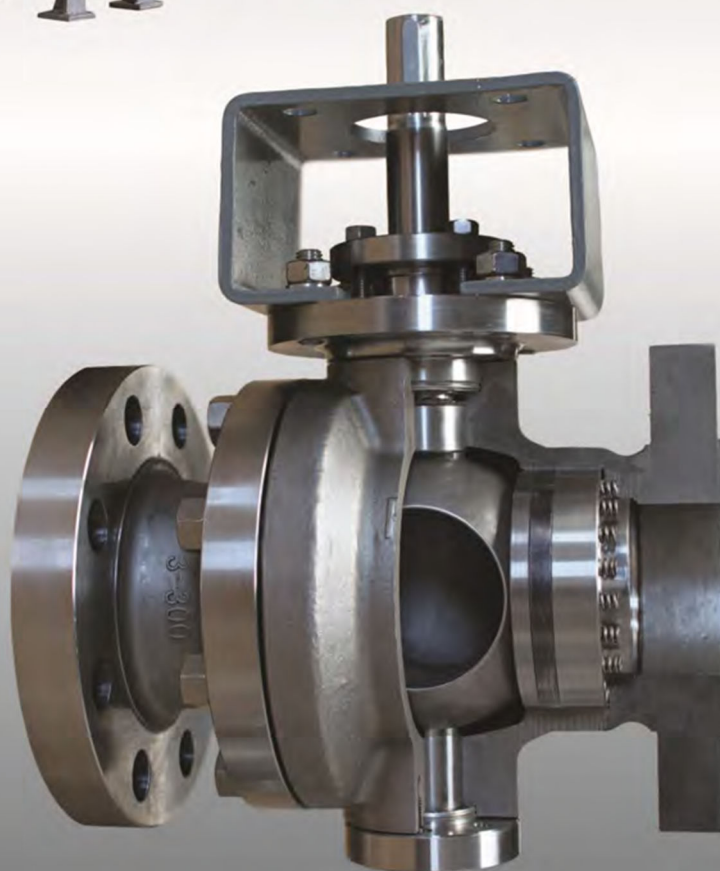
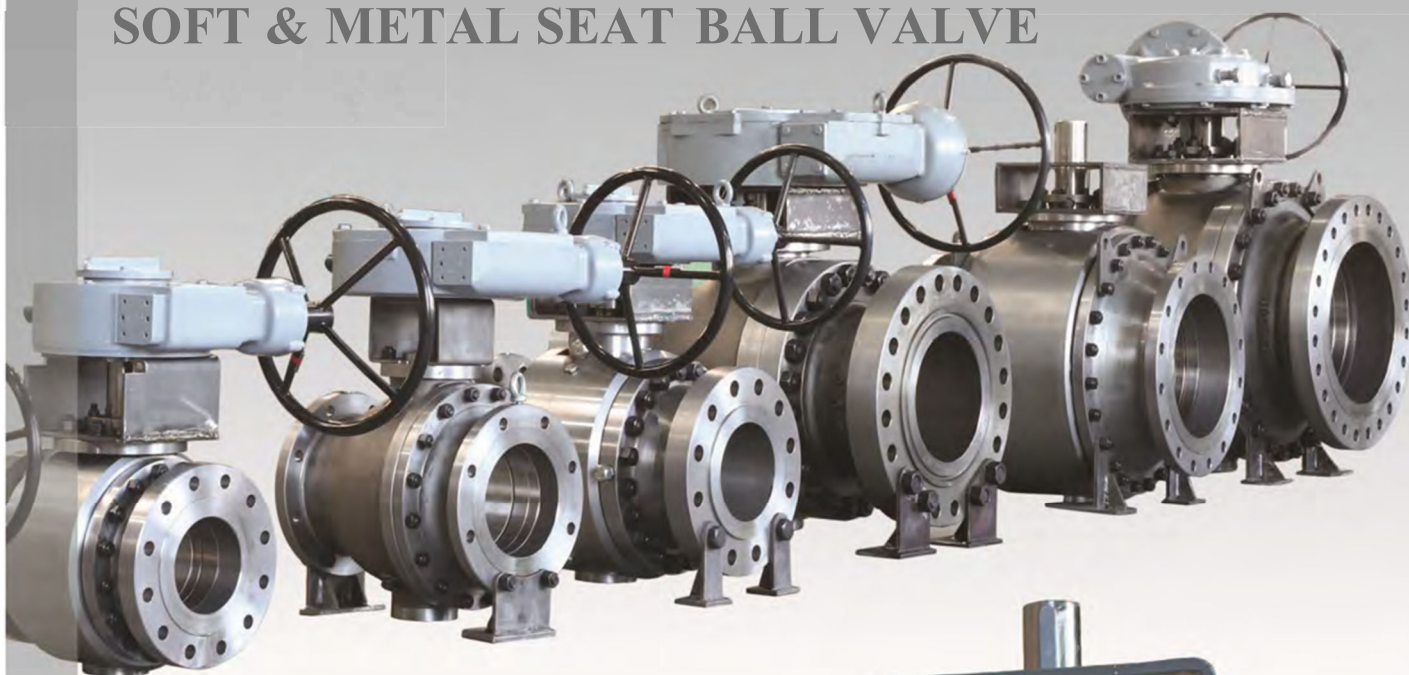


IVALBALL

FLOATING & TRUNNION

SOFT & METAL SEAT BALL VALVE



ISO 9001 PED FIRESAFE API 607 & API 6FA

SUMMARY

PRODUCT INTRODUCTION.....	3
SUPPLY RANGE.....	3
<i>Metal seat</i>	3
<i>Soft seat</i>	3
PRODUCT DESIGN FEATURES.....	4
<i>Metal seat floating ball design features</i>	4
<i>Metal seat trunnion design features</i>	4
<i>Soft seat design features</i>	6
<i>Soft seat materials</i>	6
CONSTRUCTION AND MATERIALS	7
<i>Floating ball typical construction</i>	7
<i>Trunnion typical construction</i>	8
VALVE OPERATING TORQUE.....	9
<i>Metal seat floating ball torque value</i>	9
<i>Metal seat trunnion torque value</i>	9
<i>Soft seat floating ball torque values</i>	10
<i>Soft seat trunnion ball torque values</i>	10
FLOATING BALL DIMENSION TABLE	11
TRUNION DIMENSION TABLE.....	14
REDUCED BALL VALVE DIMENSION TABLES	18
FULL BORE VALVE Cv VALUE.....	19
PRODUCT CODING SYSTEM	20
HARDNESS CONVERSION TABLE	21

PRODUCT INTRODUCTION

Metal seated ball valve is suitable for high temperature, high pressure, wear, corrosion and other working conditions. It is the ideal product to cut off the special medium, like the medium mixed with solid and gas, solid and liquid, high viscosity, high-fiber, high-temperature steam and so on. It is widely used in the coal chemical, petrochemical, power generation, papermaking, poly-silicon and other industries.

Due to its good sealing performance and multiple selection of sealing materials, soft seat ball valve is widely used in transmitting pure medium, such as water, liquefied gas, coal gas, natural gas, oil, nitric acid and so on.

