WTV
FLOW CONTROL

PIPELINE VALVE

Trunnion Mounted Ball Valve

WTV FLOW CONTROL

Technical Features

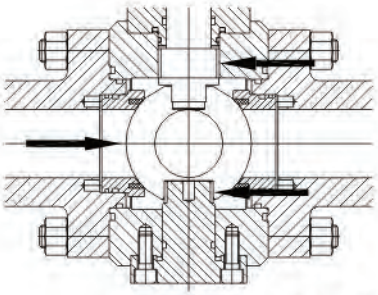
STANDARD FEATURES	Type Z	Type C	COMMENTS
Size range	1 1/2"FB up to 6" RB	6 1/2"FB up to 60"	Special sizes
Pressure (class)	150-2500	150-2500	
Three piece split body	YES	YES	
Anti-static device	YES	YES	
Self relieving seats	YES	NO	C-option(no extra cost)
Double Piston Effect seats	NO	YES	Z-option(no extra cost)
Lubricated stem	NO	YES	
Lubricated seat	YES	YES	C-option(*)
Double block and bleed	YES	YES	
Metal to metal seats	YES(*)	YES(*)	
Trunion mounted ball	YES	YES	
Full or Reduced bore	YES	YES	
Bi-directional	YES	YES	
Minimum thickness ASME B16.34	YES	YES	
RF of RTJ flanges to ASME B16.5	YES	YES	Other flange design(*)
BW(butt-weld)ends to ASME B31.4/B31.8	YES	YES	Other code for BW design(*)
Bore and end-to-end	YES(*)	YES(*)	Dimensions other than API 6D(*)
Manufacture in accordance with API 6D	YES	YES	ASME B 16.34 design available on request(*)
Materials certification to EN10204 type3.1B for pressure containing parts,ball,stem and seats	YES	YES	(Nateruaks certification level(*)
Fire safe design to API6FA(BS6755Pt.2)	YES	YES	Other fire safe code (e.g.API607)(*)
Boling ASME VLLL div.1	YES	YES	ASME 16.34 available (*)
Operation by lever, gear w/handwheel or catuator	YES	YES	

Type Z

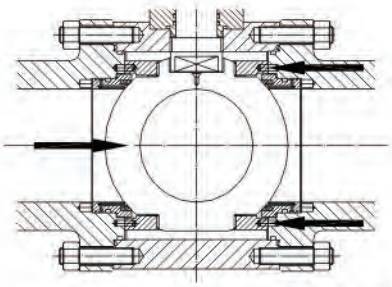
Type C

(*)Available with extra cost

Trunnion Mounted Ball Valve



Type Z



Type C

When the ball is in fully closed position, two trunnions absorb the side thrust generated by line pressures, preventing excess friction between ball and seats. With this system, operating torque is low even at full rated working pressure, Therefore a generous sizing of trunnions is essential to the life and operability of the valve. The spherical surface is machined and ground to close tolerance. To reduce torque and minimize wear,the ball is then electroless nickel plated and polished to mirror finish. For special applications the ball may be hardfaced with T.C.C (Tungsten carbide coating)to improve resistance to wear and prevent scratching caused by hard particles.

Technical Features

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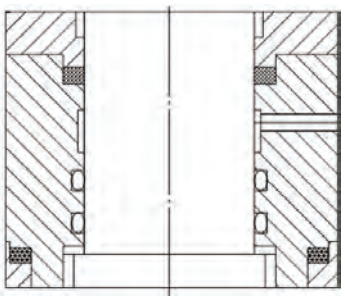
Emergency Sealant Injection for Stem and Seat

In case of emergency, when sealing materials (seat sealing and stem o-ring) are damaged or decomposed by fire or other accidental cause, a sealant injection into fitting on both stem and seat prevents leakage until the primary seal is restored. For Type Z ball valve the seat sealant injection is an optional feature available with an extra cost. However, the material between ball and seat is a thermoplastic, thus no further injection is necessary.
Self lubricated & low friction materials are used for stem bearings, stem seals and body seats. Low friction materials, e.g. Nylon, are used for seat inserts. Stem bearings and selflubricating seals give predictable operating torque for the life of the valve.



Stem

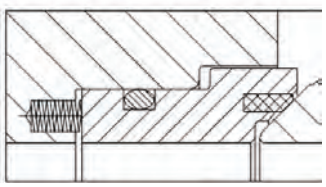
The stem is made separately from the ball. It is blow-out proof, properly obtained with an integral collar in the bottom of the stem.

Stem Seal

Sealing system can be defined triple: two static o-rings seal the stem, plus a third graphite retained by the adaptor flange. This ultimate seal can be replaced when the valve is in line and in closed position.

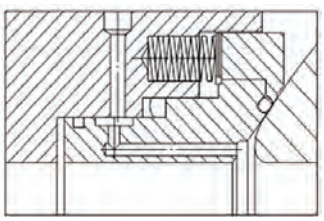
Polymer Insert

The sealing between the seat and the ball is performed by a plastic polymer insert.
The choice of this soft sealing depends on the service conditions.
The initial seal at low differential pressure is obtained by the spring-loaded floating seats (spring energized) which achieve independent sealing. Increasing the line pressure behind the upstream seat ring helps the seat spring load to force the upstream seat tightly against the ball.



Elastomer Seat

The sealing between the seat and the ball is performed by a primary metal seal,and a secondary O-ring seal for both the seats. The choice of the secondary seal "soft sealing" depends on the service conditions.
The initial seal at low differential pressure is obtained by the spring loaded floating seats(spring energized)which achieve independent sealing. Increasing the line pressure behind the upstream seat ring helps the seats spring load to force the upstream seat tightly against the ball.

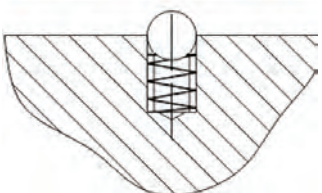


Firesafe Design and Test

Fire safe is standard design of WTV ball valve. Two o-ring and gland gasket prevent leak paths from the valve stem area. If fire deteriorate O-ring, gland gasket, the stem firesafe packing prevent fluid or gas leakage. WTV soft seat ball valve fire safe test (shown in the image) was witnessed and certified according to API6FA and BS 6755 PT.2

Anti-static Device

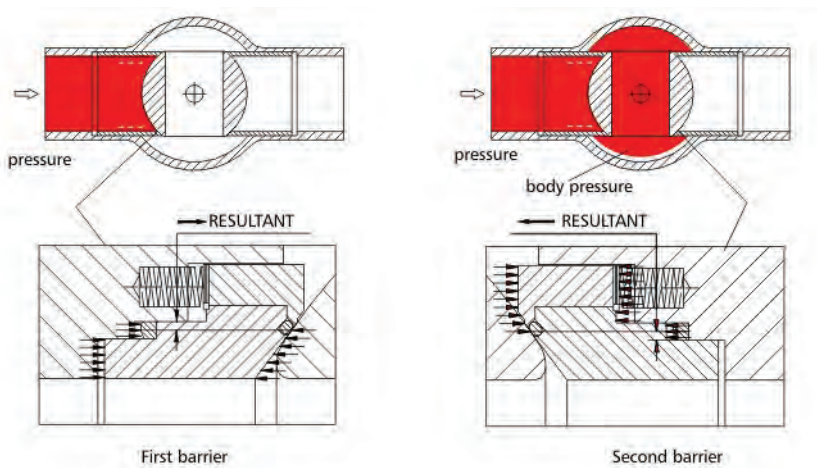
This device is a standard feature of WTV ball valves. A coil spring thrusts a little sphere, providing earthed continuity between stem and other metallic components of valve (ball and body) in order to avoid sparks during turning of the stem for opening and closing the valve and prevent problems in case of use with flammable fluids and gas.



Technical Features

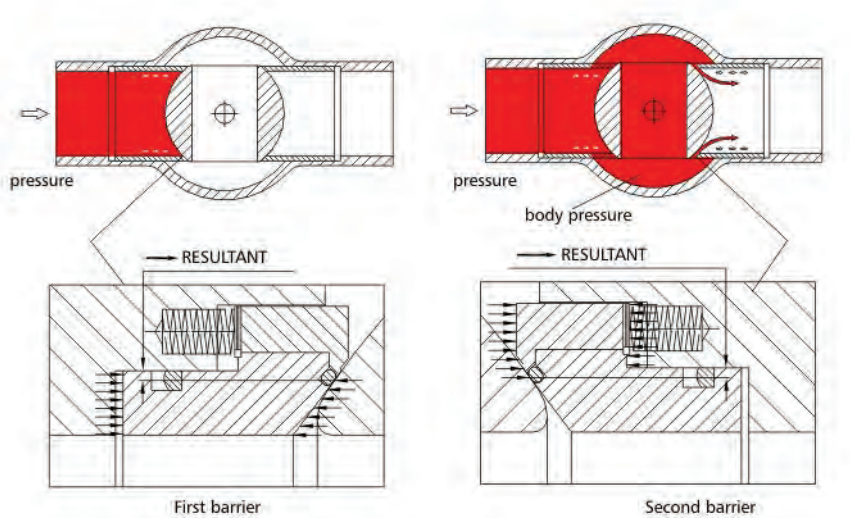
Body Vent and Drain
The drain and vent plug of the valve body enable to check the integrity of the seat ring.
A bleed valve may replace the drain plug.

Double Block and Bleed (DBB)
WTV design of a valve with two seating surfaces between which the cavity can be vented through a bleed connection and thus confirm the tightness of the valve, as well in closed position as open position, when pressure is applied to any side or both sides of the valve.



A relief valve is recommended to be installed to protect the body cavity from excess pressure.

