100	229	205	170	145	3	18	4-18
125	254	235	200	175	3	20	8-18
150	267	260	225	200	3	20	8-18
200	292	315	280	255	3	22	8-18
250	330	370	335	310	3	24	12-18
300	502	435	395	362	4	24	12-23
350	575	485	445	412	4	26	12-23
400	610	535	495	462	4	28	16-23
450	660	590	550	518	4	28	16-23
500	711	640	600	568	4	30	16-23
600	787	755	705	670	5	30	20-26
700	990	860	810	775	5	32	24-26
800	1000	975	920	880	5	32	24-30

BALL VALVE SERIES

Eccentric Half Ball Valve

MAIN EXTERNAL DIMENSIONS								PN1.0MPa				PN1.6MPa											
DN	L	D	D1	D2	f	b	n-Φd	DN	L	D	D1	D2	f	b	n-Φd	DN	L	D	D1	D2	f	b	n-Φd
50	178	160	125	100	3	18	4-18	50	178	160	125	100	3	16	4-18	50	178	160	125	100	3	16	4-18
65	190	180	145	120	3	20	4-18	65	190	180	145	120	3	18	4-18	65	190	180	145	120	3	18	4-18
80	203	195	160	135	3	20	4-18	80	203	195	160	135	3	20	8-18	80	203	195	160	135	3	20	8-18
100	229	215	180	155	3	22	8-18	100	229	215	180	155	3	20	8-18	100	229	215	180	155	3	20	8-18
125	254	245	210	185	3	24	8-18	125	254	248	210	185	3	22	8-18	125	254	248	210	185	3	22	8-18
150	267	280	240	210	3	24	8-23	150	267	280	240	210	3	24	8-23	150	267	280	240	210	3	24	8-23
200	292	335	295	265	3	24	8-23	200	267	335	295	265	3	26	12-23	200	267	335	295	265	3	26	12-23
250	330	390	350	320	3	26	12-23	250	292	405	355	320	3	30	12-26	250	292	405	355	320	3	30	12-26
300	502	440	400	368	4	28	12-23	300	330	460	410	375	4	30	12-26	300	330	460	410	375	4	30	12-26
350	572	500	460	428	4	28	16-23	350	502	520	470	435	4	34	16-26	350	502	520	470	435	4	34	16-26
400	610	565	515	482	4	30	16-26	400	572	580	525	485	4	36	16-30	400	572	580	525	485	4	36	16-30
450	660	615	565	532	4	30	20-26	450	610	640	585	545	4	40	20-30	450	610	640	585	545	4	40	20-30
500	711	670	620	585	4	32	20-26	500	660	705	650	608	5	44	20-34	500	660	705	650	608	5	44	20-34
600	787	780	725	685	5	36	20-30	600	711	840	770	718	5	48	20-41	600	711	840	770	718	5	48	20-41
700	900	895	840	800	5	38	24-30	700	787	910	840	788	5	50	24-41	700	787	910	840	788	5	50	24-41
800	1000	1010	950	905	5	42	24-34	800	900	1020	950	898	5	52	24-41	800	900	1020	950	898	5	52	24-41
								900	1000	1120	1050	998	5	54	28-41	900	1000	1120	1050	998	5	54	28-41
								1000	1100	1255	1170	1110	5	56	28-42	1000	1100	1255	1170	1110	5	56	28-42

PN2.5MPa								PN4.0MPa									
DN	L	D	D1	D2	f	b	n-Φd	DN	L	D	D1	D2	D6	f	t	b	n-Φd
50	178	160	125	100	3	20	4-18	50	178	160	125	100	88	3	4	20	4-18
65	190	180	145	120	3	22	8-18	65	190	180	145	120	110	3	4	22	8-18
80	203	195	160	135	3	22	8-18	80	203	195	160	135	121	3	4	22	8-18
100	229	230	190	160	3	24	8-23	100	229	230	190	160	150	3	4.5	24	8-23
125	254	270	220	188	3	28	8-26	125	254	270	220	188	176	3	4.5	28	8-26
150	267	300	250	218	3	30	8-26	150	267	330	250	218	204	3	4.5	30	8-26
200	292	360	310	278	3	34	12-26	200	292	375	320	282	260	3	4.5	38	12-30
250	330	425	370	332	3	36	12-30	250	330	445	385	345	313	3	4.5	42	12-34
300	502	485	430	390	4	40	16-30	300	502	510	450	405	364	4	4.5	46	16-34
350	572	550	490	448	4	44	16-34	350	572	570	510	465	422	4	5	52	16-34
400	610	610	550	505	4	48	16-34	400	610	655	585	535	474	4	5	58	16-41
450	660	660	600	555	4	50	20-34	450	660	680	610	560	524	4	5	60	20-41
500	711	730	660	610	4	52	20-41	500	711	755	670	612	576	4	5	62	20-48
600	787	840	770	718	5	56	20-41	600	787	890	795	730	678	5	6	62	20-54
700	900	955	875	815	5	60	24-48	700	900	995	900	835	768	5	6	68	24-54
800	1000	1070	990	930	5	64	24-48	800	1000	1135	1030	960	876	5	6	76	24-58
900	1100	1180	1090	1025	5	66	28-48										
1000	1200	1305	1210	1140	5	68	28-58										

BALL VALVE SERIES

V Type Ball Valve

Application

V notch ball valve is quarter turn control valve mainly recommended for throttle service, but it is also applicable for switch valve. V type ball is in V-notch design with strong cutting force and self-cleanness, especially suitable for control of medium containing fibre and tiny solids. Therefore, it is widely used in the self-control systems in industries such as paper, petrochemistry, petroleum, chemical fibre, power, metallurgy, pharmacy, environmental protection etc.

Spring Loaded Valve Seat

Pretightened spring loaded seat keeps valve seat and ball in constant close contact, therefore, good sealing performance is assured even at a long differential pressure with greatly extended service life. PTFE soft seat and metal seat are available for different media and temperature..

One-Piece Valve Body

One-piece valve body prevents potential leakage path caused by flange connection.