SUPPLY RANGE

- Dimension: 1/2" to 36" (metal seat); 1/2" to 48" (soft seat)
- Pressure rating: Class 150 to Class 4500 (metal seat); Class 150 to Class 2500 (soft seat)
- Temperature range: -196 to 650°C (metal seat); -196 to 260°C (soft seat)
- Actuators: lever, gear, pneumatic, electric, hydraulic.
- End connection: flange, BW, SW
- Outer dimension and face to face: same as IVALBALL metal seat valve
- Valve structure: floating, trunnion
- Body type: 2-pieces or 3-pieces, in casting or forging

Metal seat

Pressure Rating	Valve structure		Body type	
	Floating ball	Trunion	2-pieces	3-pieces
Class150	1/2" to 4"	2" to 36"	1/2" to 12"	2" to 36"
Class300	1/2" to 4"	2" to 36"	1/2" to 10"	2" to 36"
Class600	1/2" to 4"	2" to 28"	1/2" to 8"	1 1/2" to 28"
Class900	1/2" to 4"	1 1/2" to 24"	1/2" to 8"	1" to 24"
Class1500	1/2" to 3"	1" to 20"	1/2" to 6"	1" to 20"
Class2500	1/2" to 2"	1" to 12"	1/2" to 5"	1" to 12"
Class4500	1/2" to 1 1/2"	1" to 2"	1/2" to 2"	1/2" to 2"

Soft seat

Pressure Rating	Valve structure		Body type	
	Floating ball	Trunion	2-PC	3-PC
Class150	1/2" to 8"	3" to 48"	1/2" to 12"	2" to 48"
Class300	1/2" to 8"	3" to 48"	1/2" to 10"	2" to 48"
Class600	1/2" to 4"	2" to 36"	1/2" to 8"	1 1/2" to 36"
Class900	1/2" to 3"	2" to 24"	1/2" to 8"	1" to 24"
Class1500	1/2" to 2"	1 1/2" to 20"	1/2" to 6"	1" to 20"
Class2500	1/2" to 2"	1 1/2" to 12"	1/2" to 5"	1" to 12"

Notes :

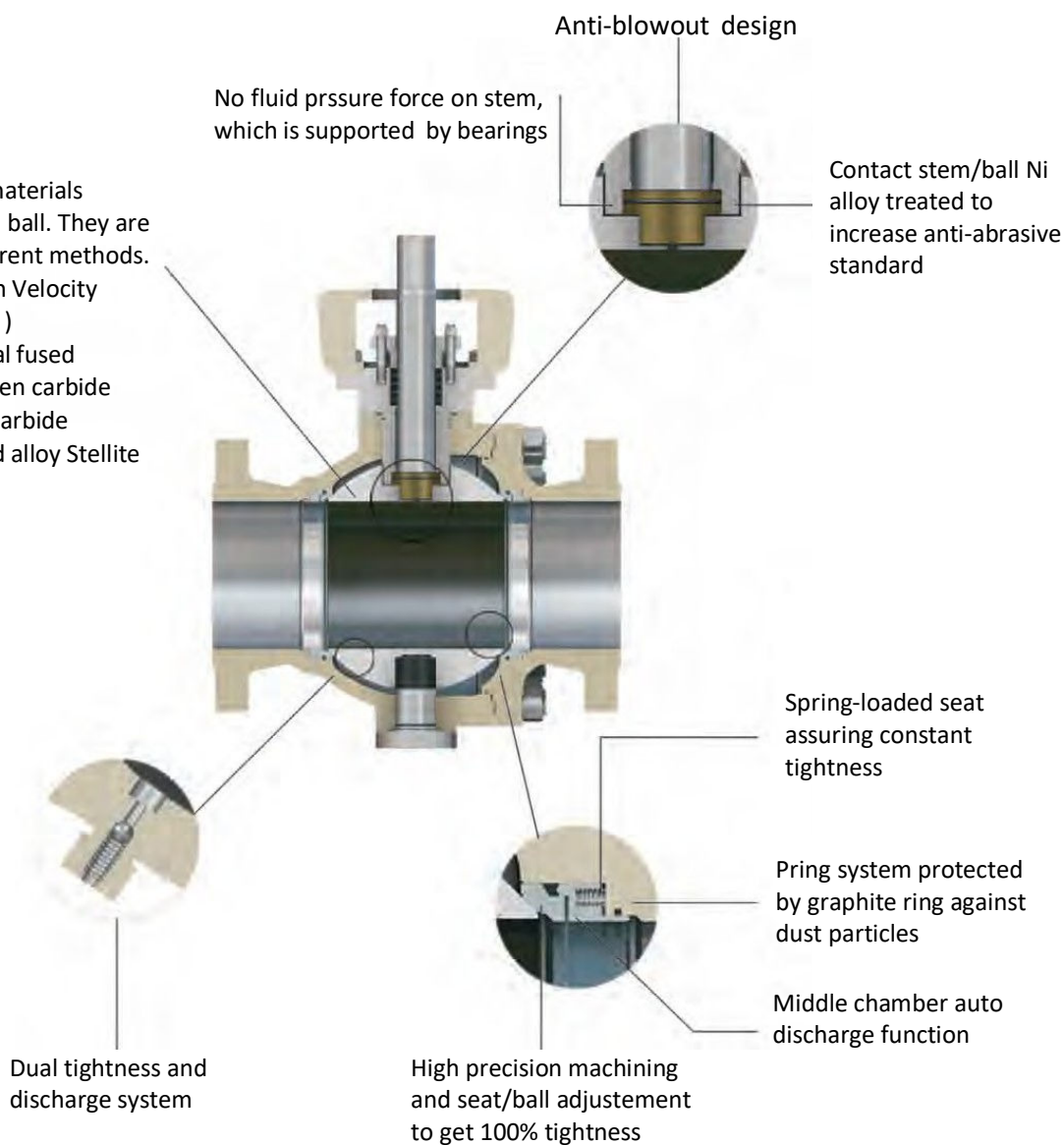
- 3-pieces casting body can be supplied from 12" for Class 150 to Class 600, and from 6" for Class 900 to Class 1500. No casting body supply for higher than Class 1500
- Lever torque should not exceed 200Nm.
- Please contact our technical service for products out of above table range.

PRODUCT DESIGN FEATURES

Metal seat floating ball design features

Multiple hard alloy materials available for seat and ball. They are hardened using different methods.

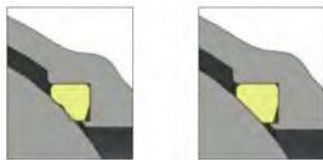
- HVOF (High Velocity Oxygen Fuel)
- Metallurgical fused spray tungsten carbide
- Chromium carbide
- Nickel based alloy Stellite



Soft seat design features

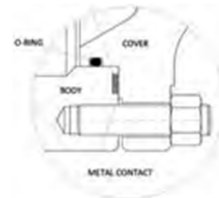
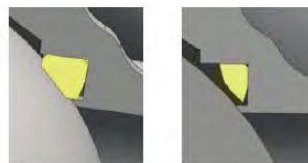
Soft seat tightness

The contact area with ball seat is small when the medium pressure is low, and it increases with the pressure.