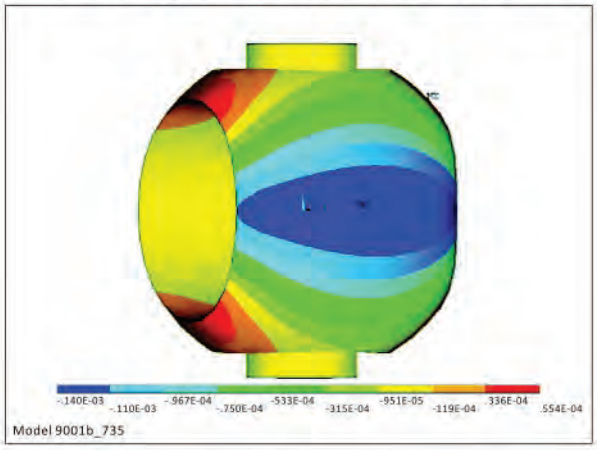
Double Piston Effect (C-Standard, zoption)
With the DPE seat configuration when there is a leakage in the upstream seat, the pressure entering into the body cavity pushes the downstream seat against the ball and the valve seals.
This effect is a sealing principle involved In utilising line pressure to effect a seal across the floating seat.



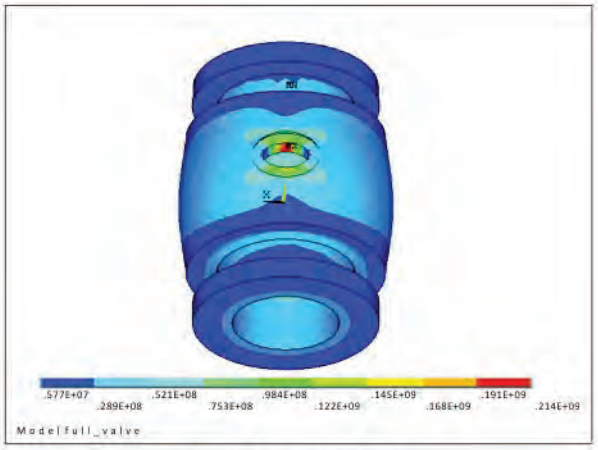
Self-relieving Seats
In self-relieving condition, excessive internal body pressure is automatically relieved both in upstream and downstream line by forcing the seats away from the closure element.

Ball valve fixed deformation finite element analysis

Ball Valve Strength and Finite Element Analysis of Deformation

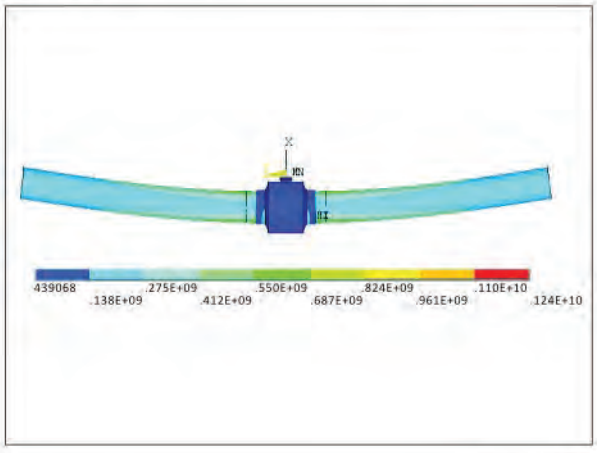


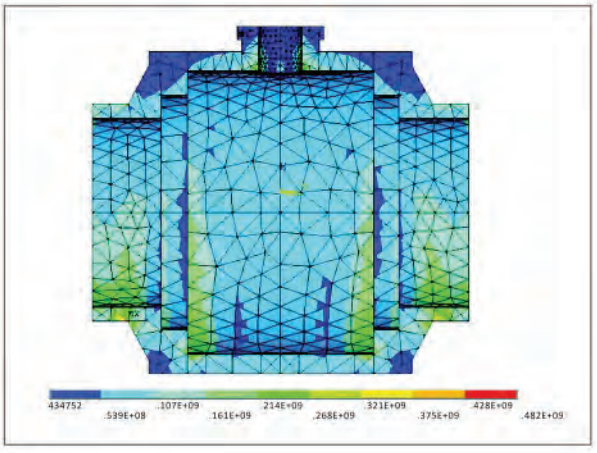
Class900 36″ ball



Class900 36″ body

safety assessment of structure strength of valve body under the composite function of medium pressure and external bending moment





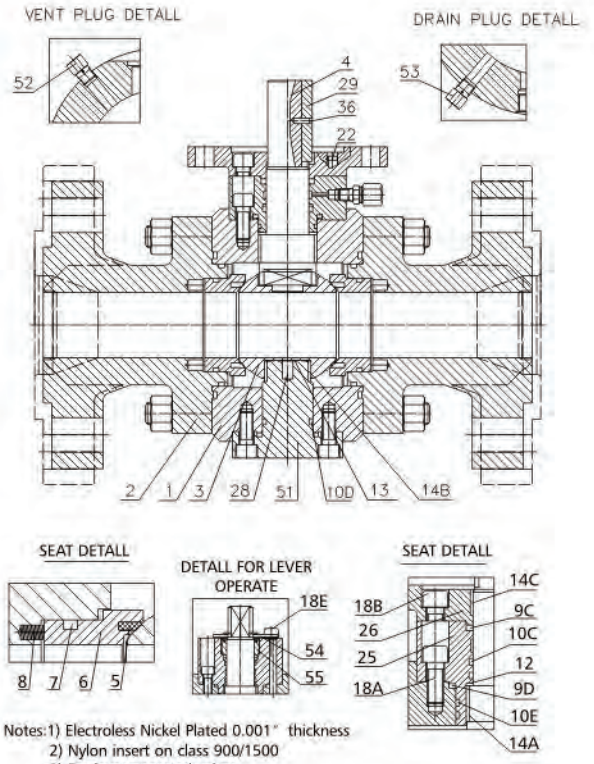
Class600 40″ fully welded valve body

STD. Material Selection

WTV FLOW CONTROL

Type Z

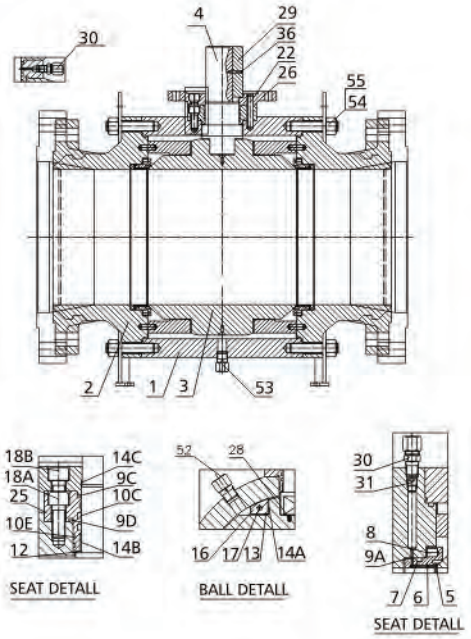
Pos.	Description	Material	Notes
55	SCREW RING	ASTM A182 F6a	3
54	STOP COLLAR	AISI 1025	3
53	DRAIN PLUG	AISI 1025+Zn	
52	VENT PLUG	AISI 1025+Zn	
51	LOWER TRUNNION	ASTM A182 F6a	
36	PIN	AISI 1045	
29	KEY	AISI 1045	
28	ANTI-STATIC SPRING	SS	
26	COUPLING FLANGE	ASTM A105	4
25	TOP COVER	ASTM A105+ENP	1
22	PIN	AISI 1025	
18E	SCREW	ASTM A193 B7	3
18B	SCREW	ASTM A193 B7	4
18A	SCREW	ASTM A193 B7	
14C	RADIAL BEARING	SS+PTFE	
14B	RADIAL BEARING	SS+PTFE	
14A	RADIAL BEARING	SS+PTFE	
13	PLANE BEARING	SS+PTFE	
12	THRUST WASHER	SS+PTFE	
10E	O-RING	VITON	
10D	O-RING	VITON	
10C	O-RING	VITON	
9D	FIRE SAFE RING	GRAPHITE	
9C	FIRE SAFE RING	GRAPHITE	
8	SEAT SPRING	17-7PH	
7	O-RING	VITON	
6	SEAT RING	ASTM A105+ENP	1
5	SEAT INSERT	RPTFE	2
4	STEM	ASTM A182 F6a CL.2	
3	BALL	A105+ENP	1
2	CLOSURE	ASTM A105	
1	BODY	ASTM A105	
Pos.	Description	Material	Notes



Notes:1) Electroless Nickel Plated 0.001" thickness
2) Nylon insert on class 900/1500
3) For lever operated valves
4) For gear or actuated valves
Service: standard fluid — carbon steel valve-fire safe design
Temperature:-7℃+160℃(-7℃+121℃ for class 900—1500)

Type C

Pos.	Description	Material	Notes
55	NUT	ASTM A194 2H	
54	BOLT	ASTM A193 B7	
53	DRAIN PLUG	AISI 1025+Zn	
52	VENT PLUG	AISI 1025+Zn	
36	PIN	AISI 1045	
31	CHECK VALVE	AISI 1025+Zn	
30	SEAT GREASE FITTING	AISI 1025+Zn	
29	KEY	AISI 1045	
28	ANTI-STATIC SPRING	SS	
26	COUPLING FLANGE	ASTM A105	
25	TOP COVER	A105+ENP	1
22	PIN	AISI 1025	
18B	SCREW	A193 B7	
18A	SCREW	A193 B7	
17	BEARING RETAINER PIN	AISI 1035	
16	BEARING RETAINER	ASTM A105	
14C	RADIAL BEARING	SS+PTFE	
14B	RADIAL BEARING	SS+PTFE	
14A	RADIAL BEARING	SS+PTFE	
13	PLANE BEARING	SS+PTFE	
12	THRUST WASHER	SS+PTFE	
10E	O-RING	VITON	3
10C	O-RING	VITON	3
9D	FIRE SAFE RING	GRAPHITE	
9C	FIRE SAFE RING	GRAPHITE	
9A	FIRE SAFE RING	GRAPHITE	
8	SEAT SPRING	17-7PH	3
7	O-RING	VITON	
6	SEAT RING	ASTM A105+ENP	1
5	SEAT INSERT	RPTFE	2
4	STEM	ASTM A182 F6a CL.2	
3	BALL	ASTM A105+ENP	1
2	CLOSURE	ASTM A105	
1	BODY	ASTM A105	
Pos.	Description	Material	Notes