Spline Connection Between Shaft And Ball

Ball and shaft are connected by spline, which keeps good neutral position with large load bearing capacity and long service life. It also eliminates the room between the stem and ball, and the dead band phenomenon is prevented with enhanced control precision.

V-notch Ball and Automatic Sliding Bearings

Specially designed V-notch ball provides equal percentage flow characteristic with high precision control performance as well as strong cutting force and self-cleanness function. Upper and lower shaft are fixed by double bearings with good stability. Bearings are in composite material, and loaded surfaces are sintered with superior abrasion resistant and self-lubricating function, which prevents valve seizing up during service life.

Low Capacity

For customers' flow applications, low capacity valves are available with DN25 for precise control. Non-standard flanges are needed for connection with DN20 and DN15 pipe.

Nominal Diameter(mm): 25, 32, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600

Nominal Pressure rating: 1.0, 1.6, 2.5, 4.0, 6.4 (MPa) ANSI 150LB, 300LB.

Connection Type: Wafer connection for DN25~250, flanged connection for DN25-600.

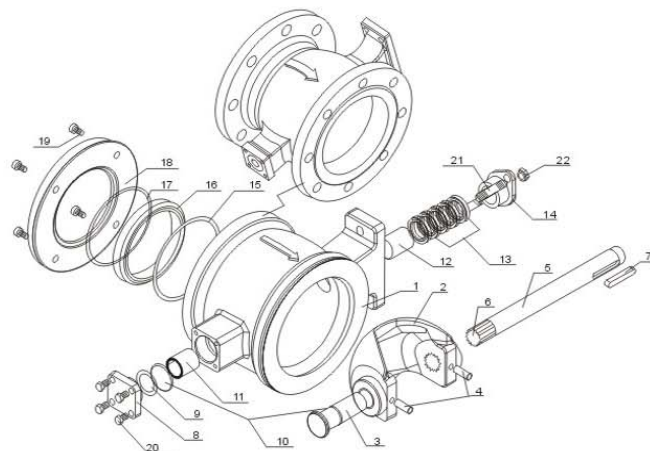
Working temperature: -20~160°C (Normal Temp.), -20~230°C (Medium Temp.), -20~450°C (High Temp.).

Pressure test: Each DBV valve undergoes hydraulic test with 1.5X pressure rating as shell test pressure and 1.0X pressure rating as tightness test pressure. Testing medium is water.

Leakage: V notch ball valve with maximum allowable leakage as following, equal to 2% of maximum leakage of ANSI/FCL 70.2 Class IV.

BALL VALVE SERIES

V Type Ball Valve



Parts List

No.	Name	Qty (Pcs)	Material	No.	Name	Qty (Pcs)	Material
1	Body	1	WCB, CF8, CF8M	12	Self-lubricating bearing	1	Composite material
2	Ball	1	CF8/CF8M ball with 10mm pinning or 12mm pinning	13	Packing	Lgroup	PTFE
3	Lower shaft	1	17-4PH, SS316	14	Packing Gland	1	CF8
4	Cylindrical pin	2	SS304, SS316	15	O-ring	1	Viton
5	Upper shaft	1	17-4PH, SS316	16	Seat	1	CF8/CF8M ball with 10mm pinning or 12mm pinning
6	Spline	1	17-4PH, SS316	17	Sealing spring	1	SS316
7	Flat key	1	SS304, 45#	18	Retainer	1	Q235, SS304, SS316
8	Gland	1	CF8, CF8M	19	Hex. head screw	4	SS304
9	O-ring	1	Viton	20	Hexagon screw	4	SS304
10	Gasket	1/each	PTFE	21	Stud	2	SS304
11	Self-lubricating bearing	1	Composite material	22	Hexagon nut	2	SS304

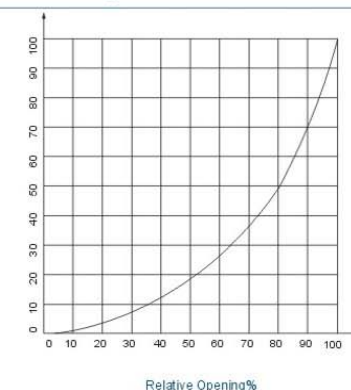
BALL VALVE SERIES

V Type Ball Valve

Maximum Allowable Leakage

DN	Metal-seated	PTFE-seated
25	2.0ml/min	0.20ml/min
32	2.4ml/min	0.24ml/min
40	3.0ml/min	0.30ml/min
50	3.8ml/min	0.38ml/min
65	5.2ml/min	0.52ml/min
80	6.2ml/min	0.62ml/min
100	7.6ml/min	0.76ml/min
125	9.6ml/min	0.96ml/min
150	12.0ml/min	1.20ml/min
200	15.4ml/min	1.54ml/min
250	19.2ml/min	1.92ml/min
300	24.0ml/min	2.40ml/min
350	30.0ml/min	3.00ml/min
400	34.0ml/min	3.40ml/min

Equal Percentage Inherent Flow Characteristic.



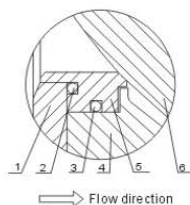
Maximum Allowable Differential Pressure And Rated Cv

DN	Wafer connection		Flanged connection		Rated Cv
	Max. shut off dp (bar)	Max. control dp (bar)	Max. shut off dp (bar)	Max. control dp (bar)	
25	50	35	40	35	27
32	50	35	40	35	47
40	50	35	40	35	70
50	50	35	40	35	110
65	50	35	40	35	170
80	50	35	40	35	180
100	40	25	40	25	410
125	40	25	40	25	750
150	40	25	40	25	980
200	35	25	35	25	1720
250	35	20	35	20	2900
300			30	10	3800
350			30	10	7000
400			30	10	9800
450			30	10	12000
500			30	10	23000