Fire safe design

Resilient seated ball valve (floating / trunnion mounted) can meet the API 607, API 6FA standard



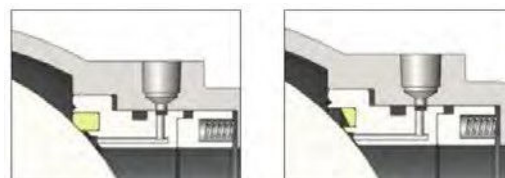
Floating ball

Before burning After burning

Anti-static design

Floating ball design: Spring+steel ball

Trunnion design: lower stem in contact with valve ball



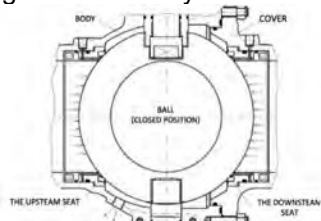
Middle chamber automatic discharge

If pressure in the middle chamber increases, it pushes the downstream seat and decreases.

Trunnion structure
Before burning After burning

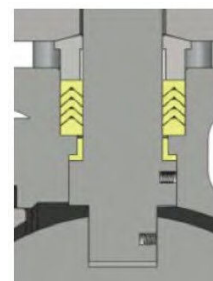
Dual tightness and discharge function

In trunnion design, upstream and downstream tightness are independent, realizing dual tightness. In closed position, pressure discharge is assured by the discharge valve.



Anti-blowout design

Even in the case of the pressure rise abnormally, it can ensure the stem is not blown out by medium



Soft seat materials

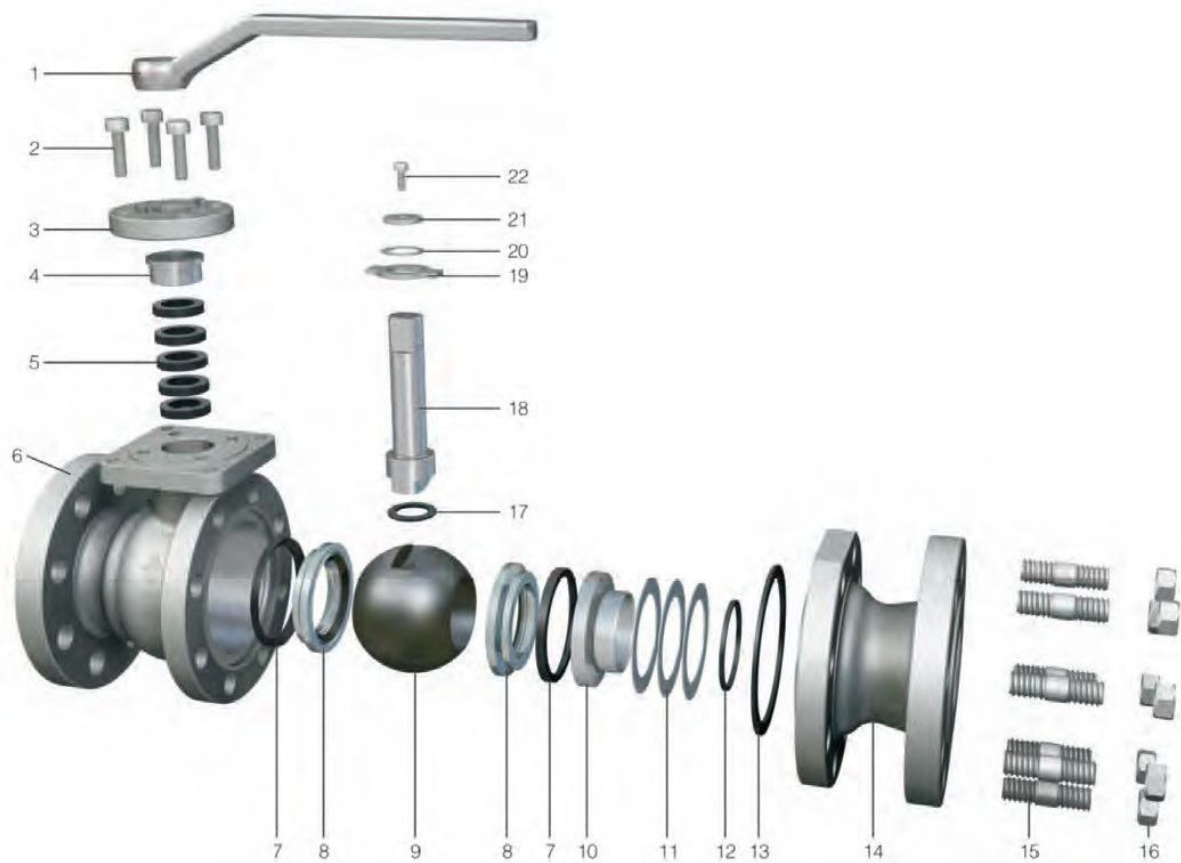
PTFE
RPTFE
PCTFE
PFA

PEEK
DEVLON
MOLON

PPL
PA12
UHMWPE

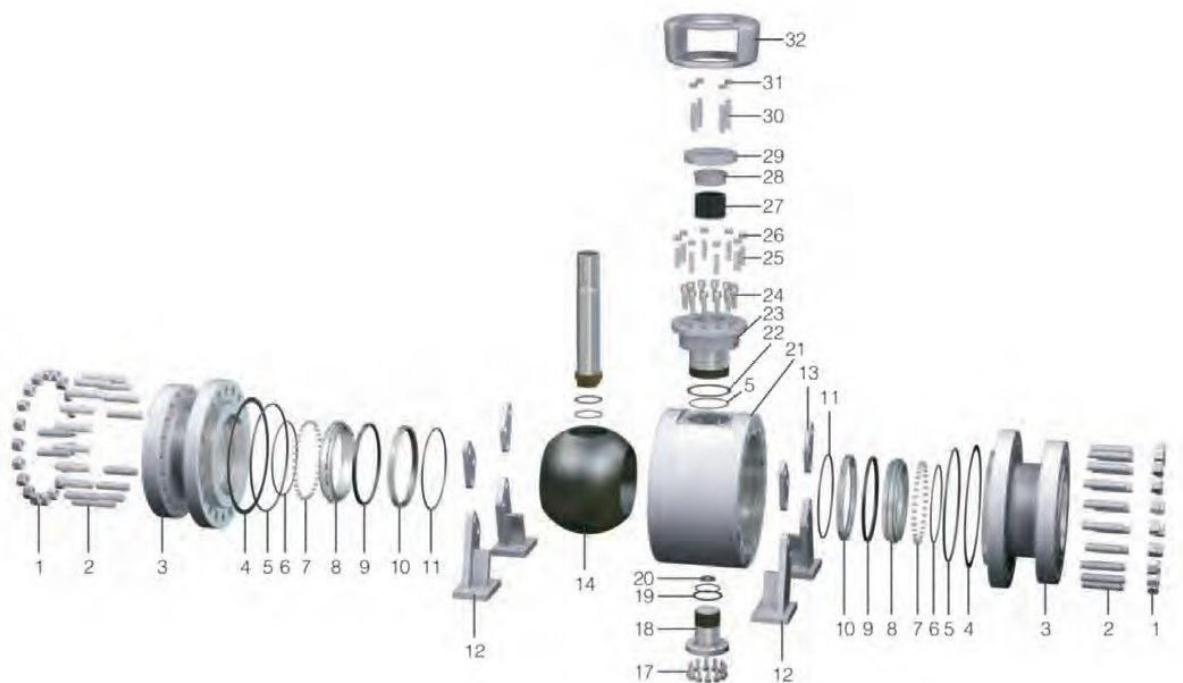
CONSTRUCTION AND MATERIALS

Floating ball typical construction



ITEM	PART	MATERIAL	ITEM	PART	MATERIAL
1	Lever	WCB/CF8	12	Retaining ring	graphite
2	plate screw	B7/B8	13	Gasket	304+Graphite
3	packing plate	A105/F304	14	Bonnet	WCB/CF8
4	Packing bushing	F304	15	Stud bolt	B7/B8
5	Packing	graphite	16	Nut	2H/8
6	Body	WCB/CF8	17	Upper sealing gasket	graphite
7	Sealing ring	graphite	18	Stem	17-4PH
8	Seat	F304+ Hard alloy	19	Locating plate	1025
9	Ball	F304+ Hard alloy	20	Garter spring	65Mn
10	Pressing sleeve	F304	21	Gasket	1025
11	Leaf spring	Inconel X750	22	Screw	B7/B8