Notes:1) Electroless Nickel Plated 0.001" thickness
2) Nylon for class 1500.
3) Viton (AED) for Class 600 and above.
Service: standard fluid — carbon steel valve-fire safe design
Temperature:-7℃+160℃ (-7℃+121℃ for Class 900—1500)

STD. Material Selection

WTV FLOW CONTROL

Trim materials for general service (sweet fluids) FULL CARBON STEEL

AA	Z		C	
Rating	150-1500	2500	150-1500	2500
Temperature	-29° + 180℃	-29° / + 180℃	-29° + 180℃	-29° / + 180℃
Body	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2
Closure	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2
Ball	ASTM A350 Gr.LF2 + ENP	AISI 4140 + ENP	ASTM A350 Gr.LF2 + ENP	A694 F65 + ENP
Seat	ASTM A350 Gr.LF2 + ENP	ASTM A350 Gr.LF2 + ENP	ASTM A350 Gr.LF2 + ENP	ASTM A350 Gr.LF2 + ENP
Stem	A 182 F6+ ENP	AISI 4140 + ENP	A 182 F6 + ENP	AISI 4140 + ENP
Bolting	B7 / 2H	B7 / 2H	B7 / 2H	B7 / 2H
Seat gasket	PTFE (2)	NYLON	VITON	NYLON
Other seals	VITON	VITON	VITON	VITON
Seat spring	INCONEL X 750	INCONEL X 750	INCONEL X 750	INCONEL X 750

Trim materials for corrosive services (comply to NACE MR 01-75) STAINLESS STEEL TRIM

CC	Z		C	
Rating	150-1500	2500	150-1500	2500
Temperature	-29° + 180℃	-29° / + 180℃	-29° + 180℃	-29° / + 180℃
Body	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2
Closure	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2
Ball	ASTM A 182 F316 + ENP	A 182 F316 LN+ ENP	A 182 F316 + ENP	A 694 F65 + ENP
Seat	ASTM A 182 F316 + ENP	A 182 F316 LN+ ENP	A 182 F316 + ENP	ASTM A350 Gr.LF2 + ENP
Stem	ASTM A 182 F316 + ENP	17-4 PH + ENP	17-4 PH + ENP	AISI 4140 + ENP
Bolting	B7 / 2H	B7 / 2H	B7 / 2H	B7 / 2H
Seat gasket	PTFE	NYLON	VITON (2)	NYLON
Other seals	VITON	VITON	VITON	VITON
Seat spring	INCONEL X 750	INCONEL X 750	INCONEL X 750	INCONEL X 750

Trim materials for highly corrosive services 13% Cr. STAINLESS STEEL TRIM

DD	Z		C	
Rating	150-1500	2500	150-1500	2500
Temperature	-29° + 180℃	-29° / + 180℃	-29° + 180℃	-29° / + 180℃
Body	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2
Closure	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2
Ball	A 182 F6 + ENP	A 182 F6 + ENP	A 182 F6 + ENP	A 182 F6 + ENP
Seat	A 182 F6 + ENP	A 182 F6 + ENP	A 182 F6 + ENP	A 182 F6 + ENP
Stem	A 182 F6 + ENP	A 182 F6NM + ENP	A 182 F6 + ENP	A 182 F6 + ENP
Bolting	B7 / 2H	B7 / 2H	B7 / 2H	B7 / 2H
Seat gasket	PTFE	NYLON	VITON	NYLON
Other seals	VITON	VITON	VITON	VITON
Seat spring	INCONEL X 750	INCONEL X 750	INCONEL X 750	INCONEL X 750

Trim materials for corrosive services (comply to NACE MR 01-75) FULL STAINLESS STEEL VALVE

EE	Z		C	
Rating	150-1500	2500	150-1500	2500
Temperature	-29° + 180℃	-29° / + 180℃	-29° + 180℃	-29° / + 180℃
Body	A 182 F316	A 182 F316	A 182 F316	A 182 F316
Closure	A 182 F316	A 182 F316	A 182 F316	A 182 F316
Ball	A 182 F316 + ENP	A 182 F316 LN+ ENP	A 182 F316 + ENP	A 182 F316 LN+ ENP
Seat	A 182 F316 + ENP	A 182 F316 LN+ ENP	A 182 F316 + ENP	A 182 F316 LN+ ENP
Stem	A 182 F316 + ENP	17-4 PH + ENP	17-4 PH + ENP	17-4 PH + ENP
Bolting	B7 / 2H	B7 / 2H	B7 / 2H	B7 / 2H
Seat gasket	PTFE (2)	NYLON	VITON	NYLON
Other seals	VITON	VITON	VITON	VITON
Seat spring	INCONEL X 750	INCONEL X 750	INCONEL X 750	INCONEL X 750

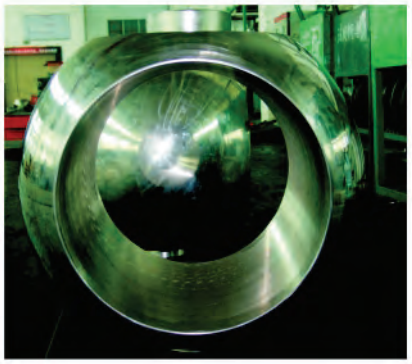
Note:(2)NYLON FOR CLASS 900-1500
Alternative material selections available upon request

STD. Material Selection

WTV FLOW CONTROL

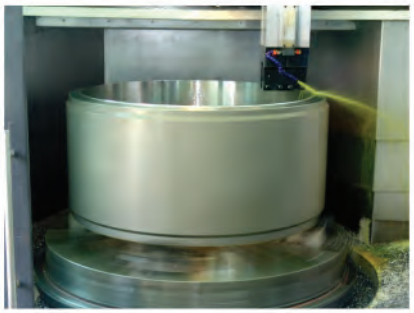
Trim materials for corrosive services (comply to NACE MR 01-75) FULL DUPLEX STEEL VALVE

FF	Z		C	
Rating	150-1500	2500	150-1500	2500
Temperature	-29° + 180℃	-29° / + 180℃	-29° + 180℃	-29° / + 180℃
Body	ASTM A 182 F51	ASTM A 182 F51	ASTM A 182 F51	ASTM A 182 F51
Closure	ASTM A 182 F51	ASTM A 182 F51	ASTM A 182 F51	ASTM A 182 F51
Ball	ASTM A 182 F51	ASTM A 182 F51	ASTM A 182 F51 + ENP	ASTM A 182 F51
Seat	ASTM A 182 F51	ASTM A 182 F51	ASTM A 182 F51 + ENP	ASTM A 182 F51
Stem	ASTM A 182 F51 + ENP	ASTM A 182 F51 + ENP	ASTM A 182 F51 + ENP	A 182 F51 + ENP
Bolting	ASTM B7 / 2H	ASTM B7 / 2H	ASTM B7 / 2H	ASTM B7 / 2H
Seat gasket	PTFE	NYLON	VITON	NYLON
Other seals	VITON	VITON	VITON	VITON
Seat spring	INCONEL X 750	INCONEL X 750	INCONEL X 750	INCONEL X 750



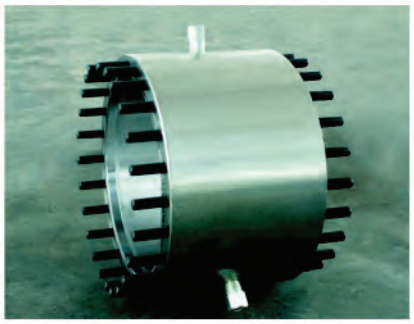
Trim materials for low temperature with stem extension FULL STAINLESS STEEL VALVE

GG	Z		C	
Rating	150-1500	2500	150-1500	2500
Temperature	-46° + 180℃	-46° / + 180℃	-46° + 180℃	-46° / + 180℃
Body	ASTM A 182 F316	A 182 F316	A 182 F316	A 182 F316
Closure	ASTM A 182 F316	A 182 F316	A 182 F316	A 182 F316
Ball	ASTM A 182 F316 + ENP	A 182 F316 LN+ ENP	A 182 F316 + ENP	A 182 F316 LN+ ENP
Seat	ASTM A 182 F316 + ENP	A 182 F316 LN+ ENP	A 182 F316 + ENP	A 182 F316 LN+ ENP
Stem	ASTM A 182 F316 + ENP	17-4 PH + ENP	17-4 PH + ENP	17-4 PH + ENP
Bolting	L7 / Gr.7	L7 / Gr.7	L7 / Gr.7	L7 / Gr.7
Seat gasket	PTFE	NYLON	VITON	NYLON
Other seals	PTFE + ELGILOY	PTFE + ELGILOY	PTFE + ELGILOY	PTFE + ELGILOY
Seat spring	INCONEL X 750	INCONEL X 750	INCONEL X 750	INCONEL X 750



Trim materials for cryogenic temperature with extension FULL STAINLESS STEEL VALVE

LL	Z		C	
Rating	150-1500	2500	150-1500	2500
Temperature	-196° + 120℃	-196° / + 120℃	-196° + 120℃	-196° / + 120℃
Body	ASTM A 182 F316	A 182 F316	A 182 F316	A 182 F316
Closure	ASTM A 182 F316	A 182 F316	A 182 F316	A 182 F316
Ball	ASTM A 182 F316 + ENP	A 182 F316 LN+ ENP	A 182 F316 + ENP	A 182 F316 LN+ ENP
Seat	ASTM A 182 F316 + ENP	A 182 F316 LN+ ENP	A 182 F316 + ENP	A 182 F316 LN+ ENP
Stem	XM 19 + ENP	INCONEL 718 + ENP	XM 19 + ENP	XM 19 + ENP
Bolting	A 453 Gr.660	A 453 Gr.660	A 453 Gr.660	A 453 Gr.660
Seat gasket	KEL-F	KEL-F	KEL-F	KEL-F
Other seals	PTFE + ELGILOY	PTFE + ELGILOY	PTFE + ELGILOY	PTFE + ELGILOY
Seat spring	INCONEL X 750	INCONEL X 750	INCONEL X 750	INCONEL X 750



