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FUJI KOKI VALVES COMPANY LIMITED

Address: No.2 Naka Big, 3F, 3-4, Konfunecho-Nihonbashi
City: Chuo-ku
State: Tokyo
Postcode: 103-0024
Country: Japan
Website: www.fkv.jp



FUJI KOKI VALVE

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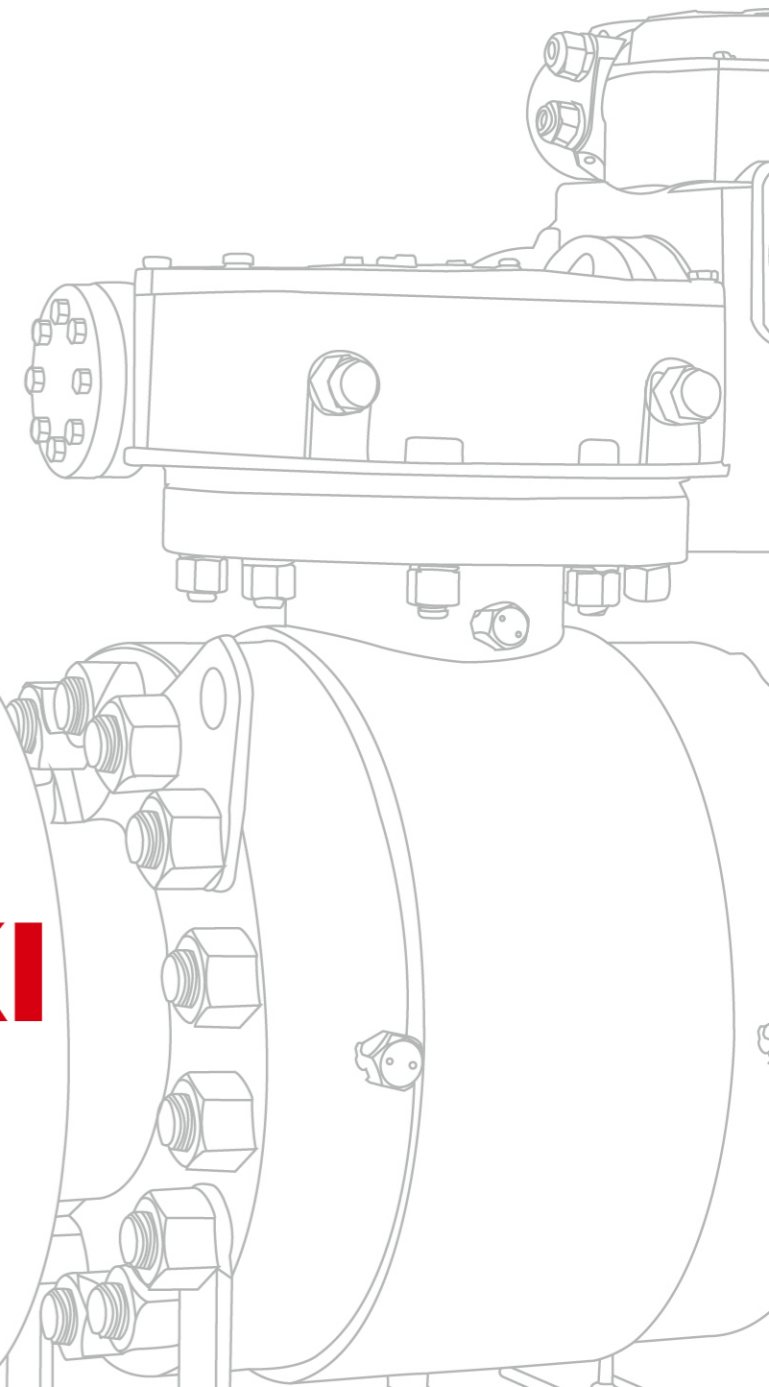
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FKV®

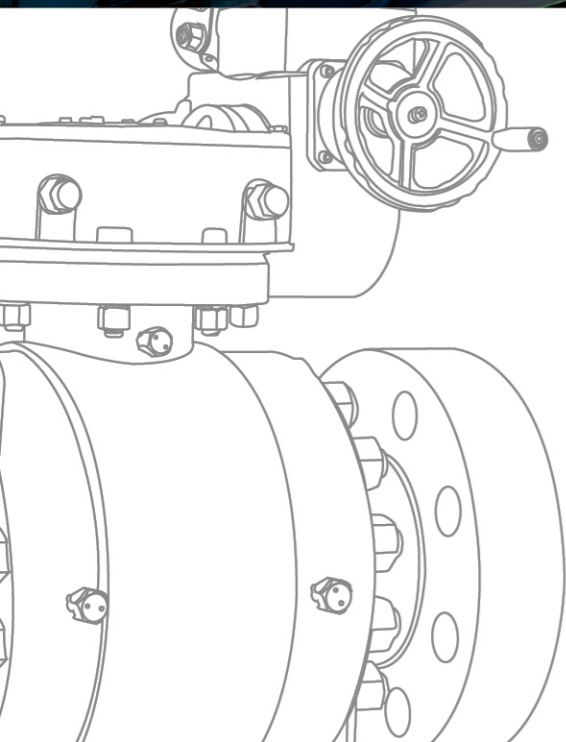
BALL VALVE SERIES

- ◎ TBV TRUNNION BALL VALVE
- ◎ FBV FLOATING BALL VALVE
- ◎ TEB TOP ENTRY BALL VALVE
- ◎ FWB FULL WELDED BALL VALVE
- ◎ DBB DOUBLE BLOCK BALL VALVE
- ◎ CBV CRYOGENIC BALL VALVE

FUJI KOKI VALVES COMPANY LIMITED



**Dedicated to
For Industrial Fluid Control
Provide Solutions and Services**



FUJI KOKI VALVE

CONTENTS

BALL VALVE SERIES

01 DESIGN FEATURES

CRYOGENIC BALL VALVE

04 DESIGN FEATURES

FORGED STEEL

05 TRUNNION BALL VALVE

2/3PCS CAST STEEL

13 TRUNNION BALL VALVE

2PCS FORGED STEEL

19 FLOATING BALL VALVE

3PCS FORGED STEEL

26 FLOATING BALL VALVE

TOP ENTRY

29 TRUNNION BALL VALVE

FULL WELDED

36 TRUNNION BALL VALVE

DOUBLE BLOCK

42 AND BLEED VALVE

INTEGRAL BLOCK

47 BLEED VALVES

CRYOGENIC FLOATING

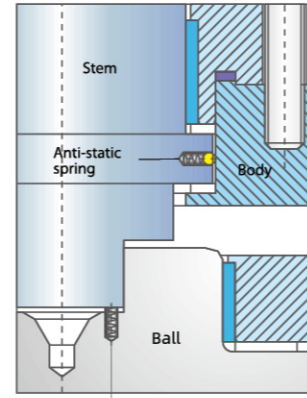
51 BALL VALVE

CRYOGENIC TRUNNION

57 BALL VALVE

Blow-out Proof Stem Design

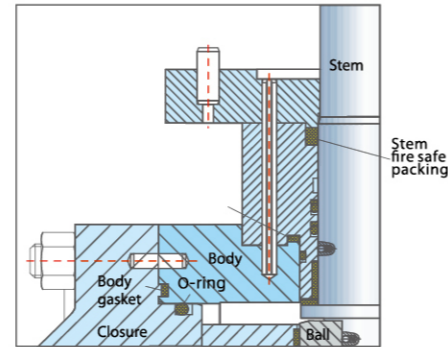
The stem is designed separated from ball, and designed as T slot shape at the bottom side, and gland flange will prevent the stem blow out in case of any abnormal cavity pressure increase.



Anti-static spring

Anti-static Device

The electrical conductance continuity connect the ball, stem and body, it can avoid the any fire or explosion caused by the static that might be produced and accumulated by friction between the ball and seat ring during valve open or close.

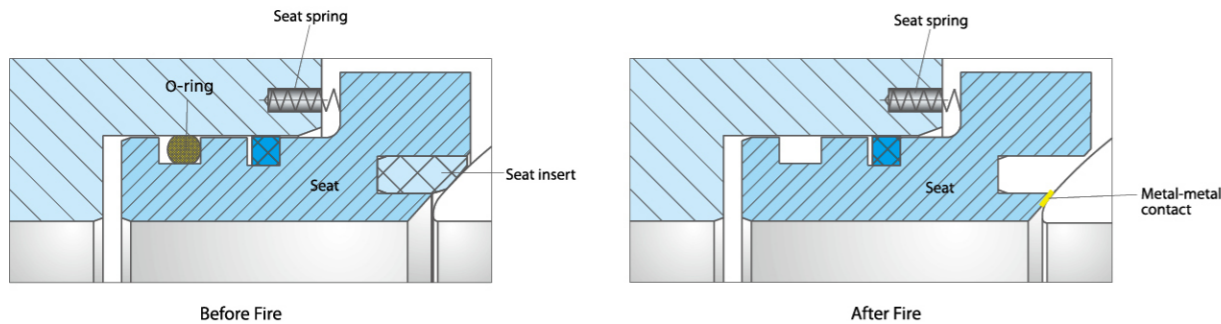


Fire Safe Design (External Leakage Prevention)

In normal condition, leakage through the valve stem area is prevented by two O-ring seals and a gland packing. Leakage through the valve body and bonnet connection is also blocked by an O-ring seal and a body gasket. In the event of a fire, O-rings will be melted or decomposed under higher temperature in the fire, then the fire safe body gasket, stem packing will prevent external leakage.

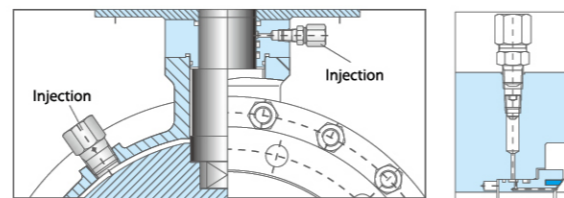
Fire Safe Design (Internal Leakage Prevention)

In the event of a fire, all none metal materials, like O-rings, soft seats and back rings, will be melted or decomposed under high temperature in the fire, the edge of metal seat energized by the seat spring will contact with the ball to block the pipeline medium and minimize internal leakage. Also the fire safe graphite packing is compressed into the seat ring groove to prevent process media leakage through the gap between the valve body and seat. Fire safe certificate:API 607 and API 6FA



Emergency Sealant Injection Device

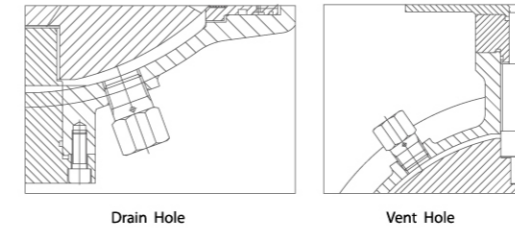
As per API 6D trunnion mounted ball valves will be equipped with emergency sealant injection device on both stem and seat ring area, when the seat ring and stem soft seals are damaged or decomposed in the accident, leakage can be prevented by injection the sealant into the valve through injection valve. The injection valve is internally equipped with a check valve to stop the medium or sealant leaking out.



Double Block & Bleed (DBB)

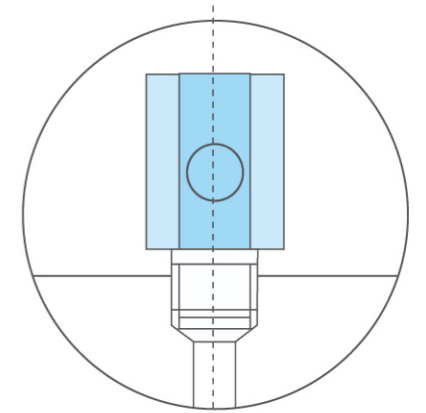
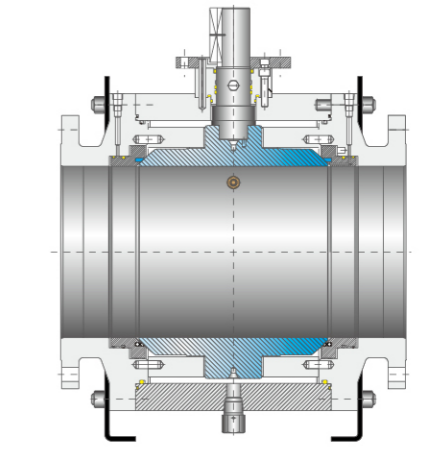
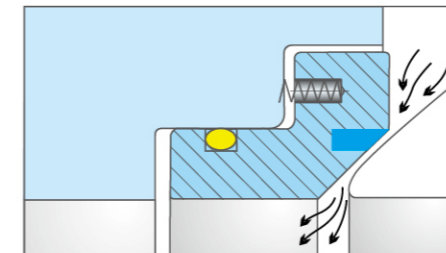
Trunnion mounted ball valve seat ring can cut the medium service from upper stream to achieve double block function.

When the ball is fully open or closed position, even the valve is under medium pressure from both side, the body cavity and the pressure is blocked, and the remaining medium service in the cavity can bleed out through the drain hole or vent hole.



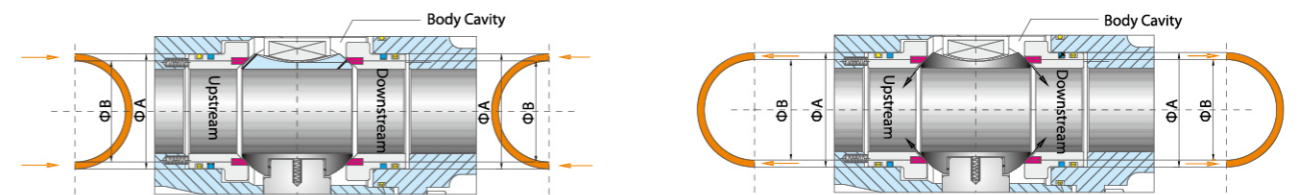
Cavity Pressure Relief

When the pressure in cavity is increasing abnormally, the single piston effective seat can release the overloaded pressure automatically, while for the double piston effective seat designed ball valves, the overloaded pressure will be released through the automatic pressure relief device installed on the valve body.



Self-Relieving Seats (Single Piston Effect)

The pressure from the upstream and downstream will push the seats to the ball in function. Under fully open or closed position, when the internal force created by the body cavity pressure is greater than the energized spring force plus the force created by the pressure from upstream or downstream side, the seats are pushed away from the ball. Then the overloaded pressure in the body cavity is released automatically.

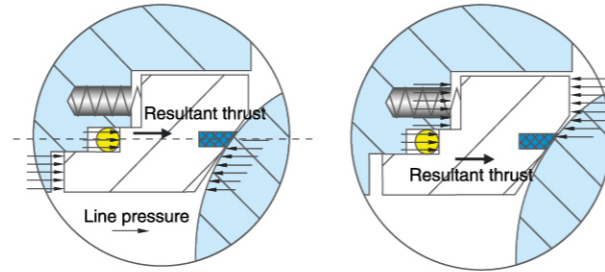


When the medium in the upstream or downstream of the valve, since $\Phi A > \Phi B$, the pressure differential makes the medium push the seats to the ball, to achieve a reliable seal.

When the pressure in the cavity is too high, because $\Phi A > \Phi B$, the pressure differential makes the cavity medium will push the seats away from the ball, and automatically relieve the overload pressure in the cavity.

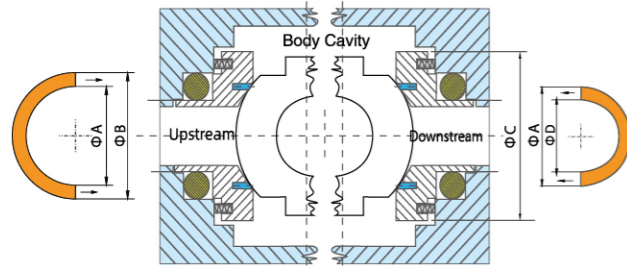
Double Piston Effect

Double piston effective seat also known as bi-directional sealing seat, the feature is regardless of the differential medium pressure from upstream or downstream of the ball valve, the valve each seat or the valve cavity can independently withstand rated pressure, and keep both two seats at sealed status, to ensure no leakage continuously. Double piston effective seat does not have the function of automatic pressure relief function, so it requires to install automatic pressure relief device on the body. When the cavity pressure is increasing abnormally, the overloaded pressure can be released through the automatic pressure relief device to ensure the safety operation. The ball valve with double piston effective seat have bi-directional sealing function.



Double Piston Effect Seats(DIB-1)

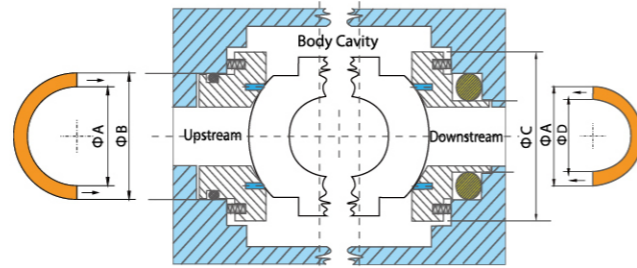
DIB-1 Valve design both seats are double piston effective seats (DPE seat). Each seat can independently withstand the medium pressure from upstream or downstream. The seat of DIB-1 Ball Valve does not have the automatic pressure relief function. So the DIB-1 ball valve requires to install automatic pressure relief device on the body, when the cavity pressure is higher than 1.25 to 1.33 times valve NPS, overloaded pressure can be released through the automatic pressure relief device to ensure the safety operation.



DIB-1

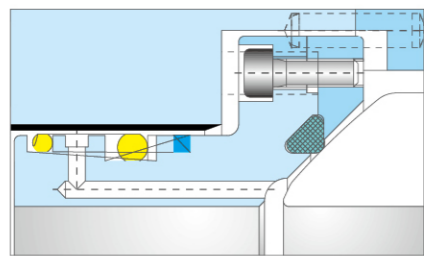
One Self-Relieving Seat And One Double Piston Effect Seat(DIB-2)

DIB-2 Valve design, one seat is double piston effective seat, the other seat has self-relieving function. The self-relieving function seat only can withstand the medium pressure from the upstream to realize sealing function. Double piston effective seat can withstand the medium pressure from both direction. When the cavity pressure is increasing abnormally, the double piston effective seat will be pushed toward to ball by the medium pressure. The self-relieving function seat will be pushed away from the ball to realize the pressure self-relief function.

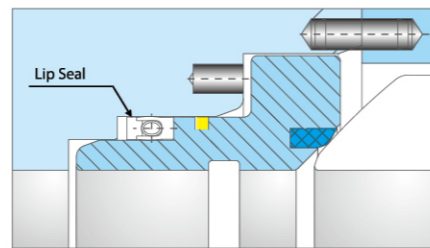


DIB-2

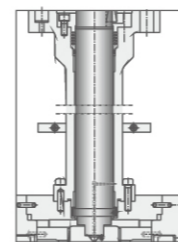
Special Structure Design



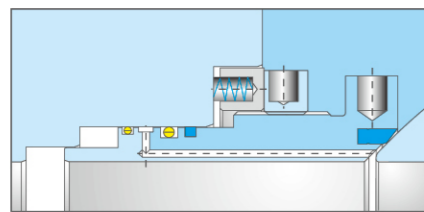
Delta Rubber Seat Ring



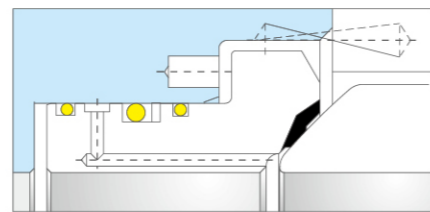
Lip Seal Design



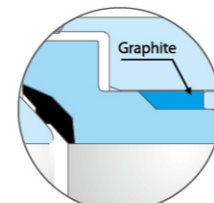
Bonnet Extension for Cryogenic Valve



Top Entry Seat Ring Design
(Capable for on Line Maintenance)



Metal Seat (Ball/Seat Surface With Tungsten Carbide Coating Or Ni Alloy Overlay)



Packing

Blow-out Proof Stem

The lower end of the stem is T-shaped structured,protected by boss of body,which assures stem retention at any pressure and acts as backseat.(Fig.1)

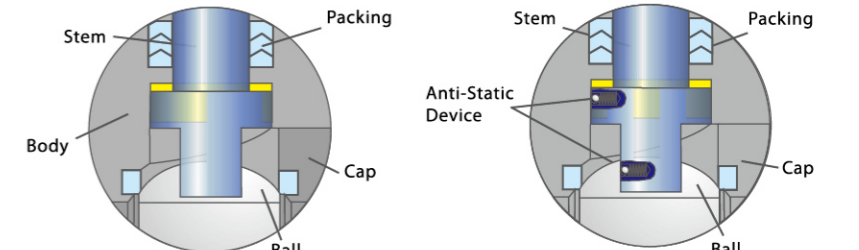


Fig.1

Fig.2

Anti-static Device

A spring-loaded plunger fitted on stem keeps constant contact between ball,stem and body to create an electric path to transfer charges,avoiding acceleration of static electricity as a result of friction during valve on-off.Such build-up is utterly hazardous to some services.(Fig.2)

Position Indicator

Double D stem head design provides mounting of the lever always in parallel to the flow passage.Misalignment of the lever is thus prevented.(Fig.3)

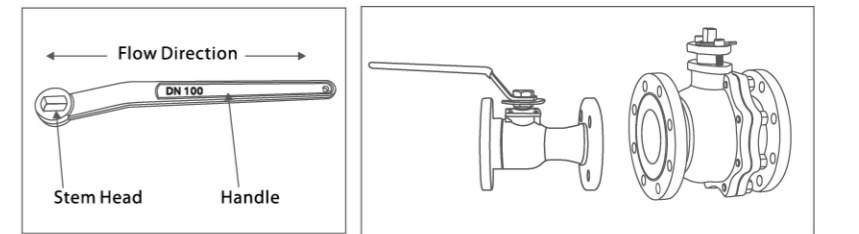


Fig.3

Fig.4

Locking Device

Facility for mounting a locking device for prevention of accidental valve operation is provide.

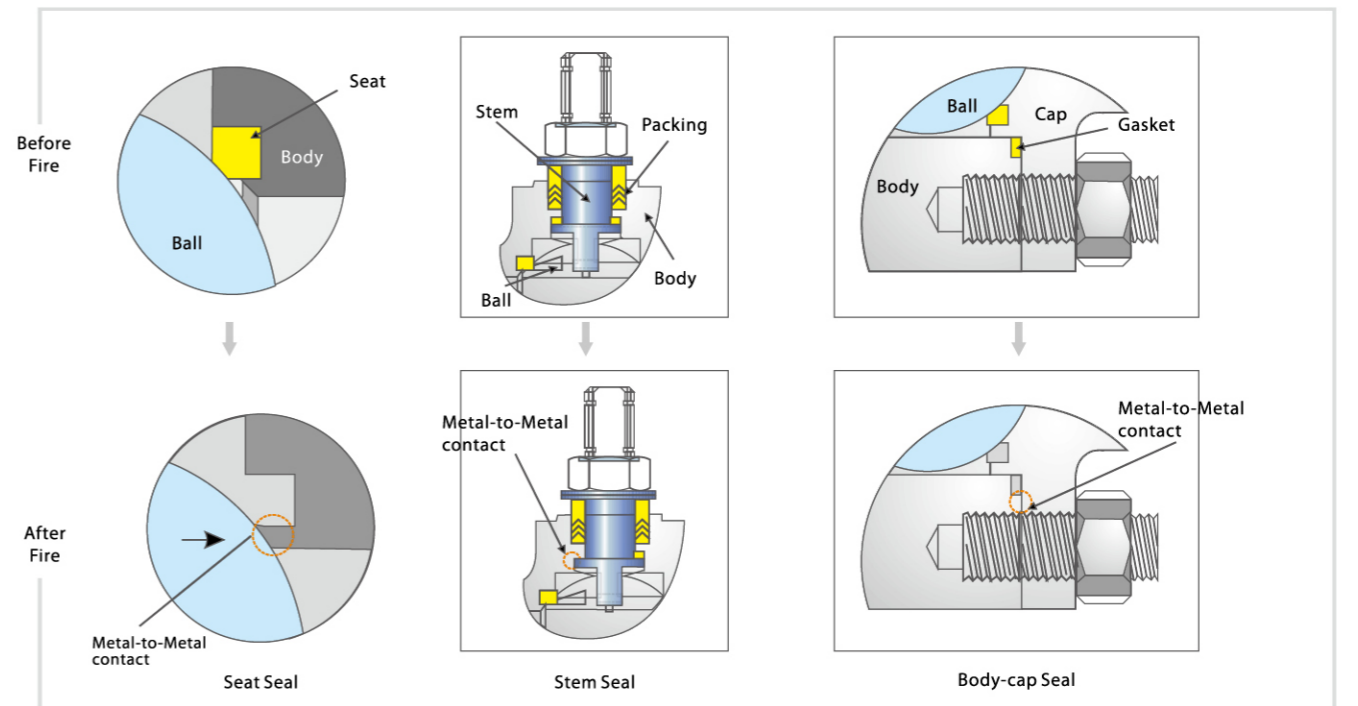
ISO 5211 Actuator Mounting Pad

Ball valves always furnished with integral actuator mounting pad designed according to ISO 5211.(Fig.4)

Fire Safe-Metal to Metal Sealing

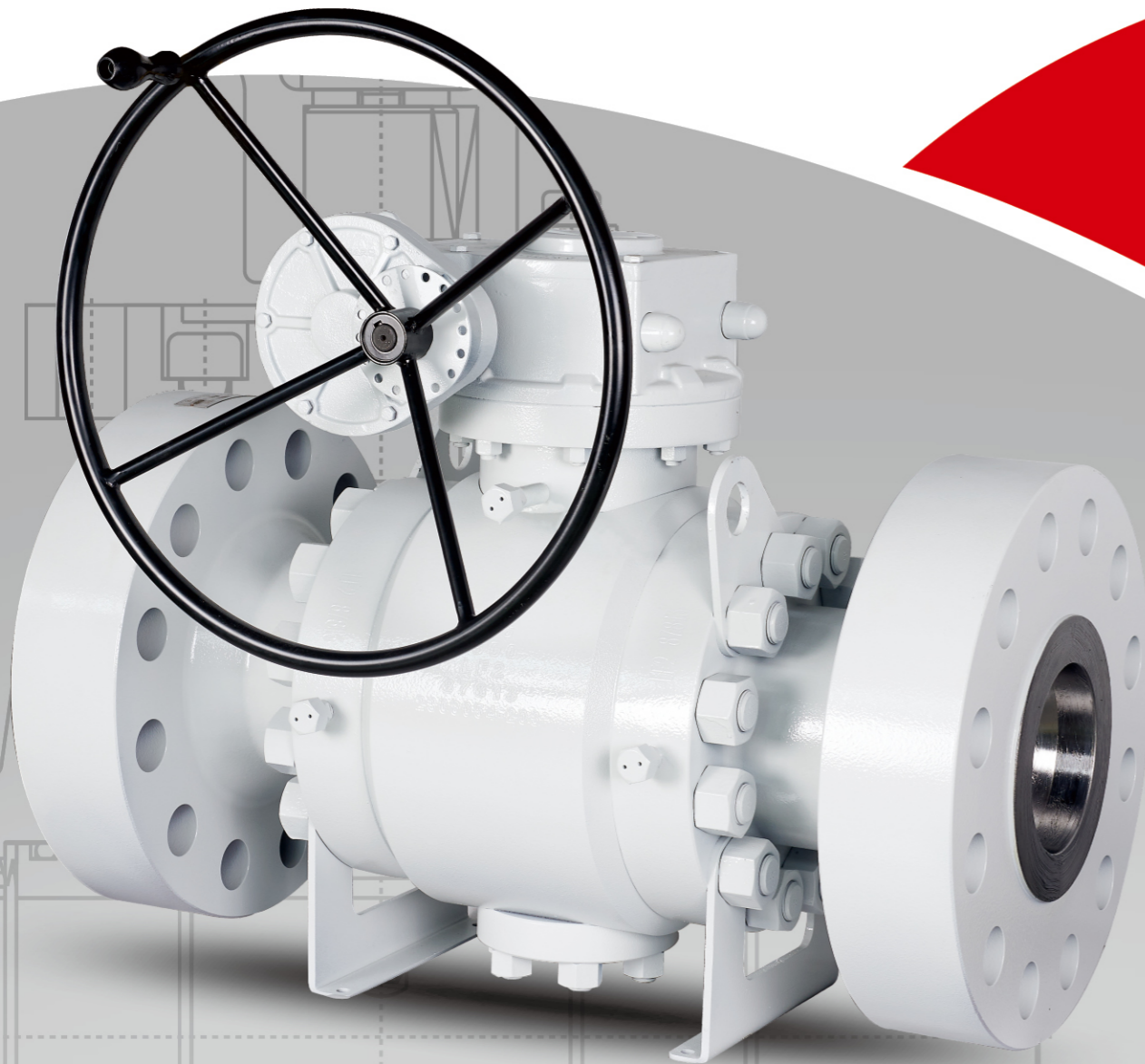
When soft seats are decomposed or ruined by fire,the ball, driven by pressure,comes into contact with the metal lipseat of original soft seat,creating a metal-to-metal seal to shut off service fluids and minimize internal leakage.

Additionally,the fire safe metal seat prevents damage the medium imposed on soft seat and minimizes creep of nonmetal materials.All the FKV floating valves are designed to be fire safe per API 607 and are tested and certified by the third party.

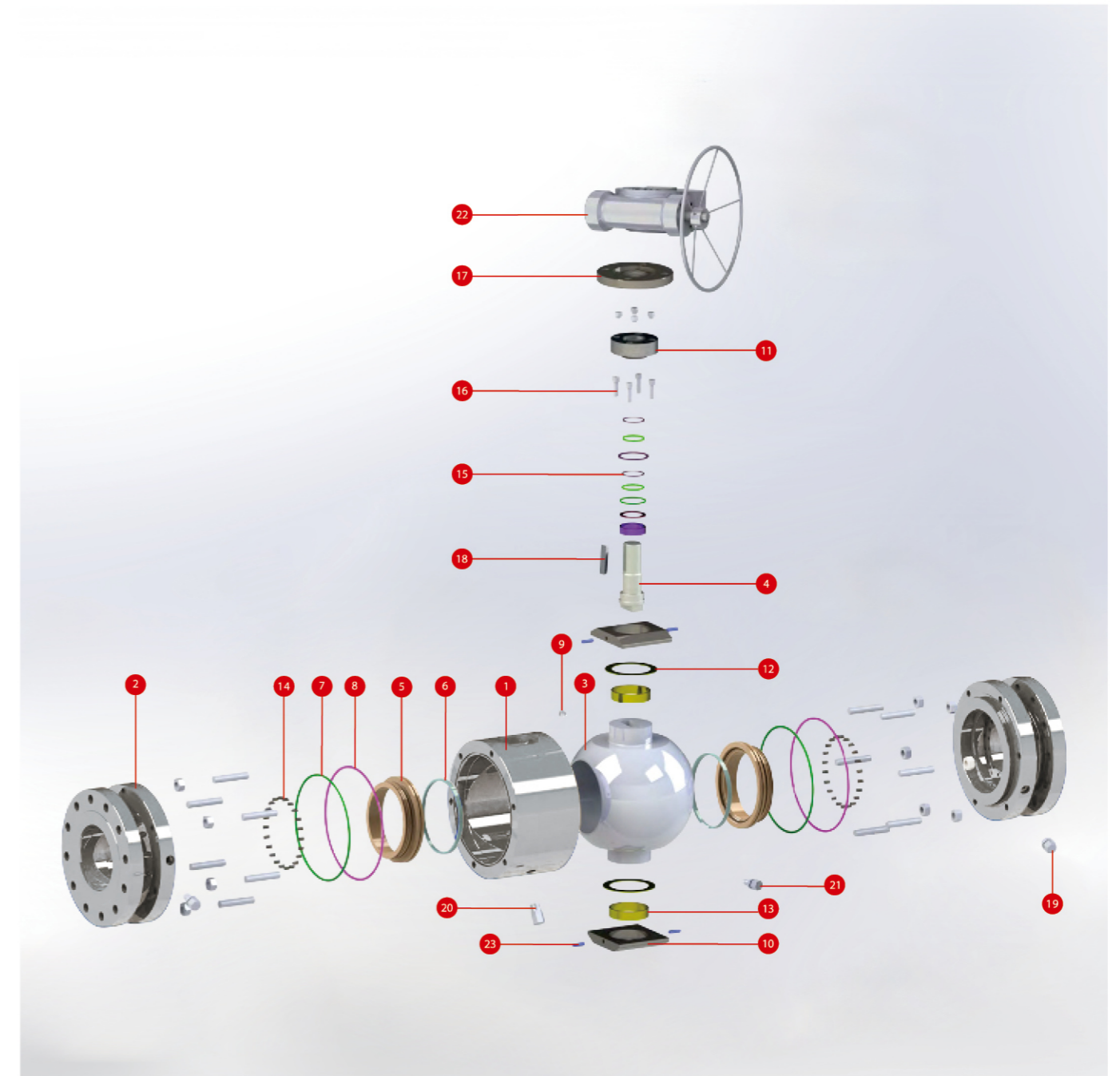


FORGED STEEL TRUNNION BALL VALVE

TBV SERIES www.fkv.jp



Structure Diagram



Product Overview

FKV Forged steel trunnion mounted ball valves are designed, manufactured and tested in accordance with API 6D, ASME B16.34, and certified to API 607 sixth edition, API 6FA 3rd edition fire safe tested design. It is designed to 3PCS split body side entry and 2PCS split body side entry (2~60 inch), and the valve size range is from 2 inch up to 60 inch, pressure rating is from 150LB up to 2500LB.