Trunnion typical construction



ITEM	PART	MATERIAL	ITEM	PART	MATERIAL
1	Nut	2H/8	17	Screw	B7/B8
2	Stud bolt	B7/B8	18	Lower supporting shaft	A105/F304 + nickel base alloy
3	Bonnet	A105/F304	19	Gasket	304+ Flexible graphite
4	Gasket	304+Flexible graphite	20	Adjusting pad	17-4PH
5	O-ring	FKM	21	Body	A105/F304
6	Retaining ring	graphite	22	Sesling gasket	304+Flexible graphite
7	Sping	Inconel X750	23	Gland cover	A105/F304
8	Seat pressing sleeve	F304	24	Screw	B7/B8
9	Sealing ring	Graphite	25	Stud	B7/B8
10	Seat	F304+ hard alloy	26	Nut	2H/8
11	Seat retaining ring	graphite	27	packing	Flexible graphite
12	Foot stool	35	28	Packing bushing	F304
13	Eye bolt	35	29	Packing plate	F304
14	Ball	F304+ hard alloy	30	Stud	B7/B8
15	Upper sealing gasket	Flexible graphite	31	Nut	2H/8
16	Stem	17-4PH	32	Yoke	WCB/CF8

VALVE OPERATING TORQUE

We suggest a security factor of 1.3-1.5 be added in consideration of temperature and actuator type.

Metal seat floating ball torque value

DN	NPS	Operation torque for metal seated floating ball valve (Nm)									
		Class150 PN20	Class300 PN50	Class600 PN110	Class900 PN150	Class1500 PN260	PN16	PN25	PN40	PN63	PN100
15	½	28	40	68	100	140	24	32	40	60	68
20	¾	40	64	96	140	200	36	48	60	80	96
25	1	64	100	160	260	400	56	72	92	140	160
32	1 ¼	96	140	240	400	600	88	112	128	200	240
40	1 ½	140	200	360	480	720	128	160	180	280	360
50	2	200	280	440	720	1080	160	220	260	340	440
65	2 ½	320	400	660	-	-	240	340	380	520	660
80	3	480	640	1200	-	-	360	520	600	800	1200
100	4	720	1120	2400	-	-	520	760	1040	1360	2400

Metal seat trunnion torque value

Security torque should be added in consideration of temperature and actuator type

DN	NPS	Operation torque for metal seated trunnion mounted ball valve (Nm)										
		Class150 PN20	Class300 PN50	Class600 PN110	Class900 PN150	Class1500 PN260	Class2500 PN420	PN16	PN25	PN40	PN63	PN100
50	2	180	260	280	400	620	1000	-	-	-	-	280
65	2 ½	280	440	480	680	1060	1680	-	-	-	-	480
80	3	320	680	1120	1280	2000	3200	-	-	-	-	920
100	4	440	800	1360	1920	3000	4800	400	560	680	960	1360
125	5	720	1160	2200	3120	4800	7600	640	880	1040	1400	2200
150	6	1360	1920	3200	4400	6800	10800	1200	1520	1800	2400	3200
200	8	2000	3400	6800	9600	14800	23600	1800	2520	3000	5200	6800
250	10	3320	5600	11200	16000	24800	39600	3000	4200	5000	8000	11200
300	12	5600	9600	16800	23600	36400	-	5000	7000	8400	11600	16800
350	14	8800	12400	23200	32400	-	-	8000	10400	11200	14800	23200
400	16	10400	19200	30000	42000	-	-	9400	12800	17200	23200	30000
450	18	14800	24400	38000	-	-	-	13200	18400	22000	-	-
500	20	19200	30000	46000	-	-	-	17200	24000	27200	-	-
600	24	32800	48000	66000	-	-	-	29600	40000	44000	-	-

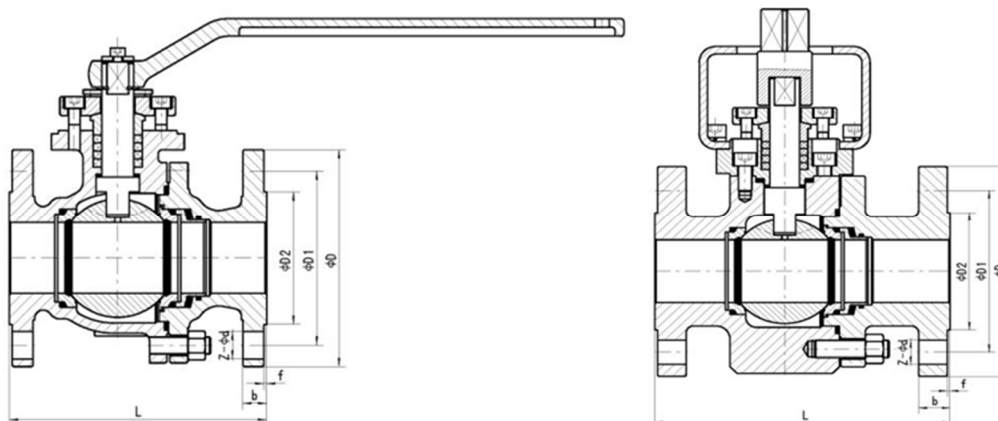
soft seat floating ball torque value

DN	Floating ball torque values (Nm)				
	Class150	Class300	Class600	Class900	Class1500
1/2	7	10	17	25	35
3/4	10	16	24	35	50
1	16	25	40	65	100
1 1/4	24	35	60	100	150
1 1/2	35	50	90	120	180
2	50	70	110	180	270
2 1/2	80	100	165		
3	120	160	300		
4	180	280	600		
5	280	600			
6	540	1000			
8	960	2100			

soft seat trunnion ball torque value

DN	Trunnion ball torque values (Nm)					
	Class150	Class300	Class600	Class900	Class1500	Class2500
1 1/2					100	160
2			70	100	155	250
2 1/2			120	170	265	420
3			280	320	500	800
4	110	200	340	480	750	1200
5	180	290	550	780	1200	1900
6	340	480	800	1100	1700	2700
8	500	850	1700	2400	3700	5900
10	830	1400	2800	4000	6200	9900
12	1400	2400	4200	5900	9100	
14	2200	3100	5800	8100		
16	2600	4800	7500	10500		
18	3700	6100	9500			
20	4800	7500	11500			
24	8200	12000	16500			
26	9600	15000				
28	12000	19000				
30	14000	22000				
32	16000	28000				
36	20000	35000				