BALL VALVE SERIES

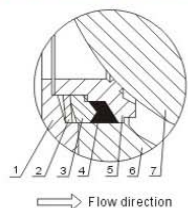
V Type Ball Valve

Three Different Seal Constructions



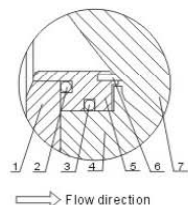
NO.	Name	Temp.Range °C
1	Retainer	
2	Spring	
3	O-ring	
4	Valve-body	-20~160
5	Metal seat	-20~230
6	Ball	

Metal-seated for high temp. application



NO.	Name	Temp.Range °C
1	Retainer	
2	Bellevill spring	
3	Plunge ring	
4	Graphite ring	-20~425
5	Metal seat	
6	Body	
7	Ball	

PTFE-seated

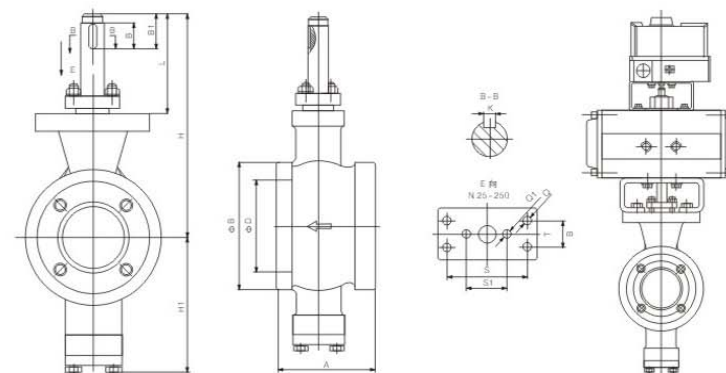


NO.	Name	Temp.Range °C
1	Retainer	
2	Spring	
3	O-ring	
4	Body	-20~160
5	Metal seat	
6	PTFE	
7	Ball	



BALL VALVE SERIES

V Type Ball Valve

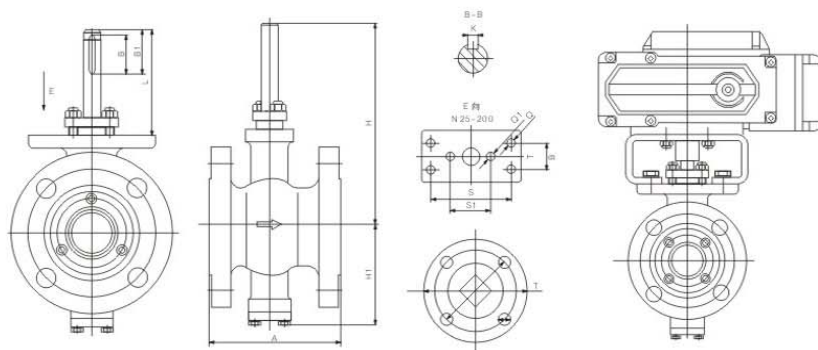


Dimensions Of Wafer Type Connection Valve

DN mm	Outline Dimensions (mm)							Connection Dimensions (mm)						
	A	H	L	H1	φD	φB	Q1	B1	B	K	S1	S	Q	T
25	50	190	115	87	38	64	M8x2	45	32	5	50	63	M8x4	95
32	60	197	117	87	42	78	M10x2	45	35	5	65	76	M8x4	100
40	60	200	115	87	50	82	M10x2	45	35	5	65	76	M8x4	100
50	75	200	115	97	60	100	M10x2	45	35	5	65	76	M8x4	100
65	85	220	110	112	75	120	M12x2	50	36	5	75	79	M8x4	100
80	100	239	124	112	94	130	M12x2	50	41	6	75	94	M8x4	120
100	115	252	122	122	110	158	M12x2	55	42	6	80	95	M10x4	125
125	135	262	123	142	135	180	M14x2	55	53	8	90	108	M10x4	130
150	160	307	128	165	165	216	M16x2	65	56	10	95	112	M12x4	140
200	200	330	130	195	210	268	M16x2	65	55	10	100	120	M12x4	150
250	240	380	145	237	260	325	M16x2	75	55	12	100	120	M12x4	150

BALL VALVE SERIES

V Type Ball Valve



Dimensions Of Flanged Type Connection Valve

DN mm	Outline Dimensions(mm)					Connection Dimensions(mm)						
	A	H	L	H1	Q1	B1	B	K	S1	S	Q	T
25	102	190	115	87	M8x2	45	32	5	50	63	M8x4	95
32	102	197	117	87	M8x2	45	32	5	50	63	M8x4	95
40	114	200	115	87	M10x2	45	35	5	65	76	M8x4	100
50	124	200	115	97	M10x2	45	35	5	65	76	M8x4	100
65	145	220	110	112	M12x2	45	36	5	75	79	M8x4	100
80	165	239	124	112	M12x2	45	41	6	75	94	M8x4	120
100	194	252	122	122	M12x2	45	42	6	80	95	M10x4	125
125	213	262	123	142	M14x2	45	53	8	90	108	M10x4	130
150	229	307	128	165	M16x2	55	56	10	95	112	M12x4	150
200	243	330	130	195	M16x2	65	55	10	100	120	M12x4	150
250	297	380	145	237	M16x4	75	/	12	/	155	M16x4	180
300	338	432	153	281	M16x4	80	/	12	/	170	M16x4	200
350	400	545	199	338	M16x4	80	/	16	/	190	M16x4	220
400	400	660	264	390	M16x4	105	/	18	/	190	M16x4	220
450	432	700	262	422	M16x4	105	/	20	/	210	M16x4	250
500	520	770	260	510	M16x4	105	/	22	/	213	M16x4	250

BALL VALVE SERIES

Three Way Ball Valve

Ball Valve Purpose

Three way ball valves are used for switching, mixing and separating the flow of corrosive or non corrosive liquid, gas or power mediums -46°C ~ +200°C. Upon opening and closing, the smooth flow channel reduces less pressure loss, making operation quite labor-saving and maintenance fairly easy. The five types of flow direction (figure on the right, 1 for L-shaped and 4 for T-shaped) meet different technological requirements. It can be handy, pneumatic and electrically operated.