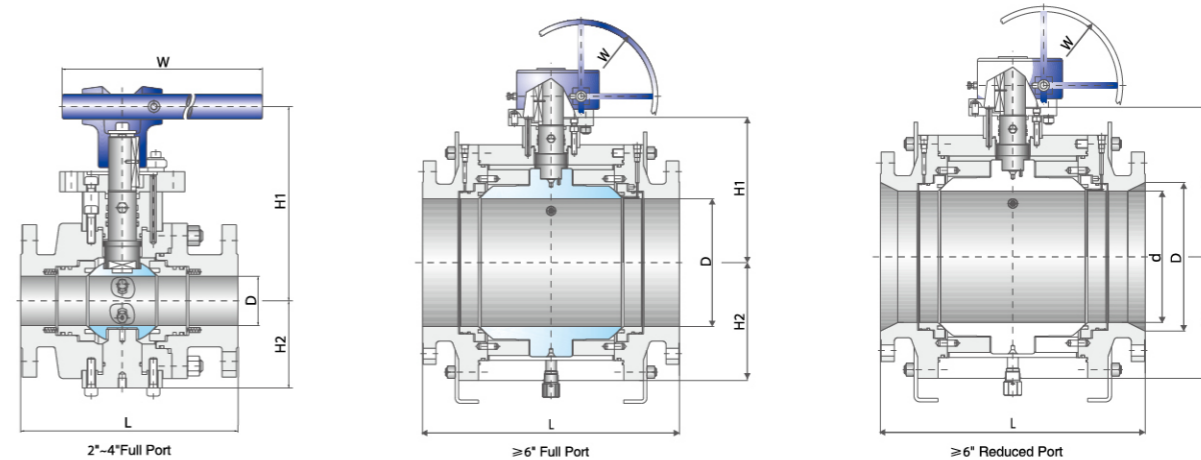
Product Features

- Blow-out Proof Stem
- Cavity Pressure Relief
- Fire Safe Tested Design
- Low Emission Design
- Anti-Static Design
- Low Torque Performance
- ISO5211 Mount Pad
- Secure Line Flow Locking Device
- Double Block and Bleed

Material List

No	Part	Standard	Stainless Steel	Low Temperature	Sour Service
1	Body	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM A105N
2	Closure	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM A105N
3	Ball	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
4	Stem	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
5	Seat Ring	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
6	Seat Insert	PTFE	PTFE	PTFE	PTFE
7	O-Ring	VITON A	VITON A	VITON A	VITON A
8	Fire Safe Seal	Graphite	Graphite	Graphite	Graphite
9	Grounding Spring	SS316	SS316	SS316	SS316
10	Lower Trunnion/ Trunnion Support	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
11	Gland Cap	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM F316
12	Gasket	SS+Graphite	SS+Graphite	SS+Graphite	SS+Graphite
13	Bearing	SS+PTFE	SS+PTFE	SS+PTFE	SS+PTFE
14	Spring	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
15	Fire Safe Gasket	Graphite	Graphite	Graphite	Graphite
16	Screw	ASTM A193 87	ASTM A193 BB	ASTM A320 L7	ASTM A193 B7M
17	Top Flange	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM F316
18	Key	Carbon Steel	Stainless Steel	Stainless Steel	Carbon Steel
19	Injection	SS304	SS316	SS304	SS304
20	Drain Valve	SS304	SS316	SS304	SS304
21	Vent Valve	SS304	SS316	SS304	SS304
22	Operator	Handle or Gear box	Handle or Gear box	Handle or Gear box	Handle or Gear box
23	Pin	Carbon Steel	Stainless Steel	Stainless Steel	Carbon Steel

Connection Size (CLASS 150LB)



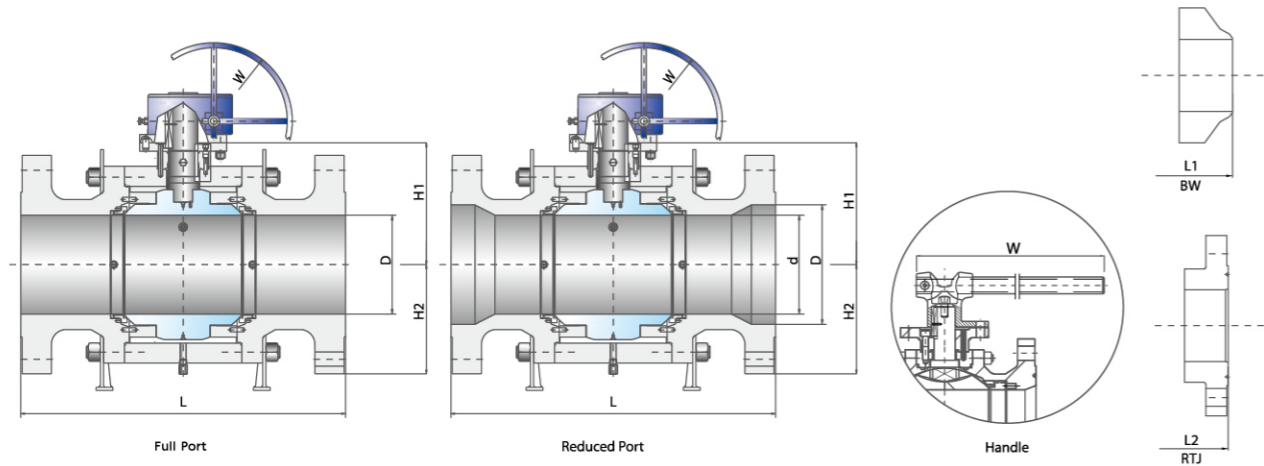
Full Port

Size	D		L(RF)		L(BW)		L(RTJ)		H1		H2		W		Weight		
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
2	50	1.94	49	7.00	178	8.50	216	7.50	191	7.87	200	4.33	110	10.43	265	41.9	19
3	80	2.94	74	8.00	203	11.13	283	8.50	216	11.81	300	4.96	126	11.22	285	61.7	28
4	100	3.94	100	9.00	229	12.00	305	9.50	241	12.40	315	6.50	165	11.22	285	110.3	50
6	150	5.94	150	15.50	394	18.00	457	16.00	406	13.19	335	6.50	165	11.81	*300	352.8	160
8	200	7.94	201	18.00	457	20.50	521	18.50	470	15.94	405	7.87	200	11.81	*300	595.4	270
10	250	9.94	252	21.00	533	22.00	559	21.50	546	16.81	427	8.66	220	11.81	*300	915.1	415
12	300	11.94	303	24.00	610	25.00	635	24.50	622	18.31	465	10.31	262	19.69	*500	1455.3	660
14	350	13.19	334	27.00	686	30.00	762	27.50	699	19.92	506	11.54	293	23.62	*600	1962.5	890
16	400	15.19	385	30.00	762	33.00	838	30.50	775	24.49	622	13.43	341	23.62	*600	2381.4	1080
18	450	17.19	436	34.00	864	36.00	914	34.50	876	26.22	666	16.22	412	23.62	*600	3263.4	1480
20	500	19.19	487	36.00	914	39.00	991	36.50	927	28.74	730	17.13	435	23.62	*600	4343.9	1970
22	550	21.19	538	-	-	-	-	-	-	32.80	833	18.90	480	23.62	*600	5142.1	2332
24	600	23.19	589	42.00	1067	45.00	1143	42.50	1080	35.24	895	20.39	518	31.50	*800	6615.0	3000
26	650	24.94	633	45.00	1143	49.00	1245	-	-	35.43	900	21.06	535	31.50	*800	7964.5	3612
28	700	26.94	684	49.00	1245	53.00	1346	-	-	36.81	935	21.34	542	31.50	*800	9706.4	4402
30	750	28.94	735	51.00	1295	55.00	1397	-	-	39.76	1010	23.82	605	31.50	*800	11272.1	5112
32	800	30.69	779	54.00	1372	60.00	1524	-	-	41.73	1060	25.59	650	31.50	*800	14700.7	6667
34	850	32.69	830	58.00	1473	64.00	1626	-	-	42.40	1077	25.59	650	31.50	*800	15036.9	6819
36	900	34.44	874	60.00	1524	68.00	1727	-	-	43.90	1115	27.56	700	31.50	*800	19022.5	8627
40	1000	38.44	976	69.02	1753	-	-	-	-	55.12	1400	34.06	865	31.50	*800	27150.2	12313
42	1050	40.19	1020	73.03	1855	-	-	-	-	62.91	1598	35.43	900	31.50	*800	30870.0	14000
48	1200	45.94	1166	84.02	2134	-	-	-	-	67.80	1722	41.02	1042	31.50	*800	47341.4	21470
56	1400	53.56	1360	97.99	2489	-	-	-	-	55.91	1420	57.48	1460	31.50	*800	73715.4	33431

Reduced Port

Size	d		D		L(RF)		L(BW)		L(RTJ)		H1		H2		W		Weight		
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
3x2	80x50	1.94	49	2.94	74	8.00	203	11.13	283	8.50	216	7.87	200	4.33	110	10.43	265	48.5	22
4x3	100x80	2.94	74	3.94	100	9.00	229	12.00	305	9.50	241	11.81	300	4.96	126	11.22	285	99.2	45
6x4	150x100	3.94	100	5.94	150	15.50	394	18.00	457	16.00	406	12.40	315	6.50	165	11.22	285	209.5	95
8x6	200x150	5.94	150	7.94	201	18.00	457	20.50	521	18.50	470	13.19	335	6.50	165	11.81	*300	374.9	170
10x8	250x200	7.94	201	9.94	252	21.00	533	22.00	559	21.50	546	15.94	405	7.87	200	11.81	*300	690.2	313
12x10	300x250	9.94	252	11.94	303	24.00	610	25.00	635	24.50	622	16.81	427	8.66	220	11.81	*300	1036.4	470
14x12	350x300	11.94	303	13.19	334	27.00	686	30.00	762	27.50	699	18.31	465	10.31	262	19.69	*500	1675.8	760
16x14	400x350	13.19	334	15.19	385	30.00	762	33.00	838	30.50	775	19.92	506	11.54	293	23.62	*600	2050.7	930
18x16	450x400	15.19	385	17.19	436	34.00	864	36.00	914	34.50	876	24.49	622	13.43	341	23.62	*600	2469.6	1120
20x18	500x450	17.19	436	19.19	487	36.00	914	39.00	991	36.50	927	26.22	666	16.22	412	23.62	*600	3572.1	1620
22x18	550x450	17.19	436	21.19	538	-	-	-	-	-	-	26.22	666	16.22	412	23.62	*600	4657.1	2112
24x20	600x500	19.19	487	23.19	589	42.00	1067	45.00	1143	42.50	1080	28.74	730	17.13	435	23.62	*600	5005.4	2270
26x22	650x550	21.19	538	24.94	633	45.00	1143	49.00	1245	-	-	32.80	833	18.90	480	23.62	*600	5402.3	2450
28x24	700x600	23.19	589	26.94	684	49.00	1245	53.00	1346	-	-	35.24	895	20.39	518	31.50	*800	5953.5	2700
30x24	750x600	23.19	589	28.94	735	51.00	1295	55.00	1397	-	-	35.43	900	21.06	535	31.50	*800	8224.7	3730
32x26	800x650	24.94	633	30.69	779	54.00	1372	60.00	1524	-	-	36.81	935	21.34	542	31.50	*800	8831.0	4005
34x28	850x700	26.94	684	32.69	830	58.00	1473	64.00	1626	-	-	39.76	1010	23.82	605	31.50	*800	9801.2	4445
36x30	900x750	28.94	735	34.44	874	60.00	1524	68.00	1727	-	-	41.73	1060	25.59	650	31.50	*800	14861.7	6740
40x34	1000x850	32.69	830	38.44	976	67.99	1727	-	-	-	-	42.40	1077	25.59	650	31.50	*800	18081.0	8200
42x36	1050x900	34.44	874	40.19	1020	78.23	1987	-	-	-	-	43.90	1115	27.56	700	31.50	*800	23970.6	10871
48x40	1200x1000	38.44	976	45.94	1166	83.46	2120	-	-	-	-	55.12	1400	34.06	865	31.50	*800	29811.6	13520
56x48	1400x1200	45.94	1166	53.56	1360	97.99	2489	-	-	-	-	55.91	1420	57.48	1460	31.50	*800	76645.8	34760

Connection Size (CLASS 900LB)



Full Port

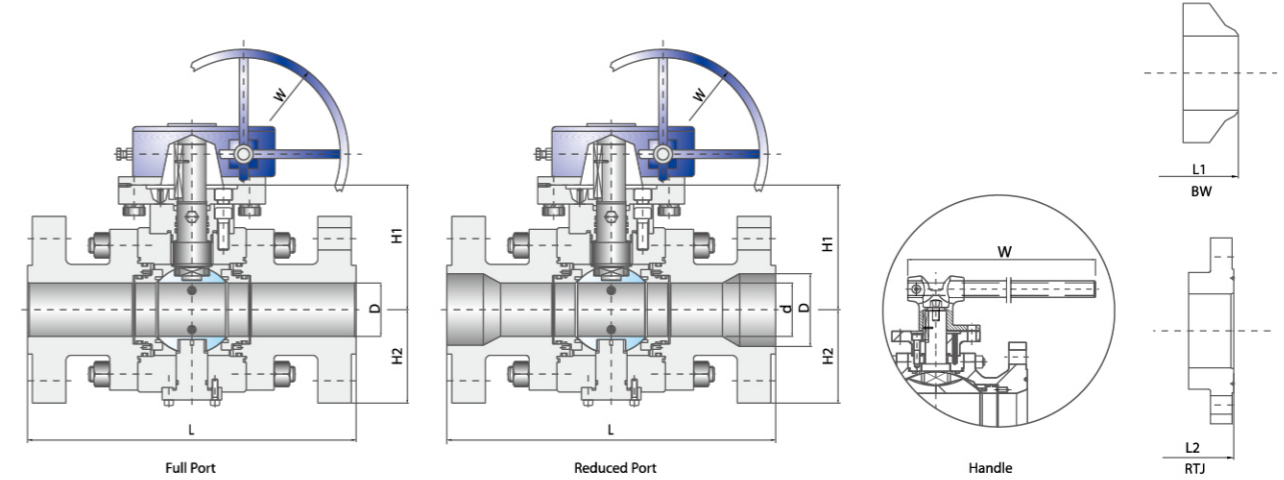
Size		D		L(RF)		L1(BW)		L2(RTJ)		H1		H2		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	14.50	368	14.50	368	14.63	371	4.69	119	4.69	119	25.95	460	125.7	57
3	80	2.94	74	15.00	381	15.00	381	15.13	384	5.24	133	5.24	133	39.37	1000	191.8	87
4	100	3.94	100	18.00	457	18.00	457	18.13	460	6.93	176	6.93	176	59.06	1500	425.6	193
6	150	5.94	150	24.00	610	24.00	610	24.13	613	6.02	153	6.02	153	11.81	*300	749.7	340
8	200	7.94	201	29.00	737	29.00	737	29.13	740	7.60	193	7.60	193	15.75	*400	1256.9	570
10	250	9.94	252	33.00	838	33.00	838	33.13	841	9.25	235	9.25	235	19.69	*500	2011.0	912
12	300	11.94	303	38.00	965	38.00	965	38.13	968	11.02	280	11.02	280	23.62	*600	2921.6	1325
14	350	12.69	322	40.50	1029	40.50	1029	40.88	1038	12.28	312	12.28	312	23.62	*600	3576.1	1620
16	400	14.69	373	44.50	1130	44.50	1130	44.88	1140	14.37	365	14.37	365	23.62	*600	4079.5	1990
18	450	16.69	423	48.00	1219	48.00	1219	48.50	1232	16.30	414	16.30	414	23.62	*600	5757.3	2611
20	500	18.56	471	52.00	1321	52.00	1321	52.50	1334	18.07	459	18.07	459	23.62	*600	8555.4	3880
22	550	20.56	522	-	-	-	-	-	-	19.96	507	19.96	507	31.50	*800	10070.2	4567
24	600	22.44	570	61.00	1549	61.00	1549	61.75	1568	21.54	547	21.54	547	31.50	*800	13882.7	6296
28	700	26.19	665	-	-	-	-	-	-	22.56	573	22.56	573	31.50	*800	20211.0	9166
30	750	28.06	712	74.00	1880	-	-	74.88	1902	25.12	638	25.12	638	31.50	*800	24865.8	11277
32	800	29.94	760	-	-	-	-	-	-	27.01	686	27.01	686	31.50	*800	27121.5	12300
34	850	31.81	808	-	-	-	-	-	-	27.09	688	27.09	688	31.50	*800	28477.6	12915
36	900	33.69	855	90.00	2286	-	-	91.13	2315	29.09	739	29.09	739	31.50	*800	38587.5	17500

Reduced Port

Size		d		D		L(RF)		L1(BW)		L2(RTJ)		H1		H2		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	15.00	381	15.00	381	15.13	384	4.69	119	4.69	119	18.11	460	123.5	56
4x3	100x80	2.94	74	3.94	100	18.00	457	18.00	457	18.13	460	5.24	133	5.24	133	39.37	1000	213.9	97
6x4	150x100	3.94	100	5.94	150	24.00	610	24.00	610	24.13	613	6.93	176	6.93	176	59.08	1500	485.1	220
8x6	200x150	5.94	150	7.94	201	29.00	737	29.00	737	29.13	740	6.02	153	6.02	153	11.81	*300	961.4	436
10x8	250x200	7.94	201	9.94	252	33.00	838	33.00	838	33.13	841	7.60	193	7.60	193	15.75	*400	1433.3	650
12x10	300x250	9.94	252	11.94	303	38.00	965	38.00	965	38.13	968	9.25	235	9.25	235	19.69	*500	2315.3	1050
14x12	350x300	11.94	303	12.69	322	40.50	1029	40.50	1029	40.88	1038	11.02	280	11.02	280	23.62	*600	3164.2	1435
16x14	400x350	12.69	322	14.69	373	44.50	1130	44.50	1130	44.88	1140	12.28	312	12.28	312	23.62	*600	4013.1	1820
18x16	450x400	14.69	373	16.69	423	48.00	1219	48.00	1219	48.50	1232	14.37	365	14.37	365	23.62	*600	5622.8	2550
20x18	500x450	16.69	423	18.56	471	52.00	1321	52.00	1321	52.50	1334	16.30	414	16.30	414	23.62	*600	8004.2	3630
22x18	550x450	16.69	423	20.56	522	-	-	-	-	-	-	16.30	414	16.30	414	23.62	*600	8599.5	3900
24x20	600x500	18.56	471	22.44	570	61.00	1549	61.00	1549	61.75	1568	18.07	459	18.07	459	23.62	*600	11091.2	5030
28x24	700x600	22.44	570	26.19	665	-	-	-	-	-	-	21.54	547	21.54	547	31.50	*800	16713.9	7580
30x24	750x600	22.44	570	28.06	712	74.00	1880	-	-	74.88	1902	21.54	547	21.54	547	31.50	*800	19249.7	8730
34x28	850x700	26.19	665	31.81	808	-	-	-	-	-	-	22.56	573	22.56	573	31.50	*800	24700.4	11202
36x30	900x750	28.06	712	33.69	855	90.00	2286	-	-	91.13	2315	25.12	638	25.12	638	31.50	*800	33923.9	15385

Note:*Gear box.

Connection Size (CLASS 1500-2500LB)



1500LB

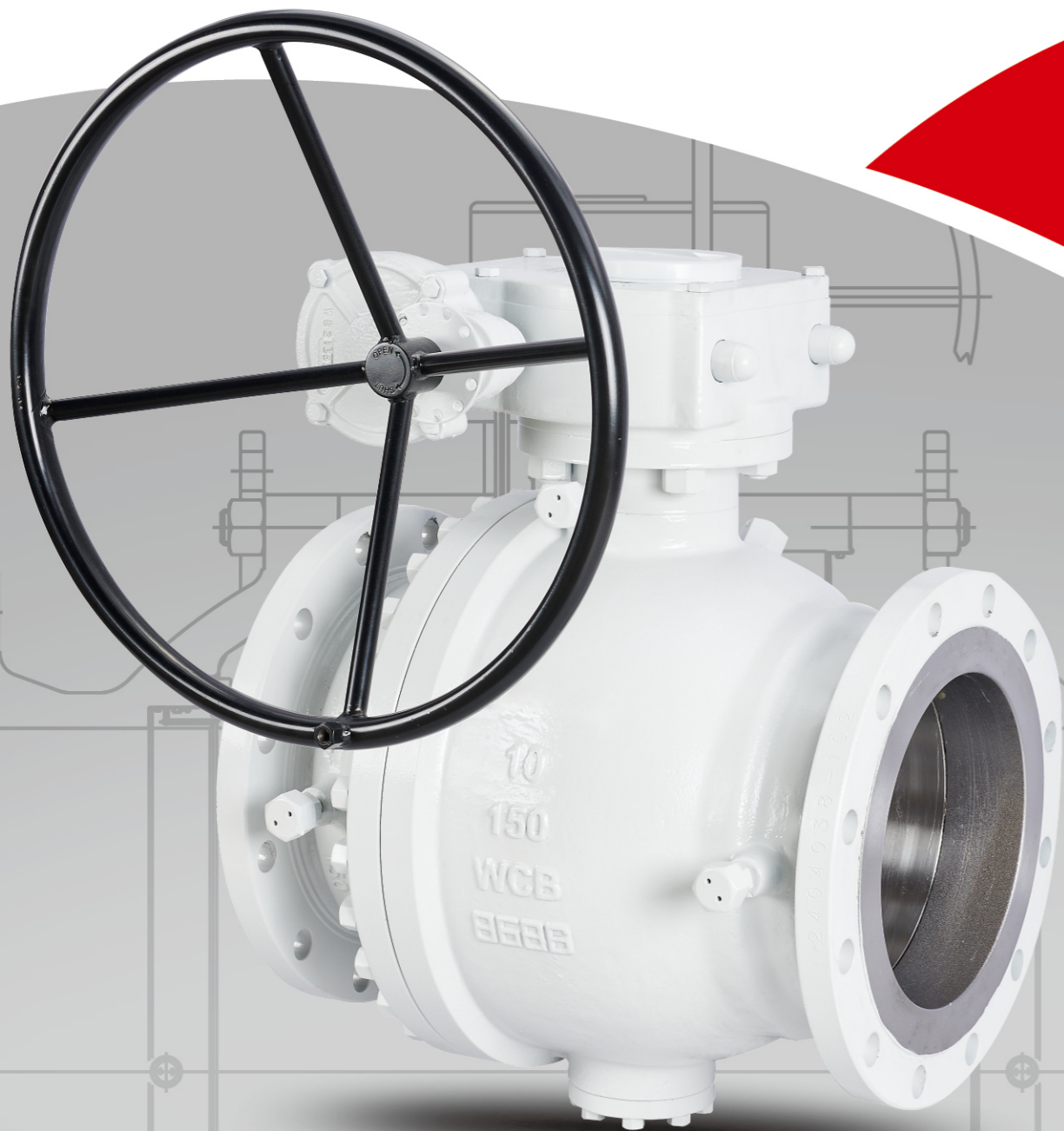
	Size		d		D		L(RF)		L1(BW)		L2(RTJ)		H1		H2		W		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
Full Port	2	50	-	-	1.94	49	14.50	368	14.50	368	14.63	371	5.31	135	5.31	135	25.59	650	125.7	57
	3	80	-	-	2.94	74	18.50	470	18.50	470	18.63	473	5.71	145	5.71	145	39.37	1000	370.4	168
	4	100	-	-	3.94	100	21.50	546	21.50	546	21.63	549	6.54	166	6.54	166	11.81	*300	507.2	230
	6	150	-	-	5.69	144	27.75	705	27.75	705	28.00	711	7.56	192	7.56	192	15.75	*400	1510.4	685
	8	200	-	-	7.56	192	32.75	832	32.75	832	33.13	841	9.37	238	9.37	238	19.69	*500	2189.6	993
	10	250	-	-	9.44	239	39.00	991	39.00	991	39.38	1000	10.79	274	10.79	274	23.62	*600	3927.1	1781
	12	300	-	-	11.31	287	44.50	1130	44.50	1130	45.13	1146	12.52	318	12.52	318	23.62	*600	5027.4	2280
	14	350	-	-	12.44	315	49.50	1257	49.50	1257	50.25	1276	19.02	483	19.02	483	23.62	*600	6615.0	3000
	16	400	-	-	14.19	360	54.50	1384	54.50	1384	55.38	1407	21.02	534	21.02	534	23.62	*600	8414.3	3816
	18	450	-	-	16.00	406	60.50	1537	-	-	61.38	1559	23.86	606	23.86	606	23.62	*600	13660.0	6195
	20	500	-	-	17.88	454	65.50	1664	-	-	66.38	1686	27.01	686	27.01	686	31.50	*800	20010.8	9075
	3x2	80x50	1.94	49	2.94	74	18.50	470	18.50	470	18.63	473	5.31	135	5.31	135	25.59	650	152.1	69
4x3	100x80	2.94	74	3.94	100	21.50	546	21.50	546	21.63	549	5.71	145	5.71	145	39.37	1000	430.0	195	
6x4	150x100	3.94	100	5.69	144	27.75	705	27.75	705	28.00	711	6.54	166	6.54	166	11.81	1500	595.4	270	
8x6	200x150	5.69	144	7.56	192	32.75	832	32.75	832	33.13	841	7.56	192	7.56	192	15.75	*300	1292.1	586	
10x8	250x200	7.56	192	9.44	239	39.00	991	39.00	991	39.38	1000	9.37	238	9.37	238	19.69	*400	2227.1	1010	
12x10	300x250	9.44	239	11.31	287	44.50	1130	44.50	1130	45.13	1146	10.79	274	10.79	274	23.62	*500	3880.8	1760	
14x12	350x300	11.31	287	12.44	315	49.50	1257	49.50	1257	50.25	1276	12.52	318	12.52	318	23.62	*600	5909.4	2680	
16x14	400x350	12.44	315	14.19	360	54.50	1384	54.50	1384	55.38	1407	19.02	483	19.02	483	23.62	*600	7783.7	3530	
18x16	450x400	14.19	360	16.00	406	60.50	1537	-	-	61.38	1559	21.02	534	21.02	534	23.62	*600	11091.2	5030	
20x18	500x450	16.00	406	17.88	454	65.50	1664	-	-	66.38	1686	23.86	606	23.86	606	23.62	*600	11862.9	5380	

2500LB

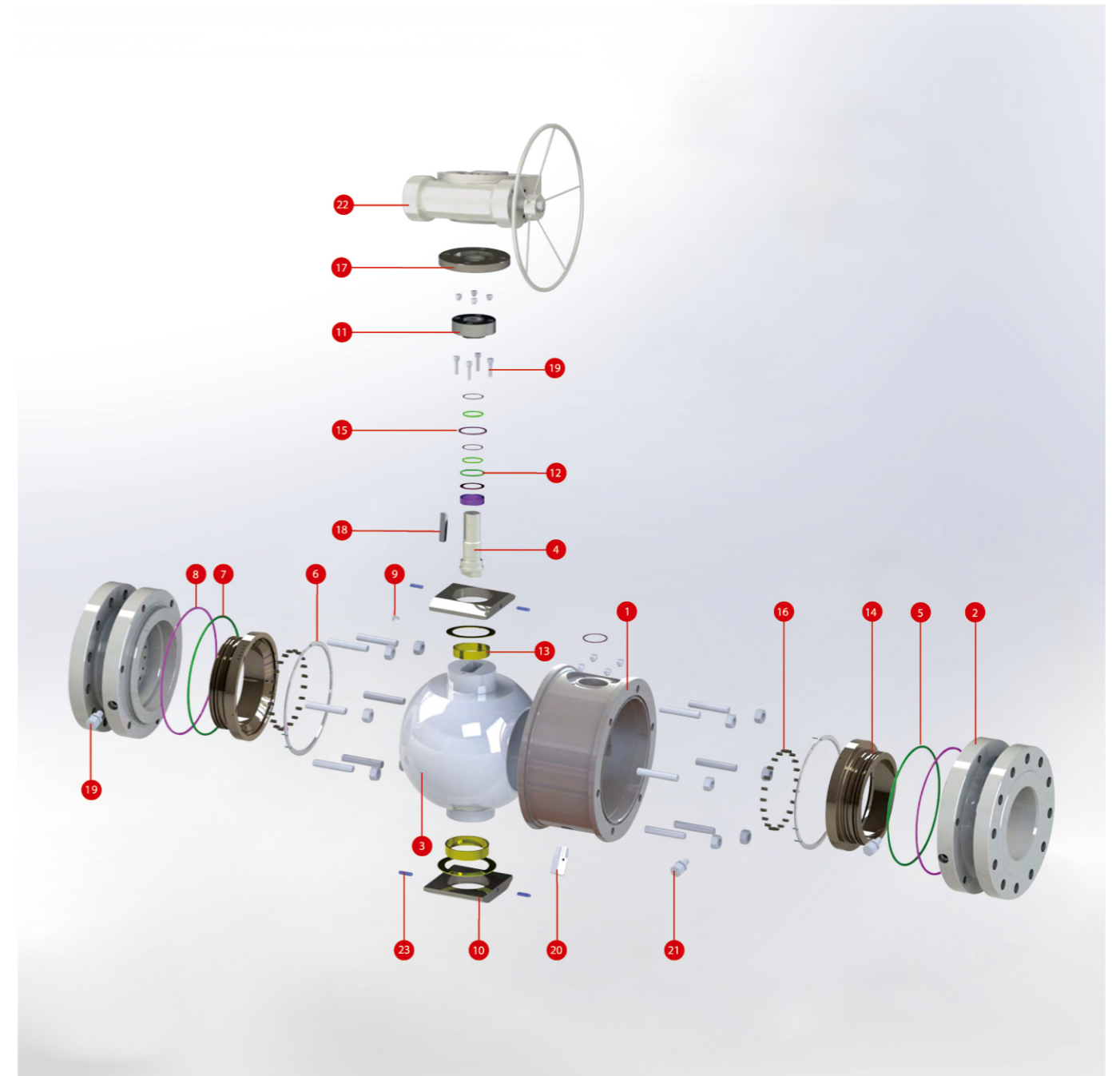
	Size		d		D		L-L1(RF-BW)		L2(RTJ)		H1		H2		W		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
Full Port	2	50	-	-	1.69	42	17.75	451	17.88	454	9.41	239	5.63	143	15.75	*400	308.7	140
	3	80	-	-	2.44	62	22.75	578	23.00	584	10.43	265	7.52	191	19.69	*500	476.3	216
	4	100	-	-	3.44	87	26.50	673	26.88	683	11.10	282	7.83	199	19.69	*500	723.2	328
	6	150	-	-	5.19	131	36.00	914	36.50	927	20.59	523	11.77	299	23.62	*600	2271.1	1030
	8	200	-	-	7.06													