FLOATING BALL DIMENSION TABLE



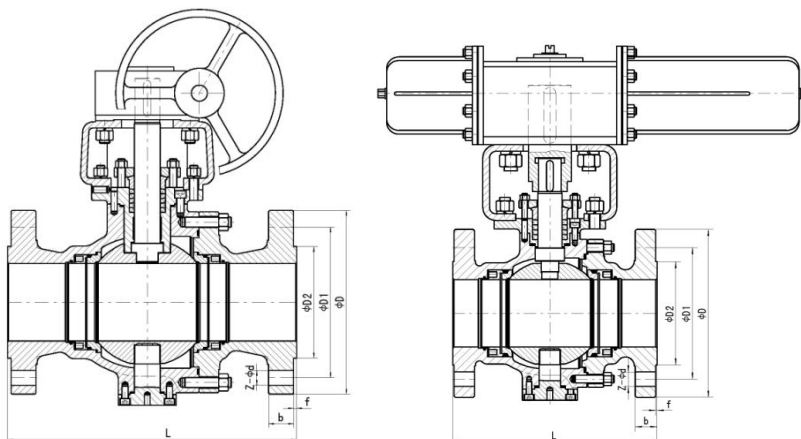
Pressure Class	SIZE					DIMENSION (mm)					Drive type
	DN	NPS	L		D	D1	D2	Z-Φd	b	f	
			RF	RJ							
	15	½	108	119	90	60.5	35	avr-15	11.5	2	Lever
	20	¾	117	130	100	70	43	avr-15	11.5	2	Lever
	25	1	127	140	110	79.5	51	avr-15	11.5	2	Lever
	32	1 ¼	140	153	115	89	64	avr-15	13	2	Lever
Class150 PN20	40	1 ½	165	178	125	98.5	73	avr-15	14.5	2	Lever
	50	2	178	191	150	120.5	92	avr-19	16	2	Lever
	65	2 ½	190	203	180	139.5	105	avr-19	17.5	2	Lever
	80	3	203	216	190	152.5	127	avr-19	19.5	2	Lever
	100	4	229	242	230	190.5	157	août-19	24	2	Worm gear
	125	5	356	369	255	216	186	août-22	24	2	Worm gear
	150	6	394	407	280	241.5	216	août-22	25.5	2	Worm gear
	15	½	140	151	95	66.5	35	avr-15	14.5	2	Lever
	20	¾	152	165	115	82.5	43	avr-19	16	2	Lever
	25	1	165	178	125	89	51	avr-19	17.5	2	Lever
Class300 PN50	32	1 ¼	178	191	135	98.5	64	avr-19	19.5	2	Lever
	40	1 ½	190	203	155	114.5	73	avr-22	21	2	Lever
	50	2	216	232	165	127	92	août-19	22.5	2	Lever
	65	2 ½	241	257	190	149	105	août-22	25.5	2	Worm gear
	80	3	283	299	210	168.5	127	août-22	29	2	Worm gear
	100	4	305	321	255	200	157	août-22	32	2	Worm gear
	15	½	165	164	95	66.5	35	avr-15	14.5	6.5	Lever
	20	¾	190	190	115	82.5	43	avr-19	16	6.5	Lever
	25	1	216	216	125	89	51	avr-19	17.5	6.5	Lever
Class600 PN110	32	1 ¼	229	229	135	98.5	64	avr-19	21	6.5	Lever
	40	1 ½	241	241	155	114.5	73	avr-22	22.5	6.5	Lever
	50	2	292	295	165	127	92	août-19	25.5	6.5	Worm gear
	65	2 ½	330	333	190	149	105	août-22	29	6.5	Worm gear
	80	3	356	359	210	168	127	août-22	32	6.5	Worm gear
	100	4	432	435	275	216	157	août-25	38.5	6.5	Worm gear

	SIZE		DIMENSION (mm)								DRIVER TYPE
Pressure Class	DN	NPS	RF	RJ	D	D1	D2	Z-Φd	b	f	
Class900 PN150	15	½	216	216	120	82.5	35	4-23	22.5	6.5	Lever
	20	¾	229	229	130	88.9	43	4-23	25.5	6.5	Lever
	25	1	254	254	150	101.6	51	4-26	29	6.5	Lever
	32	1 ¼	279	279	160	111.1	64	4-26	29	6.5	Lever
	40	1 ½	305	305	180	123.8	73	4-29	32	6.5	Lever
	50	2	368	371	215	165.1	92	8-26	38.5	6.5	Worm gear
	80	3	381	384	240	190.5	127	8-26	38.5	6.5	Worm gear
Class1500 PN260	15	½	216	216	120	82.5	35	4-23	22.5	6.5	Lever
	20	¾	229	229	130	88.9	43	4-23	25.5	6.5	Lever
	25	1	254	254	150	101.6	51	4-26	29	6.5	Lever
	32	1 ¼	279	279	160	111.1	64	4-26	29	6.5	Lever
	40	1 ½	305	305	180	123.8	73	4-29	32	6.5	Lever
	50	2	368	371	215	165.1	92	8-26	38.5	6.5	Worm gear
	80	3	470	473	265	203.5	127	8-32	48	6.5	Worm gear
PN420	15	½	264	264	135	88.9	35	4-23	30	6.5	Lever
	20	¾	273	273	140	95.3	43	4-23	32	6.5	Lever
	25	1	308	308	160	108	51	4-26	35	6.5	Lever
	32	1 ¼	349	352	185	130	64	4-29	38	6.5	Lever
	40	1 ½	384	387	205	146	73	4-32	44.5	6.5	Lever
	50	2	451	454	235	171.4	92	8-29	51	6.5	Worm gear
	80	3	578	584	305	228.6	127	8-35	67	6.5	Worm gear

PN	DN	Dimension (mm)						
		L	D	D1	D2	Z-Φd	b	f
PN16	15	130	95	65	45	4-14	14	2
	20	140	105	75	55	4-14	14	2
	25	150	115	85	65	4-14	14	2
	32	165	135	100	78	4-18	16	2
	40	180	145	110	85	4-18	16	3
	50	200	160	125	100	4-18	16	3
	65	220	180	145	120	4-18	18	3
	80	250	195	160	135	8-18	20	3
	100	280	215	180	155	8-18	20	3
	125	320	245	210	185	8-18	22	3
	150	360	280	240	210	8-23	24	3
PN25	15	130	95	65	45	4-14	16	2
	20	140	105	75	55	4-14	16	2
	25	150	115	85	65	4-14	16	2
	32	165	135	100	78	4-18	18	2
	40	180	145	110	85	4-18	18	3
	50	200	160	125	100	4-18	20	3
	65	220	180	145	120	4-18	22	3
	80	250	195	160	135	8-18	22	3
	100	320	230	190	160	8-23	24	3
	125	400	270	220	188	8-25	28	3
	150	400	300	250	218	8-25	30	3