Structural Characteristics

- 1, Valve seat can be designed into four-side floating ball and trunnion ball, with smooth fluid and reliable seal;
- 2, The structure may be designed into side installed type and jacket installed type, with bi-directional seal, no flow switching of flow direction.
- 3, Blow out proof design of valve stem;
- 4, Antistatic design;
- 5, Two position (ON and OFF) lockup design.

Technical Specifications

Design Standard	GB/T12237
Face to Face Dimension	GB/T12221
Flanged End Dimension	GB/T9113
Test and Inspection	JB/T9092

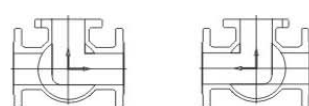
Main Parts And Materials

Part Name	Material
Body	Cast steel, Cast stainless steel
Bonnet	Cast steel, Cast stainless steel
Stem	Martensitic stainless steel, Austenitic stainless steel
Sealing	Martensitic stainless steel, Austenitic stainless steel

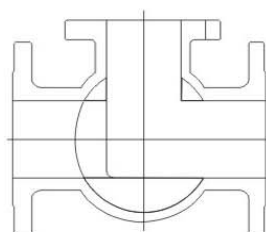
BALL VALVE SERIES

Three Way Ball Valve

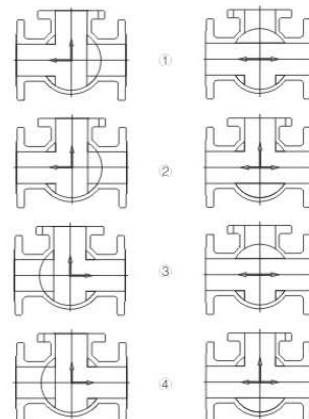
Diagram Of Medium Circulation Of The Three Way Ball Valve



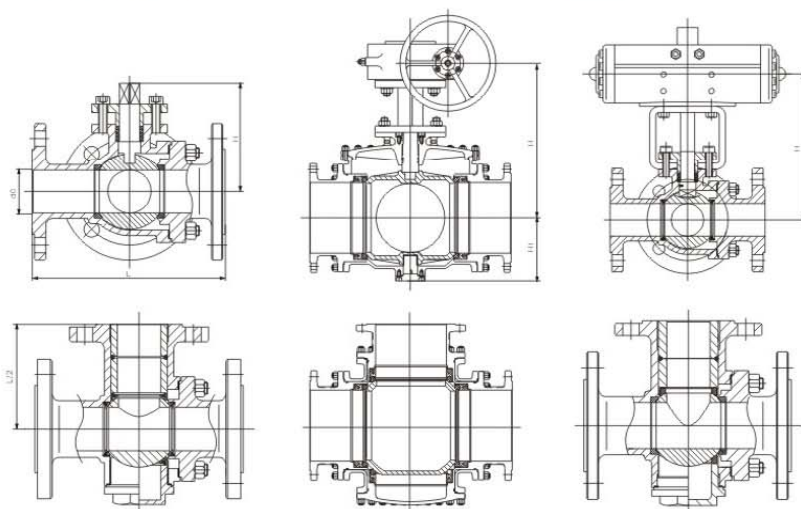
"L" type Ported



Real line:"T" type ported
Broken line:"L" type ported



"T" type Ported



BALL VALVE SERIES

Three Way Ball Valve

Main External Dimensions

PN16/PN20/Class150

DN	NPS	L	d0	H	H1	Weight (kg)
15	1/2	140	13	90	70	3
20	3/4	150	15	106	86	4
25	1	160	25	109	88	6
32	1 1/4	---	32	125	106	10
40	1 1/2	210	38	149	132	14
50	2	220	51	154	137	20
65	1 1/2	250	64	189	162	25
80	3	260	76	198	170	32
100	4	330	102	254	229	45
125	5	430	127	273	247	---
150	6	510	152	---	---	---
200	8	580	203	---	---	---
250	10	670	250	---	---	---

PN25/PN40/PN50/Class300

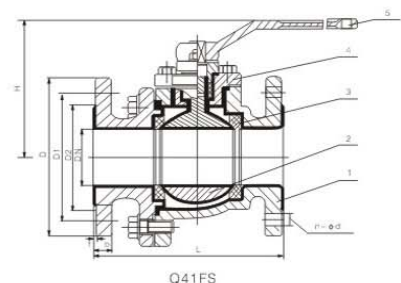
DN	NPS	L	d0	H	H1	Weight (kg)	
						PN2.5MPa	PN4.0MPa
15	1/2	140	13	90	70	3	3
20	3/4	150	15	106	86	4	4
25	1	160	25	109	88	6.5	6.5
32	1 1/4	---	32	125	106	11	11
40	1 1/2	210	38	149	132	15	15
50	2	220	51	154	137	21.5	21.5
65	1 1/2	250	64	189	162	---	---
80	3	260	76	198	170	35	35
100	4	330	102	254	229	49	49
125	5	430	127	273	247	---	---
150	6	510	152	---	---	---	---
200	8	580	203	---	---	---	---
250	10	670	250	---	---	---	---

BALL VALVE SERIES

Fluorine Lined Ball Valve

TECHNICAL SPECIFICATIONS

Design spec	GB12237
Face to face	GB12221
Flange ends	GB4216
Test and inspection	GB 13927
Marking	GB 12220
Supply	GB 7928



MAIN PARTS AND MATERIALS

NO	Name of parts	Cast steel	Stainless acid resistant cast steel		Stainless acid resistant cast steel	
		C	P	R	PL	RL
1	Body	WCB	CF8	CF8M	CF3	CF3M
2	Ball	WCB	1Cr18Ni9Ti	1Cr18Ni12Mo2Ti	00Cr18Ni10	00Cr17Ni14Mo2
3	Lining			FEP PFA F46		
4	Sealing			PTFE		
5	Wrench lever, worm-gear			Carbon steel		