2/3PCS CAST STEEL TRUNNION BALL VALVE

TBV SERIES www.fkv.jp



Structure Diagram



Design Features

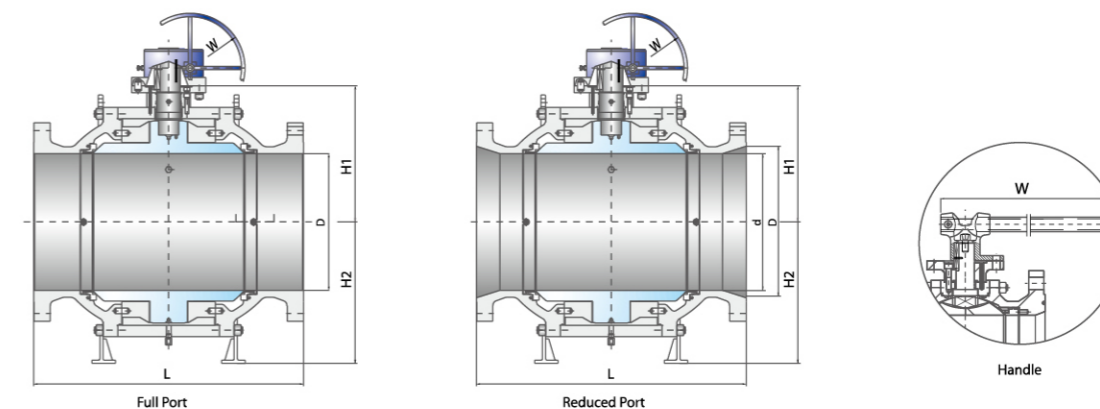
- Blow-out Proof Stem
- Fire Safe Tested Design
- Anti-Static Design
- ISO5211 Mount Pad
- Double Block and Bleed

- Double Block and Bleed
- Cavity Pressure Relief
- Low Emission Design
- Low Torque Performance
- Secure Line Flow Locking Device

Material List

No.	Part	Standard	Stainless Steel	Low Temperature	Sour Service
1	Body	ASTM A216 WCB	ASTM A351 CF8M	ASTM A352 LCB	ASTM A216 WCB
2	Closure	ASTM A216 WCB	ASTM A351 CF8M	ASTM A352 LCB	ASTM A216 WCB
3	Ball	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
4	Stem	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
5	Seat Ring	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
6	Seat Insert	PTFE	PTFE	PTFE	PTFE
7	O-Ring	VITON A	VITON A	VITON A	VITON A
8	Fire Safe Seal	Graphite	Graphite	Graphite	Graphite
9	Grounding Spring	SS316	SS316	SS316	SS316
10	Lower Trunnion/ Trunnion Support	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
11	Gland Cap	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM F316
12	Gasket	SS+Graphite	SS+Graphite	SS+Graphite	SS+Graphite
13	Bearing	SS+PTFE	SS+PTFE	SS+PTFE	SS+PTFE
14	Spring	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
15	Fire Safe Gasket	Graphite	Graphite	Graphite	Graphite
16	Screw	ASTM A193 B7	ASTM A193 B8	ASTM A320 L7	ASTM A193 B7M
17	Top Flange	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM F316
18	Key	Carbon Steel	Stainless Steel	Stainless Steel	Carbon Steel
19	Injection	SS304	SS316	SS304	SS304
20	Drain Valve	SS304	SS316	SS304	SS304
21	Vent Valve	SS304	SS316	SS304	SS304
22	Operator	Handle or Gear box	Handle or Gear box	Handle or Gear box	Handle or Gear box
23	Pin	Carbon Steel	Stainless Steel	Stainless Steel	Carbon Steel

Connection Size (CLASS 150LB)



Full Port

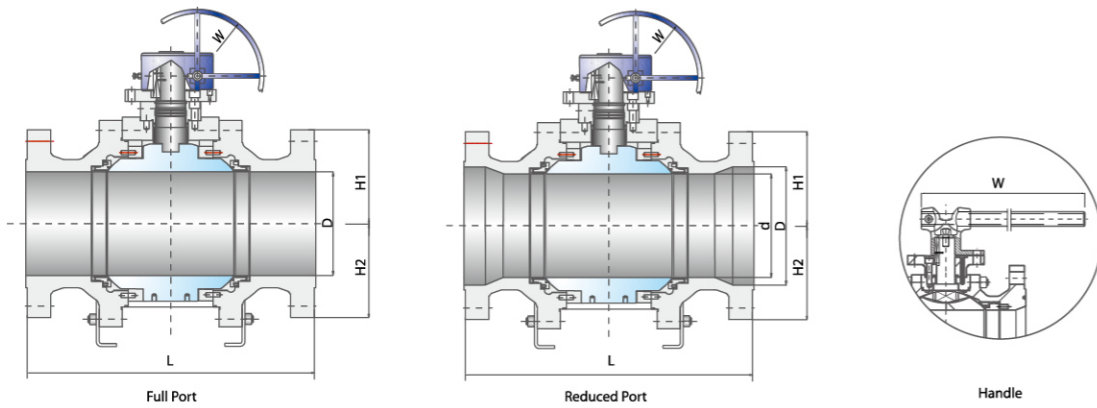
Size	D		L(RF)		L(BW)		L(RTJ)		H1		H2		W		Weight		
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
2	50	1.94	49	7.00	178	8.50	216	7.50	191	7.87	200	4.33	110	10.43	265	39.7	18
3	80	2.94	74	8.00	203	11.13	283	8.50	216	11.81	300	4.96	126	11.22	285	70.6	32
4	100	3.94	100	9.00	229	12.00	305	9.50	241	12.40	315	6.50	165	11.22	285	110.2	50
6	150	5.94	150	15.50	394	18.00	457	16.00	406	13.19	335	6.50	165	11.81	*300	295.3	134
8	200	7.94	201	18.00	457	20.50	521	18.50	470	15.94	405	7.87	200	11.81	*300	524.6	238
10	250	9.94	252	21.00	533	22.00	559	21.50	546	16.81	427	8.66	220	11.81	*300	736.1	334
12	300	11.94	303	24.00	610	25.00	635	24.50	622	18.31	465	10.31	262	19.69	*500	1223.2	555
14	350	13.19	334	27.00	686	30.00	762	27.50	699	19.92	506	11.54	293	23.62	*600	1450.2	658
16	400	15.19	385	30.00	762	33.00	838	30.50	775	24.49	622	13.43	341	23.62	*600	1899.8	862
18	450	17.19	436	34.00	864	36.00	914	34.50	876	26.22	666	16.22	412	23.62	*600	3233.3	1467
20	500	19.19	487	36.00	914	39.00	991	36.50	927	28.74	730	17.13	435	23.62	*600	3984.8	1808
22	550	21.19	538	-	-	-	-	-	-	32.80	833	18.90	480	23.62	*600	5031.7	2283
24	600	23.19	589	42.00	1067	45.00	1143	42.50	1080	35.24	895	20.39	518	31.50	*800	7160.8	3249
26	650	24.94	633	45.00	1143	49.00	1245	-	-	35.43	900	21.06	535	31.50	*800	7722.8	3504
28	700	26.94	684	49.00	1245	53.00	1346	-	-	36.81	935	21.34	542	31.50	*800	9503.6	4312
30	750	28.94	735	51.00	1295	55.00	1397	-	-	39.76	1010	23.82	605	31.50	*800	11502.7	5219
32	800	30.69	779	54.00	1372	60.00	1524	-	-	41.73	1060	25.59	650	31.50	*800	13019.0	5907
34	850	32.69	830	58.00	1473	64.00	1626	-	-	42.40	1077	25.59	650	31.50	*800	15029.1	6819
36	900	34.44	874	60.00	1524	68.00	1727	-	-	43.90	1115	27.56	700	31.50	*800	18068.4	8198
40	1000	38.44	976	67.99	1727	-	-	-	-	55.12	1400	34.06	865	31.50	*800	23745.9	10774

Reduced Port

Size	d		D		L(RF)		L(BW)		L(RTJ)		H1		H2		W		Weight		
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
3x2	80*50	1.94	49	2.94	74	8.00	203	11.13	283	8.50	216	7.87	200	4.33	110	10.43	265	58.4	27
4x3	100*80	2.94	74	3.94	100	9.00	229	12.00	305	9.50	241	11.81	300	4.96	126	11.22	285	88.2	40
6x4	150*100	3.94	100	5.94	150	15.50	394	18.00	457	16.00	406	12.40	315	6.50	165	11.22	285	176.3	80
8x6	200*150	5.94	150	7.94	201	18.00	457	20.50	521	18.50	470	13.19	335	6.69	170	11.81	*300	390.2	177
10x8	250*200	7.94	201	9.94	252	21.00	533	22.00	559	21.50	546	15.94	405	7.87	200	11.81	*300	652.4	296
12x10	300*250	9.94	252	11.94	303	24.00	610	25.00	635	24.50	622	16.81	427	8.66	220	11.81	*300	972.0	441
14x10	350*250	12.01	305	13.27	337	27.00	686	30.00	762	27.50	699	16.81	427	8.66	220	11.81	*300	1437.0	652
16x12	400*300	13.27	337	15.24	387	30.00	762	33.00	838	30.50	775	18.31	465	10.31	262	19.69	*500	1664.0	755
18x14	450*350	13.19	334	17.19	436	34.00	864	36.00	914	34.50	876	19.92	506	11.54	293	23.62	*600	2201.8	999
20x16	500*400	15.19	385	19.19	487	36.00	914	39.00	991	36.50	927	24.49	622	13.43	341	23.62	*600	3048.9	1383
22x18	550*450	17.19	436	21.19	538	-	-	-	-	26.22	666	15.43	392	23.62	*600	3366.4	1527		
24x20	600*500	19.19	487	23.19	589	42.00	1067	45.00	1143	42.50	1080	28.74	730	17.13	435	23.62	*600	4548.1	2063
26x22	650*550	21.19	538	24.94	633	45.00	1143	49.00	1245	-	-	32.80	833	18.90	480	23.62	*600	5165.3	2343
28x24	700*600	23.19	589	26.94	684	49.00	1245	53.00	1346	-	-	35.24	895	20.39	518	31.50	*800	5952.4	2700
30x24	750*600	23.19	589	28.94	735	51.00	1295	55.00	1397	-	-	35.24	895	20.39	518	31.50	*800	7226.7	3278
32x26	800*650	24.94	633	30.69	779	54.00	1372	60.00	1524	-	-	35.43	900	21.06	535	31.50	*800	8829.4	4005
34x28	850*700	26.94	684	32.69	830	58.00	1473	64.00	1626	-	-	36.81	935	21.34	542	31.50	*800	9799.4	4445
36x30	900*750	28.94	735	34.44	874	60.00	1524	68.00	1727	-	-	39.76	1010	23.82	605	31.50	*800	12182.6	5526
40x34	1000x850	32.69	830	38.44	976	67.99	1727	-	-	-	-	42.40	1077	25.59	650	31.50	*800	18077.6	8200

Note:*Gear box.

Connection Size (CLASS 300LB)



Full Port

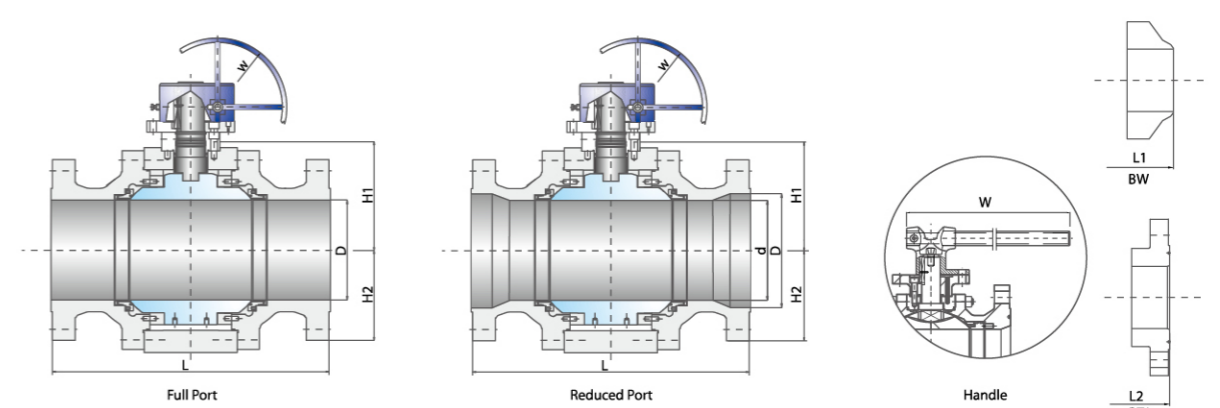
Size		D		L(RF)		L(BW)		L(RTJ)		H1		H2		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	8.50	216	8.50	216	9.13	232	8.11	206	4.45	113	10.43	265	44.1	20
3	80	2.94	74	11.13	283	11.13	283	11.75	298	12.40	315	5.08	129	15.75	400	101.4	46
4	100	3.94	100	12.00	305	12.00	305	12.63	321	12.99	330	6.65	169	29.53	750	152.1	69
6	150	5.94	150	15.88	403	18.00	457	16.50	419	13.58	345	5.83	148	11.81	*300	358.2	162.5
8	200	7.94	201	19.75	502	20.50	521	20.38	518	16.34	415	7.28	185	11.81	*300	606.1	275
10	250	9.94	252	22.38	568	22.00	559	23.00	584	16.81	427	8.90	226	15.75	*400	771.4	350
12	300	11.94	303	25.50	648	25.00	635	26.13	664	18.31	465	10.59	269	19.69	*500	1258.5	571
14	350	13.19	334	30.00	762	30.00	762	30.63	778	20.43	519	11.81	300	23.62	*600	1485.5	674
16	400	15.19	385	33.00	838	33.00	838	33.63	854	25.12	638	13.78	350	23.62	*600	2144.5	973
18	450	17.19	436	36.00	914	36.00	914	36.63	930	26.89	683	15.83	402	23.62	*600	3864.7	1753
20	500	19.19	487	39.00	991	39.00	991	39.75	1010	29.45	748	17.56	446	23.62	*600	4724.5	2143
22	550	21.19	538	43.00	1092	43.00	1092	43.88	1114	33.62	854	19.37	492	23.62	*600	5934.8	2692
24	600	23.19	589	45.00	1143	45.00	1143	45.88	1165	36.10	917	20.91	531	31.50	*800	7370.0	3343
28	700	26.94	684	53.00	1346	53.00	1346	54.00	1372	37.72	958	21.89	556	31.50	*800	11333.8	5141
30	750	28.94	735	55.00	1397	55.00	1397	56.00	1422	40.75	1035	24.41	620	31.50	*800	13445.9	6099
32	800	30.69	779	60.00	1524	60.00	1524	61.13	1553	42.80	1087	26.22	666	31.50	*800	15304.3	6942
34	850	32.69	830	64.00	1626	64.00	1626	65.13	1654	43.46	1104	26.22	666	31.50	*800	17423.0	7903
36	900	34.44	874	68.00	1727	68.00	1727	69.13	1756	45.00	1143	28.27	718	31.50	*800	19056.6	8644
40	1000	38.44	976	75.98	1930	-	-	-	-	56.50	1435	34.92	887	31.50	*800	25253.7	11455

Reduced Port

Size		d		D		L(RF)		L(BW)		L(RTJ)		H1		H2		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	11.13	283	11.13	283	11.75	298	8.11	206	4.45	113	10.43	265	79.4	36
4x3	100x80	2.94	74	3.94	100	12.00	305	12.00	305	12.63	321	12.40	315	5.08	129	15.75	400	125.6	57
6x4	150x100	3.94	100	5.94	150	15.88	403	18.00	457	16.50	419	12.99	330	6.65	169	29.53	750	271.1	123
8x6	200x150	5.94	150	7.94	201	19.75	502	20.50	521	20.38	518	13.58	345	5.83	148	11.81	*300	483.8	219.5
10x8	250x200	7.94	201	9.94	252	22.38	568	22.00	559	23.00	584	16.34	415	7.28	185	11.81	*300	727.3	330
12x10	300x250	9.94	252	11.94	303	25.50	648	25.00	635	26.13	664	16.81	427	8.90	226	19.69	*500	1137.3	516
14x10	350x250	12.01	305	13.27	337	30.00	762	30.00	762	30.63	778	16.81	427	8.90	226	19.69	*500	1575.9	715
16x12	400x300	13.27	337	15.24	387	33.00	838	33.00	838	33.63	854	18.31	465	10.59	269	23.62	*600	1891.0	858
18x14	450x350	15.24	387	17.24	438	36.00	914	36.00	914	36.63	930	20.43	519	11.81	300	23.62	*600	2658.0	1203
20x18	500x450	17.19	436	19.19	487	39.00	991	39.00	991	39.75	1010	26.89	683	15.83	402	23.62	*600	3428.2	1555
22x18	550x450	17.19	436	21.19	538	43.00	1092	43.00	1092	43.88	1114	26.89	683	15.83	402	23.62	*600	4914.1	2229
24x20	600x500	19.19	487	23.19	589	45.00	1143	45.00	1143	45.88	1165	29.45	748	17.56	446	23.62	*600	4539.3	2059
28x24	700x600	23.19	589	26.94	684	53.00	1346	53.00	1346	54.00	1372	33.62	854	19.37	492	23.62	*600	7054.7	3200
30x24	750x600	23.19	589	28.94	735	55.00	1397	55.00	1397	56.00	1422	36.10	917	20.91	531	31.50	*800	8981.5	4074
34x28	850x700	26.94	684	32.69	830	64.00	1626	64.00	1626	65.13	1654	37.72	958	21.89	556	31.50	*800	10681.2	4845
36x30	900x750	28.94	735	34.44	874	68.00	1727	68.00	1727	69.13	1756	40.75	1035	24.41	620	31.50	*800	13723.6	6225
40x34	1000x850	32.69	830	38.44	976	75.98	1930	-	-	43.46	1104	26.22	666	31.50	*800	18077.6	8200		

Note:*Gear box.

Connection Size (CLASS 600LB)



Full Port

Size		D		L-L1(RF-BW)		L2 (RTJ)		H1		H2		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	11.50	292	11.63	295	7.87	200	4.33	110	10.43	265	59.5	27
3	80	2.94	74	14.00	356	14.13	359	11.81	300	4.96	126	11.22	285	119.0	54
4	100	3.94	100	17.00	432	17.13	435	12.40	315	6.50	165	11.22	285	198.4	90
6	150	5.94	150	22.00	559	22.13	562	13.19	335	6.50	165	11.81	*300	656.8	298
8	200	7.94	201	26.00	660	26.13	664	15.94	405	7.87	200	11.81	*300	886.0	402
10	250	9.94	252	31.00	787	31.13	791	16.81	427	8.66	220	11.81	*300	1289.3	585
12	300	11.94	303	33.00	838	33.13	841	18.31	465	10.31	162	19.69	*500	1858.0	843
14	350	13.19	334	35.00	889	35.13	892	19.92	506	11.54	293	23.62	*600	2448.6	1111
16	400	15.19	385	39.00	991	39.13	994	24.49	622	13.43	341	23.62	*600	3306.0	1500
18	450	17.19	436	43.00	1092	43.13	1095	26.89	683	15.83	402	23.62	*600	3758.8	1705
20	500	19.19	487	47.00	1194	47.25	1200	29.45	748	17.56	446	23.62	*600	6501.4	2949
22	550	21.19	538	51.00	1295	51.38	1305	33.62	854	19.37	492	31.50	*800	7469.2	3388
24	600	23.19	589	55.00	1397	55.38	1407	36.10	917	20.91	531	31.50	*800	9314.4	4225
28	700	26.94	684	61.00	1549	61.50	1562	37.72	958	21.89	556	31.50	*800	14303.4	6488
30	750	28.94	735	65.00	1651	65.50	1664	40.75	1035	24.41	620	31.50	*800	15963.5	7241
32	800	30.69	779	70.00	1778	70.63	1794	42.80	1087	26.22	666	31.50	*800	20617.4	9352
34	850	32.69	830	76.00	1930	76.63	1946	43.46	1104	26.22	666	31.50	*800	22337.0	10132
36	900	34.44	874	82.00	2083	82.63	2099	45.00	1143	28.27	718	31.50	*800	24887.7	11289
40	1000	38.44	976	85.00	2159	85.00	2159	56.50	1435	34.92	887	31.50	*800	34352.1	15582

Reduced Port

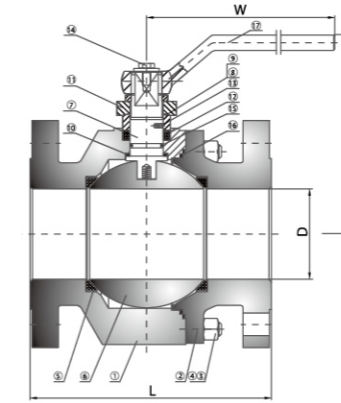
Size		d		D		L(RF)		L1(BW)		L2(RTJ)		H1		H2		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	14.00	356	14.00	356	14.13	359	8.11	206	4.45	113	15.75	400	86.0	39
4x3	100x80	2.94	74	3.94	100	17.00	432	17.00	432	17.13	435	12.40	315	4.45	113	15.75	400	158.7	72
6x4	150x100	3.94	100	5.94	150	22.00	559	22.00	559	22.13	562	12.99	330	5.08	129	29.53	750	299.7	136
8x6	200x150	5.94	150	7.94	201	26.00	660	26.00	660	26.13	664	13.58	345	6.65	169	39.37	1000	599.5	272
10x8	250x200	7.94	201	9.94	252	31.00	787	31.00	787	31.13	791	16.34	415	5.83	148	11.81	*300	1018.2	462
12x10	300x250	9.94	252	11.94	303	33.00	838	33.00	838	33.13	841	16.81	427	7.28	185	11.81	*300	1417.2	643
14x12	350x300	11.94	303	13.															

2PCS FORGED STEEL FLOATING BALL VALVE

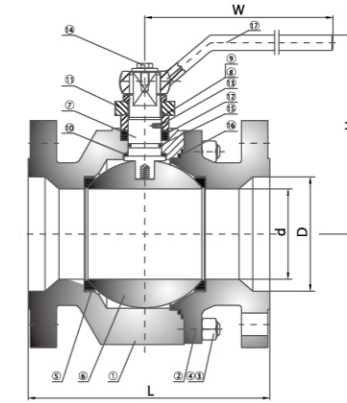
FBV SERIES www.fkv.jp

2PCS FORGED STEEL Floating Ball Valve

Connection Size (CLASS 150LB)



Full Port



Reduced Port

Material Specifications

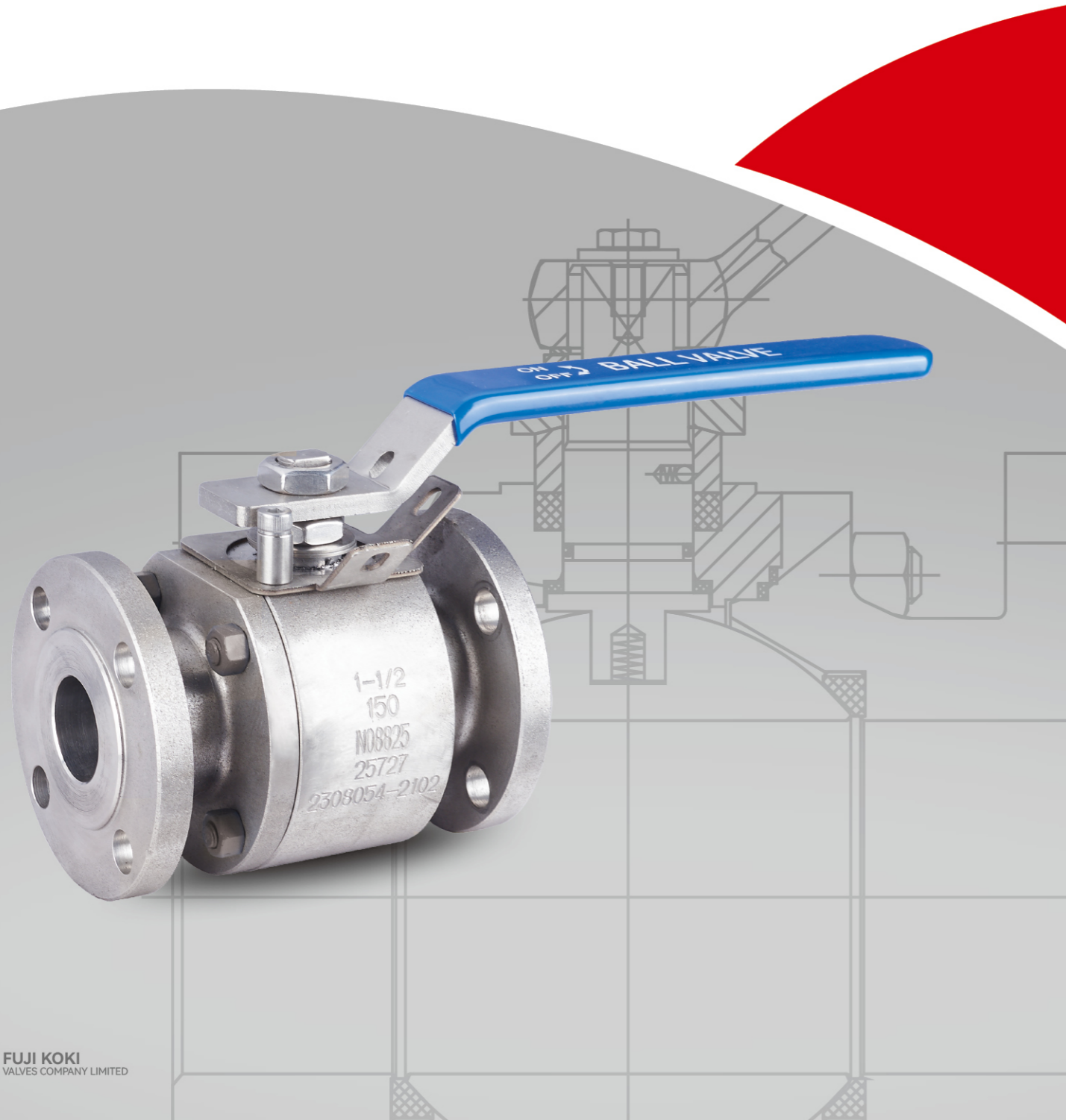
No.	Part	Standard	Stainless Steel	Low Temperature	Sour Service
1	Body	A105N	A182 F316(L)	A350 LF2	F316
2	Bonnet	A105N	A182 F316(L)	A350 LF2	F316
3	Bolt	A193 B7	A193 B8	A320 L7	A193 B8
4	Nut	A194 2H	A194 8	A194 7	A194 8
5	Seat	RPTFE	RPTFE	RPTFE	RPTFE
6	Ball	F316	A182 F316(L)	A182 F6a	F316
7	Stem	F316	A182 F316(L)	A182 F6a	F316
8	Spring	SS304	SS304	SS304	SS304
9	Steel Ball	SS304	SS304	SS304	SS304
10	Thrust Collar	PTFE	PTFE	PTFE	PTFE
11	Holding Plate	WCB	SS316	WCB	WCB
12	Packing	Graphite	Graphite	Graphite	Graphite
13	Gland	A276 410	A182 F316(L)	A182 F6a	A276 410
14	Screwed	CS	SS	CS	CS
15	*O Ring	VITON	VITON	VITON	VITON
16	Gasket	SPW.SS304+Graphite	SPW.SS316+Graphite	SPW.SS304+Graphite	SPW.SS304+Graphite
17	Handle	WCB	WCB	WCB	WCB

Note: Other materials are available upon request.

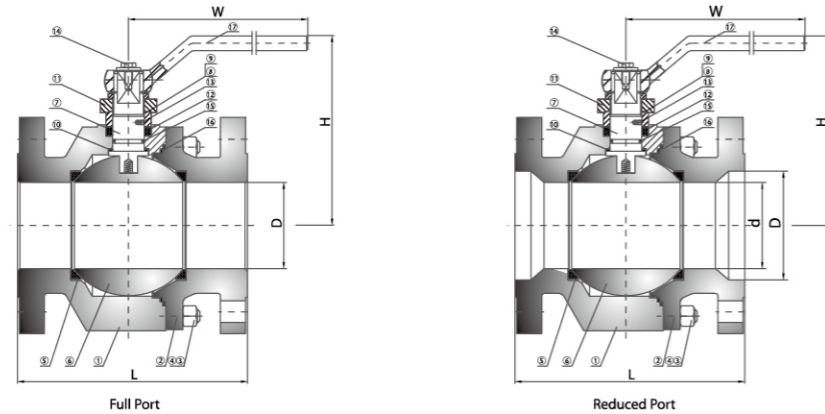
Dimension and Weight

	Size	d		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
Full Port	1/2"	-	-	0.50	13	4.25	108	-	-	-	-	3.15	80	5.91	150	5.52	3
	3/4"	-	-	0.75	19	4.61	117	-	-	-	-	3.54	90	7.09	180	9.49	4
	1"	-	-	1.00	25	5.00	127	-	-	-	-	4.13	105	9.06	230	15.23	7
	1½"	-	-	1.50	38	6.50	165	-	-	-	-	5.51	140	11.81	300	28.02	13
	2"	-	-	1.94	49	7.00	178	8.50	216	7.50	191	5.91	150	11.81	300	35.30	16
	3"	-	-	2.94	74	8.00	203	11.13	283	8.50	216	6.30	160	15.75	400	50.31	23
	4"	-	-	3.94	100	9.00	229	12.00	305	9.50	241	6.93	176	25.59	650	79.44	36
	6"	-	-	5.94	150	15.50	394	18.00	457	16.00	406	9.25	235	15.75	*400	238.31	108
	8"	-	-	7.94	201	18.00	457	20.50	521	18.50	470	12.40	315	19.69	*500	423.65	192
	10"	-	-	9.94	252	21.00	533	22.00	559	21.50	546	17.95	456	23.62	*600	741.39	336
Reduced Port	3/4"x1/2"	0.50	13	0.75	19	4.61	117	-	-	-	-	3.15	80	5.91	150	4.41	2
	1"x3/4"	0.75	19	1.00	25	5.00	127	-	-	-	-	3.54	90	7.09	180	6.62	3
	1½"x1"	1.00	25	1.50	38	6.50	165	-	-	-	-	4.13	105	9.06	230	13.23	6
	2"x1½"	1.50	38	1.94	49	7.01	178	-	-	-	-	5.51	140	11.81	300	22.05	10
	3"x2"	1.94	49	2.94	74	8.00	203	11.13	283	8.50	216	5.91	150	11.81	300	28.67	13
	4"x3"	2.94	74	3.94	100	9.00	229	12.00	305	9.50	241	6.30	160	15.75	400	39.69	18
	6"x4"	3.94	100	5.94	150	15.50	394	18.00	457	16.00	406	6.93	176	25.59	650	63.95	29
	8"x6"	5.94	150	7.94	201	18.00	457	20.50	521	18.50	470	9.25	235	15.75	*400	189.63	86
	10"x8"	7.94	201	9.94	252	21.00	533	22.00	559	21.50	546	12.40	315	19.69	*500	339.57	154
	12"x10"	9.94	252	11.94	303	24.00	610	25.00	635	24.50	622	17.95	456	23.62	*600	593.15	269

Note:*Gear box.



Connection Size (CLASS 300LB)



Material Specifications

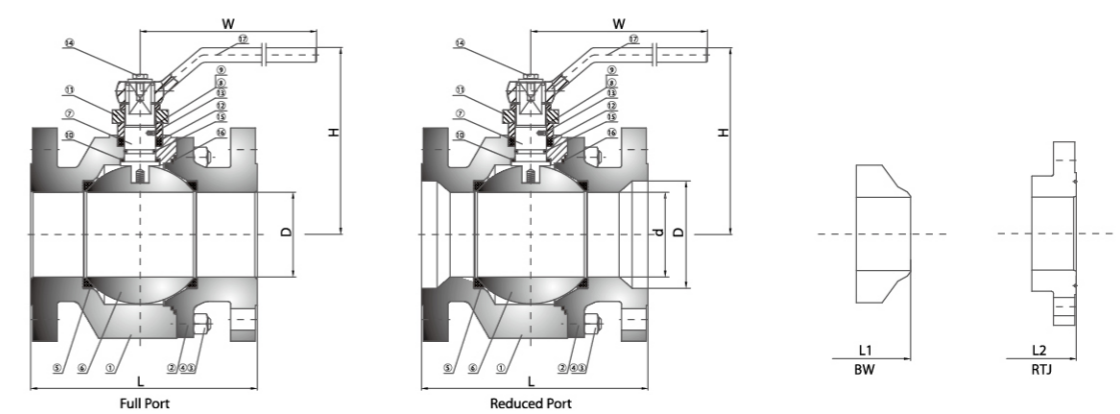
No.	Part	Standard	Stainless Steel	Low Temperature	Sour Service
1	Body	A105N	A182 F316(L)	A350 LF2	F316
2	Bonnet	A105N	A182 F316(L)	A350 LF2	F316
3	Bolt	A193 B7	A193 B8	A320 L7	A193 B8
4	Nut	A194 2H	A194 8	A194 7	A194 8
5	Seat	RPTFE	RPTFE	RPTFE	RPTFE
6	Ball	F316	A182 F316(L)	A182 F6a	F316
7	Stem	F316	A182 F316(L)	A182 F6a	F316
8	Spring	SS304	SS304	SS304	SS304
9	Steel Ball	SS304	SS304	SS304	SS304
10	Thrust Collar	PTFE	PTFE	PTFE	PTFE
11	Holding Plate	WCB	SS316	WCB	WCB
12	Packing	Graphite	Graphite	Graphite	Graphite
13	Gland	A276 410	A182 F316(L)	A182 F6a	A276 410
14	Screwed	CS	SS	CS	CS
15	*O* Ring	VITON	VITON	VITON	VITON
16	Gasket	SPW.SS304+Graphite	SPW.SS316+Graphite	SPW.SS304+Graphite	SPW.SS304+Graphite
17	Handle	WCB	WCB	WCB	WCB

Note: Other materials are available upon request.