Trim materials for high temperature

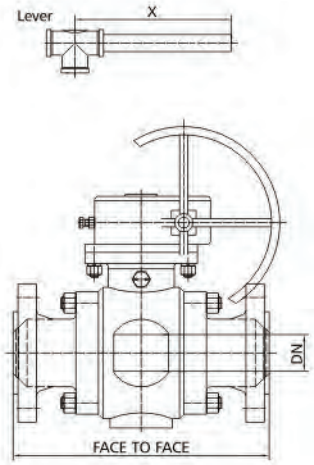
MM	Z		C	
Rating	150-1500	2500	150-1500	2500
Temperature	-29° + 250℃	-29° / + 250℃	-29° + 250℃	-29° / + 250℃
Body	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2
Closure	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2	ASTM A350 Gr.LF2
Ball	ASTM A350 Gr.LF2 + TCC	ASTM A350 Gr.LF2 + TCC	ASTM A350 Gr.LF2 + TCC	ASTM A350 Gr.LF2 + TCC
Seat	ASTM A350 Gr.LF2 + TCC	ASTM A350 Gr.LF2 + TCC	ASTM A350 Gr.LF2 + TCC	ASTM A350 Gr.LF2 + TCC
Stem	17-4 PH + ENP	INCONEL 718 + ENP	17-4 PH + ENP	INCONEL 718 + ENP
Bolting	B7 / 2H	B7 / 2H	B7 / 2H	B7 / 2H
Seat gasket	METAL TO METAL	METAL TO METAL	METAL TO METAL	METAL TO METAL
Other seals	PTFE + ELGILOY	PTFE + ELGILOY	PTFE + ELGILOY	PTFE + ELGILOY
Seat spring	INCONEL X 750	INCONEL X 750	INCONEL X 750	INCONEL X 750

BALL VALVES TYPE Z
(Overall Dimensions)

WTV FLOW CONTROL

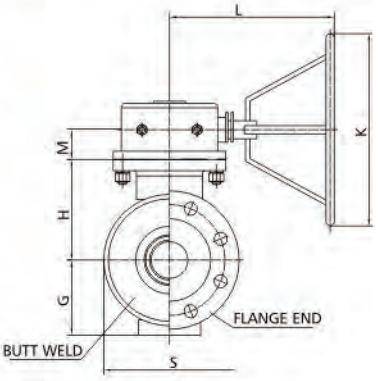
TYPE Z — ANSI CLASS150 (PN 20)
Working Pressure 275 Psi (19 bar) Hydrostatic Shell Test 420 Psi (29 bar)

SIZE		FACE TO FACE			S	G	H	M	L	K	X
NPS	DN	WE	RF	RTJ							
1.5"	38	191	165	178	160.5	103.5	124	28	143	160	250
2"x 1.5"	38	216	178	191	160.5	103.5	124	28	143	160	250
2"	49	216	178	191	178	113.5	134	28	143	160	250
3"x 2"	49	283	203	216	178	113.5	134	28	143	160	250
3"	74	283	203	216	220	139.5	160	28	143	160	300
4"x 3"	74	229	305	241	220	139.5	160	28	143	160	300
4"	100	229	305	241	268	167	178	32	162	240	400
6"x 4"	100	457	394	406	268	167	178	32	162	240	400



TYPE Z — ANSI CLASS300 (PN50)
Working Pressure 720 Psi (50bar) Hydrostatic Shell Test 1080Psi (75 bar)

SIZE		FACE TO FACE			S	G	H	M	L	K	X
NPS	DN	WE	RF	RTJ							
1.5"	38	191	191	203	160.5	103.5	124	28	143	160	250
2"x 1.5"	38	216	216	232	160.5	103.5	124	28	143	160	250
2"	49	216	216	232	178	113.5	134	28	143	160	250
3"x 2"	49	283	283	298	178	113.5	134	28	143	160	250
3"	74	283	283	298	220	139.5	160	28	143	160	300
4"x 3"	74	305	305	321	220	139.5	160	28	143	160	300
4"	100	305	305	321	268	167	178	32	162	240	400
6"x 4"	100	457	403	419	268	167	178	32	162	240	400



TYPE Z — ANSI CLASS400 (PN64)
Working Pressure960 Psi (66bar) Hydrostatic Shell Test 1440Psi (100bar)

SIZE		FACE TO FACE			S	G	H	M	L	K	X
NPS	DN	WE	RF	RTJ							
1.5"	38	241	241	241	130	75	88	28	143	160	300
2"x 1.5"	38	292	292	295	130	75	88	28	143	160	300
2"	49	292	292	295	155	87.5	117	32	162	240	400
3"x 2"	49	356	356	359	155	87.5	117	32	162	240	400
3"	74	356	356	359	205	116	150.5	35	182	280	500
4"x 3"	74	406	406	410	205	116	150.5	35	182	280	500
4"	100	406	406	410	245	137	171	35	182	280	600
6"x 4"	100	495	495	498	245	137	171	35	182	280	600

TYPE Z — ANSI CLASS600 (PN100)
Working Pressure1440 Psi 100bar) Hydrostatic Shell Test 2160Psi (149bar)

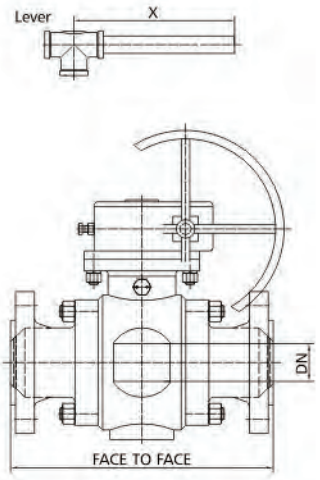
SIZE		FACE TO FACE			S	G	H	M	L	K	X
NPS	DN	WE	RF	RTJ							
1.5"	38	241	241	241	130	75	88	28	143	160	300
2"x 1.5"	38	292	292	295	130	75	88	28	143	160	300
2"	49	292	292	295	155	87.5	117	32	162	240	400
3"x 2"	49	356	356	359	155	87.5	117	32	162	240	400
3"	74	356	356	359	205	116	150.5	35	182	280	500
4"x 3"	74	432	432	435	205	116	150.5	35	182	280	500
4"	100	432	432	435	245	137	171	35	182	280	600
6"x 4"	100	559	559	562	245	137	171	35	182	280	600

BALL VALVES TYPE Z
(Overall Dimensions)

FLOW CONTROL

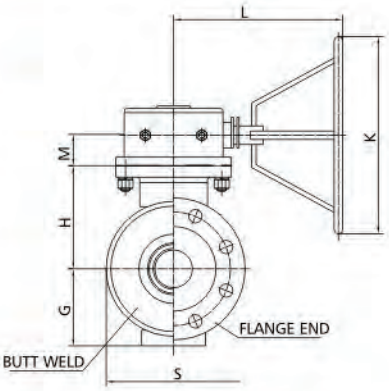
TYPE Z — ANSI CLASS 900 (PN 150)
Working Pressure 2160 Psi (149 bar) Hydrostatic Shell Test 2240 Psi (223 bar)

SIZE		FACE TO FACE			S	G	H	M	L	K	X
NPS	DN	WE	RF	RTJ							
1.5"	38	305	305	305	150	83	110	32	162	240	400
2"x 1.5"	38	369	369	371	150	83	110	32	162	240	400
2"	49	369	369	371	175	100	134	35	182	280	600
3"x 2"	49	381	381	384	175	100	134	35	182	280	600
3"	74	381	381	384	210	118.5	152	35	182	280	600
4"x 3"	74	457	457	460	210	118.5	152	35	182	280	600
4"	100	457	457	460	255	140.5	189	54	336	350	750
6"x 4"	100	610	610	613	255	140.5	189	54	336	350	750



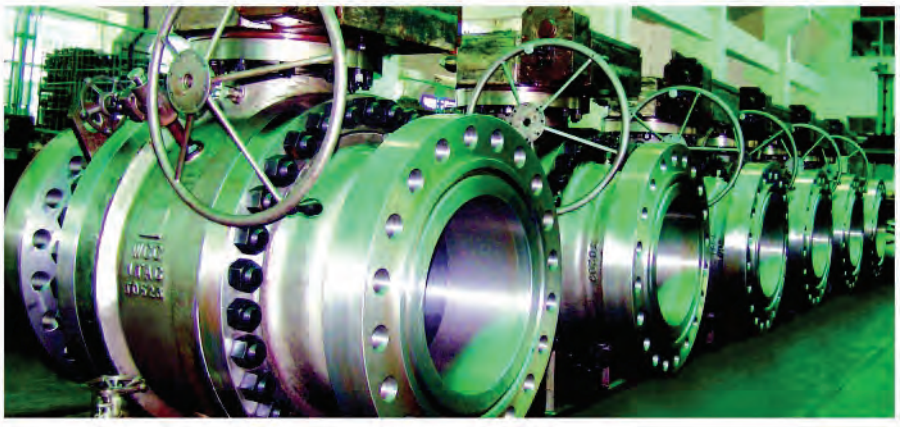
TYPE Z — ANSI CLASS 1500 (PN 250)
Working Pressure 3600 Psi (248 bar) Hydrostatic Shell Test 5400 Psi (372bar)

SIZE		FACE TO FACE			S	G	H	M	L	K	X
NPS	DN	WE	RF	RTJ							
1.5"	38	305	305	305	150	83	110	32	162	240	400
2"x 1.5"	38	369	369	371	150	83	110	32	162	240	400
2"	49	369	369	371	175	100	134	35	182	280	600
3"x 2"	49	470	470	473	175	100	134	35	182	280	600
3"	74	470	470	473	224	126.5	166.5	54	336	350	750
4"x 3"	74	546	546	549	224	126.5	166.5	54	336	350	750
4"	100	546	546	549	280	153	199.5	54	336	350	950
6"x 4"	100	705	705	711	280	153	199.5	54	336	350	950



TYPE Z — ANSI CLASS 2500 (PN 420)
Working Pressure 3600 Psi (420bar) Hydrostatic Shell Test 9000 Psi (630bar)