PN	DN	Dimension (mm)						
		L	D	D1	D2	Z-Ød	b	f
PN40	15	130	95	65	45	4-14	16	2
	20	140	105	75	55	4-14	16	2
	25	150	115	85	65	4-14	16	2
	32	180	135	100	78	4-18	18	2
	40	200	145	110	85	4-18	18	3
	50	220	160	125	100	4-18	20	3
	65	250	180	145	120	8-18	22	3
	80	280	195	160	135	8-18	22	3
	100	320	230	190	160	8-23	24	3
	125	400	270	220	188	8-25	28	3
	150	400	300	250	218	8-25	30	3
PN63	15	140	105	75	55	4-14	18	2
	20	152	125	90	68	4-18	20	2
	25	165	135	100	78	4-18	22	2
	32	178	150	110	82	4-23	24	2
	40	190	165	125	95	4-23	24	3
	50	216	175	135	105	4-23	26	3
	65	241	200	160	130	8-23	28	3
	80	283	210	170	140	8-23	30	3
	100	305	250	200	168	8-25	32	3
PN100	15	165	105	75	55	4-14	20	2
	20	190	125	90	68	4-18	22	2
	25	216	135	100	78	4-18	24	2
	32	229	150	110	82	4-23	24	2
	40	241	165	125	95	4-23	26	3
	50	292	195	145	112	4-25	28	3
	65	330	220	170	138	8-25	32	3
	80	356	230	180	148	8-25	34	3
	100	432	265	210	172	8-30	38	3

FLOATING BALL DIMENSION TABLE



Pressure Class	SIZE		Dimension (mm)							
	DN	NPS	L		D	D1	D2	Z-Ød	b	f
			RF	BW						
Class150 PN20	100	4	229	305	230	190.5	157	8-19	24	2
	125	5	356	381	255	216.0	186	8-22	24	2
	150	6	394	457	280	241.5	216	8-22	25.5	2
	200	8	457	521	345	298.5	270	8-22	29	2
	250	10	533	559	405	362.0	324	12-25	31	2
	300	12	610	635	485	432.0	381	12-25	32	2
	350	14	686	762	535	476.0	413	12-29	35	2
	400	16	762	838	595	540.0	470	16-29	37	2
	450	18	864	914	635	578.0	533	16-32	40	2
	500	20	914	991	700	635.0	584	20-32	43	2
	600	24	1067	1143	815	749.5	692	20-35	48	2
	650	26	1143	1245	786	744.5	711	36-22	40	2
	700	28	1245	1346	837	795.5	762	40-22	43	2
	750	30	1295	1397	887	846.0	813	44-22	43	2
	800	32	1372	1524	941	900.0	864	48-22	44	2
Class300 PN50	80	3	283	283	210	168.5	127	8-22	29	2
	100	4	305	305	255	200.0	157	8-22	32	2
	125	5	381	381	280	235.0	186	8-22	35	2
	150	6	403	457	320	270.0	216	12-22	37	2
	200	8	502	521	380	330.0	270	12-25	41.5	2
	250	10	568	559	445	387.5	324	16-29	48	2
	300	12	648	635	520	451.0	381	16-32	51	2
	350	14	762	762	585	514.5	413	20-32	54	2
	400	16	838	838	650	571.5	470	20-35	58	2
	450	18	914	914	710	628.5	533	24-35	61	2
	500	20	991	991	775	686.0	584	24-35	64	2
	600	24	1143	1143	915	813.0	692	24-41	70	2
	650	26	1245	1245	867	803.5	737	32-35.5	87	2
	700	28	1346	1346	921	857.0	787	36-35.5	87	2
	750	30	1397	1397	991	921.0	845	36-39	92	2
	800	32	1524	1524	1054	978.0	902	32-42	102	2
	900	36	1727	1727	1172	1089.0	1010	32-45	102	2

Pressure Class	SIZE		Dimension (mm)								
	DN	NPS	L			D	D1	D2	Z-Ød	b	f
			RF	RJ	BW						
Class600 PN110	50	2	292	295	292	165	127	92	8-19	26	6.5
	65	2 ½	330	333	330	190	149	105	8-22	29	6.5
	80	3	356	359	356	210	168	127	8-22	32	6.5
	100	4	432	435	432	275	216	157	8-25	38	6.5
	125	5	508	511	508	330	266.5	186	8-29	45	6.5
	150	6	559	562	559	355	292	216	12-29	48	6.5
	200	8	660	664	660	420	349	270	12-32	56	6.5
	250	10	787	791	787	510	432	324	16-35	64	6.5
	300	12	838	841	838	560	489	381	20-35	67	6.5
	350	14	889	892	889	605	527	413	20-38	70	6.5
	400	16	991	994	991	685	603	470	20-41	77	6.5
	450	18	1092	1095	1092	745	654	533	20-44	83	6.5
	500	20	1194	1200	1194	815	724	584	24-44	89	6.5
	600	24	1397	1407	1397	940	838	692	24-52	102	6.5
	700	28	1549	1562	1549	952	863.5	784	28-48	116	6.5
Class900 PN150	50	2	368	371	368	215	165.1	92	8-26	38.5	6.5
	65	2 ½	419	422	419	245	190.5	105	8-29	41.5	6.5
	80	3	381	384	381	240	190.5	127	8-26	38.5	6.5
	100	4	457	460	457	290	234.9	157	8-32	44.5	6.5
	125	5	559	562	559	350	279.4	186	8-35	51	6.5
	150	6	610	613	610	380	317.5	216	12-32	56	6.5
	200	8	737	740	737	470	393.7	270	12-39	63.5	6.5
	250	10	838	841	838	545	469.9	324	16-39	70	6.5
	300	12	965	968	965	610	533.4	381	20-39	79.5	6.5
	350	14	1029	1038	1029	640	558.8	413	20-42	86	6.5
	400	16	1130	1140	1130	705	615.9	470	20-45	89	6.5
	450	18	1219	1232	1219	785	686	533.5	20-51	102	6.5
	500	20	1321	1334	1321	855	749.5	584.5	20-55	108	6.5
	600	24	1549	1568	1549	1040	901.5	692.5	20-68	140	6.5
	25	1	254	254	254	150	101.6	51	4-26	28.5	6.5
Class1500 PN260	40	1 ½	305	305	305	180	123.8	73	4-29	32	6.5
	50	2	368	371	368	215	165.1	92	8-26	38.5	6.5
	65	2 ½	419	422	419	245	190.5	105	8-29	41.5	6.5
	80	3	470	473	470	265	203.2	127	8-32	48	6.5
	100	4	546	549	546	310	241.3	157	8-35	54	6.5
	125	5	673	676	673	375	292.1	186	8-42	73.5	6.5
	150	6	705	711	705	394	317.5	216	12-39	83	6.5
	200	8	832	841	832	483	393.7	270	12-45	92	6.5
	250	10	991	1000	991	585	482.6	324	12-51	108	6.5
	300	12	1130	1146	1130	675	571.5	381	16-54	124	6.5
	350	14	1257	1276	1257	750	635	413	16-60	133.5	6.5
	400	16	1384	1407	1384	825	705	470	16-68	146.5	6.5
	450	18	1537	1559	1537	915	774.5	533.5	16-74	162	6.5
	500	20	1664	1686	1664	985	832	584.5	16-80	178	6.5