Dimension and Weight

	Size	d		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
Full Port	1/2"	-	-	0.50	13	5.51	140	-	-	-	-	3.15	80	5.91	150	5.52	3
	3/4"	-	-	0.75	19	5.98	152	-	-	-	-	3.54	90	7.09	180	9.49	4
	1"	-	-	1.00	25	6.50	165	-	-	-	-	4.13	105	9.06	230	15.23	7
	1½"	-	-	1.50	38	7.48	190	-	-	-	-	5.51	140	11.81	300	28.02	13
	2"	-	-	1.94	49	8.50	216	8.50	216	9.13	232	5.91	150	11.81	300	35.30	16
	3"	-	-	2.94	74	11.13	283	11.13	283	11.75	298	6.69	170	15.75	400	79.44	36
	4"	-	-	3.94	100	12.00	305	12.00	305	12.63	321	8.27	210	25.59	650	119.15	54
	6"	-	-	5.94	150	15.88	403	18.00	457	16.50	419	10.71	272	15.75	*400	278.02	126
	8"	-	-	7.94	201	19.75	502	20.50	521	20.38	518	13.46	342	19.69	*500	529.57	240
	10"	-	-	9.94	252	22.38	568	22.00	559	23.00	584	17.32	440	23.62	*600	772.29	350
Reduced Port	3/4"x1/2"	0.50	13	0.75	19	5.51	140	-	-	-	-	3.15	80	5.91	150	4.41	2
	1"x3/4"	0.75	19	1.00	25	5.98	152	-	-	-	-	3.54	90	7.09	180	6.62	3
	1½"x1"	1.00	25	1.50	38	6.50	165	-	-	-	-	4.13	105	9.06	230	13.23	6
	2"x1½"	1.50	38	1.94	49	7.48	190	-	-	-	-	5.51	140	11.81	300	22.05	10
	3"x2"	1.94	49	2.94	74	11.13	283	11.13	283	11.75	298	5.91	150	11.81	300	28.67	13
	4"x3"	2.94	74	3.94	100	12.00	305	12.00	305	12.63	321	6.69	170	15.75	400	63.95	29
	6"x4"	3.94	100	5.94	150	15.88	403	18.00	457	16.50	419	8.27	210	25.59	650	94.82	43
	8"x6"	5.94	150	7.94	201	19.75	502	20.50	521	20.38	518	10.71	272	15.75	*400	222.71	101
	10"x8"	7.94	201	9.94	252	22.38	568	22.00	559	23.00	584	13.46	342	19.69	*500	423.36	192
	12"x10"	9.94	252	11.94	303	25.50	648	25.00	635	26.13	664	17.32	440	19.69	*500	617.40	280

Connection Size (CLASS 600LB)



Material Specifications

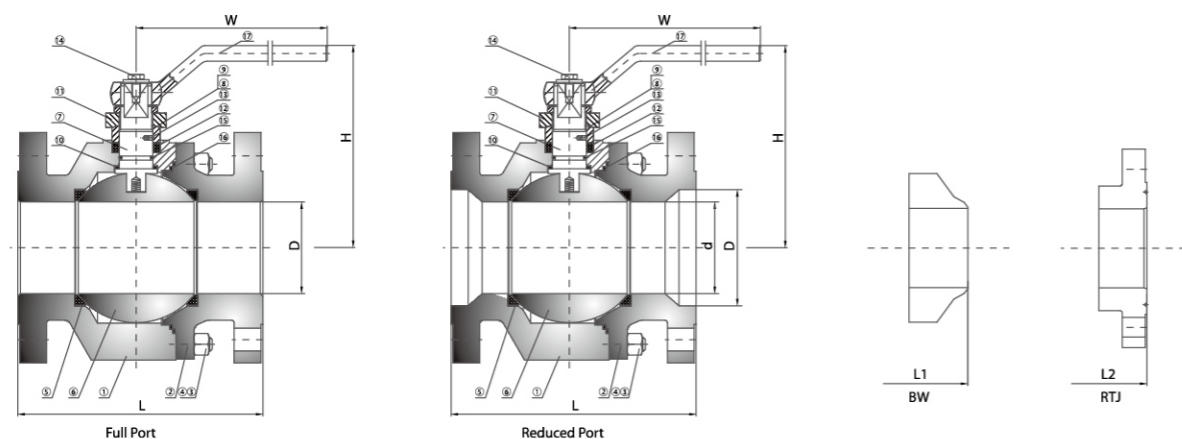
No.	Part	Standard	Stainless Steel	Low Temperature	Sour Service
1	Body	A105N	A182 F316(L)	A350 LF2	F316
2	Bonnet	A105N	A182 F316(L)	A350 LF2	F316
3	Bolt	A193 B7	A193 B8	A320 L7	A193 B8
4	Nut	A194 2H	A194 8	A194 7	A194 8
5	Seat	RPTFE	RPTFE	RPTFE	RPTFE
6	Ball	F316	A182 F316(L)	A182 F6a	F316
7	Stem	F316	A182 F316(L)	A182 F6a	F316
8	Spring	SS304	SS304	SS304	SS304
9	Steel Ball	SS304	SS304	SS304	SS304
10	Thrust Collar	PTFE	PTFE	PTFE	PTFE
11	Holding Plate	WCB	SS316	WCB	WCB
12	Packing	Graphite	Graphite	Graphite	Graphite
13	Gland	A276 410	A182 F316(L)	A182 F6a	A276 410
14	Screwed	CS	SS	CS	CS
15	*O* Ring	VITON	VITON	VITON	VITON
16	Gasket	SPW.SS304+Graphite	SPW.SS316+Graphite	SPW.SS304+Graphite	SPW.SS304+Graphite
17	Handle	WCB	WCB	WCB	WCB

Note: Other materials are available upon request.

Dimension and Weight

	Size	d		D		L-L1(RF-BW)		L2(RTJ)		H		W		Weight		
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
Full Port	1/2"	-	-	0.50	13	6.50	165	6.42	163	3.15	80	5.91	150	5.52	3	
	3/4"	-	-	0.75	19	7.48	190	7.48	190	3.54	90	7.09	180	9.49	4	
	1"	-	-	1.00	25	8.50	216	8.50	216	4.13	105	9.06	230	15.23	7	
	1½"	-	-	1.50	38	9.49	241	9.49	241	5.51	140	11.81	300	28.02	13	
	2"	-	-	1.94	49	11.50	292	11.63	295	5.91	150	11.81	300	35.30	16	
	3"	-	-	2.94	74	14.00	356	14.13	359	8.27	210	27.56	700	112.53	51	
	4"	-	-	3.94	100	17.00	432	17.13	435	9.33	237	41.34	1050	220.65	100	
	Reduced Port	3/4"x1/2"	0.50	13	0.75	19	7.48	190	7.48	190	3.15	80	5.91	150	4.41	2
		1"x3/4"	0.75	19	1.00	25	8.50	216	8.50	216	3.54	90	7.09	180	6.62	3
		1½"x1"	1.00	25	1.50	38	9.49	241	9.49	241	4.13	105	9.06	230	13.23	6
2"x1½"		1.50	38	1.94	49	11.50	292	11.63	295	5.51	140	11.81	300	22.05	10	
3"x2"		1.94	49	2.94	74	14.00	356	14.13	359	5.91	150	11.81	300	28.67	13	
4"x3"		2.94	74	3.94	100	17.00	432	17.13	435	8.27	210	27.56	700	90.41	41	
6"x4"		3.94	100	5.94	150	22.00	559	22.13	562	9.33	237	41.34	1050	176.40	80	

Connection Size (CLASS 900LB)



Material Specifications

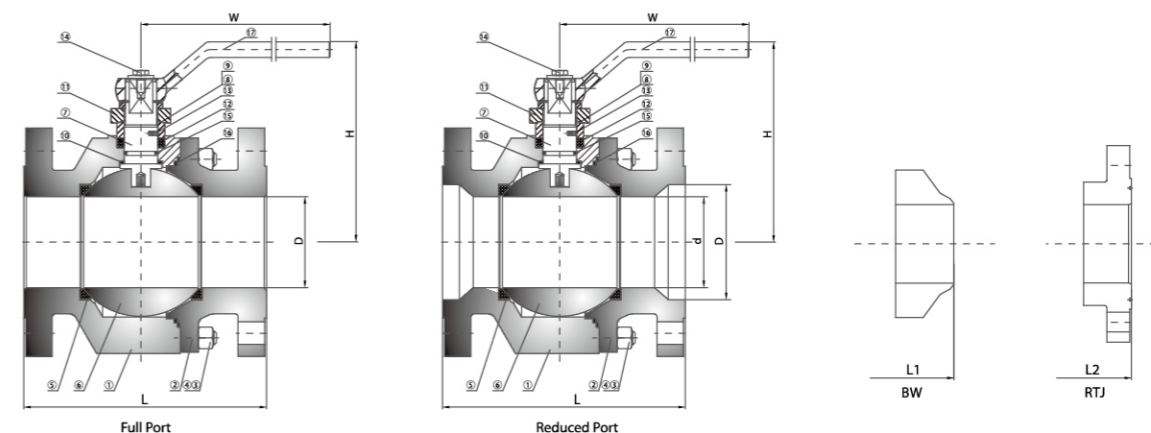
No.	Part	Standard	Stainless Steel	Low Temperature	Sour Service
1	Body	A105N	A182 F316(L)	A350 LF2	F316
2	Bonnet	A105N	A182 F316(L)	A350 LF2	F316
3	Bolt	A193 B7	A193 B8	A320 L7	A193 B8
4	Nut	A194 2H	A194 8	A194 7	A194 8
5	Seat	RPTFE	RPTFE	RPTFE	RPTFE
6	Ball	F316	A182 F316(L)	A182 F6a	F316
7	Stem	F316	A182 F316(L)	A182 F6a	F316
8	Spring	SS304	SS304	SS304	SS304
9	Steel Ball	SS304	SS304	SS304	SS304
10	Thrust Collar	PTFE	PTFE	PTFE	PTFE
11	Holding Plate	WCB	SS316	WCB	WCB
12	Packing	Graphite	Graphite	Graphite	Graphite
13	Gland	A276 410	A182 F316(L)	A182 F6a	A276 410
14	Screwed	CS	SS	CS	CS
15	*O* Ring	VITON	VITON	VITON	VITON
16	Gasket	SPW.SS304+Graphite	SPW.SS316+Graphite	SPW.SS304+Graphite	SPW.SS304+Graphite
17	Handle	WCB	WCB	WCB	WCB

Note: Other materials are available upon request.

Dimension and Weight

	Size	d		D		L-L1(RF-BW)		L2(RTJ)		H		W		Weight	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
Full Port	1/2"	-	-	0.50	13	8.50	216	8.50	216	2.95	75	5.91	150	6.40	3
	3/4"	-	-	0.75	19	9.02	229	9.02	229	3.54	90	7.09	180	11.03	5
	1"	-	-	1.00	25	10.00	254	10.00	254	3.94	100	9.06	230	18.09	8
	1½"	-	-	1.50	38	12.01	305	12.01	305	5.31	135	11.81	300	33.32	15
	2"	-	-	1.94	49	14.50	368	14.63	371	5.71	145	11.81	300	42.14	19
	3"	-	-	2.94	74	15.00	381	15.13	384	9.80	249	31.50	800	141.22	64
Reduced Port	3/4"x1/2"	0.50	13	0.75	19	9.02	229	9.02	229	2.95	75	5.91	150	4.41	2
	1"x3/4"	0.75	19	1.00	25	10.00	254	10.00	254	3.54	90	7.09	180	8.82	4
	1½"x1"	1.00	25	1.50	38	12.01	305	12.01	305	3.94	100	9.06	230	13.23	6
	2"x1½"	1.50	38	1.94	49	14.50	368	14.63	371	5.31	135	11.81	300	28.67	13
	3"x2"	1.94	49	2.94	74	15.00	381	15.13	384	5.71	145	11.81	300	33.18	15
	4"x3"	2.94	74	3.94	100	18.00	457	18.13	460	9.80	249	31.50	800	112.46	51

Connection Size (CLASS 1500LB)



Material Specifications

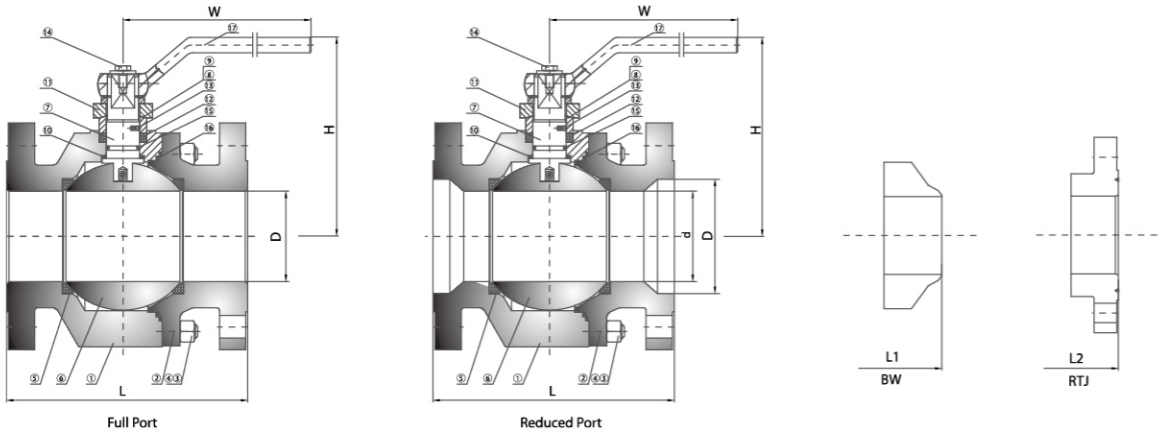
No.	Part	Standard	Stainless Steel	Low Temperature	Sour Service
1	Body	A105N	A182 F316(L)	A350 LF2	F316
2	Bonnet	A105N	A182 F316(L)	A350 LF2	F316
3	Bolt	A193 B7	A193 B8	A320 L7	A193 B8
4	Nut	A194 2H	A194 8	A194 7	A194 8
5	Seat	RPTFE	RPTFE	RPTFE	RPTFE
6	Ball	F316	A182 F316(L)	A182 F6a	F316
7	Stem	F316	A182 F316(L)	A182 F6a	F316
8	Spring	SS304	SS304	SS304	SS304
9	Steel Ball	SS304	SS304	SS304	SS304
10	Thrust Collar	PTFE	PTFE	PTFE	PTFE
11	Holding Plate	WCB	SS316	WCB	WCB
12	Packing	Graphite	Graphite	Graphite	Graphite
13	Gland	A276 410	A182 F316(L)	A182 F6a	A276 410
14	Screwed	CS	SS	CS	CS
15	*O* Ring	VITON	VITON	VITON	VITON
16	Gasket	SPW.SS304+Graphite	SPW.SS316+Graphite	SPW.SS304+Graphite	SPW.SS304+Graphite
17	Handle	WCB	WCB	WCB	WCB

Note: Other materials are available upon request.

Dimension and Weight

	Size	d		D		L-L1(RF-BW)		L2(RTJ)		H		W		Weight	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
Full Port	1/2"	-	-	0.50	13	8.50	216	8.50	216	2.95	75	5.91	150	15.00	7
	3/4"	-	-	0.75	19	9.02	229	9.02	229	3.54	90	7.09	180	24.27	11
	1"	-	-	1.00	25	10.00	254	10.00	254	3.94	100	9.06	230	35.30	16
	1½"	-	-	1.50	38	12.01	305	12.01	305	5.31	135	11.81	300	71.93	33
	2"	-	-	1.94	49	14.50	368	14.63	371	5.71	145	14.57	370	141.22	64
	3"	-	-	2.94	74	15.00	381	15.13	384	9.80	249	31.50	800	312.44	141
Reduced Port	3/4"x1/2"	0.50	13	0.75	19	9.02	229	9.02	229	2.95	75	5.91	150	13.23	6
	1"x3/4"	0.75	19	1.00	25	10.00	254	10.00	254	3.54	90	7.09	180	19.85	9
	1½"x1"	1.00	25	1.50	38	12.01	305	12.01	305	3.94	100	9.06	230	28.67	13
	2"x1½"	1.50	38	1.94	49	14.50	368	14.63	371	5.31	135	11.81	300	57.33	26
	3"x2"	1.94	49	2.94	74	18.50	470	18.63	473	5.71	145	14.57	370	112.46	51
	4"x3"	2.94	74	3.94	100	21.50	547	21.63	550	9.80	249	31.50	800	224.92	102

Connection Size (CLASS 2500LB)



3PCS FORGED STEEL
FLOATING BALL VALVE

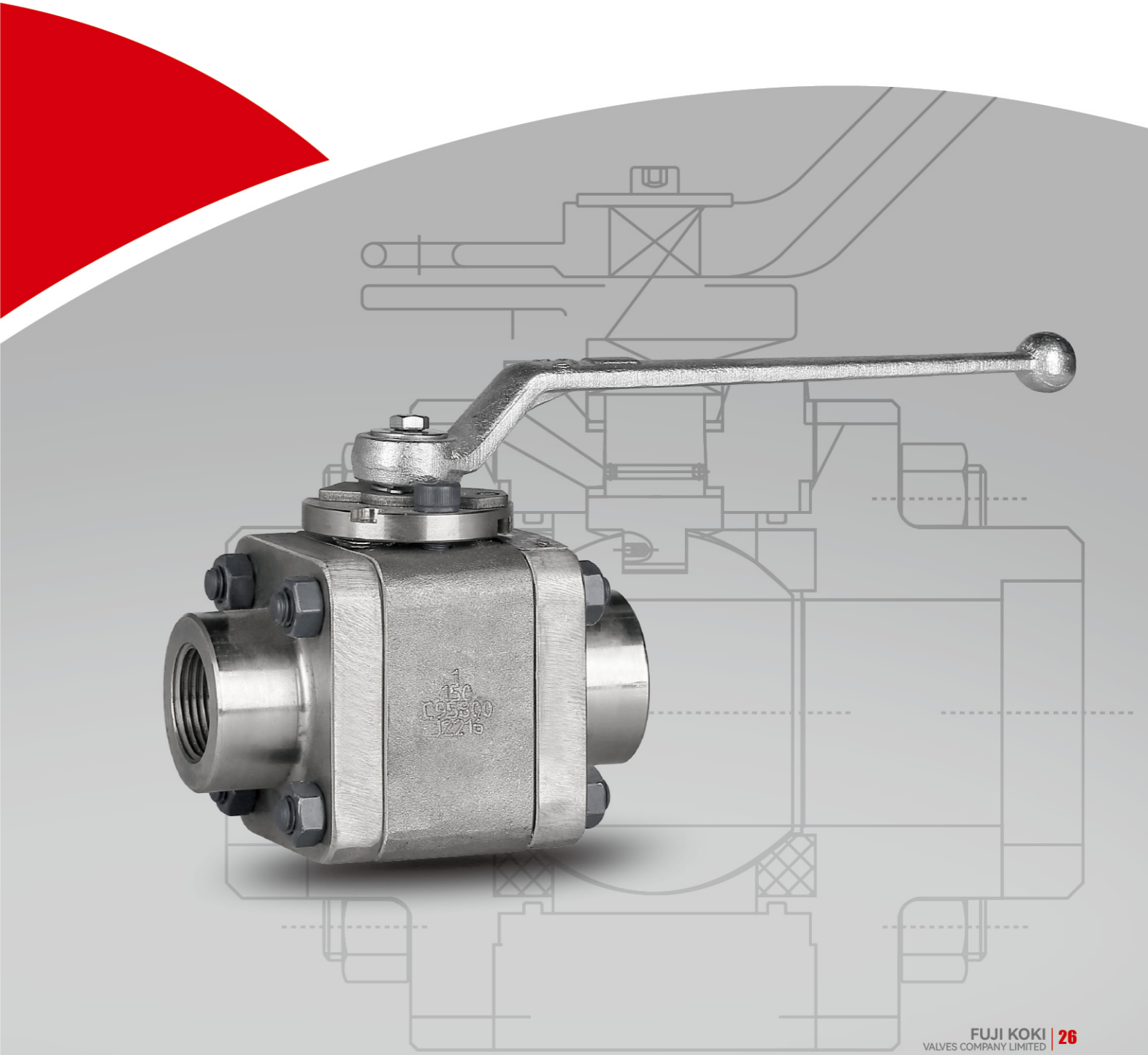
Material Specifications

No.	Part	Standard	Stainless Steel	Low Temperature	Sour Service
1	Body	A105N	A182 F316(L)	A350 LF2	F316
2	Bonnet	A105N	A182 F316(L)	A350 LF2	F316
3	Bolt	A193 B7	A193 B8	A320 L7	A193 B8
4	Nut	A194 2H	A194 8	A194 7	A194 8
5	Seat	RPTFE	RPTFE	RPTFE	RPTFE
6	Ball	F316	A182 F316(L)	A182 F6a	F316
7	Stem	F316	A182 F316(L)	A182 F6a	F316
8	Spring	SS304	SS304	SS304	SS304
9	Steel Ball	SS304	SS304	SS304	SS304
10	Thrust Collar	PTFE	PTFE	PTFE	PTFE
11	Holding Plate	WCB	SS316	WCB	WCB
12	Packing	Graphite	Graphite	Graphite	Graphite
13	Gland	A276 410	A182 F316(L)	A182 F6a	A276 410
14	Screwed	CS	SS	CS	CS
15	*O* Ring	VITON	VITON	VITON	VITON
16	Gasket	SPW.SS304+Graphite	SPW.SS316+Graphite	SPW.SS304+Graphite	SPW.SS304+Graphite
17	Handle	WCB	WCB	WCB	WCB

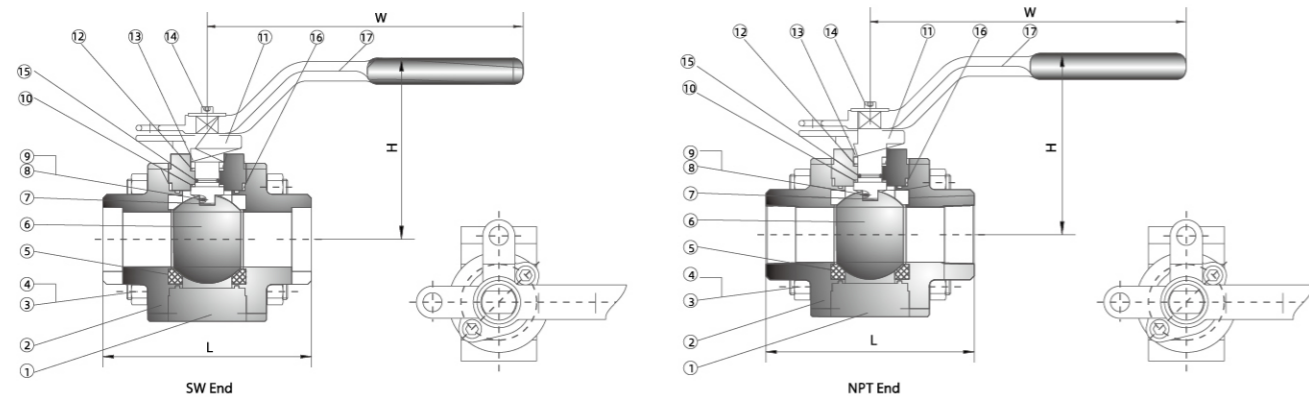
Note: Other materials are available upon request.

Dimension and Weight

	Size	d		D		L-L1(RF-BW)		L2(RTJ)		H		W		Weight	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
Full Port	1/2"	-	-	0.50	13	10.39	264	10.39	264	6.02	153	8.50	216	18.76	9
	3/4"	-	-	0.75	19	10.75	273	10.75	273	6.65	169	10.43	265	29.79	14
	1"	-	-	1.00	25	12.13	308	12.13	308	7.20	183	16.93	430	44.13	20
Reduced Port	3/4"x1/2"	0.50	13	0.75	19	10.75	273	10.75	273	6.02	153	8.50	216	24.26	11
	1"x3/4"	0.75	19	1.00	25	12.13	308	12.13	308	6.65	169	10.43	265	35.28	16



Connection Size (CLASS 800LB)



Material Specifications

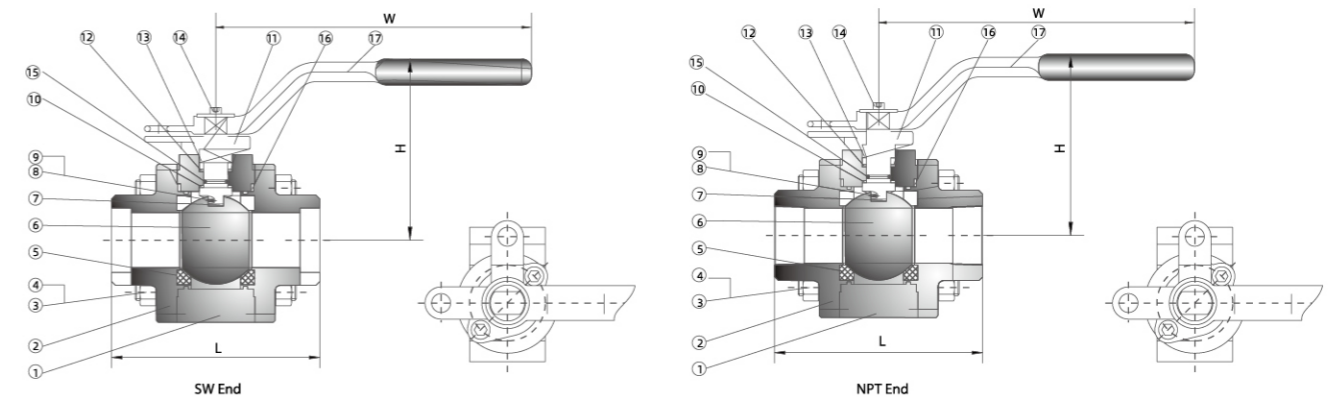
No.	Part	Standard	Stainless Steel	Low Temperature	Sour Service
1	Body	A105N	A182 F316(L)	A350 LF2	F316
2	Bonnet	A105N	A182 F316(L)	A350 LF2	F316
3	Bolt	A193 B7	A193 B8	A320 L7	A193 B8
4	Nut	A194 2H	A194 8	A194 7	A194 8
5	Seat	RPTFE	RPTFE	RPTFE	RPTFE
6	Ball	F316	A182 F316(L)	A182 F6a	F316
7	Stem	F316	A182 F316(L)	A182 F6a	F316
8	Spring	SS304	SS304	SS304	SS304
9	Steel Ball	SS304	SS304	SS304	SS304
10	Thrust Collar	PTFE	PTFE	PTFE	PTFE
11	Holding Plate	WCB	SS316	WCB	WCB
12	Packing	Graphite	Graphite	Graphite	Graphite
13	Gland	A276 410	A182 F316(L)	A276 410	A276 410
14	Screwed	CS	SS	CS	CS
15	*O'Ring	VITON	VITON	VITON	VITON
16	Gasket	SPW.SS304+Graphite	SPW.SS316+Graphite	SPW.SS304+Graphite	SPW.SS304+Graphite
17	Handle	WCB	WCB	WCB	WCB

Note: Other materials are available upon request.

Dimension and Weight

	Size	L		H		W		Weight	
		in	mm	in	mm	in	mm	lb	kg
Full Port	1/4"	3.94	100	3.15	80	5.91	150	4.41	2
	1/2"	3.94	100	3.15	80	5.91	150	6.62	3
	3/4"	4.45	113	3.54	90	7.09	180	8.82	4
	1"	5.04	128	4.13	105	9.06	230	15.44	7
	1 1/4"	5.31	135	4.33	110	9.06	230	19.85	9
	1 1/2"	6.14	156	5.51	140	11.81	300	28.67	13
	2"	6.77	172	5.91	150	11.81	300	35.28	16
Reduced Port	1/2"x1/4"	3.94	100	3.15	80	5.91	150	4.41	2
	3/4"x1/2"	4.45	113	3.15	80	5.91	150	6.62	3
	1"x3/4"	5.04	128	3.54	90	7.09	180	12.23	6
	1 1/2"x1"	6.14	156	4.13	105	9.06	230	15.44	7
	2"x1 1/2"	6.77	172	5.51	140	11.81	300	22.05	10

Connection Size (CLASS 900-2500LB)



Material Specifications

No.	Part	Standard	Stainless Steel	Low Temperature	Sour Service
1	Body	A105N	A182 F316(L)	A350 LF2	F316
2	Bonnet	A105N	A182 F316(L)	A350 LF2	F316
3	Bolt	A193 B7	A193 B8	A320 L7	A193 B8
4	Nut	A194 2H	A194 8	A194 7	A194 8
5	Seat	RPTFE	RPTFE	RPTFE	RPTFE
6	Ball	F316	A182 F316(L)	A182 F6a	F316
7	Stem	F316	A182 F316(L)	A182 F6a	F316
8	Spring	SS304	SS304	SS304	SS304
9	Steel Ball	SS304	SS304	SS304	SS304
10	Thrust Collar	PTFE	PTFE	PTFE	PTFE
11	Holding Plate	WCB	SS316	WCB	WCB
12	Packing	Graphite	Graphite	Graphite	Graphite
13	Gland	A276 410	A182F316(L)	A276 410	A276 410
14	Screwed	CS	SS	CS	CS
15	*O' Ring	VITON	VITON	VITON	VITON
16	Gasket	SPW.SS304+Graphite	SPW.SS316+Graphite	SPW.SS304+Graphite	SPW.SS304+Graphite
17	Handle	WCB	WCB	WCB	WCB

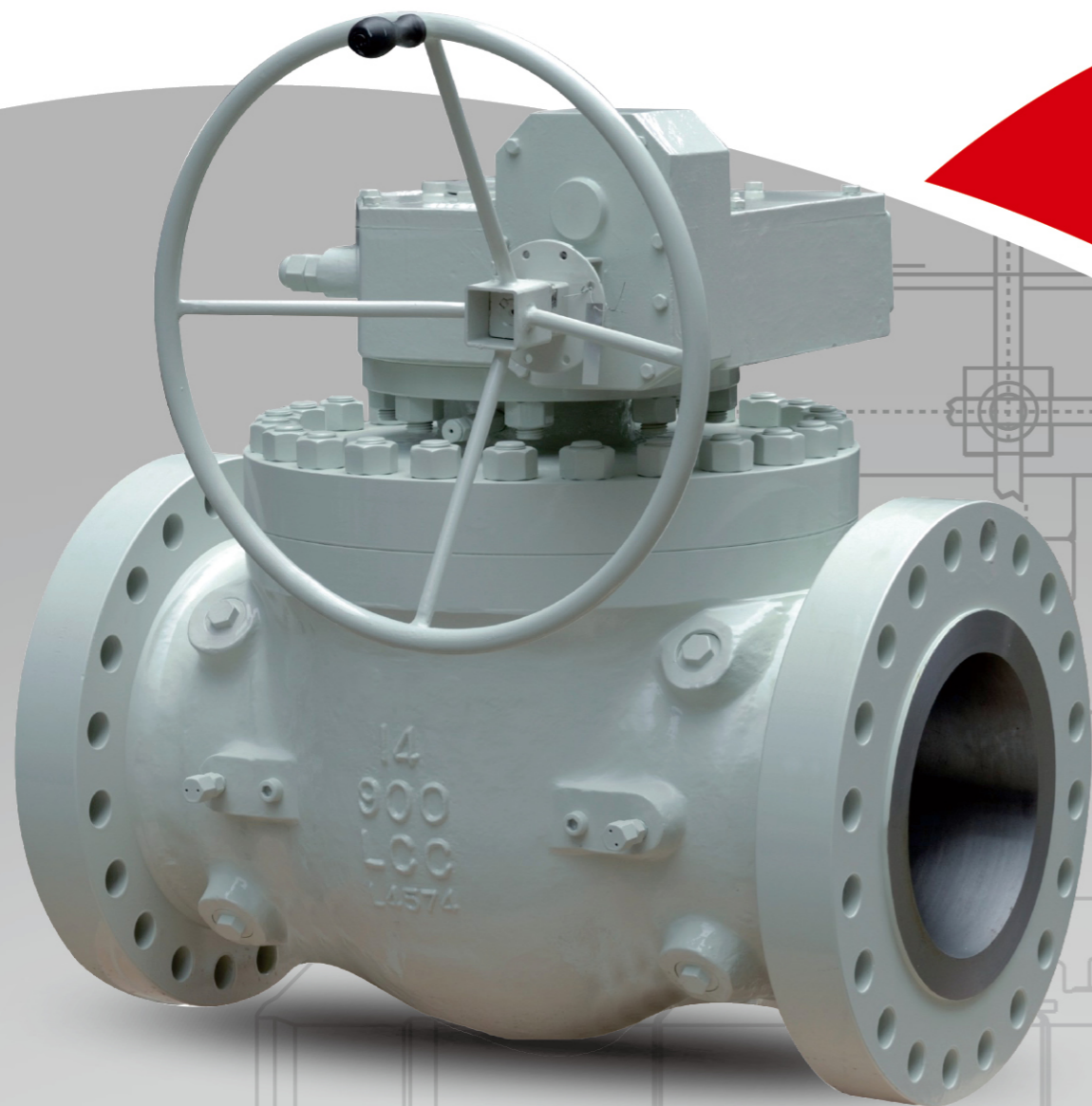
Note: Other materials are available upon request.