SIZE		FACE TO FACE			S	G	H	M	L	K	X
NPS	DN	WE	RF	RTJ							
1.5"	38	384	384	384	172	99	134	35	182	280	400
2"x 1.5"	38	451	451	454	172	99	134	35	182	280	400
2"	42	451	451	454	190	108.5	162	40	214	320	700
3"x 2"	42	578	578	584	190	108.5	162	40	214	320	700
3"	62	578	578	584	260	149	201.5	54	500	460	1050
4"x 3"	62	673	673	683	260	149	201.5	54	500	460	1050
4"	87	673	673	683	330	192.5	246	54	500	460	-
6"x 4"	87	914	914	927	330	192.5	246	54	500	460	-

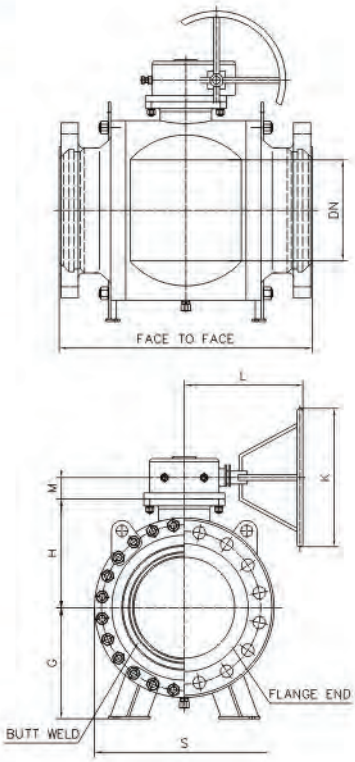


BALL VALVES TYPE C
(Overall Dimensions)

FLOW CONTROL

TYPE C — ANSI CLASS150 (PN20) Working Pressure275 Psi (19bar) Hydrostatic Shell Test 420Psi (29bar)										
SIZE		FACE TO FACE			S	G	H	M	L	K
NPS	DN	WE	RF	RTJ						
6"	150	457	394	406	310	215	204.5	45	182	280
8"x 6"	150	521	457	470	310	235	204.5	45	182	280
8"	201	521	457	470	385	255	257	54	336	350
10"x8"	201	559	533	546	385	285	257	54	336	350
10"	252	559	533	546	460	300	294.5	54	336	350
12"x10"	252	635	610	622	460	330	294.5	54	336	350
12"	303	635	610	622	537	340	331	54	500	460
14"x12"	303	762	686	699	537	370	331	54	500	460
14"	334	762	686	699	586	365	356	54	500	460
16"x14"	334	838	762	775	586	395	356	54	500	460
16"	385	838	762	775	658	406	392	54	500	600
18"x16"	385	914	864	876	658	440	392	54	500	600
18"	436	914	864	876	738	465	437	54	500	600
20"x18"	436	991	914	927	738	500	437	54	500	600
20"	487	991	914	927	811	490	474	77	645	600
24"x20"	487	1143	1067	1080	811	550	474	77	645	600
22"	538	♣	991	♣	899	535	517	77	645	600
24"	589	1143	1067	1080	968	565	552	77	645	600
30"x24"	589	1397	1295	♣	968	650	552	77	645	600
26"	633	1245	1143	♣	1050	620	603	77	645	600
28"	684	1346	1245	♣	1134	680	644	77	645	600
30"x28"	684	1524	1372	♣	1134	750	644	77	645	600
30"	735	1397	1295	♣	1217	730	686	77	645	600
36"x30"	735	1727	1524	♣	1217	820	686	77	645	600
32"	779	1524	1372	♣	1288	780	722	87	753	600
34"	830	1626	1473	♣	1372	820	772	87	753	600
36"	874	1727	1524	♣	1444	850	817	87	753	600
38"	925	♣	1600	♣	1523	900	857	87	753	600
40"	976	♣	1670	♣	1604	9300	898	87	753	600
42"	1020	♣	1740	♣	1677	980	940	95	785	600
44"	1070	♣	1810	♣	1752	1015	978	95	785	600
46"	1116	♣	1870	♣	1828	1060	1016.5	95	785	600
48"	1166	♣	1960	♣	1903	1100	1054	95	785	600
56"	1360	♣	2240	♣	2222	1280	1244.5	191	568	600
60"	1458	♣	2400	♣	2377	1360	1322.5	206	590	600

♣ To be confirmed after P/O placement.



TYPE C — ANSI CLASS300 (PN50) Working Pressure720 Psi (50bar) Hydrostatic Shell Test 1080Psi (75bar)										
SIZE		FACE TO FACE			S	G	H	M	L	K
NPS	DN	WE	RF	RTJ						
6"	150	457	403	419	310	215	204.5	45	182	280
8"x 6"	150	521	502	518	310	235	204.5	45	182	280
8"	201	521	502	518	385	255	257	54	336	350
10"x8"	201	559	568	584	385	285	257	54	336	350
10"	252	559	568	584	460	300	294.5	54	336	350
12"x10"	252	635	648	664	460	330	294.5	54	336	350
12"	303	635	648	664	537	340	331	54	500	460
14"x12"	303	762	762	778	537	370	331	54	500	460
14"	334	762	762	778	586	365	356	54	500	600
16"x14"	334	838	838	854	586	395	356	54	500	600
16"	385	838	838	854	669	410	402	54	500	600
18"x16"	385	914	914	930	669	435	402	54	500	600
18"	436	914	914	930	750	455	441	77	645	600
20"x18"	436	991	991	1010	750	490	441	77	645	600
20"	487	991	991	1010	824	490	479	77	645	600
24"x20"	487	1143	1143	1165	824	550	479	77	645	600
22"	538	1092	1092	1114	920	555	535	77	645	600
24"	589	1143	1143	1165	990	575	571	77	645	600
30"x24"	589	1397	1397	1422	990	645	571	77	645	600
26"	633	1245	1245	1270	1064	595	608.5	87	753	600
28"	684	1346	1346	1372	1164	660	658	87	753	600
30"x28"	684	1524	1524	1553	1164	720	658	87	753	600
30"	735	1397	1397	1422	1235	730	711	87	753	600
36"x30"	735	1727	1727	1756	1235	820	711	87	753	600
32"	779	1524	1524	1553	1307	770	747.5	95	785	600
34"	830	1626	1626	1654	1386	810	792	95	785	600
36"	874	1727	1727	1756	1464	850	832	95	785	600
38"	925	♣	1680	♣	1540	890	870	95	785	600
40"	976	♣	1760	♣	1627	940	937.5	191	568	600
42"	1020	♣	1840	♣	1697	980	973	191	568	600
44"	1070	♣	1920	♣	1785	1015	1023.5	191	568	600
46"	1116	♣	1980	♣	1855	1050	1058.5	206	590	600
48"	1166	♣	2070	♣	1933	1080	1098	206	590	600
56"	1360	♣	2400	♣	2250	1280	1271	215	674	800
60"	1458	♣	2560	♣	2410	1390	1362.5	170	726	800

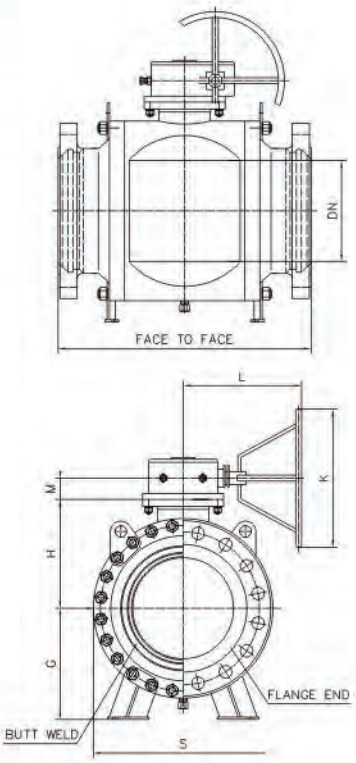
♣ To be confirmed after P/O placement.

BALL VALVES TYPE C
(Overall Dimensions)

FLOW CONTROL

TYPE C	ANSI CLASS400 (PN64) Working Pressure960Psi (66bar) Hydrostatic Shell Test 1440Psi (100bar)									
SIZE		FACE TO FACE			S	G	H	M	L	K
NPS	DN	WE	RF	RTJ						
6"	150	495	495	498	315	220	216	54	336	350
8"x 6"	150	597	597	600	315	240	216	54	336	350
8"	201	597	597	600	388	255	252	54	500	460
10"x8"	201	673	673	676	388	280	252	54	500	460
10"	252	673	673	676	475	310	304	54	500	600
12"x10"	252	762	762	765	475	340	304	54	500	600
12"	303	762	762	765	552	345	342	77	645	600
14"x12"	303	826	826	829	552	380	342	77	645	600
14"	334	826	826	829	598	370	360	77	645	600
16"x14"	334	902	902	905	598	405	360	77	645	600
16"	385	902	902	905	680	415	413	77	645	600
18"x16"	385	978	978	981	680	450	413	77	645	600
18"	436	978	978	981	765	460	460	77	645	600
20"x18"	436	1054	1054	1060	765	495	460	77	645	600
20"	487	1054	1054	1060	848	495	497	87	753	600
24"x20"	487	1232	1232	1241	848	535	497	87	753	600
22"	538	1143	1143	1153	935	545	555	87	753	600
24"	589	1232	1232	1241	1000	585	590	87	753	600
30"x24"	589	1524	1524	1537	1000	625	590	87	753	600
26"	633	1308	1308	1321	1090	650	632	87	753	600
28"	684	1397	1397	1410	1165	680	688	95	785	600
30"x28"	684	1651	1651	1667	1165	720	688	95	785	600
30"	735	1524	1524	1537	1255	725	735	95	785	600
36"x30"	735	1880	1880	1895	1255	765	735	95	785	600
32"	779	1651	1651	1667	1335	765	780	95	785	600
34"	830	1778	1778	1794	1410	810	835	191	568	600
36"	874	1880	1880	1895	1490	865	880	206	590	600
38"	925	♣	♣	♣	1570	910	925	206	590	600
40"	976	♣	♣	♣	1655	950	970	215	674	800
42"	1020	♣	♣	♣	1725	1005	1020	215	674	800
44"	1070	♣	♣	♣	1820	1045	1060	170	726	800
46"	1116	♣	♣	♣	1900	1085	1110	170	726	800
48"	1166	♣	♣	♣	2000	1150	1152	170	726	800
56"	1360	♣	♣	♣	2310	1320	1336	♣	♣	♣
60"	1458	♣	♣	♣	2500	1400	1435	♣	♣	♣

♣ To be confirmed after P/O placement.