MAIN DIMENSIONS AND WEIGHT

Nominal pressure	Working pressure	Diameter		D	D1	D2	b	N-φd	f	H	Weight kg/kilos
		mm	inch								
1.0	1.6	15	1/2	95	65	45	14	4-13.5	3	95	4
		20	3/4	105	75	55	16	4-13.5	3	98	4.5
		25	1	115	85	65	16	4-13.5	3	103	4
		32	1 1/4	140	100	78	18	4-17.5	3	120	7
		40	1 1/2	150	110	85	18	4-17.5	3	125	9
		50	2	165	125	100	20	4-17.5	3	137	15
1.0	1.0	65	2 1/2	185	145	120	20	4-17.5	3	145	19
		80	3	200	160	135	22	4-17.5	3	185	30
		100	4	220	180	155	24	8-17.5	3	220	40
		125	5	250	210	185	24	8-17.5	3	230	65
		150	6	285	240	210	26	8-22	3	283	85
		200	8	340	295	265	28	8-22	4	325	153
	0.6	250	10	390	350	320	30	12-22	4	378	

BALL VALVE SERIES

Ceramic Ball Valve

Ceramic material property

The valve has the exceedingly high wear-proof capability, corrosion resisting, enduring capability, good heat insulation, small thermal expansion. All parts that contact the media are made of structural ceramics with extremely high chemical stability and hardness (HRC90) only inferior to diamond.

Manufacture process

The ball is processed by advanced polishing equipment that can ensure high circularity, accuracy, good surface quality. The self-lubricating capability of ZrO₂ ensures the good sealing performance. This makes metal seal valve totally free from the defects such as having big torque, non-corrosion-resistant and the sealing working badly.

Scope of application

The valve fits in medium of high hardness granule, or medium with erosive soft granule. It is also the only valve suitable for this type of medium. They are widely used in petrochemical industry, metallurgy, mining, power station, medicine and papermaking and so on.

Technical Specifications

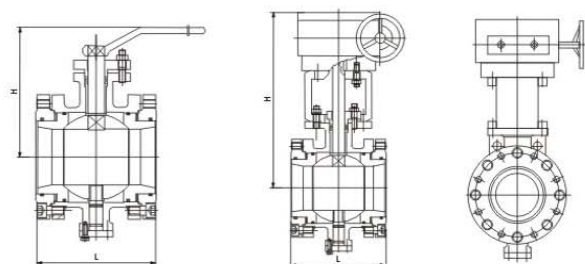
Design Standard	GB/T12237
Face to Face Dimension	GB/T12221
Flanged End Dimension	GB/T9113
Test and Inspection	JB/T9092

Main Parts And Materials

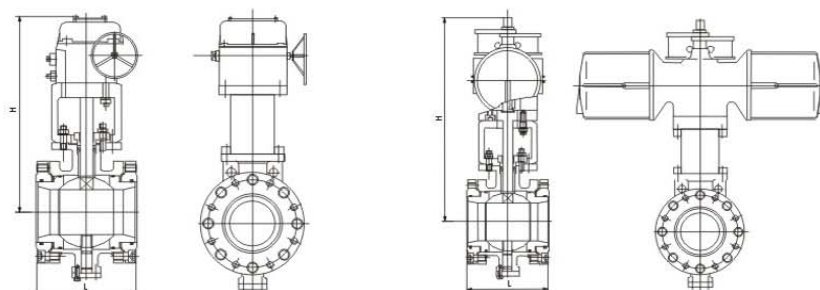
Part Name	Material
Body	Cast steel, Cast stainless steel
Bonnet	Cast steel, Cast stainless steel
Stem	Martensitic stainless steel, Austenitic stainless steel, Duplex stainless steel
Ball	Ceramics
Seal ring	Ceramics

BALL VALVE SERIES

Ceramic Ball Valve



Lever operated ceramic ball valve



Electric driving ceramic ball valve

Pneumatic driving ceramic ball valve

Main External Dimensions

PN1.0MPa

DN	L	Hand-operated	Electric Driving	Pneumatic Driving
		H	H	H
15	108	85	233	198
20	117	94	242	207
25	127	100	248	235
32	140	114	262	242
40	165	121	269	261
50	178	140	288	270
65	190	158	306	302
80	203	176	362	332
100	229	202	388	355
125	254	252	438	406
150	267	276	462	503
200	292	293	479	527

BALL VALVE SERIES

Ceramic Ball Valve

MAIN EXTERNAL DIMENSIONS

PN16/PN20/Class150

DN	b	L	Hand-operated	Electric Driving	Pneumatic Driving
			H	H	H
15	14	108	85	233	198
20	14	117	94	242	207
25	14	127	100	248	235
32	16	140	114	262	242
40	16	165	121	269	261
50	16	178	140	288	270
65	18	190	158	306	302
80	20	203	176	362	332
100	20	229	202	388	355
125	22	254	252	438	406
150	24	267	276	462	503
200	26	292	293	479	527

PN25/PN40/PN50/Class300

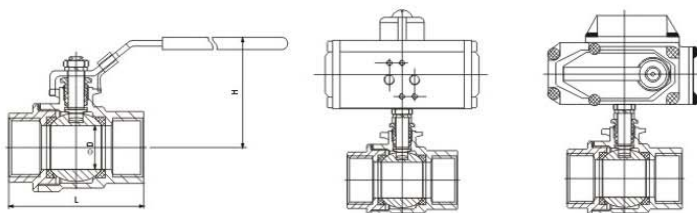
DN	b	L	Hand-operated	Electric Driving	Pneumatic Driving
			H	H	H
15	16	108	85	233	198
20	16	117	94	242	207
25	16	127	100	248	235
32	18	140	114	262	242
40	18	165	121	269	261
50	20	178	140	288	270
65	22	190	158	306	302
80	22	203	176	362	332
100	24	229	202	388	355
125	28	254	252	438	406
150	30	267	276	462	503
200	34	292	293	479	527

PN100/PN110/Class600

DN	b	L	Hand-operated	Electric Driving	Pneumatic Driving
			H	H	H
15	16	108	90	238	203
20	16	117	100	248	213
25	16	127	105	253	231
32	18	140	120	268	246
40	18	165	128	276	273
50	20	178	146	294	293
65	22	190	165	313	328
80	22	203	185	371	366
100	24	229	210	396	394
125	28	254	265	451	445
150	30	267	290	476	541
200	38	292	308	494	586