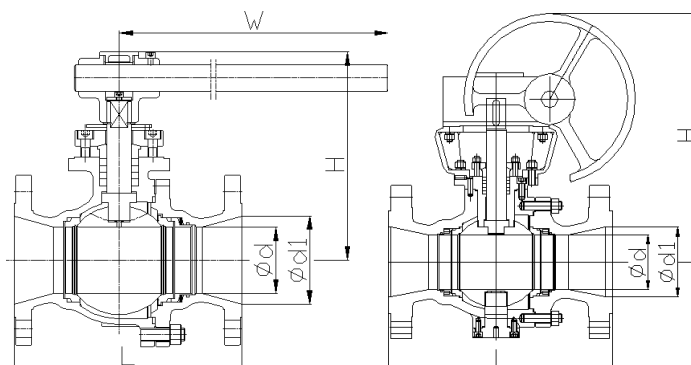
Class2500 PN420	25	1	308	308	308	160	108	51	4-26	35	6.5
	40	1 ½	384	387	384	205	146	73	4-32	44.5	6.5
	50	2	451	454	451	235	171.4	92	8-29	51	6.5
	65	2 ½	508	514	508	265	196.8	105	8-32	57.5	6.5
	80	3	578	584	578	305	228.6	127	8-35	67	6.5
	100	4	673	683	673	355	273	157	8-42	76.5	6.5
	125	5	794	807	794	420	323.8	186	8-48	92.5	6.5
	150	6	914	927	914	485	368.3	216	8-54	108	6.5
	200	8	1022	1038	1022	550	438.1	270	12-54	127	6.5
	250	10	1270	1292	1270	675	539.7	324	12-67	165.5	6.5
	300	12	1422	1445	1422	760	619	381	12-74	184.5	6.5

PN	DN	Dimension (mm)							
		L		D	D1	D2	Z-Φd	b	F
		F	BW						
PN16	100	229	305	220	180	156	8-18	22	2
	150	394	457	280	240	210	8-23	24	3
	200	457	521	335	295	265	12-23	26	3
	250	533	559	405	355	320	12-25	30	3
	300	610	635	460	410	375	12-25	30	4
	350	686	762	520	470	435	16-25	34	4
	400	762	838	580	525	485	16-30	36	4
	450	864	914	640	585	545	20-30	40	4
	500	914	991	705	650	608	20-34	44	4
	600	1067	1143	840	770	718	20-41	48	5
	700	1245	1346	910	840	788	24-41	50	5
	800	1372	1524	1020	950	898	24-41	52	5
	900	1524	1727	1120	1050	998	28-41	54	5
PN25	100	229	305	235	190	156	8-22	24	2
	150	394	457	300	250	218	8-25	30	3
	200	457	521	360	310	278	12-25	34	3
	250	533	559	425	370	332	12-30	36	3
	300	610	635	485	430	390	16-30	40	4
	350	686	762	550	490	448	16-34	44	4
	400	762	838	610	550	505	16-34	48	4
	450	864	914	660	600	555	20-34	50	4
	500	914	991	730	660	610	20-41	52	4
	600	1067	1143	840	770	718	20-41	56	5
	700	1245	1346	955	875	815	24-48	60	5
	800	1372	1524	1070	990	930	24-48	64	5
	900	1524	1727	1180	1090	1 025	28-54	66	5
PN40	100	305	305	235	190	156	8-22	24	2
	150	403	457	300	250	218	8-25	30	3
	200	502	521	375	320	282	12-30	38	3
	250	568	559	445	385	345	12-34	42	3
	300	648	635	510	450	408	16-34	46	4
	350	762	762	570	510	465	16-34	52	4
	400	838	838	655	585	535	16-41	58	4
	450	914	914	680	610	560	20-41	60	4
	500	991	991	755	670	612	20-48	62	4
	600	1143	1143	890	795	730	20-54	62	5

PN63	100	305	305	250	200	168	8-25	32	3
	125	381	381	295	240	202	8-30	36	3
	150	403	457	340	280	240	8-34	38	3
	200	502	521	405	345	300	12-34	44	3
	250	568	559	470	400	352	12-41	48	3
	300	648	635	530	460	412	16-41	54	4
	350	762	762	595	525	475	16-41	60	4
	400	838	838	670	585	525	16-48	66	4
PN100	50	292	292	195	145	112	4-25	28	3
	65	330	330	220	170	138	8-25	32	3
	80	356	356	230	180	148	8-25	34	3
	100	432	432	265	210	172	8-30	38	3
	125	508	508	310	250	210	8-34	42	3
	150	559	559	350	290	250	12-34	46	3
	200	660	660	430	360	312	12-41	54	3
	250	787	787	500	430	382	12-41	60	3
	300	838	838	585	500	442	16-48	70	4
	350	889	889	655	560	498	16-54	76	4
	400	991	991	715	620	558	16-54	80	4
	50	368	368	215	165	132	8-25	36	3
PN160	65	419	419	245	190	152	8-30	44	3
	80	381	381	260	205	168	8-30	46	3
	100	457	457	300	240	200	8-34	48	3
	125	559	559	355	285	238	8-41	60	3
	150	610	610	390	318	270	12-41	66	3
	200	737	737	480	400	345	12-48	78	3
	250	838	838	580	485	425	12-54	88	3
	300	965	965	665	570	510	16-54	110	4

FLOATING BALL DIMENSION TABLE

Reduced bore could be applied to both floating and trunion design, metal seat or soft seat. Main characteristics are the same as the fore bore valve.



Floating ball design with reduced bore

DN	Class150					Class300					Class600				
	L	d	d1	H	W	L	d	d1	H	W	L	d	d1	H	W
½	108	10	14	80	140	140	10	14	80	140	165	10	14	80	140
¾	117	14	19	85	140	152	14	19	85	140	190	14	19	85	140
1	127	20	25	90	140	165	20	25	90	140	216	20	25	90	140
1¼	140	25	32	99	150	178	25	32	99	150	229	25	32	114	150
1½	165	32	38	105	180	190	32	38	105	180	241	32	38	120	200
2	178	38	51	126	200	216	38	51	126	200	292	38	51	125	250
2½	190	51	64	140	250	241	51	64	140	250	330	51	64	156	300
3	203	64	76	165	300	283	64	76	165	300	356	64	76	172	350
4	229	76	102	178	350	305	76	102	178	350	432	76	102	220	500
5	356	102	127	230	500	381	102	127	230	500	508	102	127	250	650
6	394	127	152	280	800	403	127	152	280	800	—	—	—	—	—
8	457	152	203	310	800	502	152	203	310	800	—	—	—	—	—
10	533	203	254	350	1000	568	203	254	350	1000	—	—	—	—	—