TYPE C	ANSI CLASS600 (PN100) Working Pressure1440Psi (99bar) Hydrostatic Shell Test 2160Psi (149bar)									
SIZE		FACE TO FACE			S	G	H	M	L	K
NPS	DN	WE	RF	RTJ						
6"	150	559	559	562	315	220	216	54	336	350
8"x 6"	150	660	660	664	315	240	216	54	336	350
8"	201	660	660	664	388	255	252	54	500	460
10"x8"	201	787	787	791	388	280	252	54	500	460
10"	252	787	787	791	475	310	304	54	500	600
12"x10"	252	838	838	841	475	340	304	54	500	600
12"	303	838	838	841	552	345	342	77	645	600
14"x12"	303	889	889	892	552	380	342	77	645	600
14"	334	889	889	892	605	375	366	77	645	600
16"x14"	334	991	991	994	605	410	366	77	645	600
16"	385	991	991	994	693	420	421.5	77	645	600
18"x16"	385	1092	1092	1095	693	460	421.5	77	645	600
18"	436	1092	1092	1095	776	465	470	77	645	600
20"x18"	436	1194	1194	1200	776	500	470	77	645	600
20"	487	1194	1194	1200	860	505	513.5	87	753	600
24"x20"	487	1397	1397	1407	860	550	513.5	87	753	600
22"	538	1295	1295	1305	945	550	565	87	753	600
24"	589	1397	1397	1407	1024	590	609	87	753	600
30"x24"	589	1651	1651	1664	1024	655	609	87	753	600
26"	633	1448	1448	1461	1105	660	650	87	753	600
28"	684	1549	1549	1562	1185	690	698.5	95	785	600
30"x28"	684	1778	1778	1794	1185	730	698.5	95	785	600
30"	735	1651	1651	1664	1275	735	745	95	785	600
36"x30"	735	2083	2083	2099	1275	770	745	95	785	600
32"	779	1778	1778	1794	1352	775	797	95	785	600
34"	830	1930	1930	1946	1438	825	841	191	568	600
36"	874	2083	2083	2099	1514	870	885	206	590	600
38"	925	♣	1840	♣	1600	920	928.5	206	590	600
40"	976	♣	1920	♣	1680	960	969.5	215	674	800
42"	1020	♣	2000	♣	1761	1010	1023	215	674	800
44"	1070	♣	2080	♣	1845	1050	1065	215	674	800
46"	1116	♣	2160	♣	1925	1100	1116	170	726	800
48"	1166	♣	2260	♣	2010	1155	1159.5	170	726	800
56"	1360	♣	2610	♣	2350	1325	1343	♣	♣	♣
60"	1458	♣	2800	♣	2524	1415	1443	♣	♣	♣

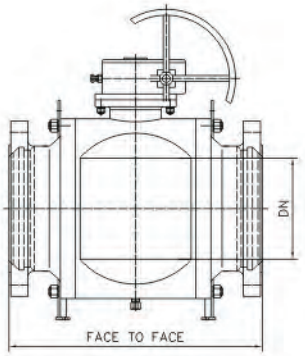
♣ To be confirmed after P/O placement.

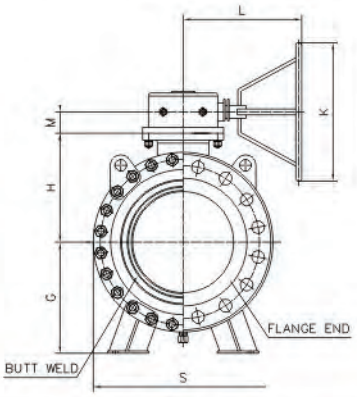
BALL VALVES TYPE C
(Overall Dimensions)

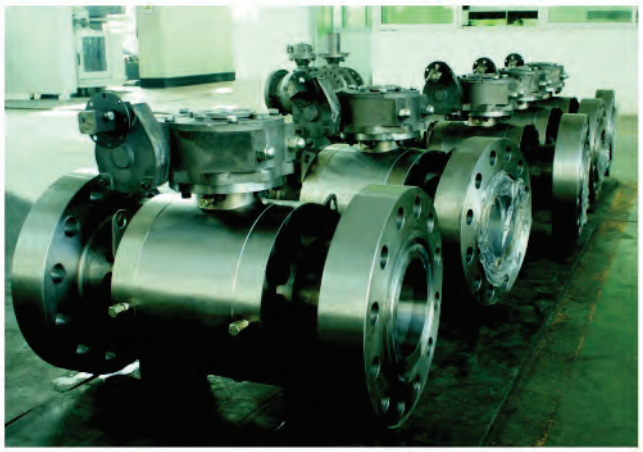
FLOW CONTROL

TYPE C	ANSI CLASS900 (PN150) Working Pressure2160Psi (149bar) Hydrostatic Shell Test 3240Psi (223bar)									
SIZE		FACE TO FACE			S	G	H	M	L	K
NPS	DN	WE	RF	RTJ						
6"	150	610	610	613	327	220	220	54	500	460
8"x 6"	150	737	737	740	327	240	220	54	500	460
8"	201	737	737	740	414	270	272	54	500	600
10"x8"	201	838	838	841	414	295	272	54	500	600
10"	252	838	838	841	501	320	315	54	645	600
12"x10"	252	965	965	968	501	350	315	54	645	600
12"	303	965	965	968	589	370	368	77	645	600
14"x12"	303	1029	1029	1038	589	400	368	77	645	600
14"	332	1029	1029	1038	630	390	387	77	645	600
16"x14"	332	1130	1130	1140	630	425	387	77	645	600
16"	373	1130	1130	1140	730	440	446	87	753	600
18"x16"	373	1219	1219	1132	730	475	446	87	753	600
18"	423	1219	1219	1132	818	485	500	87	753	600
20"x18"	423	1321	1321	1334	818	520	500	87	753	600
20"	471	1321	1321	1334	910	530	550	87	753	600
24"x20"	471	1549	1549	1568	910	580	550	87	753	600
24"	570	1549	1549	1568	1089	630	649	95	785	600
30"x24"	570	♣	1880	1920	1089	690	649	95	785	600
26"	617	♣	1651	1673	1220	750	710	95	785	600
28"	665	♣	♣	♣	1300	790	755	191	568	600
32"x28"	665	♣	♣	♣	1300	840	755	191	568	600
30"	712	♣	1880	1902	1365	850	815	206	590	600
36"x30"	712	♣	2286	2315	1365	900	815	206	590	600
32"	760	♣	♣	♣	1465	910	850	215	674	800
34"	808	♣	♣	♣	1555	960	885	215	674	800
36"	855	♣	2286	2315	1650	1020	970	215	674	800
40"	956	♣	♣	♣	1815	1120	1060	170	726	800
42"	1006	♣	♣	♣	1915	1200	1110	♣	♣	♣
48"	1149	♣	♣	♣	2160	1330	1250	♣	♣	♣

♣ To be confirmed after P/O placement.





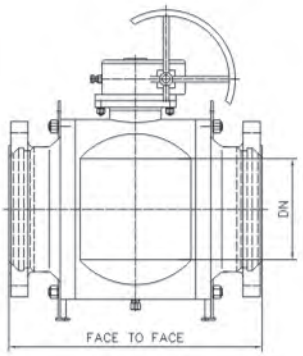


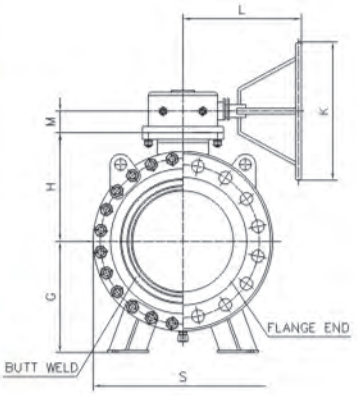
BALL VALVES TYPE C
(Overall Dimensions)

FLOW CONTROL

TYPE C	ANSI CLASS1500 (PN250) Working Pressure3600Psi (248bar) Hydrostatic Shell Test 5400Psi (372bar)									
SIZE		FACE TO FACE			S	G	H	M	L	K
NPS	DN	WE	RF	RTJ						
6"	144	705	705	711	366	245	246.5	54	500	600
8"x 6"	144	832	832	841	366	270	246.5	54	500	600
8"	192	832	832	841	473	300	300.5	77	645	600
10"x8"	192	991	991	1000	473	330	300.5	77	645	600
10"	239	991	991	1000	580	360	363	77	645	600
12"x10"	239	1130	1130	1146	580	395	363	77	645	600
12"	287	1130	1130	1146	690	420	425.5	87	753	600
14"x12"	287	1257	1257	1276	690	460	425.5	87	753	600
14"	315	1257	1257	1276	750	450	465	87	753	600
16"x14"	315	1384	1384	1407	750	490	465	87	753	600
16"	360	1384	1384	1407	855	510	521.5	87	753	600
18"x16"	360	♣	1537	1559	855	545	521.5	87	753	600
18"	406	♣	1537	1559	1020	635	642	87	753	600
20"x18"	406	♣	1664	1686	1020	695	642	87	753	600
20"	454	♣	1664	1686	1132	690	703	95	785	600
24"x20"	454	♣	♣	1972	1132	740	703	95	785	600
24"	546	♣	♣	1972	1380	820	832	206	590	600
30"x24"	546	♣	♣	♣	1380	860	832	206	590	600
26"	594	1943	♣	♣	1458	860	878	215	674	800
28"	641	♣	♣	♣	1580	920	935	215	674	800
32"x28"	641	♣	♣	♣	1580	980	935	215	674	800
30"	686	♣	♣	♣	1690	980	995	170	726	800
36"x30"	686	♣	♣	♣	1690	1040	995	170	726	800
32"	730	♣	♣	♣	1800	1030	1045	♣	♣	♣
34"	775	♣	♣	♣	1920	1100	1123	♣	♣	♣
36"	819	♣	♣	♣	2030	1145	1165	♣	♣	♣