BALL VALVE SERIES

2-PC Ball Valve



Standard Specification

1. Design and manufacture: GB/T 12237-2007
2. The body wall thickness: GB/T 12221
3. NPT threaded connection: ASME B1.20.1
G threaded connection: GB/T 12716
Rc threaded connection: GB/T 7306.2
4. Socket welding: ASME B16.11
5. Butt welding: ASME B16.25, ASME B36.10M
6. Inspection and test: GB/13927-1992

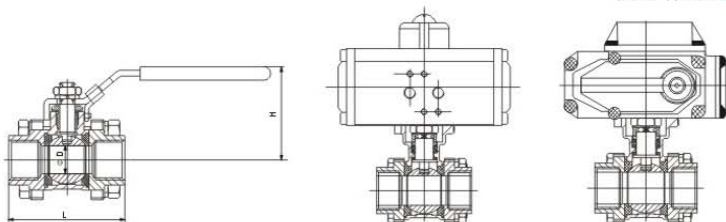
Performance

Suitable for fresh water, sewage, sea water, air, steam, food, medicine, chemicals, various oil, acid and alkali and salt, etc.

Main External Dimensions

SIZE	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
ΦD	12.5	12.5	15	20	25	32	38	50	65	80	100
L	49	49	58	66	77	90	98	121	145	166	240
H	48	48	52	61	65	79	83	97	135	144	159

3-PC Thread Ball Valve



Main External Dimensions

SIZE	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
ΦD	12.5	12.5	15	20	25	32	38	50	65	80	100
L	50.5	50.5	61.5	70	80.5	93	103	125	158	179	213
H	48	48	52	61	65	79	83	97	135	144	149

BALL VALVE SERIES

Vacuum Ball Valve

Product Overview

This company produces the vacuum ball valve, having three different kinds of connection form, as lap joint flange connection according to the GB6070 standard quick releasing flange connection and thread connection in accordance with the GB4982 standard to be used in vacuum range: 0.6 * 10⁶ ~ 1.3 * 10⁻⁴ pa. Used in the vacuum system through or cut off the line media flow. This valve is manual straight through ball valve, sealing by the ball surface, and thus can be under vacuum condition, also can be used in low pressure conditions, and can be installed in any position. Applicable working medium can be acid/alkaline gas or liquid.

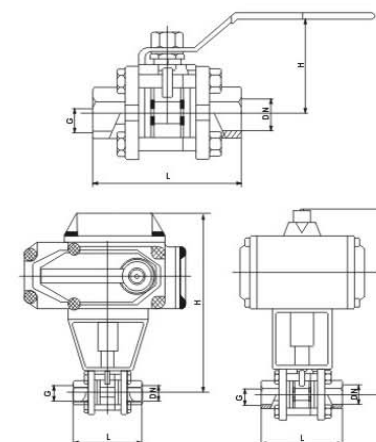
Structural Characteristics

Not only simple structure, good sealing, and small installation size, but also small drive moment, simple operation, easy to achieve rapid opening and closing.

Reliable lip flexible seat design eliminates the defects of the traditional seat of no elastic compensation, switching forming large torque, and easy to lock the ball.

Can be used in the high vacuum state, and also can be used under low pressure system, to achieve the use under positive and negative Pressure.

For different purposes and working condition, we can easily choose different material for convenience.



MAIN EXTERNAL DIMENSIONS

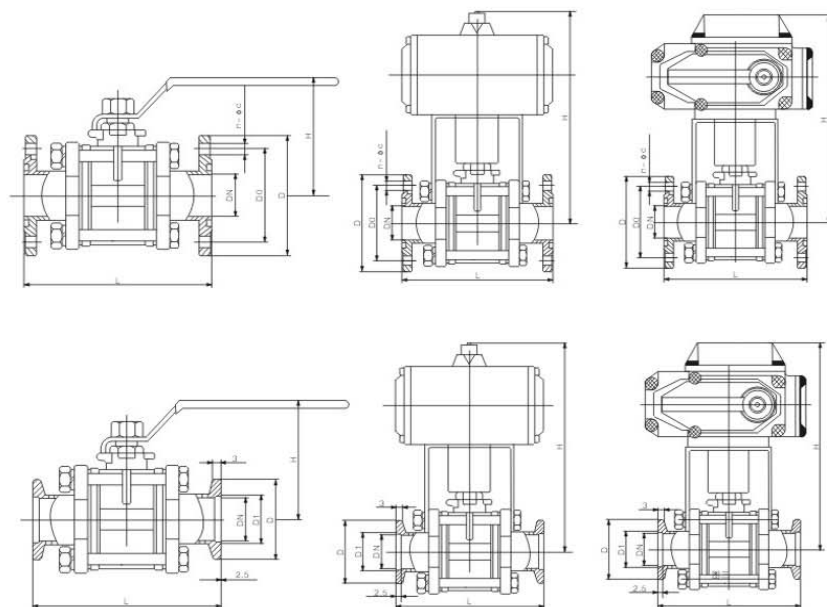
Model	DN	G	H	L
GU-10(G)	10	3/8"	52	68
GU-16(G)	16	1/2"	64	72
GU-20(G)	20	3/4"	67	82
GU-25(G)	25	1"	83	90
GU-32(G)	32	1-1/4"	89	112
GU-40(G)	40	1-1/2"	100	120
GU-50(G)	50	2"	125	145
GU-63(G)	63	2-1/2"	150	185
GU-80(G)	80	3"	161	210
GU-100(G)	100	4"	180	268

THE MAIN TECHNICAL PERFORMANCE

Valve Leak Rate	≤1.3 × 10 ⁻⁴ Pa·L/S
Applicable Temperature	-30 ~ +150°C -30 ~ +150°C (PPL Seal)
Apply Range	
Loose Flange	Applicable pressure range (Pa)
(GB6070, JB919)	0.6 × 10 ⁶ ~ 1.3 × 10 ⁴
(GB6070, JB919)	1.6 × 10 ⁶ ~ 1.3 × 10 ⁴
(GB4982)	0.1 × 10 ⁶ ~ 1.3 × 10 ⁴
Threaded Connection	1.6 × 10 ⁶ ~ 1.3 × 10 ⁴
Application	Refrigeration, medicine, solar energy, environmental protection, electronics, scientific research, energy, aerospace and food.
Application medium	Atmosphere Noncorrosive gas