Dimension and Weight

	Size	L		H		W		Weight	
		in	mm	in	mm	in	mm	lb	kg
Full Port	1/4"	3.94	100	3.15	80	5.91	150	4.41	2
	1/2"	3.94	100	3.15	80	5.91	150	5.52	3
	3/4"	4.45	113	3.54	90	7.09	180	9.49	4
	1"	5.04	128	4.13	105	9.06	230	15.23	7
	1 1/4"	5.31	135	4.33	110	9.06	230	19.86	9
	1 1/2"	6.14	156	5.51	140	11.81	300	28.02	13
	2"	6.77	172	5.91	150	11.81	300	35.30	16
Reduced Port	1/2"x1/4"	3.94	100	3.15	80	5.91	150	4.41	2
	3/4"x1/2"	4.45	113	3.15	80	5.91	150	6.62	3
	1"x3/4"	5.04	128	3.54	90	7.09	180	13.23	6
	1 1/2"x1"	6.14	156	4.13	105	9.06	230	15.44	7
	2"x1 1/2"	6.77	172	5.51	140	11.81	300	22.05	10

TOP ENTRY TRUNNION BALL VALVE

TEB SERIES www.fkv.jp



Structure Diagram



Product Overview

FKV Top Entry Ball Valves are designed, manufactured and tested in accordance with API 6D and ASME B16.34, and certified to API 607 sixth edition and API 6FA third edition fire safe tested design. The valve size range is from 2 to 36 inch, pressure rating is from 150LB to 2500LB. Top entry ball valves are capable for on line maintenance, they may replace or repair the ball, seat or soft seals after strip the cover, so FKV Top Entry Ball Valves have been widely used for oil & gas pipeline.

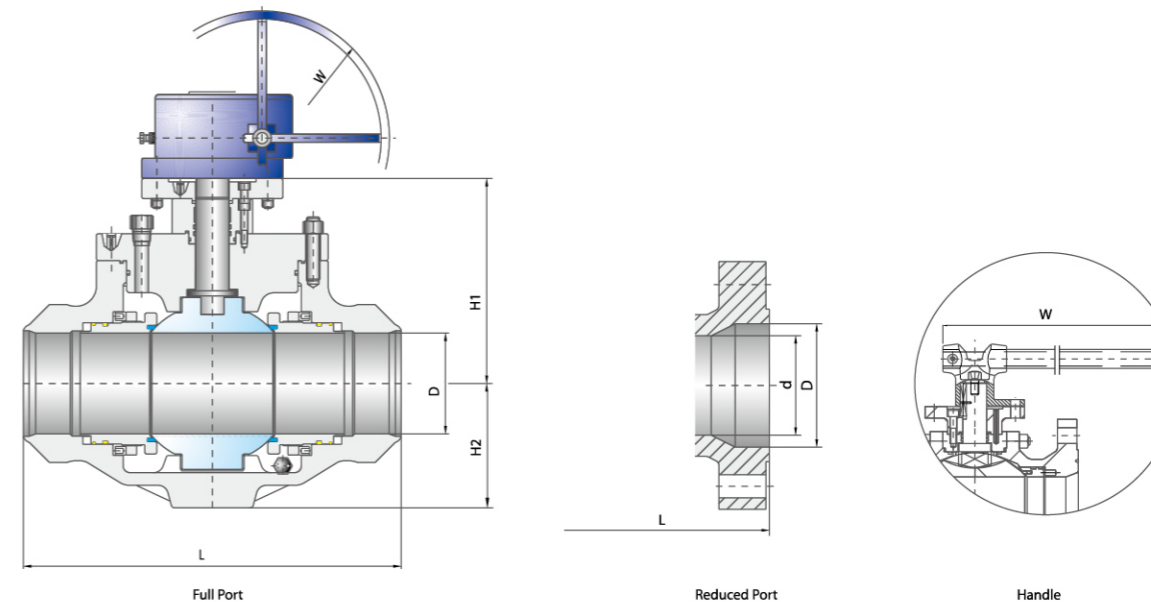
Design Features

- Blow-out Proof Stem
- Fire Safe Tested Design
- Anti-Static Design
- ISO5211 Mount Pad
- Double Block and Bleed
- Cavity Pressure Relief
- Low Emission Design
- Low Torque Performance
- Secure Line Flow Locking Device

Material List

Part	Standard	Stainless Steel	Low Temperature	Sour Service
Body	ASTM A216 WCB	ASTM A351 CF8M	ASTM A352 LCB	ASTM A216 WCB
Closure	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM F316
Ball	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
Seat Ring	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
Seat Insert	RPTFE	RPTFE	RPTFE	RPTFE
Spring Seat	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
Adjusting Pad	ASTM A276 410	ASTM A276 316	ASTM A276 304	ASTM A276 410-NC
Stem	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
Spring	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
Fire Safe Seal	Graphite	Graphite	Graphite	Graphite
O-Ring	VITON A	VITON A	VITON A	VITON A
Back Up Ring	RPTFE	RPTFE	RPTFE	RPTFE
Gland Cap	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM F316
Top Flange	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM F316
Grounding Spring	SS316	SS316	SS316	SS316
Steel Ball	SS316	SS316	SS316	SS316
Gasket	SS+Graphite	SS+Graphite	SS+Graphite	SS+Graphite
Bolt	ASTM A193 B7	ASTM A193 B8	ASTM A320 L7	ASTM A193 B7M
Nut	ASTM A194 2H	ASTM A194 8	ASTM A194 4	ASTM A194 2HM
Injection	SS304	SS316	SS304	SS304
Drain valve	SS304	SS316	SS304	SS304
Vent valve	SS304	SS316	SS304	SS304
Key	Carbon Steel	Stainless steel	Stainless steel	Carbon Steel
Bearing	SS+PTFE	SS+PTFE	SS+PTFE	SS+PTFE
Nameplate	SS304	SS304	SS304	SS304

Connection Size (CLASS 150LB)



Full Port

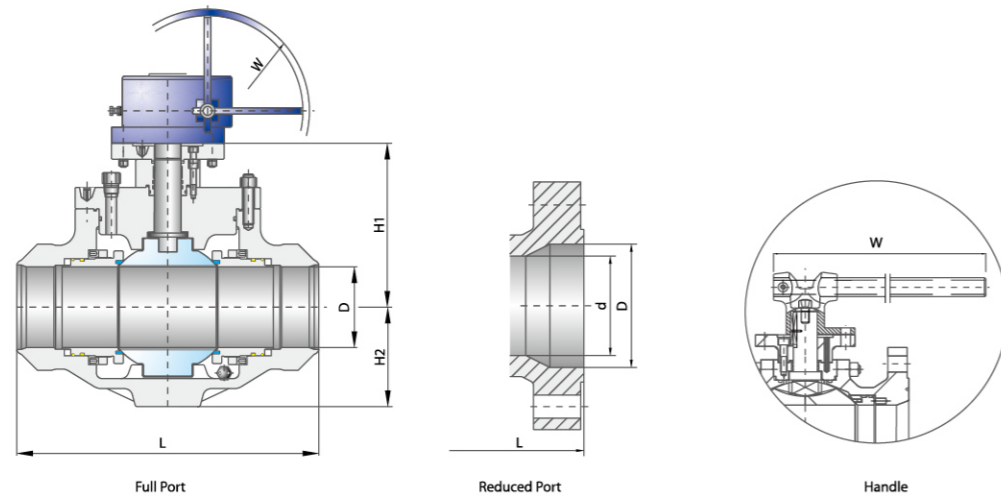
Size	D		L(RF)		L(BW)		L(RTJ)		H1		H2		W		Weight		
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
2	50	1.94	49	7.00	178	8.50	216	7.50	191	7.87	200	4.33	110	10.43	265	46.3	21
3	80	2.94	74	8.00	203	11.13	283	8.50	216	11.81	300	4.96	126	11.22	285	70.6	32
4	100	3.94	100	9.00	229	12.00	305	9.50	241	12.40	315	6.50	165	11.22	285	110.2	50
6	150	5.94	150	15.50	394	18.00	457	16.00	406	13.19	335	6.50	165	11.81	*300	361.6	164
8	200	7.94	201	18.00	457	20.50	521	18.50	470	15.94	405	7.87	200	11.81	*300	760.6	345
10	250	9.94	252	21.00	533	22.00	559	21.50	546	16.81	427	8.66	220	11.81	*300	970.0	440
12	300	11.94	303	24.00	610	25.00	635	24.50	622	18.31	465	10.31	262	19.69	*500	1272.1	577
14	350	13.19	334	27.00	686	30.00	762	27.50	699	19.92	506	11.54	293	23.62	*600	1893.7	859
16	400	15.19	385	30.00	762	33.00	838	30.50	775	24.49	622	13.43	341	23.62	*600	2522.1	1144
18	450	17.19	436	34.00	864	36.00	914	34.50	876	26.22	666	16.22	412	23.62	*600	3174.6	1440
20	500	19.19	487	36.00	914	39.00	991	36.50	927	28.74	730	17.13	435	23.62	*600	4285.7	1944
22	550	21.19	538	-	-	-	-	-	-	32.80	833	18.90	480	23.62	*600	5185.2	2352
24	600	23.19	589	42.00	1067	45.00	1143	42.50	1080	35.24	895	20.39	518	31.50	*800	6179.5	2803
26	650	24.94	633	45.00	1143	49.00	1245	-	-	35.43	900	21.06	535	31.50	*800	7054.7	3200
28	700	26.94	684	49.00	1245	53.00	1346	-	-	36.81	935	21.34	542	31.50	*800	8924.2	4048
30	750	28.94	735	51.00	1295	55.00	1397	-	-	39.76	1010	23.82	605	31.50	*800	13668.4	6200
32	800	30.69	779	54.00	1372	60.00	1524	-	-	41.73	1060	25.59	650	31.50	*800	12103.2	5490
34	850	32.69	830	58.00	1473	64.00	1626	-	-	42.40	1077	25.59	650	31.50	*800	14779.5	6704
36	900	34.44	874	60.00	1524	68.00	1727	-	-	42.40	1115	27.56	700	31.50	*800	21164.0	9600

Reduced Port

Size	d		D		L(RF)		L(BW)		L(RTJ)		H1		H2		W		Weight		
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
3x2	80x50	1.94	49	2.94	74	8.00	203	11.13	283	8.50	216	7.87	200	4.33	110	10.43	265	58.4	27
4x3	100x80	2.94	74	3.94	100	9.00	229	12.00	305	9.50	241	11.81	300	4.96	126	11.22	285	88.2	40
6x4	150x100	3.94	100	5.94	150	15.50	394	18.00	457	16.00	406	12.40	315	6.50	165	11.22	285	149.9	68
8x6	200x150	5.94	150	7.94	201	18.00	457	20.50	521	18.50	470	13.19	335	6.50	165	11.81	*300	390.2	177
10x8	250x200	7.94	201	9.94	252	21.00	533	22.00	559	21.50	546	15.94	405	7.87	200	11.81	*300	676.8	307
12x10	300x250	9.94	252	11.94	303	24.00	610	25.00	635	24.50	622	16.81	427	8.66	220	11.81	*300	1122.1	509
14x10	350x250	9.94	252	13.19	334	27.00	686	30.00	762	27.50	699	16.81	427	8.66	220	11.81	*300	1591.7	722
16x12	400x300	11.94	303	15.19	385	30.00	762	33.00	838	30.50	775	18.31	465	10.31	262	19.69	*500	2138.5	970
18x14	450x400	13.19	334	17.19	436	34.00	864	36.00	914	34.50	876	19.92	506	11.54	293	23.62	*600	2846.1	1291
20x16	500x450	15.19	385	19.19	487	36.00	914	39.00	991	36.50	927	24.49	622	13.43	341	23.62	*600	3681.7	1670
22x18	550x450	17.19	436	21.19	538	-	-	-	-	-	-	26.22	666	16.22	412	23.62	*600	4241.6	1924
24x20	600x500	19.19	487	23.19	589	42.00	1067	45.00	1143	42.50	1080	28.74	730	17.13	435	23.62	*600	4883.2	2215
26x22	650x550	21.19	538	24.94	633	45.00	1143	49.00	1245	-	-	32.80	833	18.90	480	23.62	*600	5165.3	2343
28x24	700x600	23.19	589	26.94	684	49.00	1245	53.00	1346	-	-	35.24	895	20.39	518	31.50	*800	5952.4	2700
30x24	750x600	23.19	589	28.94	735	51.00	1295	55.00	1397	-	-	35.24	895	20.39	518	31.50	*800	6433.0	2918
32x26	800x650	24.94	633	30.69	779	54.00	1372	60.00	1524	-	-	35.43	900	21.06	535	31.50	*800	8829.4	4005
34x28	850x700	26.94	684	32.69	830	58.00	1473	64.00	1626	-	-	36.81	935	21.34	542	31.50	*800	9799.4	4445
36x30	900x750	28.94	735	34.44	874	60.00	1524	68.00	1727	-	-	39.76	1010	23.82	605	31.50	*800	11011.9	4995

Note: *Gear box.

Connection Size (CLASS 300LB)



Full Port

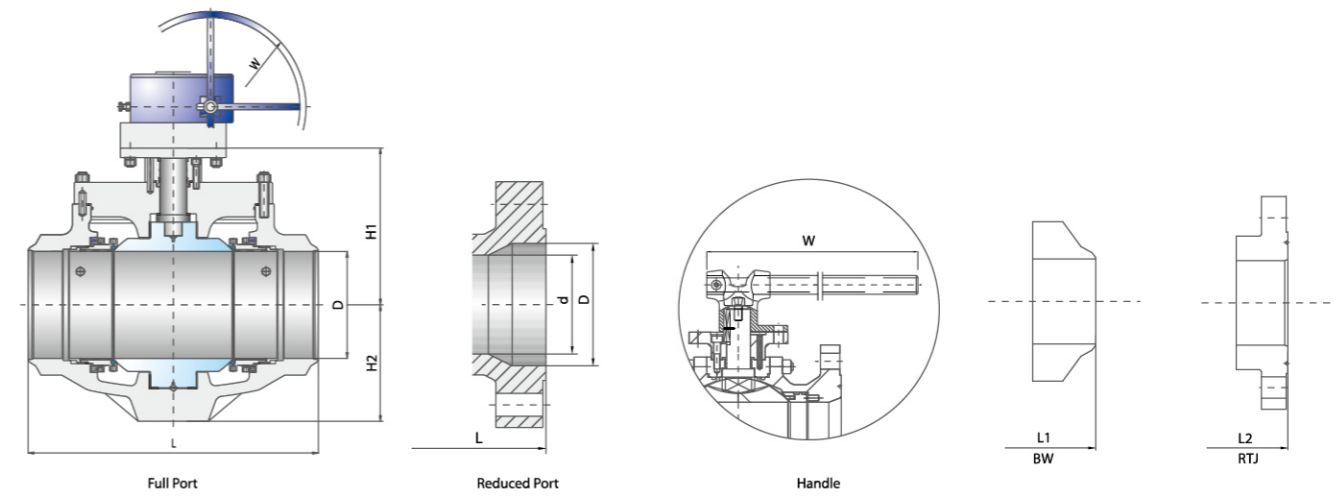
Size		D		L(RF)		L(BW)		L(RTJ)		H1		H2		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	8.50	216	8.50	216	9.13	232	8.11	206	4.45	113	10.43	265	55.1	25
3	80	2.94	74	11.13	283	11.13	283	11.75	298	12.40	315	5.08	129	15.75	400	101.4	46
4	100	3.94	100	12.00	305	12.00	305	12.63	321	12.99	330	6.65	169	29.53	750	169.8	77
6	150	5.94	150	15.88	403	18.00	457	16.50	419	13.58	345	5.83	148	11.81	*300	377.0	171
8	200	7.94	201	19.75	502	20.50	521	20.38	518	16.34	415	7.28	185	11.81	*300	709.9	322
10	250	9.94	252	22.38	568	22.00	559	23.00	584	16.81	427	8.90	226	15.75	*400	1190.5	540
12	300	11.94	303	25.50	648	25.00	635	26.13	664	18.31	465	10.59	269	19.69	*500	1682.1	763
14	350	13.19	334	30.00	762	30.00	762	30.63	778	20.43	519	11.81	300	23.62	*600	2149.5	975
16	400	15.19	385	33.00	838	33.00	838	33.63	854	25.12	638	13.78	350	23.62	*600	3086.4	1400
18	450	17.19	436	36.00	914	36.00	914	36.63	930	26.89	683	15.83	402	23.62	*600	3780.9	1715
20	500	19.19	487	39.00	991	39.00	991	39.75	1010	29.45	748	17.56	446	23.62	*600	5465.2	2479
22	550	21.19	538	43.00	1092	43.00	1092	43.88	1114	33.62	854	19.37	492	23.62	*600	4894.2	2220
24	600	23.19	589	45.00	1143	45.00	1143	45.88	1165	36.10	917	20.91	531	31.50	*800	6371.3	2890
28	700	26.94	684	53.00	1346	53.00	1346	54.00	1372	37.72	958	21.89	556	31.50	*800	10086.0	4575
30	750	28.94	735	55.00	1397	55.00	1397	56.00	1422	40.75	1035	24.41	620	31.50	*800	12323.6	5590
32	800	30.69	779	60.00	1524	60.00	1524	61.13	1553	42.80	1087	26.22	666	31.50	*800	13756.6	6240
34	850	32.69	830	64.00	1626	64.00	1626	65.13	1654	43.46	1104	26.22	666	31.50	*800	16247.8	7370
36	900	34.44	874	68.00	1727	68.00	1727	69.13	1756	45.00	1143	28.27	718	31.50	*800	18595.7	8435

Reduced Port

Size		d		D		L(RF)		L(BW)		L(RTJ)		H1		H2		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	11.13	283	11.13	283	11.75	298	8.11	206	4.45	113	10.43	265	79.4	36
4x3	100x80	2.94	74	3.94	100	12.00	305	12.00	305	12.63	321	12.40	315	5.08	129	15.75	400	121.3	55
6x4	150x100	3.94	100	5.94	150	15.88	403	18.00	457	16.50	419	12.99	330	6.65	169	29.53	750	246.9	112
8x6	200x150	5.94	150	7.94	201	19.75	502	20.50	521	20.38	518	13.58	345	5.83	148	11.81	*300	489.4	222
10x8	250x200	7.94	201	9.94	252	22.38	568	22.00	559	23.00	584	16.34	415	7.28	185	11.81	*300	839.4	381
12x10	300x250	9.94	252	11.94	303	25.50	648	25.00	635	26.13	664	16.81	427	8.90	226	15.75	*400	1278.7	580
14x10	350x250	9.94	252	13.19	334	30.00	762	30.00	762	30.63	778	16.81	427	8.90	226	15.75	*400	2028.2	920
16x12	400x300	11.94	303	15.19	385	33.00	838	33.00	838	33.63	854	18.31	465	10.59	269	19.69	*500	2314.8	1050
18x14	450x350	13.19	334	17.19	436	36.00	914	36.00	914	36.63	930	20.43	519	11.81	300	23.62	*600	3373.0	1530
20x16	500x400	15.19	385	19.19	487	39.00	991	39.00	991	39.75	1010	25.12	638	13.78	350	23.62	*600	4034.4	1830
22x18	550x450	17.19	436	21.19	538	43.00	1092	43.00	1092	43.88	1114	26.89	683	15.83	402	23.62	*600	4431.2	2010
24x20	600x500	19.19	487	23.19	589	45.00	1143	45.00	1143	45.88	1165	29.45	748	17.56	446	23.62	*600	4894.2	2220
28x24	700x600	23.19	589	26.94	684	53.00	1346	53.00	1346	54.00	1372	33.62	854	19.37	492	23.62	*600	7054.7	3200
30x24	750x600	23.19	589	28.94	735	55.00	1397	55.00	1397	56.00	1422	36.10	917	20.91	531	31.50	*800	8708.1	3950
34x28	850x700	26.94	684	32.69	830	64.00	1626	64.00	1626	65.13	1654	37.72	958	21.89	556	31.50	*800	10681.2	4845
36x30	900x750	28.94	735	34.44	874	68.00	1727	68.00	1727	69.13	1756	40.75	1035	24.41	620	31.50	*800	13448.0	6100

Note:*Gear box.

Connection Size (CLASS 600LB, 900LB)



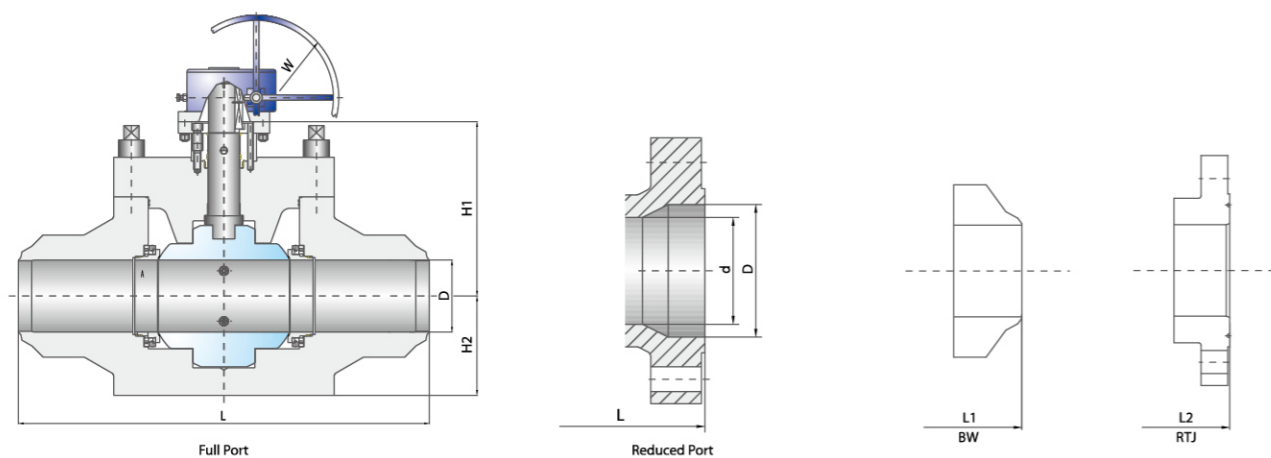
Full Port

Pressure rating	Size		D		L-L1(RF-BW)		L2(RTJ)		H1		H2		W		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
600	2	50	1.94	49	11.50	292	11.63	295	7.68	195	4.33	110	15.75	400	83.78	38
	3	80	2.94	74	14.00	356	14.13	359	9.45	240	4.33	110	29.53	750	176.37	80
	4	100	3.94	100	17.00	432	17.13	435	11.02	280	6.89	175	39.37	1000	330.70	150
	6	150	5.94	150	22.00	559	22.13	562	12.01	305	7.68	195	11.81	*300	652.57	296
	8	200	7.94	201	26.00	660	26.13	664	15.75	400	11.02	280	11.81	*300	965.63	438
	10	250	9.94	252	31.00	787	31.13	791	17.13	435	11.22	285	19.69	*500	1324.99	601
	12	300	11.94	303	33.00	838	33.13	841	17.32	440	12.60	320	23.62	*600	1377.90	625
	14	350	13.19	334	35.00	889	35.13	892	19.88	505	13.39	340	23.62	*600	2711.70	1230
	16	400	15.19	385	39.00	991	39.13	994	23.23	590	16.14	410	23.62	*600	3384.11	1535
	18	450	17.19	436	43.00	1092	43.13	1095	27.56	700	17.52	445	23.62	*600	4706.89	2135
	20	500	19.19	487	47.00	1194	47.25	1200	30.51	775	20.08	510	23.62	*600	5820.23	2640
	24	600	23.19	589	55.00	1397	55.38	1407	33.07	840	25.20	640	23.62	*600	8730.35	3960
900	2	50	1.94	49	14.50	368	14.63	371	7.87	200	4.72	120	29.53	750	114.64	52
	3	80	2.94	74	15.00	381	15.13	384	9.45	240	5.12	130	39.37	1000	191.80	87
	4	100	3.94	100	18.00	457	18.13	460	11.02	280	6.89	175	59.06	1500	352.74	160
	6	150	5.94	150	24.00	610	24.13	613	13.78	350	8.66	220	11.81	*300	848.78	385
	8	200	7.94	201	29.00	737	29.13	740	15.35	390	10.24	260	15.75	*400	1234.60	560
	10	250	9.94	252	33.00	838	33.13	841	18.90	480	12.20	310	23.62	*600	1807.80	820
12	300	11.94	303	38.00	965	38.13	968	21.18	538	16.14	410	23.62	*600	2480.21	1125	

Reduced Port

Pressure rating	Size		d		D		L-L1(RF-BW)		L2(RTJ)		H1		H2		W		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
600	2"x1½"	50x40	1.50	38	1.94	49	11.50	292	11.63	295	8.23	209	2.76	70	15.75	400	88.19	40
	3"x2"	80x50	1.94	49	2.94	74	14.00	356	14.13	359	7.68	195	4.33	110	15.75	400	119.05	54
	4"x3"	100x80	2.94	74	3.94	100	17.00	432	17.13	435	9.45	240	4.33	110	29.53	750	218.26	99
	6"x4"	150x100	3.94	100	5.94	150	22.00	559	22.13	562	11.02	280	6.89	175	39.37	1000	467.38	212
	8"x6"	200x150	5.94	150	7.94	201	26.00	660	26.13	664	12.01	305	7.68	195	11.81	*300	670.21	304
	10"x8"	250x200	7.94	201	9.94	252	31.00	787	31.13	791	15.75	400	11.02	280	11.81	*300	1124.36	510
	12"x10"	300x250	9.94	252	11.94	303	33.00	838	33.13	841	17.13	435	11.22	285	19.69	*500	1988.58	902
	14"x12"	350x300	11.94	303	13.19	334	35.00	889	35.13	892	17.32	440	12.60	320	23.62	*600	2403.05	1090
	16"x14"	400x350	13.19	334	15.19	385	39.00	991	39.13	994	19.88	505	13.39	340	23.62	*600	2888.07	1310
	18"x16"	450x400	15.19	385	17.19	436	43.00	1092	43.13	1095	23.23	590	16.14	410	23.62			

Connection Size (CLASS 1500LB, 2500LB)



FULL WELDED
TRUNNION BALL VALVE

FWB SERIES www.fkv.jp

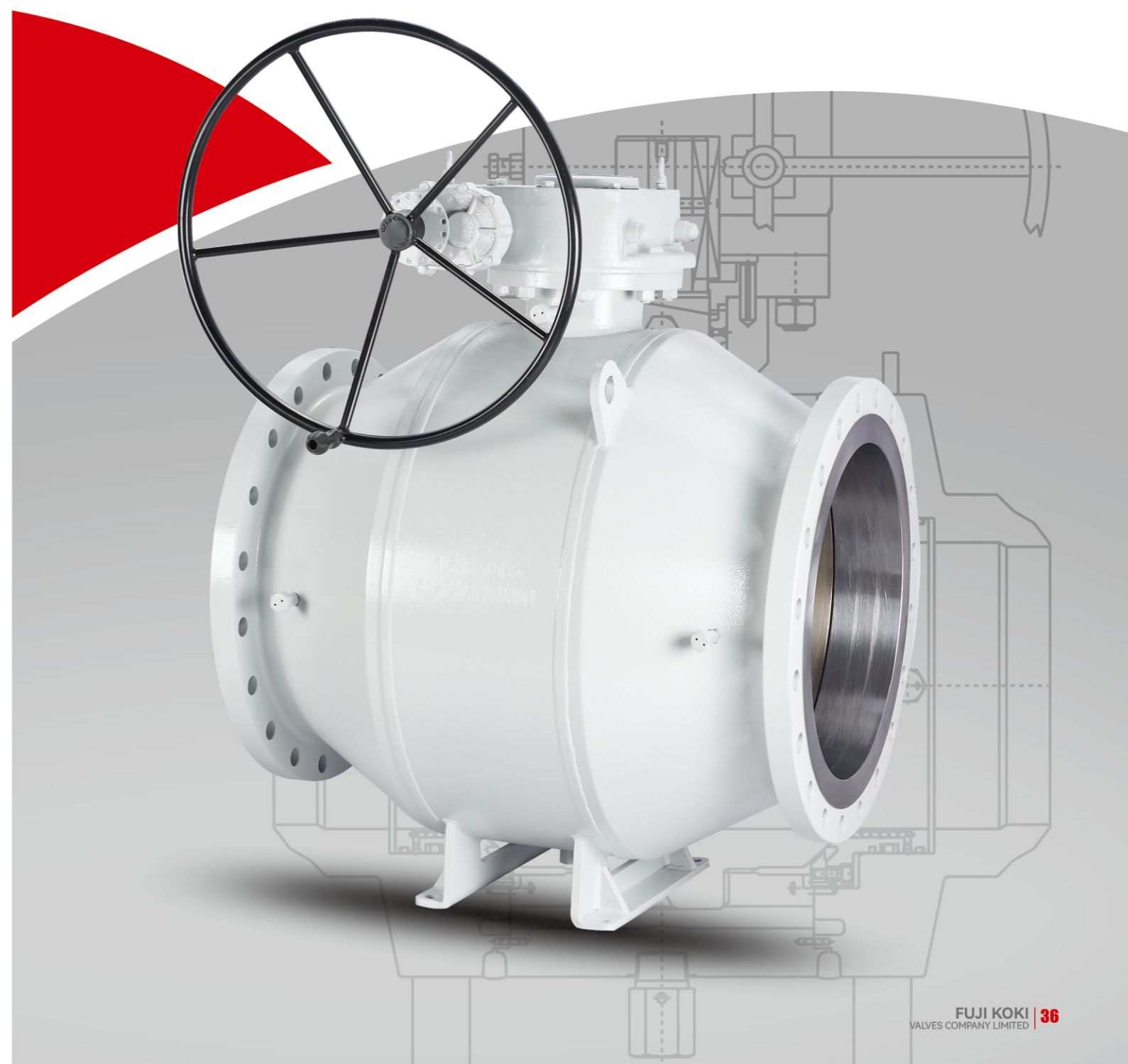
Full Port

Pressure rating	Size		D		L-L1(RF-BW)		L2(RTJ)		H1		H2		W		Weight	
	Class	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb
1500	2	50	1.94	49	14.50	368	14.63	371	8.07	205	4.72	120	29.53	750	132.28	60
	3	80	2.94	74	18.50	470	18.63	473	8.27	210	4.92	125	39.37	1000	253.53	115
	4	100	3.94	100	21.50	546	21.63	549	9.65	245	6.30	160	39.37	1000	427.70	194
	6	150	5.69	144	27.75	705	28.00	711	13.19	335	10.04	255	15.75	*400	1278.69	580
	8	200	7.56	192	32.75	832	33.13	841	16.81	427	13.39	340	19.69	*500	1657.88	752
	10	250	9.44	239	39.00	991	39.38	1000	19.76	502	15.00	381	23.62	*600	2634.54	1195
2500	12	300	11.31	287	44.50	1130	45.13	1146	20.98	533	17.24	438	23.62	*600	4784.06	2170
	2	50	1.69	42	17.75	451	17.88	454	9.84	250	5.51	140	15.75	*400	54.45	120
	3	80	2.44	62	22.75	578	23.00	584	11.81	300	5.91	150	19.69	*500	81.67	180
	4	100	3.44	87	26.50	673	26.88	683	13.78	350	7.09	180	23.62	*600	190.56	420
	6	150	5.19	131	36.00	914	36.50	927	27.56	700	18.31	465	23.62	*600	555.81	1225
	8	200	7.06	179	40.25	1022	40.88	1038	30.71	780	20.87	530	23.62	*600	934.66	2060
	10	250	8.81	223	50.00	1270	50.88	1292	40.75	1035	29.33	745	23.62	*600	1842.11	4060
	12	300	10.44	265	56.00	1422	56.88	1445	44.29	1125	32.48	825	23.62	*600	4092.56	9020

Reduced Port

Pressure rating	Size		d		D		L-L1(RF-BW)		L2(RTJ)		H1		H2		W		Weight	
	Class	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb
1500	3x2	80x50	1.94	49	2.94	74	18.50	470	473	8.27	8.07	205	4.72	120	29.53	750	180.78	82
	4x3	100x80	2.94	74	3.94	100	21.50	546	549	9.65	8.27	210	4.92	125	39.37	1000	330.70	150
	6x4	150x100	3.94	100	5.69	144	27.75	705	711	13.19	9.65	245	6.30	160	11.81	*300	650.37	295
	8x6	200x150	5.69	144	7.56	192	32.75	832	841	16.81	13.19	335	10.04	255	15.75	*400	1521.20	690
	10x8	250x200	7.56	192	9.44	239	39.00	991	1000	19.76	16.81	427	13.39	340	19.69	*500	2050.31	930
2500	3x2	80x50	1.69	42	2.44	62	22.75	578	23.00	584	9.84	250	5.51	140	11.81	*300	63.52	140
	4x3	100x80	2.44	62	3.44	87	26.50	673	26.88	683	11.81	300	5.91	150	15.75	*400	99.82	220
	6x4	150x100	3.44	87	5.19	131	36.00	914	36.50	927	13.78	350	7.09	180	19.69	*500	226.86	500
	8x6	200x150	5.19	131	7.06	179	40.25	1022	40.88	1038	27.56	700	18.31	465	23.62	*600	666.97	1470
	10x8	250x200	7.06	179	8.81	223	50.00	1270	50.88	1292	30.71	780	20.87	530	23.62	*600	1120.69	2470
	12x10	300x250	8.81	223	10.44	265	56.00	1422	56.88	1445	40.75	1035	29.33	745	23.62	*600	2209.62	4870

Note:*Gear box.