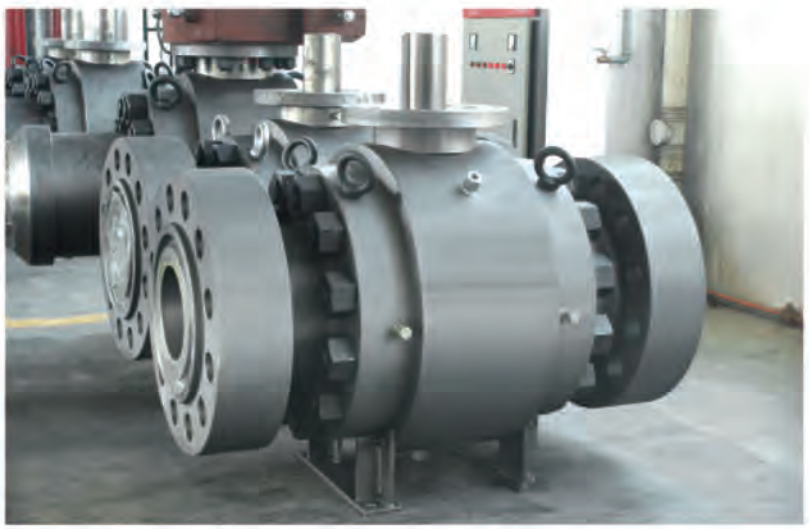
♣ To be confirmed after P/O placement.





TYPE C	ANSI CLASS2500 (PN420) Working Pressure 6000Psi (420bar) Hydrostatic Shell Test 9000Psi (630bar)									
SIZE		FACE TO FACE			S	G	H	M	L	K
NPS	DN	WE	RF	RTJ						
6"	131	914	914	927	475	300	321	77	645	600
8"x 6"	131	1022	1022	1038	475	300	321	77	645	600
8"	179	1022	1022	1038	635	387.5	411	77	645	600
10"x8"	179	1270	1270	1292	635	387.5	411	77	645	600
10"	223	1270	1270	1292	775	470	475.5	87	753	600
12"x10"	223	1422	1422	1445	775	470	475.5	87	753	600
12"	265	1422	1422	1445	900	530	560	95	785	600
14"x12"	265	♣	♣	♣	900	530	560	95	785	600
14"	292	♣	♣	♣	1005	575	615.5	95	785	600
16"x14"	292	♣	♣	♣	1005	575	615.5	95	785	600
16"	333	♣	♣	♣	1200	675	731	206	590	600
20"x16"	333	♣	♣	♣	1200	675	731	206	590	600

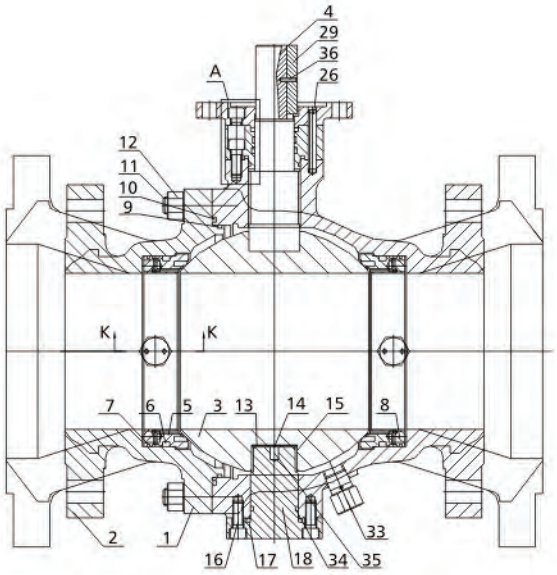
♣ To be confirmed after P/O placement.

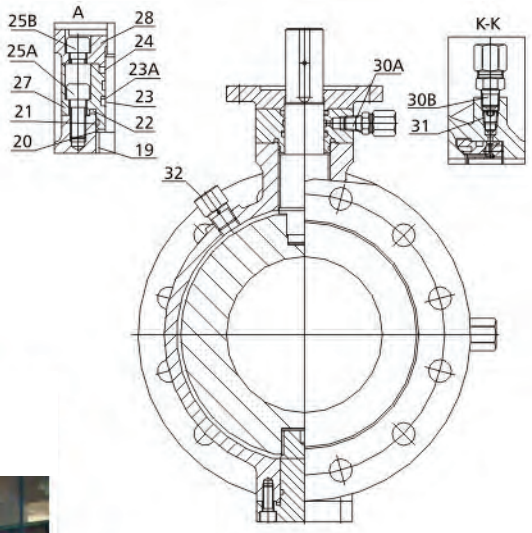


BALL VALVES TYPE Z
(Overall Dimensions)

WTV FLOW CONTROL

Pos.	Description	Material
2	LEFT BODY	A216 WCB
2	RIGHT BODY	A216 WCB
3	BALL	A105+ENP
4	UPPER STEM	A182 F6a CL.2
5	SEAT	Assembly
5.1	SEAT RING	A105+ENP
5.2	INSERT RING	RPTFE
6	O-RING	VITON
7	SEAT GASKET	Graphite
8	SEAT SPRING	17-7PH
9	O-RING	VITON
10	CLOSURE F.S. SEAL	SS+Graphite
11	BODY STUD NUT	A194-2H
12	BODY STUD	A193-B7
13	BLOCK BEARING	SS+PTFE
14	AXIAL BEARING	SS
15	STEM BEARING	SS+PTFE
16	CAPSCREW	A193-B7
17	LOWER STEM GASKET	SS+Graphite
18	LOWER STEM	A182 F6a CL.2
19	RADIAL BEARING	SS+PTFE
20	AXIAL BEARING	SS+PTFE
21	O-RING	VITON
22	TOP COVER F.S. SEAL	SS+Graphite
23	O-RING	VITON
23A	BAFFLE GASKET	PTFE
24	UPPER STEM GASKET	Graphite
25A	CAPSCREW	A193-B7
25B	CAPSCREW	A193-B7
26	TOP COVER PIN	AISI 1025
27	TOP COVER	A105+ENP
28	COUPLING PLATE	A105
29	KEY	A576-1045
30B	STEM GREASE FITTING	A576-1025+Zn
30A	SEAT GREASE FITTING	A576-1025+Zn
31	CHECK VALVE	A576-1025+Zn
32	RELIEF VALVE	A576-1025+Zn
33	DRAIN PLUG	A576-1025+Zn
34	O-RING	VITON
35	ANTI-STATIC SPRING	SS



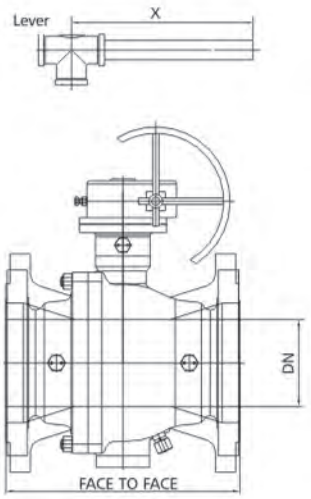


BALL VALVES TYPE Z
(Overall Dimensions)

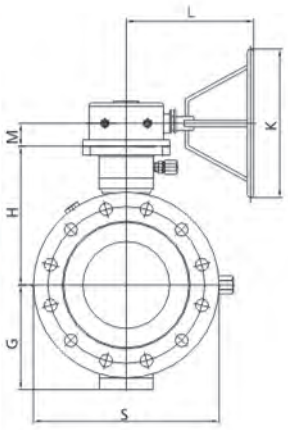
WTV FLOW CONTROL

Casting steel ball valve

TYPE	ANSI CLASS 150 (PN20)									
SIZE inches	DN	FACE TO FACE WE	FACE TO FACE RF	FACE TO FACE RTJ	G	H	M	S	K	L
6"	150	457	394	406	180	239	45	308	280	182
8"	201	521	457	470	222	297	54	382	350	336
8"x6"x8"	150	521	457	470	180	239	54	308	280	182
10"	252	559	533	546	269	344	54	463	350	336
10"x8"x10"	201	559	533	546	222	297	54	382	350	336
12"	303	635	610	622	309	391	54	541	460	500
12"x10"x12"	252	635	610	622	269	344	54	463	350	336
14"	334	762	686	699	339	420	54	598	460	500
14"x12"x14"	303	762	686	699	309	391	54	541	460	500
16"	385	838	762	775	383	472	54	681	460	500
16"x14"x16"	334	838	762	775	339	420	54	598	460	500
18"	436	914	864	876	426	520	54	763	600	500
18"x16"x18"	385	914	864	876	383	472	54	681	460	500
20"	487	991	914	927	477	562	77	839	600	645
20"x18"x20"	436	991	914	927	426	520	54	763	600	500
22"x20"x22"	487	♣	991	♣	477	562	77	839	600	645