BALL VALVE SERIES

Vacuum Ball Valve



Main External Dimensions

(GB6070)

Model	DN	D	Do	H	L	r-φc
GU-10(G)	10	55	40	52	94	4-φ6.6
GU-16(G)	16	60	45	64	104	4-φ6.6
GU-25(G)	25	70	55	83	114	4-φ6.6
GU-32(G)	32	90	70	89	140	4-φ9
GU-40(G)	40	100	80	100	160	4-φ9
GU-50(G)	50	110	90	125	170	4-φ9
GU-63(G)	63	130	110	150	195	4-φ9
GU-80(G)	80	145	125	161	220	4-φ9
GU-100(G)	100	165	145	180	280	4-φ9

Main External Dimensions

(GB4982)

Model	DN	D1	D	H	L
GU-10(G)	10	12.2	30	52	94
GU-16(G)	16	17.2	30	64	104
GU-25(G)	25	26.2	40	83	114
GU-32(G)	32	34.2	55	89	140
GU-40(G)	40	41.2	55	100	160
GU-50(G)	50	52.2	75	125	170

BALL VALVE SERIES

Materials

ASTM Code	Chemical Compositions %											Mechanical				Hardness Charpy	
	C	Mn	P	S	Si	Cr	Mo	Ni	Cu	V	Nb	Tensile MPa	Yield MPa	Elongation %	Reduce %	Brinell HB	J ₁₀
A105	0.35	2.00	0.035	0.040	0.10-0.35	0.30	1.12	0.4	0.40	0.08	0.02	485	250	30	30	187	
A182F11	0.05-0.15	2.00	0.030	0.030	0.50-1.00	1.00-0.44	0.44-0.80	8.0-11.0				415	205	20	45	171-174	
A182F22	0.05-0.15	2.00	0.040	0.040	0.50-1.00	0.80-1.13	0.80-1.13	8.0-11.0				415	205	20	35	170	
A182F304	0.08	2.00	0.045	0.030	1.00-2.00	18.0-20.0	2.00-3.00	10.0-13.0				515	205	30	50		
A182F304L	0.030	2.00	0.045	0.030	1.00-2.00	18.0-20.0	2.00-3.00	10.0-13.0				485	170	30	50		
A182F316	0.08	1.00	0.045	0.030	1.00-2.00	18.0-20.0	2.00-3.00	10.0-13.0				515	205	30	50		
A182F316L	0.030	0.60-1.05	0.045	0.030	1.00-2.00	18.0-20.0	2.00-3.00	10.0-13.0				485	170	30	50		
A182F51	0.030	0.49-0.60	0.030	0.020	1.00-2.00	18.0-20.0	2.00-3.00	10.0-13.0				620	450	25	45		
A182F6a	0.15	2.00	0.040	0.030	1.00-1.15	0.15-0.35	0.15-0.35	8.0-11.0				585	380	18	35	167-229	
A193B7	0.37-0.49	2.00	0.035	0.040	0.35-1.20	0.75-1.20	0.75-1.20	8.0-11.0				860	720	16	50	321	
A193B7M	0.37-0.49	2.00	0.035	0.040	0.35-1.20	0.75-1.20	0.75-1.20	8.0-11.0		0.25-0.35		690	550	18	50	235	
A193B8	0.08	1.00	0.045	0.030	1.00-2.00	18.0-20.0	2.00-3.00	10.0-13.0				515	205	30	50	223	
A193B8M	0.08	1.00	0.045	0.030	1.00-2.00	18.0-20.0	2.00-3.00	10.0-13.0				515	205	30	50	223	
A193B16	0.36-0.47	2.00	0.035	0.040	0.15-0.35	0.80-1.15	0.80-1.15	8.0-11.0				860	720	18	50	321	
A1942H	≥0.40	2.00	0.040	0.050	0.04-0.15	18.0-20.0	2.00-3.00	8.0-11.0								248-252	
A1942HM	≥0.40	1.00	0.040	0.050	0.04-0.15	18.0-20.0	2.00-3.00	8.0-11.0								158-162	
A1948	0.08	1.20	0.045	0.030	1.00-2.00	18.0-20.0	2.00-3.00	10.0-13.0								125-130	
A1948M	0.08	0.65-1.10	0.045	0.030	1.00-2.00	18.0-20.0	2.00-3.00	10.0-13.0	0.30	0.03		485-655	250	22	35	125-300	
A216WCB	0.30	1.00	0.04	0.045	0.60-0.85	0.50-0.65	0.2-0.50	0.30-0.50	0.30	0.03		485-655	275	22	35		
A216WCC	0.25	0.65-1.10	0.04	0.045	0.60-0.85	0.50-0.65	0.2-0.50	0.30-0.50	0.30	0.03		620-795	415	22	35		
A217C5	0.20	0.45-0.70	0.04	0.045	0.75-1.50	4.00-6.50	0.50-1.00	1.00-1.50	0.50			620-795	275	18	35		
A217CA15	0.15	1.00	0.040	0.040	1.50-1.75	14.0-18.0	0.45-0.65	0.50-0.65	0.50			485-655	450	18	30		
A217WC6	0.05-0.20	1.00	0.04	0.045	0.60-1.00	1.00-1.50	0.90-1.20		0.50			485-655	275	20	35		
A217WC9	0.05-0.18	0.40-0.70	0.04	0.045	0.60-1.00	1.00-1.50	0.90-1.20		0.50			485-655	275	20	35		
A276410	0.08-0.15	0.50-0.80	0.040	0.030	1.00-1.15	11.5-13.5						480	275	20	45		
A276420	≥0.15	0.40-0.70	0.040	0.030	1.00-1.15	12.0-14.0	0.15-0.25									241	
A320L7	0.38-0.48	0.75-1.00	0.035	0.040	0.15-0.35	0.80-1.10	0.25-0.50					860	725	16	50		Aug-27; min-20
A320L7M	0.38-0.48	0.75-1.00	0.035	0.040	0.15-0.35	0.80-1.10	0.25-0.50					690	550	18	50	235	Aug-27; min-20
A336F22	0.05-0.15	1.50	0.025	0.025	0.50-0.80	2.00-2.50	0.12-0.20	0.40-0.50	0.40	0.08	0.02	515-690	310	19	40		
A350LF1	0.30	1.50	0.035	0.040	0.15-0.30	0.30-0.50	0.12-0.20	0.40-0.50	0.40	0.08	0.02	415-585	205	28	38		Aug-18; min-10
A350LF2	0.30	1.50	0.035	0.040	0.15-0.30	0.30-0.50	0.12-0.20	0.40-0.50	0.40	0.08	0.02	485-655	250	30	30		Aug-20; min-16
A351CF3	0.03	1.50	0.040	0.040	2.00-2.50	17.0-21.0	2.0-3.0	3.0-4.0				485	205	35.0			
A351CF3M	0.03	1.50	0.040	0.040	1.50-2.00	17.0-21.0	2.0-3.0	3.0-4.0				485	205	30.0			
A351CF8	0.08	1.50	0.040	0.040	2.00-2.50	17.0-21.0	2.0-3.0	3.0-4.0				485	205	35.0			
A351CF8M	0.08	0.30-0.60	0.040	0.040	1.50-2.00	17.0-21.0	2.0-3.0	3.0-4.0				485	205	30.0			
A351CF8C	0.08	0.30-0.60	0.040	0.040	2.00-2.50	17.0-21.0	2.0-3.0	3.0-4.0				485	205	30.0			
A351CN7M	0.07	0.60-1.35	0.040	0.040	1.50-2.00	17.0-21.0	2.0-3.0	27.5-30.5				425	170	35			
A352LC1	0.25	1.00	0.04	0.045	0.60-0.85	0.50-0.65	0.2-0.50	0.30-0.50	0.03			450-620	240	24	35		
A352LC2	0.25	1.20	0.04	0.045	0.60-0.85	0.50-0.65	0.2-0.50	0.30-0.50	0.03			485-655	275	24	35		Aug-18; min-14
A352LC3	0.15	0.80-1.00	0.04	0.045	0.60-0.85	0.50-0.65	0.2-0.50	0.30-0.50	0.03			485-655	275	24	35		Aug-20; min-16
A352LCB	0.30	0.50-0.80	0.04	0.045	0.60-0.85	0.50-0.65	0.2-0.50	0.30-0.50	0.30	0.03		450-620	240	24	35		Aug-20; min-16
A352LCC	0.25	0.80-1.00	0.04	0.045	0.60-0.85	0.50-0.65	0.2-0.50	0.30-0.50	0.03			485-655	275	22	35	139-202	Aug-18; min-14
A439D2	3.00	0.70-1.25	0.08		1.50-3.00	1.75-2.75	18.00-22.00					400	207	8.0			