Structure Diagram



Material List

Part	Standard	Stainless Steel	Low Temperature	Sour Service
Body	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM A105N
Closure	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM A105N
Ball	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
Seat Ring	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
Sealing Ring(O Ring)	Viton AED	Viton AED	Viton AED	Viton AED
Support Ring	RPTFE	RPTFE	RPTFE	RPTFE
Back Up Ring	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
Stem	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
Spring	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
Fire Safe Seal	Graphite	Graphite	Graphite	Graphite
O-Ring	VITON A	VITON A	VITON A	VITON A
Back Up Ring	RPTFE	RPTFE	RPTFE	RPTFE
Gland Cap	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM F316
Top Flange	ASTM A105N	ASTM A182 F316	ASTM A350 LF2	ASTM F316
Trunnion Support	ASTM A105N+ENP	ASTM A182 F316	ASTM A350 LF2+ENP	ASTM F316
Grounding Spring	SS316	SS316	SS316	SS316
Steel Ball	SS316	SS316	SS316	SS316
Gasket	SS+Graphite	SS+Graphite	SS+Graphite	SS+Graphite
Injection	SS304	SS316	SS304	SS304
Drain Valve	SS304	SS316	SS304	SS304
Vent Valve	SS304	SS316	SS304	SS304
Pin	Carbon Steel	Stainless steel	Stainless steel	Carbon Steel
Key	Carbon Steel	Stainless steel	Stainless steel	Carbon Steel
Bearing	SS+PTFE	SS+PTFE	SS+PTFE	SS+PTFE
Nameplate	SS304	SS304	SS304	SS304

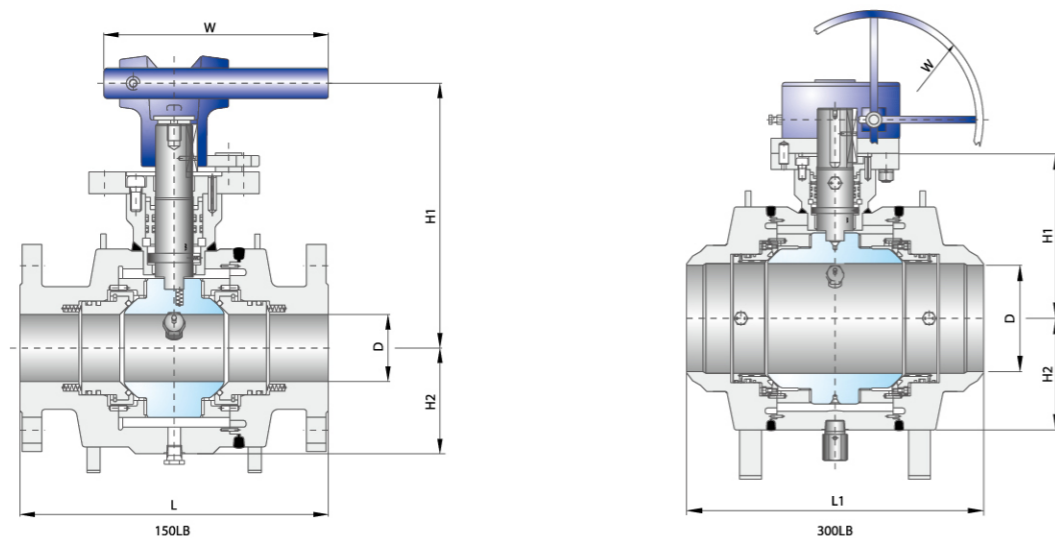
Product Overview

FKV Full welded ball valve combines the strength of forged components with a compact structure design, are complied to per API 6D, ASME B16.34 standard,engineered for heavy duty, limited-maintenance performance and made of forged steel to assure uniform fine grain structure and toughness, and the size range is from 2 to 60 inch, pressure rating is from 150LB to 2500LB. This valve is commonly selected for gas transmission, gas pipeline, gas plants etc a number of applications.

Design Features

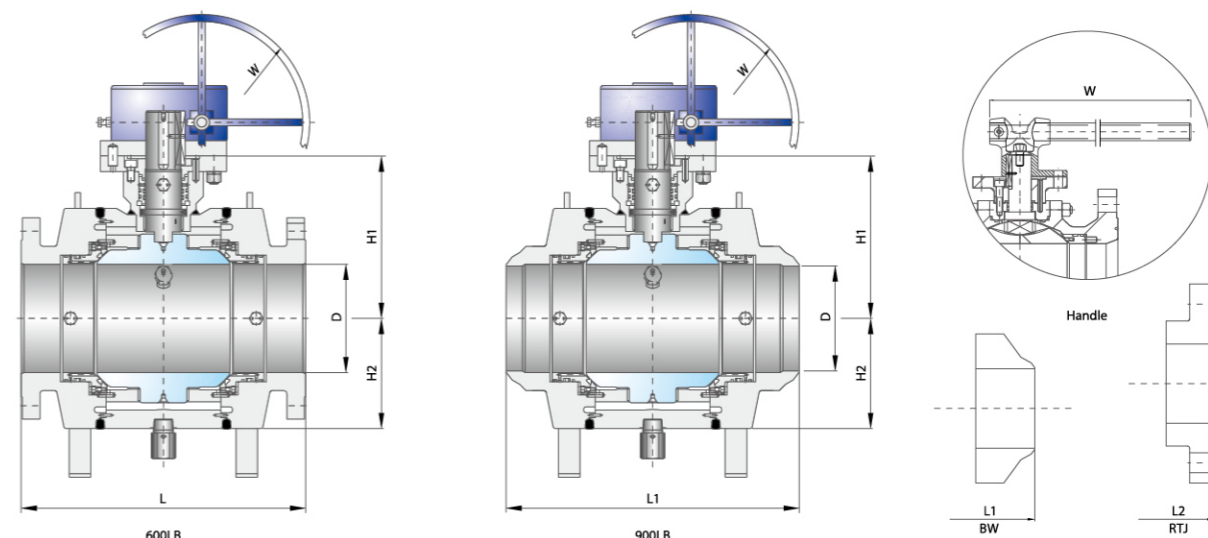
- Fully Welded Body Structure
- Blow-out Proof Stem
- Fire Safe Tested Design
- Anti-Static Design
- ISO5211 Mount Pad
- Double Block and Bleed
- Cavity Pressure Relief
- Low Emission Design
- Low Torque Performance
- Secure Line Flow Locking Device
- VITON AED Delta Ring Seat Seal
- Buried Design,Extended Stem(Optional)

Connection Size (CLASS 150LB, 300LB)



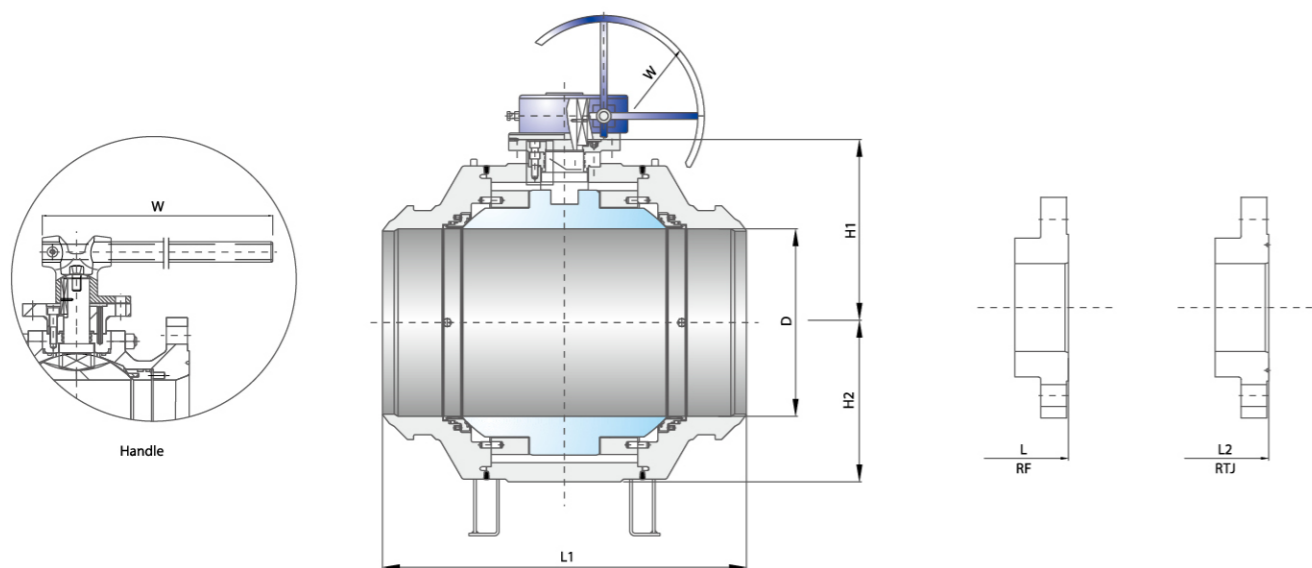
Pressure rating Class	Size	D		L(RF)		L1(BW)		L(RTJ)		H1		H2		W		Weight		
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
150	2	50	1.94	49	7.00	178	8.50	216	7.50	191	7.87	200	4.33	110	10.43	265	55.1	25
	3	80	2.94	74	8.00	203	11.13	283	8.50	216	11.81	300	4.96	126	11.22	285	105.8	48
	4	100	3.94	100	9.00	229	12.00	305	9.50	241	12.40	315	6.50	165	11.22	285	169.8	77
	6	150	5.94	150	15.50	394	18.00	457	16.00	406	13.19	335	6.50	165	11.81	*300	407.9	185
	8	200	7.94	201	18.00	457	20.50	521	18.50	470	15.94	405	7.87	200	11.81	*300	551.3	250
	10	250	9.94	252	21.00	533	22.00	559	21.50	546	16.81	427	8.66	220	11.81	*300	882.0	400
	12	300	11.94	303	24.00	610	25.00	635	24.50	622	18.31	465	10.31	262	19.69	*500	1212.8	550
	14	350	13.19	334	27.00	686	30.00	762	27.50	699	19.92	506	11.54	293	19.69	*500	1808.1	820
	16	400	15.19	385	30.00	762	33.00	838	30.50	775	24.49	622	13.43	341	23.62	*600	2425.5	1100
	18	450	17.19	436	34.00	864	36.00	914	34.50	876	26.22	666	16.22	412	23.62	*600	3087.0	1400
	20	500	19.19	487	36.00	914	39.00	991	36.50	927	28.74	730	17.13	435	23.62	*600	3858.8	1750
	22	550	21.19	538	-	-	-	-	-	-	32.80	833	18.90	480	23.62	*600	5106.8	2316
	24	600	23.19	589	42.00	1067	45.00	1143	42.50	1080	35.24	895	20.39	518	31.50	*800	6174.0	2800
	26	650	24.94	633	45.00	1143	49.00	1245	-	-	35.43	900	21.06	535	31.50	*800	6394.4	2900
	28	700	26.94	684	49.00	1245	53.00	1346	-	-	36.81	935	21.34	542	31.50	*800	7497.0	3400
	30	750	28.94	735	51.00	1295	55.00	1397	-	-	39.76	1010	23.82	605	31.50	*800	10584.0	4800
	32	800	30.69	779	54.00	1372	60.00	1524	-	-	41.73	1060	25.59	650	31.50	*800	12127.5	5500
	34	850	32.69	830	58.00	1473	64.00	1626	-	-	42.40	1077	25.59	650	31.50	*800	14667.7	6652
	36	900	34.44	874	60.00	1524	68.00	1727	-	-	43.90	1115	27.56	700	31.50	*800	16647.8	7550
	40	1000	38.44	976	69.02	1753	77.01	1956	-	-	55.12	1400	34.06	865	31.50	*800	22689.5	10290
42	1050	40.19	1020	73.03	1855	82.01	2083	-	-	62.91	1598	35.43	900	31.50	*800	27237.8	12355	
48	1200	45.94	1166	84.02	2134	84.02	2134	-	-	67.80	1722	41.02	1042	31.50	*800	37764.8	17130	
54	1350	51.69	1312	97.99	2489	97.99	2489	-	-	70.71	1769	45.87	1165	31.50	*800	71869.5	32600	
56	1400	53.56	1360	101.30	2573	101.30	2573	-	-	71.65	1820	50.39	1280	31.50	*800	68893.8	31250	
60	1500	57.44	1458	-	-	-	-	-	-	73.43	1865	58.90	1496	31.50	*800	76603.9	34750	
300	2	50	1.94	49	8.50	216	8.50	216	9.13	232	8.11	206	4.45	113	10.43	265	61.7	28
	3	80	2.94	74	11.13	283	11.13	283	11.75	298	12.40	315	5.08	129	15.75	400	119.0	54
	4	100	3.94	100	12.00	305	12.00	305	12.63	321	12.99	330	6.65	169	29.53	750	191.8	87
	6	150	5.94	150	15.88	403	18.00	457	16.50	419	13.58	345	5.83	148	11.81	*300	407.9	185
	8	200	7.94	201	19.75	502	20.50	521	20.38	518	16.34	415	7.28	185	11.81	*300	551.3	250
	10	250	9.94	252	22.38	568	22.00	559	23.00	584	16.81	427	8.90	226	15.75	*400	882.0	400
	12	300	11.94	303	25.50	648	25.00	635	26.13	664	18.31	465	10.59	269	19.69	*500	1212.8	550
	14	350	13.19	334	30.00	762	30.00	762	30.63	778	20.43	519	11.81	300	19.69	*600	1808.1	820
	16	400	15.19	385	33.00	838	33.00	838	33.63	854	25.12	638	13.78	350	23.62	*600	2425.5	1100
	18	450	17.19	436	36.00	914	36.00	914	36.63	930	26.89	683	15.83	402	23.62	*600	3087.0	1400
	20	500	19.19	487	39.00	991	39.00	991	39.75	1010	29.45	748	17.56	446	23.62	*600	3858.8	1750
	22	550	21.19	538	43.00	1092	43.00	1092	43.88	1114	33.62	854	19.37	492	23.62	*600	5081.6	2305
	24	600	23.19	589	45.00	1143	45.00	1143	45.88	1165	36.10	917	20.91	531	31.50	*800	6174.0	2800
	28	700	26.94	684	53.00	1346	53.00	1346	54.00	1372	37.72	958	21.89	556	31.50	*800	7497.0	3400
	30	750	28.94	735	55.00	1397	55.00	1397	56.00	1422	40.75	1035	24.41	620	31.50	*800	10584.0	4800
	32	800	30.69	779	60.00	1524	60.00	1524	61.13	1553	42.80	1087	26.22	666	31.50	*800	12127.5	5500
	34	850	32.69	830	64.00	1626	64.00	1626	65.13	1654	43.46	1104	26.22	666	31.50	*800	15718.8	7130
	36	900	34.44	874	68.00	1727	68.00	1727	69.13	1756	45.00	1143	28.27	718	31.50	*800	17595.9	7980
	40	1000	38.44	976	77.01	1956	77.01	1956	-	-	56.50	1435	34.92	887	31.50	*800	22689.5	10290
	42	1050	40.19	1020	82.01	2083	82.01	2083	-	-	64.49	1638	36.34	923	31.50	*800	28935.4	13125
48	1200	45.94	1166	85.43	2170	85.43	2170	-	-	69.49	1765	42.05	1068	31.50	*800	41567.7	18855	
54	1350	51.69	1312	-	-	-	-	-	-	70.71	1796	45.87	1165	31.50	*800	71869.5	32600	
56	1400	53.56	1360	100.12	2543	100.12	2543	-	-	71.65	1820	50.39	1280	31.50	*800	70315.7	31895	
60	1500	57.44	1458	103.43	2627	103.43	2627	-	-	73.43	1865	58.90	1496	31.50	*800	78296.4	35515	

Connection Size (CLASS 600LB, 900LB)



Pressure rating Class	Size	D		L(RF)		L1(BW)		L2(RTJ)		H1		H2		W		Weight		
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
600	2	50	1.94	49	11.50	292	11.50	292	11.63	295	8.11	206	4.45	113	18.11	460	79.4	36
	3	80	2.94	74	14.00	356	14.00	356	14.13	359	12.40	315	5.08	129	29.53	750	156.5	71
	4	100	3.94	100	17.00	432	17.00	432	17.13	435	12.99	330	6.65	169	39.37	1000	295.4	134
	6	150	5.94	150	22.00	559	22.00	559	22.13	562	13.58	345	5.83	148	11.81	*300	551.3	250
	8	200	7.94	201	26.00	660	26.00	660	26.13	664	16.34	415	7.28	185	11.81	*300	749.7	340
	10	250	9.94	252	31.00	787	31.00	787	31.13	791	16.81	427	8.90	226	19.69	*500	1256.9	570
	12	300	11.94	303	33.00	838	33.00	838	33.13	841	18.31	465	10.59	269	23.62	*600	1874.3	850
	14	350	13.19	334	35.00	889	35.00	889	35.13	892	20.43	519	11.81	300	23.62	*600	2425.5	1100
	16	400	15.19	385	39.00	991	39.00	991	39.13	994	25.12	638	13.78	350	23.62	*600	2976.8	1350
	18	450	17.19	436	43.00	1092	43.00	1092	43.13	1095	26.89	683	15.83	402	23.62	*600	4630.5	2100
	20	500	19.19	487	47.00	1194	47.00	1194	47.25	1200	29.45	748	17.56	446	23.62	*600	5733.0	2600
	22	550	21.19	538	51.00	1295	51.00	1295	51.38	1305	33.62	854	19.37	492	31.50	*800	7000.9	3175
	24	600	23.19	589	55.00	1397	55.00	1397	55.38	1407	36.10	917	20.91	531	31.50	*800	8158.5	3700
	28	700	26.94	684	61.00	1549	61.00	1549	61.50	1562	37.72	958	21.89	556	31.50	*800	9261.0	4200
	30	750	28.94	735	65.00	1651	65.00	1651	65.50	1664	40.75	1035	24.41	620	31.50	*800	13230.0	6000
	32	800	30.69	779	70.00	1778	70.00	1778	70.63	1794	42.80	1087	26.22	666	31.50	*800	14994.0	6800
	34	850	32.69	830	76.00	1930	76.00	1930	76.63	1946	43.46	1104	26.22	666	31.50	*800	19366.5	8783
	36	900	34.44	874	82.00	2083	82.00	2083	82.63	2099	45.00	1143	28.27	718	31.50	*800	21101.9	9570
	40	1000	38.44	976	85.43	2159	85.43	2159	85.43	2170.00	56.50	1435	34.92	887	31.50	*800	31514.8	14295
	42	1050	40.19	1020	85.63	2175	85.63	2175	85.63	2								

Connection Size (CLASS 1500LB, 2500LB)



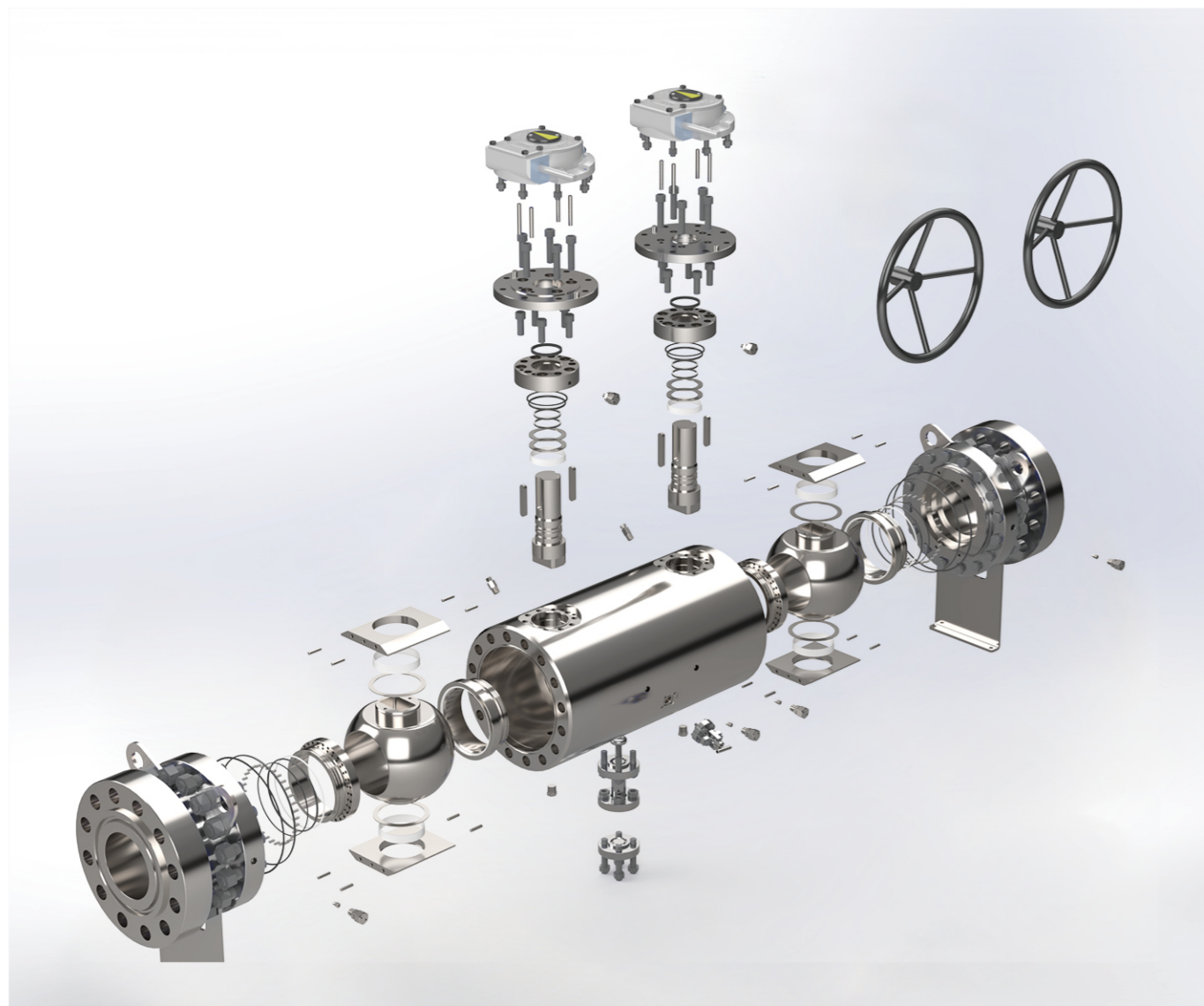
DOUBLE BLOCK AND BLEED VALVE

DBB SERIES www.fkv.jp

Pressure rating	Size		D		L(RF)		L1(BW)		L2(RTJ)		H1		H2		W		Weight	
	Class	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb
1500	2	50	1.94	49	14.50	368	14.50	368	14.63	371	8.70	221	5.12	130	29.53	750	127.9	58
	3	80	2.94	74	18.50	470	18.50	470	18.63	473	11.69	297	5.98	152	39.37	1000	246.9	112
	4	100	3.94	100	21.50	546	21.50	546	21.63	549	13.58	345	6.54	166	11.81	*300	423.3	192
	6	150	5.69	144	27.75	705	27.75	705	28.00	711	14.37	365	7.56	192	15.75	*400	826.9	375
	8	200	7.56	192	32.75	832	32.75	832	33.13	841	16.65	423	9.37	238	19.69	*500	915.1	415
	10	250	9.44	239	39.00	991	39.00	991	39.38	1000	22.05	560	10.79	274	23.62	*600	1157.7	525
	12	300	11.31	287	44.50	1130	44.50	1130	45.13	1146	23.94	608	12.52	318	23.62	*600	1719.9	780
	14	350	12.44	315	49.50	1257	49.50	1257	50.25	1276	26.06	662	19.02	483	23.62	*600	2524.7	1145
	16	400	14.19	360	54.50	1384	54.50	1384	55.38	1407	31.34	796	21.02	534	23.62	*600	5092.6	2310
	18	450	16.00	406	60.50	1537	-	-	61.38	1559	33.43	849	23.86	606	23.62	*600	6851.9	3108
	20	500	17.88	454	65.50	1664	-	-	66.38	1686	37.95	964	27.01	686	31.50	*800	8483.3	3848
	22	550	19.69	500	-	-	-	-	-	-	40.35	1025	28.78	731	31.50	*800	11056.1	5015
24	600	21.50	546	-	-	-	-	77.63	1972	41.93	1065	30.51	775	31.50	*800	13933.1	6320	
2500	2	50	1.69	42	17.75	451	17.75	451	17.88	454	9.06	230	4.76	121	15.75	*400	229.3	104
	3	80	2.44	62	22.75	578	22.75	578	23.00	584	11.18	284	5.75	146	19.69	*500	460.3	209
	4	100	3.44	87	26.50	673	26.50	673	26.88	683	11.93	303	6.46	164	19.69	*500	822.3	373
	6	150	5.19	131	36.00	914	36.00	914	36.50	927	15.51	394	8.66	220	23.62	*600	1684.3	764
	8	200	7.06	179	40.25	1022	40.25	1022	40.88	1038	19.21	488	12.28	312	27.56	*700	3661.8	1661
	10	250	8.81	223	50.00	1270	50.00	1270	50.88	1292	23.62	600	16.73	425	27.56	*700	5650.4	2563
12	300	10.44	265	56.00	1422	56.00	1422	56.88	1445	34.33	872	24.76	629	29.92	*760	8152.6	3698	



Structure Diagram



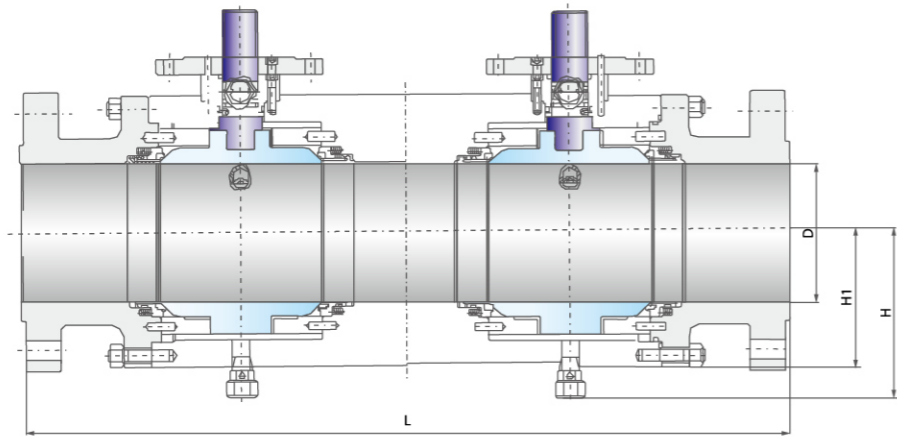
Technical Parameter

Nominal diameter(in)		NPS 1/2"~16"				
Nominal pressure(LB)		Class150~Class2500				
Applicable service conditions	Applicable media	Water,steam,oil,gas liquefied gas,natural gas,etc.	Nitric Acid	Nitric Acid	Strong Oxidizer	Urea
	Applicable temperature	120°C (PTFE), ≤80°C (NYLON), ≤250°C (PEEK), ≤250°C (PPL)				
Design and manufacturing		API 608, API 6D, ASME B16.34				
Face-to-face dimensions		Manufacturer Standard				
Type of connection		Flange	ASME B16.5/ASME B16.47	Butt welding	ASME B16.25	
Pressure test		API 598, API 6D				
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric				

Materials of Parts

Part Name	Materials				
	Carbon Steel	Stainless Steel			
Body	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
Spring	17-7PH	17-7PH	17-7PH	17-7PH	17-7PH
Anti-fire packing	Graphite	Graphite	Graphite	Graphite	Graphite
O-ring	VITON	VITON	VITON	VITON	VITON
Seat ring	ASTM A105+ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
Seat	PTFE/NYLON/PEEK/PPL	PTFE/NYLON/PEEK/PPL	PTFE/NYLON/PEEK/PPL	PTFE/NYLON/PEEK/PPL	PTFE/NYLON/PEEK/PPL
Ball	ASTM A105+ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
Anti-fire gasket	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite
O-ring	VITON	VITON	VITON	VITON	VITON
Bonnet	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
Check valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Anti-static device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
Sliding bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
Thrust bearing	PTFE	PTFE	PTFE	PTFE	PTFE
O-ring	VITON	VITON	VITON	VITON	VITON
O-ring	VITON	VITON	VITON	VITON	VITON
Anti-fire gasket	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite
Seal gland	ASTM A105+ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
Pin	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035
Packing	Graphite	Graphite	Graphite	Graphite	Graphite
Packing gland	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB
Hexagon bolt	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
Stopper	A3-HZn	A3-Zn	A3-HZn	A3-HZn	A3-HZn
Retainer ring	65Mn	65Mn	65Mn	65Mn	65Mn
Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Air release valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Check valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Drainage valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Drainage valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Thrust bearing	PTFE	PTFE	PTFE	PTFE	PTFE
Sliding bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
O-ring	VITON	VITON	VITON	VITON	VITON
Anti-fire gasket	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite
Lower cover	ASTM A105+ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
Hexagon nut	A194 2HM	A194-8	A194-8M	A194-8	A194-8M
Hexagon nut	A194 2HM	A194-8	A194-8M	A194-8	A194-8M

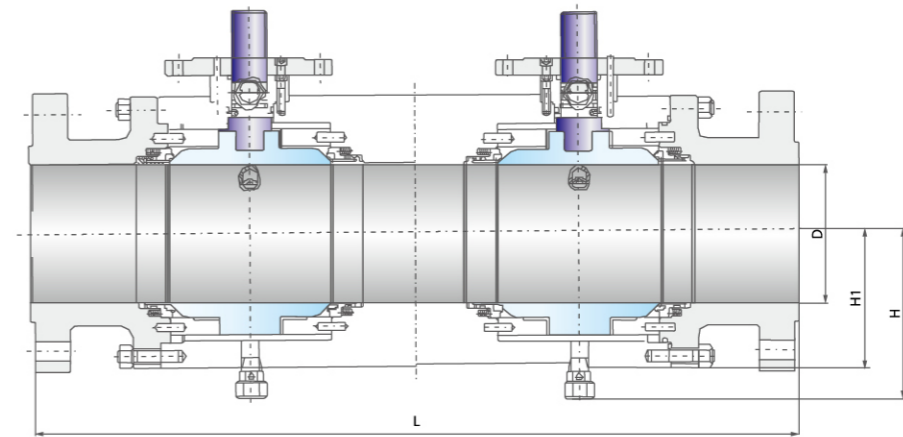
Connection Size (CLASS 150-600LB)



Pressure rating	Nominal Diameter		D		L			H	H1	Weight
	Class	NPS	DN	in	mm	L(RF)	L(RFJ)			
150	2"	50	1.94	49	356	369	394	93	88	△
	3"	80	2.94	74	457	470	537	118.5	117	△
	4"	100	3.94	100	502	514	578	143.5	137	△
	6"	150	5.94	150	787	799	850	208	178.5	△
	8"	200	7.94	201	902	915	966	248	235	△
	10"	250	9.94	252	991	1004	1017	294	288	△
	12"	300	11.94	303	1130	1142	1155	345	330	△
	14"	350	13.19	334	1245	1258	1321	377	360	△
300	2"	50	1.94	49	394	410	394	93	88	△
	3"	80	2.94	74	495	510	495	118.5	117	△
	4"	100	3.94	100	568	584	568	143.5	137	△
	6"	150	5.94	150	826	842	826	208	178.5	△
	8"	200	7.94	201	991	1007	991	248	235	△
	10"	250	9.94	252	1054	1070	1054	294	288	△
	12"	300	11.94	303	1194	1210	1194	345	330	△
	14"	350	13.19	334	1346	1362	1346	377	360	△
600	2"	50	1.94	49	470	473	470	107	91.5	△
	3"	80	2.94	74	610	613	610	140	119	△
	4"	100	3.94	100	762	765	762	164	150	△
	6"	150	5.94	150	978	981	978	224	208	△
	8"	200	7.94	201	1143	1147	1143	272	248	△
	10"	250	9.94	252	1372	1376	1372	318	303	△
	12"	300	11.94	303	1448	1451	1448	355	341	△
	14"	350	13.19	334	1549	1552	1549	390	370	△
	16"	400	15.19	385	1778	1781	1778	400	415	△

Note:*Dimensions are for reference only and are subject to change.