Trunnion design with reduced bore

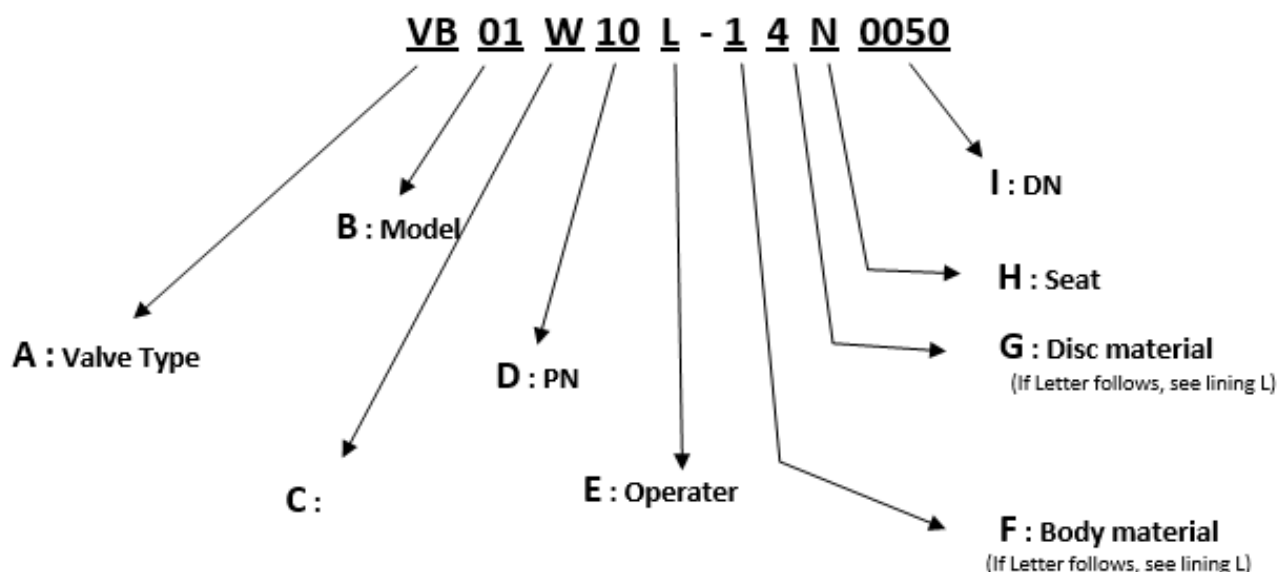
DN	CLASS 150				CLASS 300				CLASS 600				
	L	d	d1	H	L	d	d1	H	L		d	d1	H
									RF	RJ			
5	356	102	127	330	381	102	127	340	508	511	102	127	358
6	394	102	152	330	403	102	152	340	559	562	102	152	358
8	457	152	203	392	502	152	203	402	660	664	152	203	445
10	533	203	254	492	568	203	254	498	787	791	203	254	498
12	610	254	305	548	648	254	305	655	838	841	254	305	653
14	686	305	337	688	762	305	337	658	889	892	305	337	665
16	762	305	387	688	838	305	387	658	991	994	305	387	665
18	864	337	438	722	914	337	438	686	1092	1095	337	438	738
20	914	387	489	750	991	387	489	880	1194	1200	387	489	920
24	1067	489	591	952	1143	489	591	1110	1397	1407	489	591	1200
26	1143	538	633	1050	1245	538	633	1250	—	—	—	—	—
28	1245	591	684	1154	1346	591	684	1400	—	—	—	—	—
30	1295	633	735	1300	1397	633	735	1500	—	—	—	—	—
32	1372	684	779	1550	1524	684	779	1600	—	—	—	—	—
36	1524	779	874	1740	1727	779	874	1800	—	—	—	—	—

DN	CLASS 900					CLASS 1500					CLASS 2500				
	L		d	d1	H	L		d	d1	H	L		d	d1	H
	RF	RJ				RF	RJ				RF	RJ			
2½	419	422	50	64	250	419	422	50	64	320	508	514	42	52	320
3	381	384	64	76	300	470	473	64	76	340	578	584	52	62	350
4	457	460	76	102	345	546	549	76	102	385	673	683	62	87	400
5	559	562	102	127	415	673	676	102	127	415	794	807	87	100	425
6	610	613	102	152	415	705	711	102	144	480	914	927	87	131	500
8	737	740	152	203	477	832	841	144	192	580	1022	1038	131	179	590
10	838	841	203	254	520	991	1000	192	239	584	1270	1292	179	223	610
12	965	968	254	305	628	1130	1146	239	287	650	1422	1445	223	265	660
14	1029	1038	305	322	680	—	—	—	—	—	—	—	—	—	—
16	1130	1140	305	373	680	—	—	—	—	—	—	—	—	—	—

FULL BORE VALVE Cv VALUE

DN	CLASS 900					CLASS 1500					CLASS 2500				
	L		d	d1	H	L		d	d1	H	L		d	d1	H
	RF	RJ				RF	RJ				RF	RJ			
2½	419	422	50	64	250	419	422	50	64	320	508	514	42	52	320
3	381	384	64	76	300	470	473	64	76	340	578	584	52	62	350
4	457	460	76	102	345	546	549	76	102	385	673	683	62	87	400
5	559	562	102	127	415	673	676	102	127	415	794	807	87	100	425
6	610	613	102	152	415	705	711	102	144	480	914	927	87	131	500
8	737	740	152	203	477	832	841	144	192	580	1022	1038	131	179	590
10	838	841	203	254	520	991	1000	192	239	584	1270	1292	179	223	610
12	965	968	254	305	628	1130	1146	239	287	650	1422	1445	223	265	660
14	1029	1038	305	322	680	—	—	—	—	—	—	—	—	—	—
16	1130	1140	305	373	680	—	—	—	—	—	—	—	—	—	—

PRODUCT CODING SYSTEM



A : Valve Type

BV: Butterfly valve
VB: Ball valve
CV: Check valve
GV: Gate valve
KG: Knife gate valve
GL: Globe valve
DM: Diaphragm valve
EX: Expansion joint
PL: Plug valve

C : Connection

W: Wafer
F: Flange
T: Threaded BSP
N: Threaded NPT
L: Lug
S: Socket welding
B: Butt welding
U: U section

E : Operator

B: Bare shaft
L: Lever
H: Handwheel
N: Handwheel NRS
G: Gear
M: Chain
D: DA pneumatic
S: DA + HW Security
O: SA pneumatic normally open
C: SA pneumatic normally close
E: Electric
Y: Hydraulic

H : Seat

E: EPDM
F: FKM
K: PEEK
M: Metal/Metal
N: NBR
P: PTFE
R: RPTFE
S: SS
Y: HF

B: Model List

VB11: 1-PC boule flottante
VB12: 1-PC boule fixe
VB21: 2-PC boule flottante
VB22: 2-PC boule fixe
VB23: 2-PC C-ball
VB31: 3-PC boule flottante
VB32: 3-PC boule fixe
VB33: 3-PC C-ball
VB4: Segment valve
VB8: Welded ball valve

D : PN

PN	ANSI	JIS
06: PN 6	1A: 150	1K: 10K
10: PN 10	3A: 300	2K: 20K
16: PN 16	4A: 400	4K: 40K
20: PN 20	6A: 600	
25: PN 25	8A: 800	
40: PN 40	9A: 900	
50: PN 50	0A: 1500	
63: PN 63	2A: 2500	
1D: PN 100		
2D: PN 200		
4D: PN 400		

F/G : Material

1: GG25
2: GGG40/GGG50
3: CS/WCB
4: 304
5: Aluminium
6: CF8M / SS316
7: Al-Br
8: Duplex
9: Special alloy or other material
0: No disc

L : Lining

A: Natural rubber
B: Butyl rubber
R: Ebonite
P: PTFE
H: Hypalon rubber
N: Neoprene rubber
P: Ethylene Propylene
R: Nitrile rubber
S: Silicone rubber
V: FKM rubber
C: Ceramic