BALL VALVE SERIES

Ball Valve Flow Coefficient

BALL VALVE FLOW COEFFICIENT SPECIFICATION

DN	NPS	PN 16/25	Class 150	PN 40	Class 300	PN 100	Class 600	PN 150	Class 900	PN 250	Class 1500	PN 420	Class 2500
15	1/2	25		25		20		16		16		16	
20	3/4	56		56		40		34		34		32	
25	1	95		95		64		55		55		50	
40	1 1/2	308		308		308		165		165		160	
50	2	420		420		400		330		330		250	
65	2 1/2	690		690		610		520		510		320	
80×50	3×2	200		200		200		190		180		200	
80	3	1200		1050		1000		910		820		500	
100×80	4×3	600		600		600		590		550		560	
100	4	2200		2100		1850		1800		1700		1100	
150×100	6×4	800		800		790		790		780		745	
150	6	5150		5100		4600		4380		3800		2500	
200×150	8×6	2150		2150		2150		2150		2150		2150	
200	8	9500		9400		9000		8500		7400		5300	
250×200	10×8	4300		4300		4300		4450		4450		4100	
250	10	15000		15000		14700		14500		11500		8300	
300×250	12×10	7550		7550		7550		8000		9000		7550	
350×250	14×10	6000		6000		6000		6100		6100		-	
300	12	23000		23000		22500		21100		18000		13000	
350×300	14×12	14000		14000		14000		12800		13000		-	
400×300	16×12	9100		9100		9100		8900		8900		-	
350	14	28000		28000		28000		25000		21000		-	
400×350	16×14	15000		15000		15000		14200		14100		-	
400	16	37200		37200		37200		34500		27500		-	
450×400	18×16	21000		21000		21000		19200		19000		-	
500×400	20×16	15300		15300		15300		13800		12000		-	
450	18	49000		49000		49000		45000		37000		-	
500×450	20×18	28400		28400		28400		25000		25000		-	
500	20	59000		59000		59000		55200		47800		-	
600×500	24×20	28200		28200		28000		25100		20600		-	
550	22	68200		68200		68200		62000		54000		-	
600	24	92000		92000		92000		83800		70000		-	
750×600	30×24	36000		36000		36000		32900		-		-	
650	26	110000		110000		110000		98500		-		-	
700	28	121000		121000		121000		113000		-		-	
750	30	145000		144000		144000		130000		-		-	
900×750	36×30	64000		64000		64000		61500		-		-	
800	32	170000		170000		170000		151000		-		-	
900×800	36×32	87000		87000		87000		69500		-		-	
900	36	210000		210000		210000		198200		-		-	
1000	40	267500		267500		267500		-		-		-	
1050×900	42×36	96700		96700		96000		-		-		-	
1050	42	280000		280000		280000		-		-		-	
1200	48	384000		384000		384000		-		-		-	
1400×1050	56×42	89000		89000		89000		-		-		-	
1400	56	521000		521000		521000		-		-		-	

BALL VALVE SERIES

Note