Connection Size (CLASS 900-2500LB)



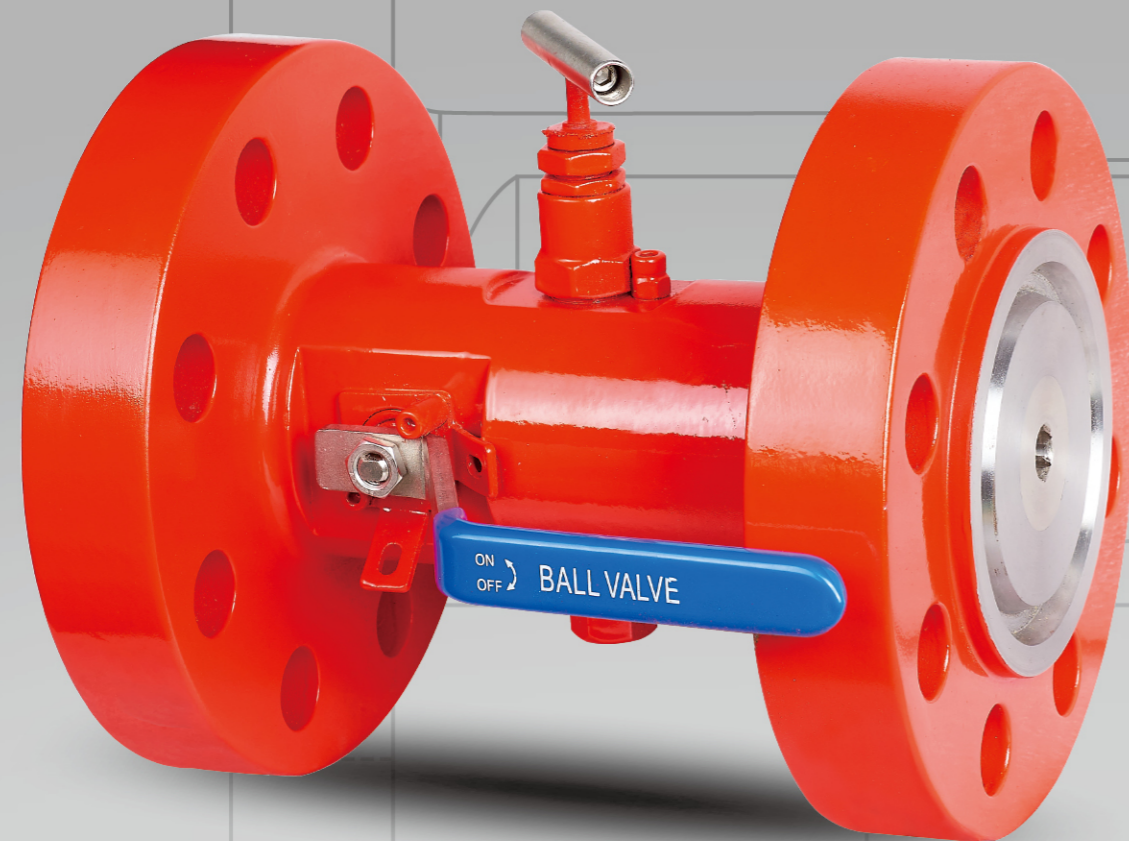
Pressure rating	Nominal Diameter		D		L			H	H1	Weight
	Class	NPS	DN	in	mm	L(RF)	L(RFJ)			
900	2"	50	1.94	49	610	613	610	126.5	105	△
	3"	80	2.94	74	660	663	660	150	130	△
	4"	100	3.94	100	826	829	826	172.5	158	△
	6"	150	5.94	150	1054	1057	1054	230	210	△
	8"	200	7.94	201	1295	1298	1295	290	255	△
	10"	250	9.94	252	1473	1476	1473	330	316	△
	12"	300	11.94	303	1651	1654	1651	366	351	△
	14"	350	12.69	322	1880	1889	1880	415	376	△
1500	2"	50	1.94	49	610	613	610	126.5	105	△
	3"	80	2.94	74	826	829	826	166	149	△
	4"	100	3.94	100	965	968	965	219	178	△
	6"	150	5.69	144	1232	1238	1232	268	234	△
	8"	200	7.56	192	1448	1457	1448	305	270	△
	10"	250	9.44	239	1778	1787	1778	358	336	△
	12"	300	11.31	287	2083	2099	2083	414	395	△
	14"	350	12.44	315	2286	2305	2286	471	441	△
2500	2"	50	1.69	42	762	765	762	149	123	△
	3"	80	2.44	62	1029	1153	1029	215	171	△
	4"	100	3.44	87	1143	1562	1143	245	206	△
	6"	150	5.19	131	1549	1559	1549	306	265	△
	8"	200	7.06	179	1880	1896	1880	361	336	△

Note:*Dimensions are for reference only and are subject to change.

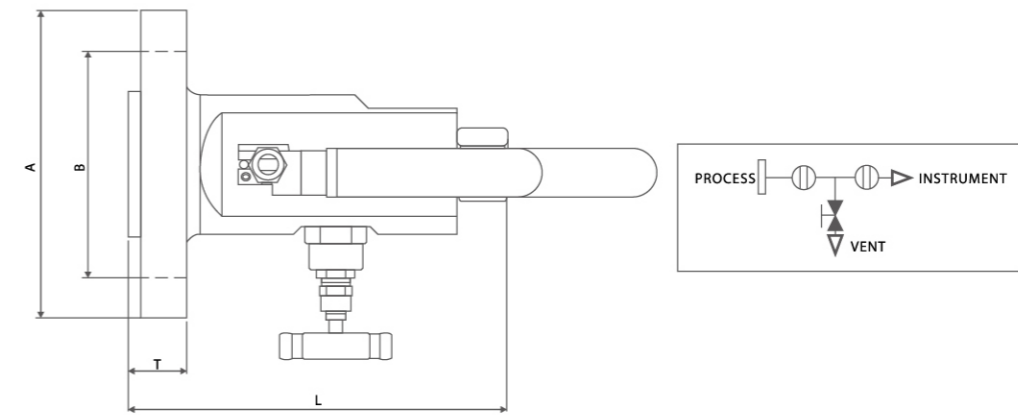
INTEGRAL BLOCK

BLEED VALVES

DBB SERIES www.fkv.jp



Connection Size



Dimensions(10mm BORE)

Size	Pressure rating (Lb)	Dimension(mm)			
		L(RF×NPT)	A	B	T
1/2 (DN15)	150	160	89	60.3	14
	300	160	95	66.7	15
	600	165	95	66.7	21.5
	900/1500	185	120	82.6	29.5
	2500	185	135	88.9	37.5
3/4 (DN20)	150	160	100	69.9	14
	300	165	115	82.6	16.5
	600	170	115	82.6	23
	900/1500	185	130	88.9	32.5
	2500	185	140	95.2	39
1 (DN25)	150	160	110	79.4	14
	300	165	125	88.9	18
	600	175	125	88.9	24.5
	900/1500	190	150	101.6	36
	2500	190	160	108	42
1½ (DN40)	150	165	125	98.1	15
	300	180	155	114.3	21.5
	600	185	155	114.3	29.5
	900/1500	200	180	123.8	39
	2500	210	205	146	51.5
2 (DN50)	150	165	150	120.7	16.5
	300	170	165	127	23
	600	180	165	127	32.5
	900/1500	200	215	165.1	45.5
	2500	210	235	171.4	58

Note:*Dimensions are for reference only and are subject to change.

Dimensions(14mm BORE)

Size	Pressure rating (Lb)	Dimension(mm)			
		L(RF×NPT)	A	B	T
3/4 (DN20)	150	170	100	69.9	14
	300	175	115	82.6	16.5
	600	180	115	82.6	23
	900/1500	200	130	88.9	32.5
	2500	200	140	95.2	39
1 (DN25)	150	170	110	79.4	14
	300	175	125	88.9	18
	600	185	125	88.9	24.5
	900/1500	200	150	101.6	36
	2500	200	160	108	42
1½ (DN40)	150	175	125	98.4	15
	300	190	155	114.3	21.5
	600	195	155	114.3	29.5
	900/1500	210	180	123.8	39
	2500	210	205	146	51.5
2 (DN50)	150	175	150	120.7	16.5
	300	180	165	127	23
	600	190	165	127	32.5
	900/1500	210	215	165.1	45.5
	2500	220	235	171.4	58

Note:*Dimensions are for reference only and are subject to change.

Dimensions(20mm BORE)

Size	Pressure rating (Lb)	Dimension(mm)			
		L(RF×NPT)	A	B	T
1 (DN25)	150	180	110	79.4	14
	300	185	125	88.9	18
	600	195	125	88.9	24.5
	900/1500	215	150	101.6	36
	2500	225	160	108	42
1-1/2 (DN40)	150	185	125	98.4	15
	300	200	155	114.3	21.5
	600	205	155	114.3	29.5
	900/1500	220	180	123.8	39
	2500	230	205	146	51.5
2 (DN50)	150	185	150	120.7	16.5
	300	190	165	127	23
	600	200	165	127	32.5
	900/1500	220	215	165.1	45.5
	2500	240	235	171.4	58

Note:Dimensions are for reference only and are subject to change.

Dimensions(10mm BORE)

Size	Pressure rating (Lb)	Dimension(mm)			
		L(RF)	A	B	T
1/2 (DN15)	150	160	89	60.3	14
	300	160	95	66.7	15
	600	165	95	66.7	21.5
	900/1500	185	120	82.6	29.5
	2500	185	135	88.9	37.5
3/4 (DN20)	150	160	100	69.9	14
	300	165	115	82.6	16.5
	600	170	115	82.6	23
	900/1500	185	130	88.9	32.5
	2500	185	140	95.2	39
1 (DN25)	150	160	110	79.4	14
	300	165	125	88.9	18
	600	175	125	88.9	24.5
	900/1500	190	150	101.6	36
	2500	190	160	108	42
1½ (DN40)	150	165	125	98.1	15
	300	180	155	114.3	21.5
	600	185	155	114.3	29.5
	900/1500	200	180	123.8	39
	2500	210	205	146	51.5
2 (DN50)	150	165	150	120.7	16.5
	300	170	165	127	23
	600	180	165	127	32.5
	900/1500	200	215	165.1	45.5
	2500	210	235	171.4	58

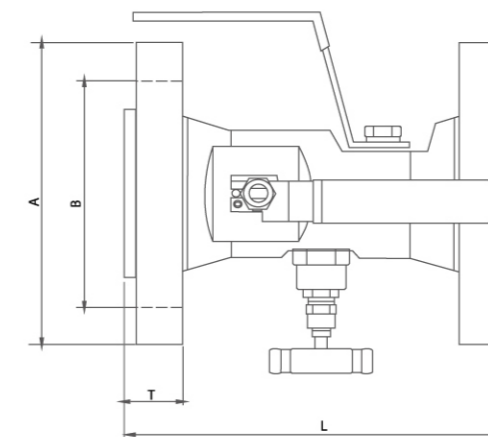
Note:*Dimensions are for reference only and are subject to change.

Dimensions(14mm BORE)

Size	Pressure rating (Lb)	Dimension(mm)			
		L(RF)	A	B	T
¾ (DN20)	150	170	100	69.9	14
	300	175	115	82.6	16.5
	600	180	115	82.6	23
	900/1500	200	130	88.9	32.5
	2500	200	140	95.2	39
1 (DN25)	150	170	110	79.4	14
	300	175	125	88.9	18
	600	185	125	88.9	24.5
	900/1500	200	150	101.6	36
	2500	200	160	108	42
1½ (DN40)	150	175	125	98.4	15
	300	190	155	114.3	21.5
	600	195	155	114.3	29.5
	900/1500	210	180	123.8	39
	2500	210	205	146	51.5
2 (DN50)	150	175	150	120.7	16.5
	300	180	165	127	23
	600	190	165	127	32.5
	900/1500	210	215	165.1	45.5
	2500	220	235	171.4	58

Note:*Dimensions are for reference only and are subject to change.

Connection Size



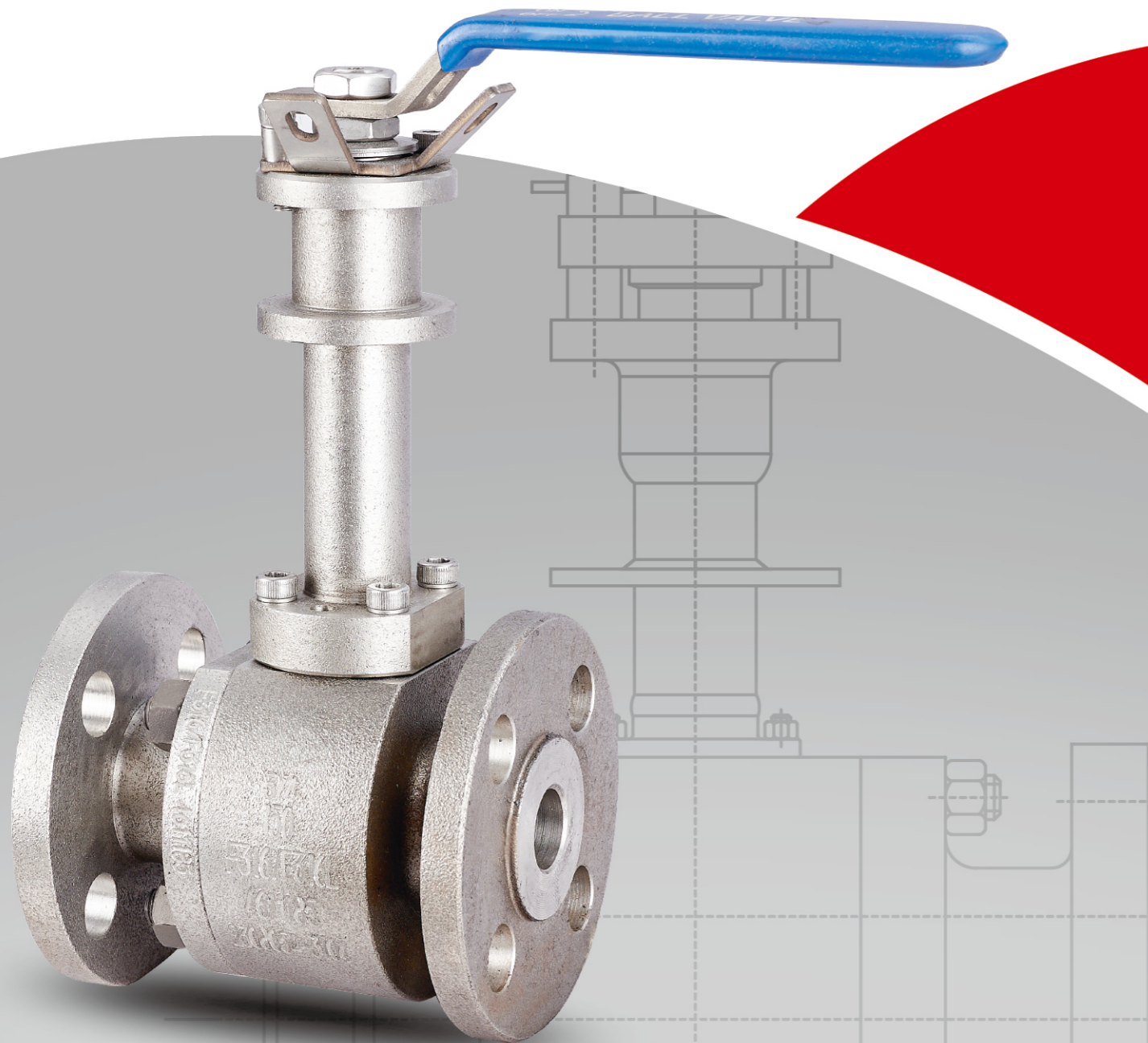
Dimensions(20mm BORE)

Size	Pressure rating (Lb)	Dimension(mm)			
		L(RF)	A	B	T
1 (DN25)	150	180	110	79.4	14
	300	185	125	88.9	18
	600	195	125	88.9	24.5
	900/1500	215	150	101.6	36
	2500	225	160	108	42
1½ (DN40)	150	185	125	98.4	15
	300	200	155	114.3	21.5
	600	205	155	114.3	29.5
	900/1500	220	180	123.8	39
	2500	230	205	146	51.5
2 (DN50)	150	185	150	120.7	16.5
	300	190	165	127	23
	600	200	165	127	32.5
	900/1500	220	215	165.1	45.5
	2500	240	235	171.4	58

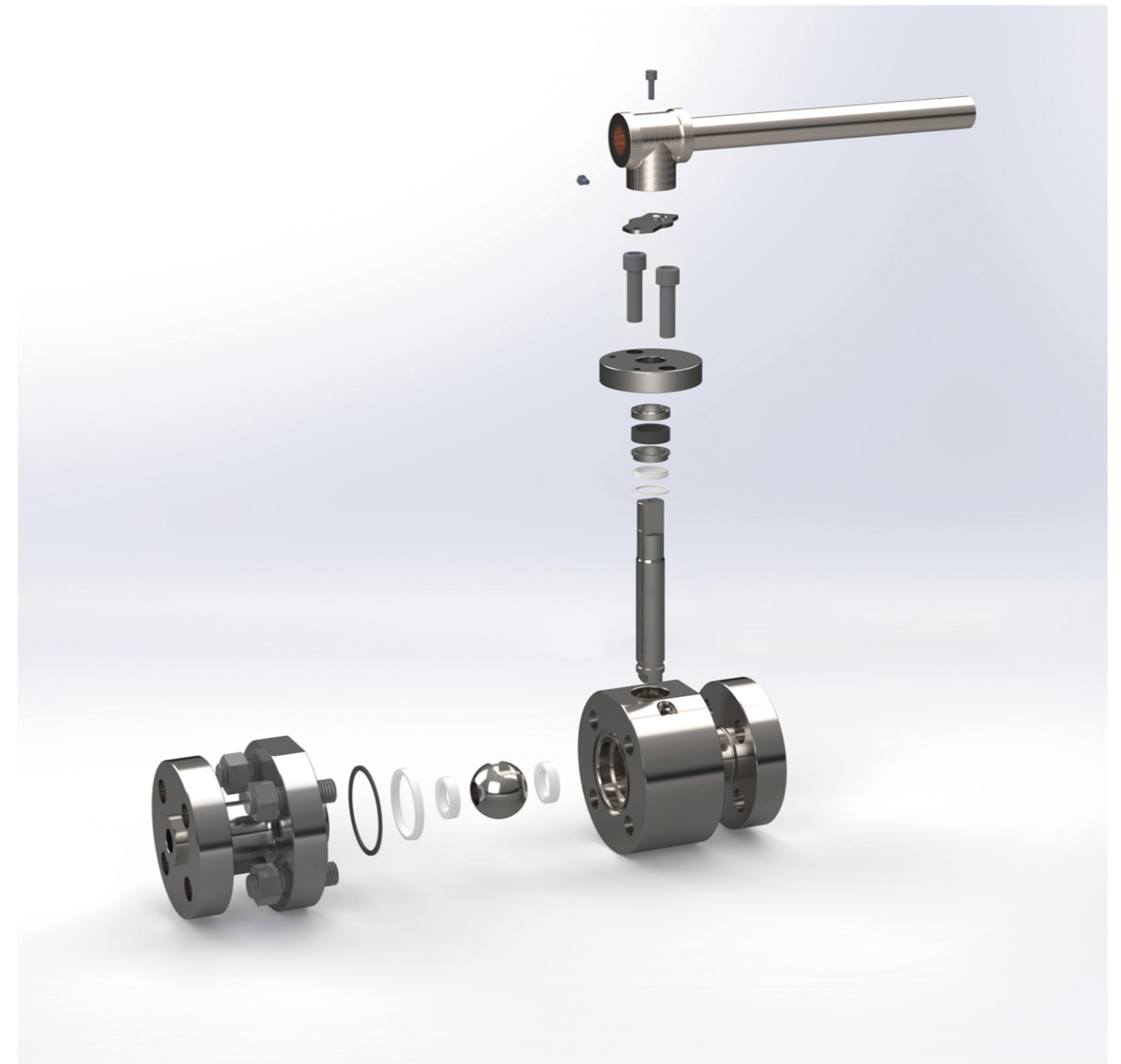
Note:*Dimensions are for reference only and are subject to change.

CRYOGENIC FLOATING BALL VALVE

CBV SERIES www.fkv.jp



Structure Diagram



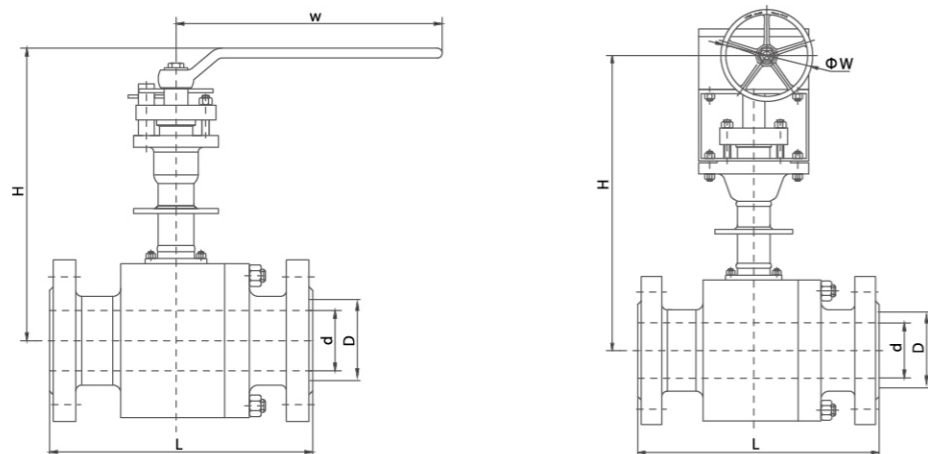
Product Overview

The cryogenic ball valve is one of the important control components in the cryogenic ball valve pipeline system, especially suitable for the occasions requiring tight sealing, rapid opening and closing and low flow resistance. FKV's the cryogenic ball valve adopts the most advanced design concept and strictly controls the production process, which makes FKV's cryogenic ball valve have outstanding advantages such as reliable sealing, low operating torque, high low temperature stability and long service life. At present, FKV's cryogenic ball valve has been successfully used in many LNG receiving stations and liquefaction stations.

Design Features

- Side Entry or Top Entry
- Design In Accordance With ASME B16.34, API 608, BS 6364
- Low Torque Performance
- Blowout-proof Stem
- Fire Safe Tested Design
- Low Emission Design
- Anti-static Device

Connection Size (CLASS 150LB)



Full Port

Size		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3/8	10	0.39	10	5.12	130	-	-	-	-	12.83	326	6.50	165	6.61	3
1/2	15	0.50	13	4.25	108	-	-	-	-	12.83	326	6.50	165	8.80	4
3/4	20	0.75	19	4.61	117	-	-	-	-	13.23	336	8.46	215	11.02	5
1	25	1.00	25	5.00	127	-	-	-	-	13.50	343	8.46	215	15.43	7
1½	40	1.50	38	6.50	165	-	-	-	-	16.38	416	13.78	350	35.27	16
2	50	1.94	49	7.00	178	8.50	216	7.50	191	17.00	432	16.93	430	48.50	22
3	80	2.94	74	8.00	203	11.13	283	8.50	216	20.00	508	32.09	815(T)	94.80	43
4	100	3.94	100	9.00	229	12.00	305	9.50	241	23.70	602	32.09	815(T)	136.69	62
6	150	5.94	150	15.50	394	18.00	457	16.00	406	29.09	739	19.69	500(G)	396.83	180
8	200	7.94	201	18.00	457	20.50	521	18.50	470	30.83	783	23.62	600(G)	637.13	289

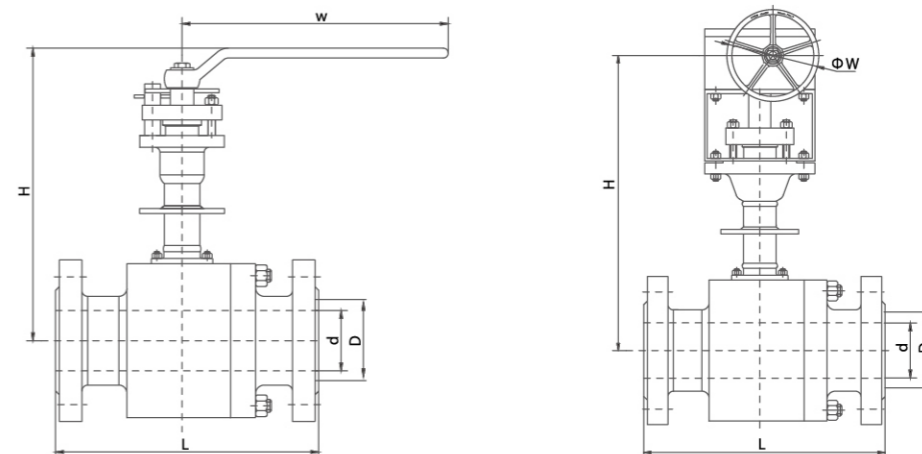
Note: For W value, (T) means the valve is operated by T-lever; (G) means the valve is operated by gear box (Gear); if there is no special mark, it means that the valve is operated by ordinary handle.

Reduced Port

Size		d		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
1/2x3/8	15x10	0.39	10	0.50	13	5.12	130	-	-	-	-	12.83	326	6.50	165	6.61	3
3/4x1/2	20x15	0.50	13	0.75	19	4.25	108	-	-	-	-	12.83	326	6.50	165	8.80	4
1x3/4	25x20	0.75	19	1.00	25	4.61	117	-	-	-	-	13.23	336	8.46	215	11.02	5
1½x1	40x25	1.00	25	1.50	38	5.00	127	-	-	-	-	13.50	343	8.46	215	15.43	7
2x1½	50x40	1.50	38	1.94	49	6.50	165	-	-	-	-	16.38	416	13.78	350	35.27	16
3x2	80x50	1.94	49	2.94	74	7.00	178	8.50	216	7.50	191	17.00	432	16.93	430	48.50	22
4x3	100x80	2.94	74	3.94	100	8.00	203	11.13	283	8.50	216	20.00	508	32.09	815(T)	94.80	43
6x4	150x100	3.94	100	5.94	150	9.00	229	12.00	305	9.50	241	23.70	602	32.09	815(T)	136.69	62
8x6	200x150	5.94	150	7.94	201	15.50	394	18.00	457	16.00	406	29.09	739	19.69	500(G)	396.83	180

Note: For W value, (T) means the valve is operated by T-lever; (G) means the valve is operated by gear box (Gear); if there is no special mark, it means that the valve is operated by ordinary handle.

Connection Size (CLASS 300LB)



Full Port

Size		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3/8	10	0.39	10	5.12	130	-	-	-	-	12.91	328	6.50	165	7.72	3.5
1/2	15	0.50	13	5.51	140	-	-	-	-	12.91	328	6.50	165	11.02	5
3/4	20	0.75	19	5.98	152	-	-	-	-	13.39	340	8.46	215	13.23	6
1	25	1.00	25	6.50	165	-	-	-	-	13.66	347	8.46	215	17.63	8
1½	40	1.50	38	7.48	191	-	-	-	-	16.54	420	13.78	350	39.68	16
2	50	1.94	49	8.50	216	8.50	216	9.13	232	17.28	439	16.93	430	52.91	24
3	80	2.94	74	11.13	283	11.13	283	11.75	298	20.31	516	32.09	815(T)	112.43	51
4	100	3.94	100	12.00	305	12.00	305	12.63	321	24.21	615	32.09	815(T)	174.16	79
6	150	5.94	150	15.88	403	18.00	457	16.50	419	31.06	789	23.62	600(G)	467.38	212
8	200	7.94	201	19.75	502	20.50	521	20.38	518	33.19	843	27.56	700(G)	850.98	386

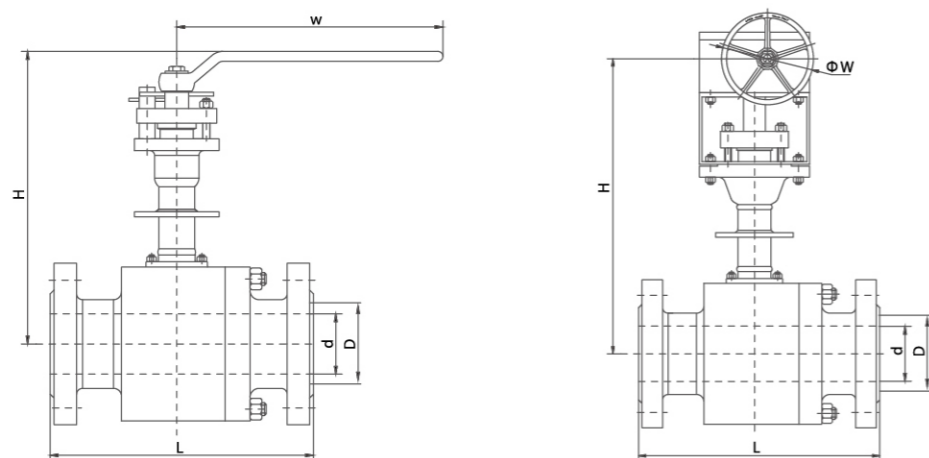
Note: For W value, (T) means the valve is operated by T-lever; (G) means the valve is operated by gear box (Gear); if there is no special mark, it means that the valve is operated by ordinary handle.

Reduced Port

Size		d		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
1/2x3/8	15x10	0.39	10	0.50	13	5.12	130	-	-	-	-	12.91	328	6.50	165	7.72	3.5
3/4x1/2	20x15	0.50	13	0.75	19	5.51	140	-	-	-	-	12.91	328	6.50	165	11.02	5
1x3/4	25x20	0.75	19	1.00	25	5.98	152	-	-	-	-	13.39	340	8.46	215	13.23	6
1½x1	40x25	1.00	25	1.50	38	6.50	165	-	-	-	-	13.66	347	8.46	215	17.63	8
2x1½	50x40	1.50	38	1.94	49	7.48	191	-	-	-	-	16.54	420	13.78	350	39.68	16
3x2	80x50	1.94	49	2.94	74	8.50	216	8.50	216	9.13	232	17.28	439	16.93	430	52.91	24
4x3	100x80	2.94	74	3.94	100	11.13	283	11.13	283	11.75	298	20.31	516	32.09	815(T)	112.43	51
6x4	150x100	3.94	100	5.94	150	12.00	305	12.00	305	12.63	321	24.21	615	32.09	815(T)	174.16	79
8x6	200x150	5.94	150	7.94	201	15.88	403	18.00	457	16.50	419	31.06	789	23.62	600(G)	467.38	212

Note: For W value, (T) means the valve is operated by T-lever; (G) means the valve is operated by gear box (Gear); if there is no special mark, it means that the valve is operated by ordinary handle.

Connection Size (CLASS 600LB)



Full Port

Size		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3/8	10	0.39	10	5.12	130	-	-	-	-	13.27	337	8.46	215	15.43	7
1/2	15	0.50	13	6.50	165	-	-	-	-	13.27	337	8.46	215	17.64	8
3/4	20	0.75	19	7.52	191	-	-	-	-	13.66	347	8.46	215	19.84	9
1	25	1.00	25	8.50	216	-	-	-	-	14.21	361	13.78	350	33.07	15
1½	40	1.50	38	9.49	241	-	-	-	-	16.65	423	32.09	815(T)	59.52	27
2	50	1.94	49	11.50	292	11.50	292	11.63	295	20.00	510	11.81	300(T)	114.64	52
3	80	2.94	74	14.00	356	14.00	356	14.13	359	25.67	652	15.75	400(T)	180.78	82
4	100	3.94	100	17.00	432	17.00	432	17.13	435	23.70	602	32.09	815(T)	136.69	62
6	150	5.94	150	22.00	559	22.00	559	22.13	562	29.09	739	19.69	500(G)	396.83	180
8	200	7.94	201	26.00	660	26.00	660	26.13	664	30.83	783	23.62	600(G)	637.13	289

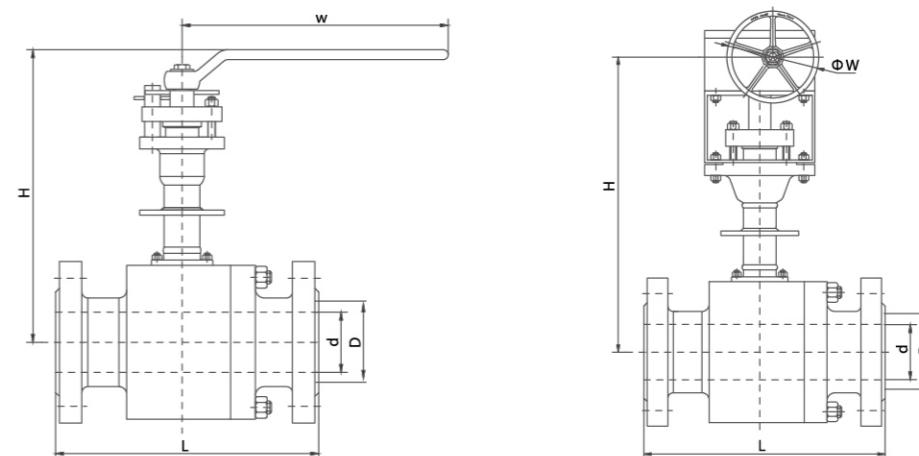
Note: For W value, (T) means the valve is operated by T-lever; (G) means the valve is operated by gear box (Gear); if there is no special mark, it means that the valve is operated by ordinary handle.

Reduced Port

Size		d		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
1/2x3/8	15x10	0.39	10	0.50	13	5.12	130	-	-	-	-	13.27	337	8.46	215	15.43	7
3/4x1/2	20x15	0.50	13	0.75	19	6.50	165	-	-	-	-	13.27	337	8.46	215	17.64	8
1x3/4	25x20	0.75	19	1.00	25	7.52	191	-	-	-	-	13.66	347	8.46	215	19.84	9
1½x1	40x25	1.00	25	1.50	38	8.50	216	-	-	-	-	14.21	361	13.78	350	33.07	15
2x1½	50x40	1.50	38	1.94	49	9.49	241	-	-	-	-	16.65	423	32.09	815(T)	59.52	27
3x2	80x50	1.94	49	2.94	74	11.50	292	11.50	292	11.63	295	20.00	510	11.81	300(T)	114.64	52
4x3	100x80	2.94	74	3.94	100	14.00	356	14.00	356	14.13	359	25.67	652	15.75	400(T)	180.78	82
6x4	150x100	3.94	100	5.94	150	17.00	432	17.00	432	17.13	435	23.70	602	32.09	815(T)	136.69	62
8x6	200x150	5.94	150	7.94	201	22.00	559	22.00	559	22.13	562	29.09	739	19.69	500(G)	396.83	180

Note: For W value, (T) means the valve is operated by T-lever; (G) means the valve is operated by gear box (Gear); if there is no special mark, it means that the valve is operated by ordinary handle.

Connection Size (CLASS 900LB,1500LB)



Full Port

Size		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3/8	10	0.39	10	5.12	130	-	-	-	-	13.94	354	8.46	215	22.05	10
1/2	15	0.50	13	8.50	216	-	-	-	-	13.94	354	8.46	215	33.07	15
3/4	20	0.75	19	9.02	229	-	-	-	-	14.53	369	5.91	150(G)	48.50	22
1	25	1.00	25	10.00	254	-	-	-	-	15.75	400	7.99	203(G)	72.75	33
1½	40	1.50	38	12.01	305	-	-	-	-	18.98	482	11.81	300(G)	138.89	63
2	50	1.94	49	14.50	368	14.50	368	14.63	371	22.80	579	15.75	400(G)	211.64	96

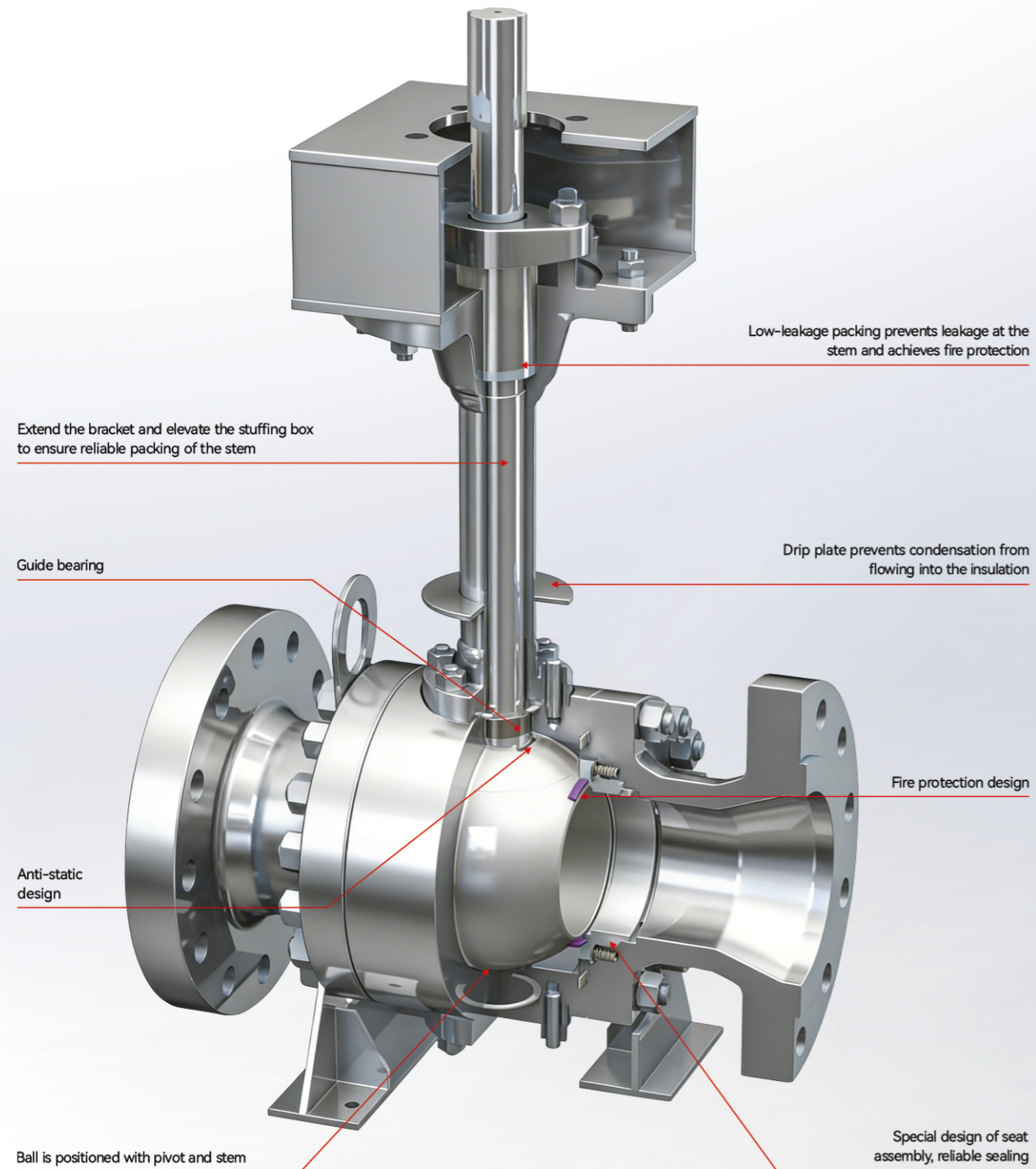
Note: For W value, (G) means the valve is operated by gear box (Gear); if there is no special mark, it means that the valve is operated by ordinary handle.

Reduced Port

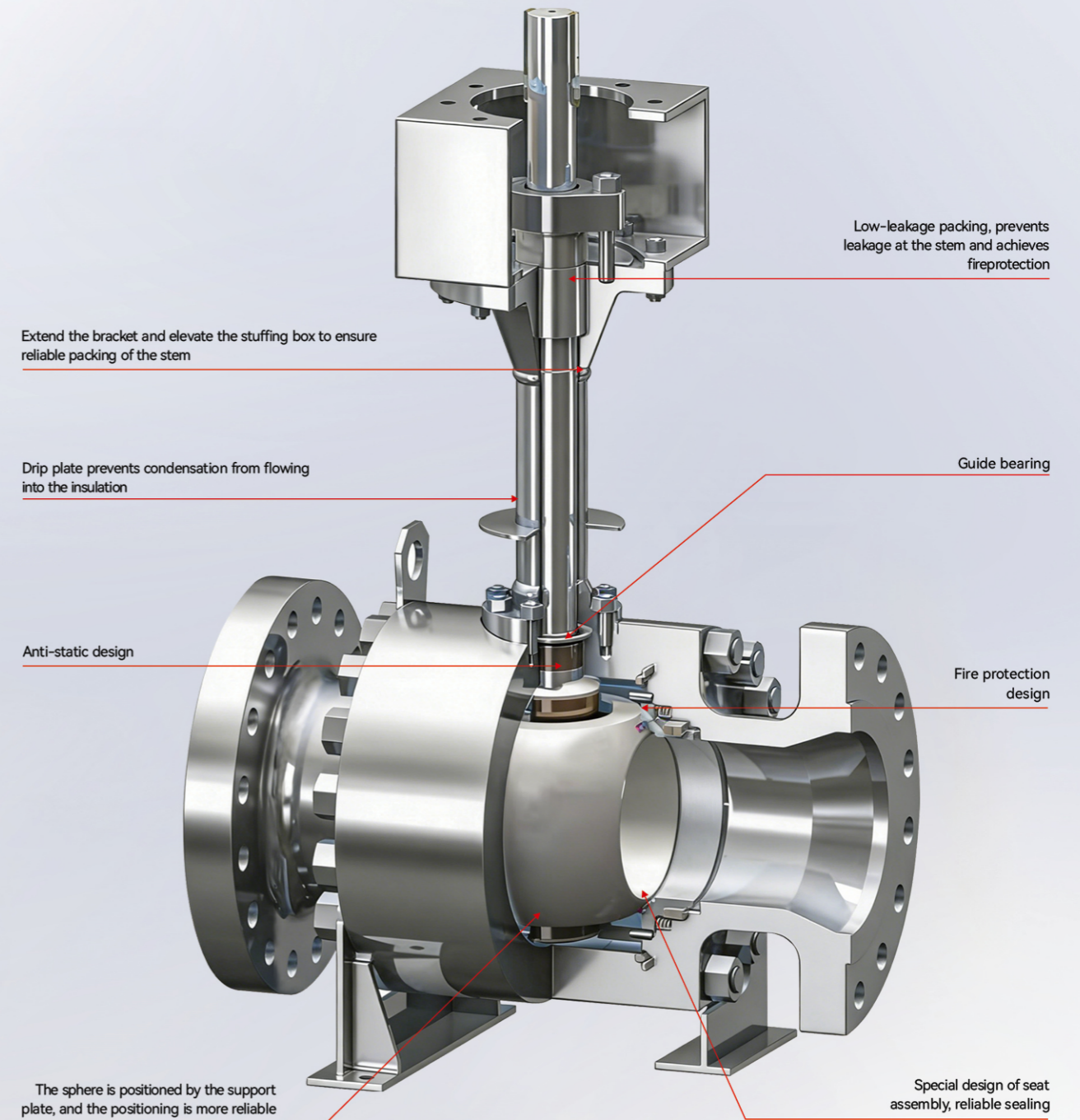
Size		d		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
1/2x3/8	15x10	0.39	10	0.50	13	5.12	130	-	-	-	-	13.94	354	8.46	215	22.05	10
3/4x1/2	20x15	0.50	13	0.75	19	8.50	216	-	-	-	-	13.94	354	8.46	215	33.07	15
1x3/4	25x20	0.75	19	1.00	25	9.02	229	-	-	-	-	14.53	369	5.91	150(G)	48.50	22
1½x1	40x25	1.00	25	1.50	38	10.00	254	-	-	-	-	15.75	400	7.99	203(G)	72.75	33
2x1½	50x40	1.50	38	1.94	49	12.01	305	-	-	-	-	18.98	482	11.81	300(G)	138.89	63

Note: For W value, (G) means the valve is operated by gear box (Gear); if there is no special mark, it means that the valve is operated by ordinary handle.

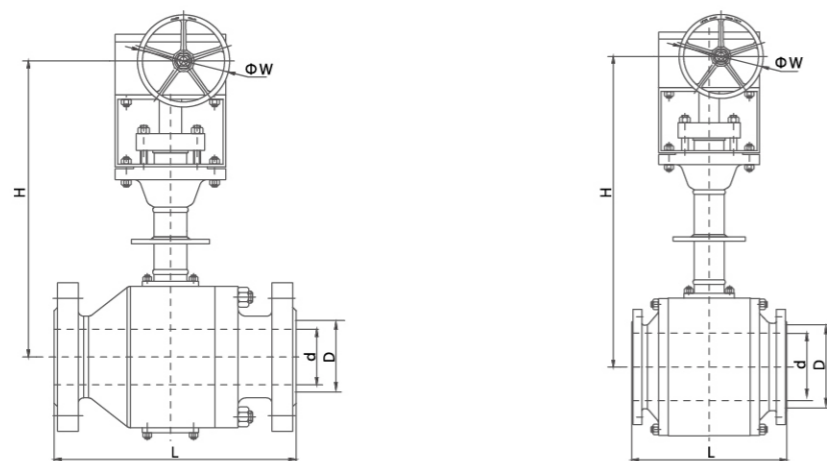
Pivot Structure



Support Plate Structure



Connection Size (CLASS 150LB)



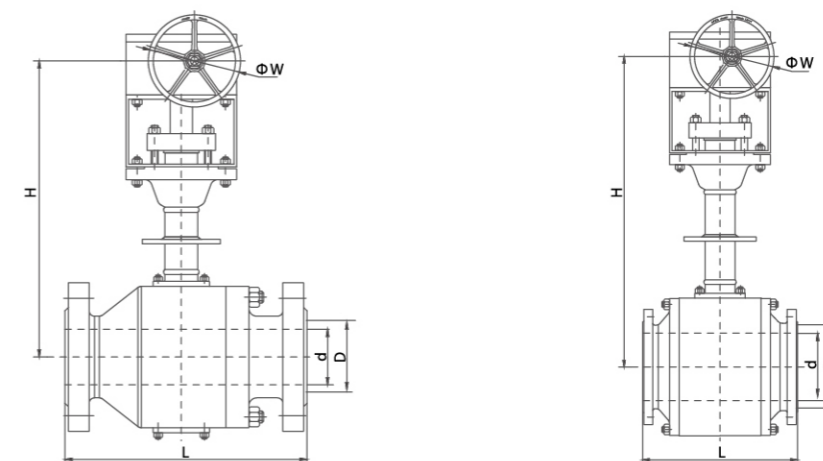
Full Port

Size		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	7.00	178	8.50	216	7.50	191	18.58	472	11.81	300	99.21	99.21
3	80	2.94	74	8.00	203	11.13	283	8.50	216	23.27	591	11.81	300	231.49	231.49
4	100	3.94	100	9.00	229	12.00	305	9.50	241	26.34	669	19.69	500	286.60	286.60
6	150	5.94	150	15.50	394	18.00	457	16.00	406	33.35	847	23.62	600	573.20	573.20
8	200	7.94	201	18.00	457	20.50	521	18.50	470	37.32	948	23.62	600	877.44	877.44
10	250	9.94	252	21.00	533	22.00	559	21.50	546	40.71	1034	23.62	600	1256.63	1256.63
12	300	11.94	303	24.00	610	25.00	635	24.50	622	42.05	1068	23.62	600	2034.86	2034.86
14	350	13.19	334	27.00	686	30.00	762	27.50	699	45.43	1154	27.56	700	3042.38	3042.38
16	400	15.19	385	30.00	762	33.00	838	30.50	775	46.69	1186	29.92	760	4265.94	4265.94
18	450	17.19	436	34.00	864	36.00	914	34.50	876	71.26	1810	31.50	800	5059.60	5059.60
20	500	19.19	487	36.00	914	39.00	991	36.50	927	79.53	2020	35.43	900	7870.49	7870.49
22	550	21.19	538	-	-	-	-	-	-	85.43	2170	35.43	900	11111.28	11111.28
24	600	23.19	589	42.00	1067	45.00	1143	42.50	1080	97.24	2470	35.43	900	13756.83	13756.83

Reduced Port

Size		d		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	7.00	178	8.50	216	7.50	191	18.58	472	11.81	300	99.21	99.21
4x3	100x80	2.94	74	3.94	100	8.00	203	11.13	283	8.50	216	23.27	591	11.81	300	231.49	231.49
6x4	150x100	3.94	100	5.94	150	9.00	229	12.00	305	9.50	241	26.34	669	19.69	500	286.60	286.60
8x6	200x150	5.94	150	7.94	201	15.50	394	18.00	457	16.00	406	33.35	847	23.62	600	573.20	573.20
10x8	250x200	7.94	201	9.94	252	18.00	457	20.50	521	18.50	470	37.32	948	23.62	600	877.44	877.44
12x10	300x250	9.94	252	11.94	303	21.00	533	22.00	559	21.50	546	40.71	1034	23.62	600	1256.63	1256.63
14x12	350x300	11.94	303	13.19	334	24.00	610	25.00	635	24.50	622	42.05	1068	23.62	600	2034.86	2034.86
16x14	400x350	13.19	334	15.19	385	27.00	686	30.00	762	27.50	699	45.43	1154	27.56	700	3042.38	3042.38
18x16	450x400	15.19	385	17.19	436	30.00	762	33.00	838	30.50	775	46.69	1186	29.92	760	4265.94	4265.94
20x18	500x450	17.19	436	19.19	487	34.00	864	36.00	914	34.50	876	71.26	1810	31.50	800	5059.60	5059.60
22x20	550x500	19.19	487	21.19	538	36.00	914	39.00	991	36.50	927	79.53	2020	35.43	900	7870.49	7870.49
24x22	600x550	21.19	538	23.19	589	-	-	-	-	-	-	85.43	2170	35.43	900	11111.28	11111.28

Connection Size (CLASS 300LB)



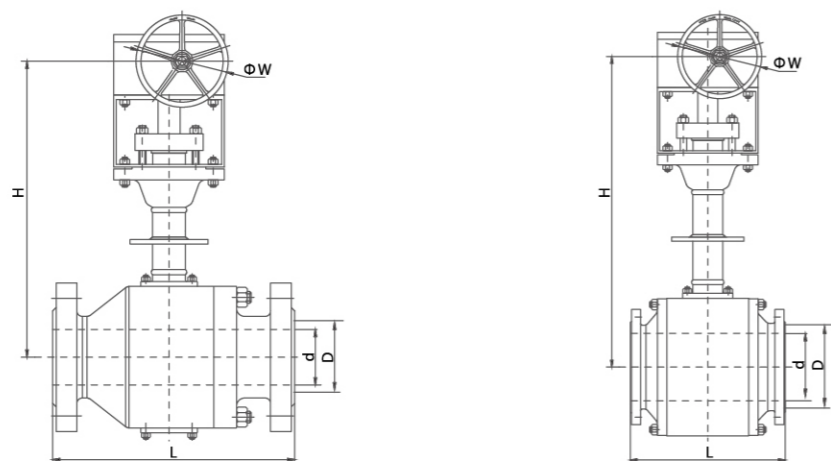
Full Port

Size		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	8.50	216	8.50	216	9.13	232	18.58	472	11.81	300	110.23	50
3	80	2.94	74	11.13	283	11.13	283	11.75	298	23.27	591	11.81	300	244.71	111
4	100	3.94	100	12.00	305	12.00	305	12.63	321	26.34	669	19.69	500	317.47	144
6	150	5.94	150	15.88	403	18.00	457	16.50	419	33.35	847	23.62	600	630.52	286
8	200	7.94	201	19.75	502	20.50	521	20.38	518	37.32	948	23.62	600	1585.12	719
10	250	9.94	252	22.38	568	22.00	559	23.00	584	40.71	1034	23.62	600	1351.43	613
12	300	11.94	303	25.50	648	25.00	635	26.13	664	42.05	1068	27.56	700	2416.26	1096
14	350	13.19	334	30.00	762	30.00	762	30.63	778	45.53	1154	29.92	760	3053.40	1385
16	400	15.19	385	33.00	838	33.00	838	33.63	854	46.69	1186	29.92	760	4276.96	1940
18	450	17.19	436	36.00	914	36.00	914	36.63	930	71.26	1810	31.50	800	5070.63	2300
20	500	19.19	487	39.00	991	39.00	991	39.75	1010	79.53	2020	35.43	900	7881.52	3575
22	550	21.19	538	43.00	1092	43.00	1092	43.88	1114	85.43	2170	35.43	900	11122.31	5045
24	600	23.19	589	45.00	1143	45.00	1143	45.88	1165	97.24	2470	35.43	900	13767.85	6245

Reduced Port

Size		d		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	8.50	216	8.50	216	9.13	232	18.58	472	11.81	300	110.23	50
4x3	100x80	2.94	74	3.94	100	11.13	283	11.13	283	11.75	298	23.27	591	11.81	300	244.71	111
6x4	150x100	3.94	100	5.94	150	12.00	305	12.00	305	12.63	321	26.34	669	19.69	500	317.47	144
8x6	200x150	5.94	150	7.94	201	15.88	403	18.00	457	16.50	419	33.35	847	23.62	600	630.52	286
10x8	250x200	7.94	201	9.94	252	19.75	502	20.50	521	20.38	518	37.32	948	23.62	600	1585.12	719
12x10	300x250	9.94	252	11.94	303	22.38	568	22.00	559	23.00	584	40.71	1034	23.62	600	1351.43	613
14x12	350x300	11.94	303	13.19	334	25.50	648	25.00	635	26.13	664	42.05	1068	27.56	700	2416.26	1096
16x14	400x350	13.19	334	15.19	385	30.00	762	30.00	762	30.63	778	45.53	1154	29.92	760	3053.40	1385
18x16	450x400	15.19	385	17.19	436	33.00	838	33.00	838	33.63	854	46.69	1186	29.92	760	4276.96	1940
20x18	500x450	17.19	436	19.19	487	36.00	914	36.00	914	36.63	930	71.26	1810	31.50	800	5070.63	2300
22x20	550x500	19.19	487	21.19	538	39.00	991	39.00	991	39.75	1010	79.53	2020	35.43	900	7881.52	3575
24x22	600x550	21.19	538	23.19	589	43.00	1092	43.00	1092	43.88	1114	85.43	2170	35.43	900	11122.31	5045

Connection Size (CLASS 600LB)



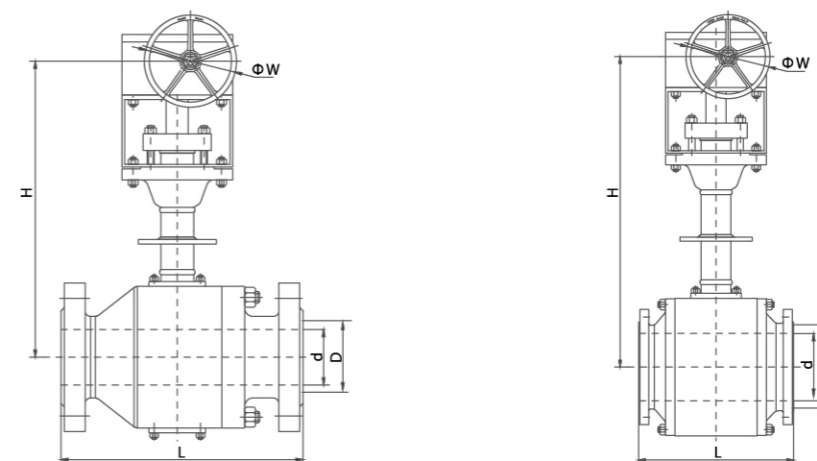
Full Port

Size		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	11.50	292	11.50	292	11.63	295	18.58	472	11.81	300	132.28	60
3	80	2.94	74	14.00	356	14.00	356	14.13	359	23.27	591	19.69	500	255.74	116
4	100	3.94	100	17.00	432	17.00	432	17.13	435	26.34	669	19.69	500	432.11	196
6	150	5.94	150	22.00	559	22.00	559	22.13	562	33.58	853	23.62	600	791.46	359
8	200	7.94	201	26.00	660	26.00	660	26.13	664	38.46	977	23.62	600	1585.12	719
10	250	9.94	252	31.00	787	31.00	787	31.13	791	41.18	1046	29.92	760	2175.96	987
12	300	11.94	303	33.00	838	33.00	838	33.13	841	43.62	1108	29.92	760	3020.33	1370
14	350	13.19	334	35.00	889	35.00	889	35.13	892	46.61	1184	29.92	760	3690.53	1674
16	400	15.19	385	39.00	991	39.00	991	39.13	994	48.27	1226	29.92	760	4299.01	1950
18	450	17.19	436	43.00	1092	43.00	1092	43.13	1095	72.44	1840	31.50	800	5092.67	2310
20	500	19.19	487	47.00	1194	47.00	1194	47.25	1200	80.71	2050	35.43	900	7903.56	3585
22	550	21.19	538	51.00	1295	51.00	1295	51.38	1305	86.61	2200	35.43	900	11144.35	5055
24	600	23.19	589	55.00	1397	55.00	1397	55.38	1407	98.43	2500	35.43	900	13789.90	6255

Reduced Port

Size		d		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	11.50	292	11.50	292	11.63	295	18.58	472	11.81	300	132.28	60
4x3	100x80	2.94	74	3.94	100	14.00	356	14.00	356	14.13	359	23.27	591	19.69	500	255.74	116
6x4	150x100	3.94	100	5.94	150	17.00	432	17.00	432	17.13	435	26.34	669	19.69	500	432.11	196
8x6	200x150	5.94	150	7.94	201	22.00	559	22.00	559	22.13	562	33.58	853	23.62	600	791.46	359
10x8	250x200	7.94	201	9.94	252	26.00	660	26.00	660	26.13	664	38.46	977	23.62	600	1585.12	719
12x10	300x250	9.94	252	11.94	303	31.00	787	31.00	787	31.13	791	41.18	1046	29.92	760	2175.96	987
14x12	350x300	11.94	303	13.19	334	33.00	838	33.00	838	33.13	841	43.62	1108	29.92	760	3020.33	1370
16x14	400x350	13.19	334	15.19	385	35.00	889	35.00	889	35.13	892	46.61	1184	29.92	760	3690.53	1674
18x16	450x400	15.19	385	17.19	436	39.00	991	39.00	991	39.13	994	48.27	1226	29.92	760	4299.01	1950
20x18	500x450	17.19	436	19.19	487	43.00	1092	43.00	1092	43.13	1095	72.44	1840	31.50	800	5092.67	2310
22x20	550x500	19.19	487	21.19	538	47.00	1194	47.00	1194	47.25	1200	80.71	2050	35.43	900	7903.56	3585
24x22	600x550	21.19	538	23.19	589	51.00	1295	51.00	1295	51.38	1305	86.61	2200	35.43	900	11144.35	5055

Connection Size (CLASS 900LB,1500LB)



Full Port

Size		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	14.50	368	14.50	368	14.63	371	19.69	500	19.69	500	165.35	75
3	80	2.94	74	15.00	381	15.00	381	15.13	384	24.80	630	19.69	500	277.78	126
4	100	3.94	100	18.00	457	18.00	457	18.13	460	27.05	687	23.62	600	618.40	280.5
6	150	5.94	150	24.00	610	24.00	610	24.13	613	35.04	890	23.62	600	1455.05	660
8	200	7.94	201	29.00	737	29.00	737	29.13	740	42.68	1084	29.92	760	1719.60	780
10	250	9.94	252	33.00	838	33.00	838	33.13	841	45.04	1144	29.92	760	2711.68	1230
12	300	11.94	303	38.00	965	38.00	965	38.13	968	51.18	1300	31.50	800	3721.40	1688
14	350	12.69	322	40.50	1029	40.50	1029	40.88	1038	61.02	1550	31.50	800	5324.16	2415
16	400	14.69	373	44.50	1130	44.50	1130	44.88	1140	70.87	1800	31.50	800	6646.93	3015

Reduced Port

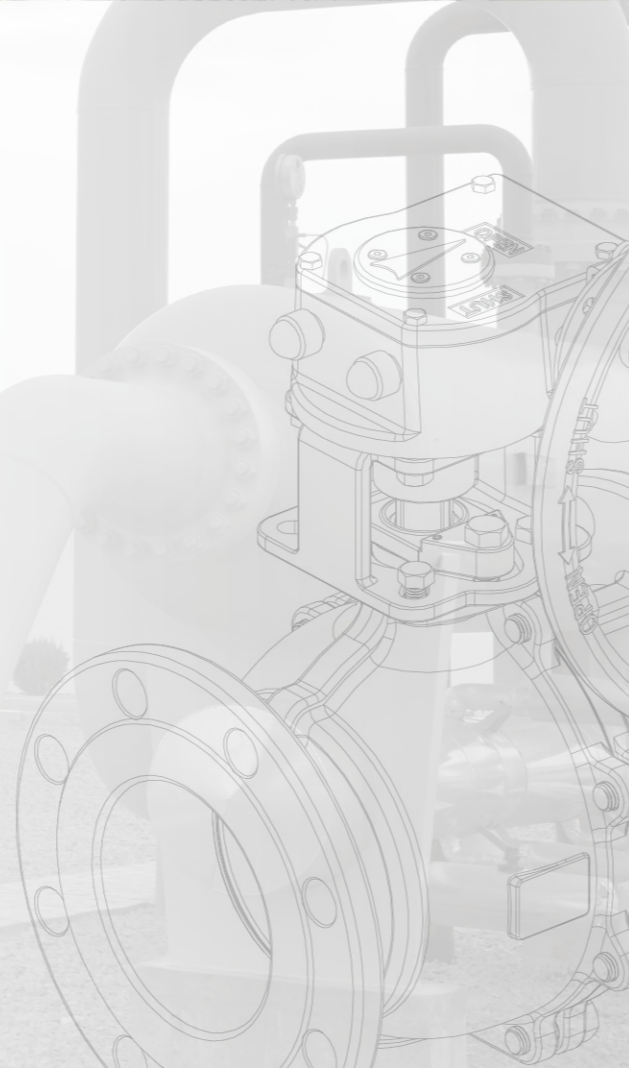
Size		d		D		L(RF)		L(BW)		L(RTJ)		H		W		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	14.50	368	14.50	368	14.63	371	19.69	500	19.69	500	165.35	75
4x3	100x80	2.94	74	3.94	100	15.00	381	15.00	381	15.13	384	24.80	630	19.69	500	277.78	126
6x4	150x100	3.94	100	5.94	150	18.00	457	18.00	457	18.13	460	27.05	687	23.62	600	618.40	280.5
8x6	200x150	5.94	150	7.94	201	24.00	610	24.00	610	24.13	613	35.04	890	23.62	600	1455.05	660
10x8	250x200	7.94	201	9.94	252	29.00	737	29.00	737	29.13	740	42.68	1084	29.92	760	1719.60	780
12x10	300x250	9.94	252	11.94	303	33.00	838	33.00	838	33.13	841	45.04	1144	29.92	760	2711.68	1230
14x12	350x300	11.94	303	12.69	322	38.00	965	38.00	965	38.13	968	51.18	1300	31.50	800	3721.40	1688
16x14	400x350	12.69	322	14.69	373	40.50	1029	40.50	1029	40.88	1038	61.02	1550	31.50	800	5324.16	2415

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