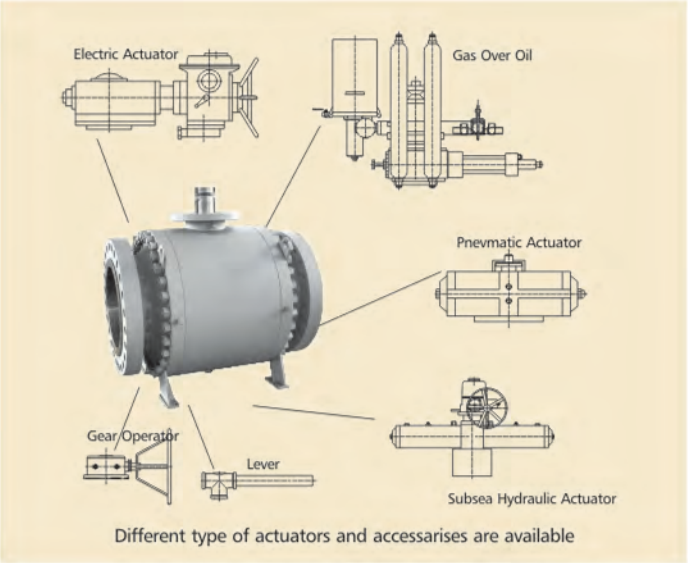
TYPE	ANSI CLASS 300 (PN50)									
SIZE inches	DN	FACE TO FACE WE	FACE TO FACE RF	FACE TO FACE RTJ	G	H	M	S	K	L
6"	150	457	403	419	180	239	45	320	280	182
8"	201	521	502	518	222	297	54	393	350	336
8"x6"x8"	150	521	502	518	180	239	45	320	280	182
10"	252	559	568	584	269	344	54	473	350	336
10"x8"x10"	201	559	568	584	222	297	54	393	350	336
12"	303	635	648	664	309	391	54	552	460	500
12"x10"x12"	252	635	648	664	269	344	54	473	350	336
14"	334	762	762	778	339	420	54	609	600	500
14"x12"x14"	303	762	762	778	309	391	54	552	460	500
16"	385	838	838	854	383	472	54	685	600	500
16"x14"x16"	334	838	838	854	339	420	54	609	600	500
18"	436	914	914	930	426	520	77	772	600	645
18"x16"x18"	385	914	914	930	383	472	54	685	600	500
20"	487	991	991	1010	477	562	77	856	600	645
20"x18"x20"	436	991	991	1010	426	520	77	772	600	645
22"x20"x22"	487	1092	1092	1114	477	562	77	856	600	645



TYPE	ANSI CLASS 600 (PN100)										
SIZE inches	DN	FACE TO FACE WE	FACE TO FACE RF	FACE TO FACE RTJ	G	H	M	S	K	L	X
2"	49	292	292	295	92	124	♣	165	♣	♣	400
21/2"	♣	♣	♣	♣	♣	♣	♣	♣	♣	♣	♣
3"	74	356	356	359	143.6	159.5	♣	210	♣	♣	450
3"x2"x3"	49	356	356	359	92	124	♣	165	♣	♣	400
4"	100	432	432	435	146	182	♣	275	♣	♣	750
4"x3"x4"	74	432	432	435	143.6	159.5	♣	210	♣	♣	450
6"	150	559	559	562	189	260	54	355	350	336	♣
6"x4"x6"	100	559	559	562	146	182	♣	275	♣	♣	750
8"	201	660	660	664	237	306	54	400	460	500	♣
8"x6"x8"	150	660	660	664	189	260	54	355	350	350	♣
10"	252	787	787	791	287	365	54	490	600	500	♣
10"x8"x10"	201	787	787	791	237	306	54	408	460	460	♣
12"	303	838	838	841	327	415	77	570	600	645	♣
12"x10"x12"	252	838	838	841	287	365	54	490	600	600	♣
14"	334	889	889	892	352	444	77	620	600	645	♣
14"x12"x14"	303	889	889	892	327	415	77	570	600	600	♣
16"	385	991	991	994	410	507	77	706	600	645	♣
16"x14"x16"	334	991	991	994	352	444	77	620	600	600	♣
18"x16"x18"	385	1092	1092	1095	410	507	77	706	600	600	♣

TYPE	ANSI CLASS 900 (PN150)										
SIZE inches	DN	FACE TO FACE WE	FACE TO FACE RF	FACE TO FACE RTJ	G	H	M	S	K	L	X
2"	49	368	368	371	106	143	♣	215	♣	♣	550
21/2"	♣	♣	♣	♣	♣	♣	♣	♣	♣	♣	♣
3"	74	381	381	384	127.5	163	♣	241	♣	♣	750
3"x2"x3"	49	381	381	384	106	143	♣	215	♣	♣	550
4"	100	457	457	460	145.	201	♣	292	♣	♣	1200
4"x3"x4"	74	457	457	460	127.55	163	♣	241	♣	♣	750
6"	150	610	610	613	197	277	54	300	460	500	♣
6"x4"x6"	100	610	610	613	145.5	201	♣	292	♣	♣	1200
8"	201	737	737	740	254	332	54	470	600	500	♣
8"x6"x8"	150	737	737	740	197	2775	54	300	460	500	♣
10"	252	838	838	841	312	38	77	545	600	645	♣
10"x8"x10"	201	838	838	841	254	332.55	54	470	600	500	♣
12"	303	965	965	968	352	452	77	607	600	645	♣
12"x10"x12"	252	965	965	968	312	385	77	545	600	645	♣
14"x12"x14"	303	1029	1029	1038	352	452	77	607	600	645	♣

SPECIAL APPLICATIONS



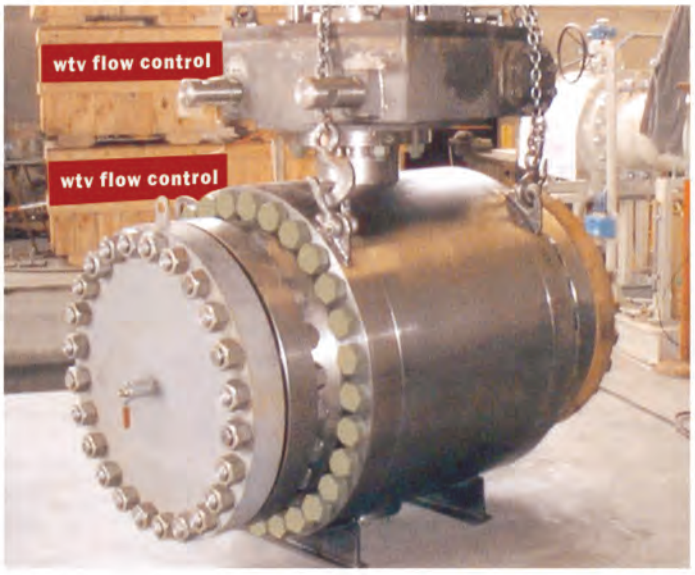
Different type of actuators and accessarises are available

Operating unit

Underground Installation
Stem extension can be available for BTL ball valve.

This feature permits use of valves in remote area, e.g. for underground installation.

BTL can provide any kind of stem extension, with piping and fittings suitable to raise the body drain, the body vent and the emergency sealant injection fitting up the stand floor.



Subsea service
Special materials and protective overlays for extended life of service.
Reliable product in order to provide long lasting service without maintenance.
Additional sea water gaskets protect stem and external sealing areas.
Special protective coatings.

Cryogenic service
Use range up to minus 196℃.
Assure the maneuverability at low temperature.
Materials and dimensions are specially designed to suit low temperature.

WWW.WTVFLOW.COM

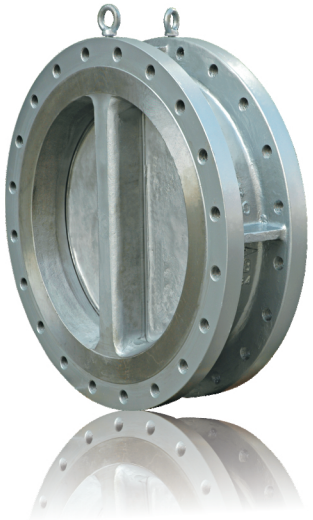
WTV VALVES

CATENA

WTV FLOW CONTROL

Check Valve

WTV check valve usually be reliably used in steam, air, coal gas, oil or oil gas etc high or low-pressure condition. High or low-pressure valve normal adopt internal rocker to reduce medium external leakage. It can be equipped external lever and adjusting foundry weight and can be select connection type and trim material according to working condition if user need. Large check valve usually be equipped with vibration absorber.



◆Cast steel check valve design structure and feature

Design and manufacture conform to ASME B 16.5 ,API 594,API 6D & BS 1868
Test and check conform to API 598.

◆Adopt the following structure

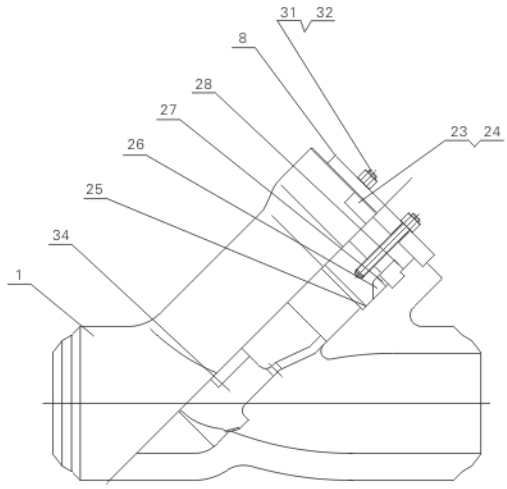
Inside rocker
Renewable seat
Bolted bonnet, spiral would eight-square gasket sealing bonnet or pressure seal bonnet

◆According to the following standard

Flange ends conform to ASME B 16.5
Butt-welding end conform to ASME B 16.25
Face to face dimension conform to ASME B 16.10

Check Valve

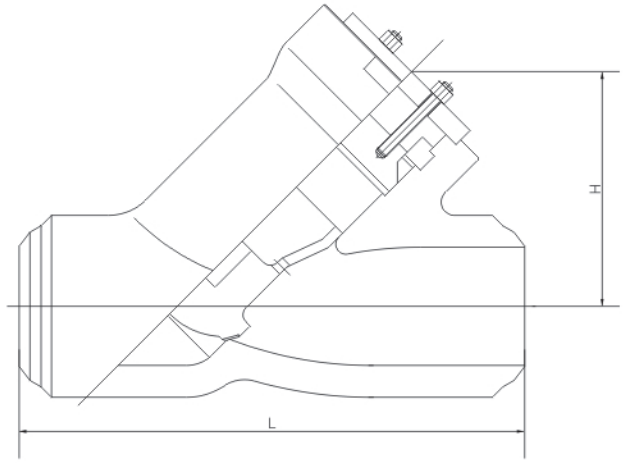
PYH61Y Type



Main parts material sheet

Item	Part name	WCB	WC6	WC9	CF8	CF3M	CE3MN
1	Body	A216 WCB	A217 WC6	A217 WC9	A351 CF8	A351 CF3M	CE3MN
8	Bonnet	A216 WCB	A216 WCB	A216 WCB	A351 CF8	A351 CF8	A351 CF8
23	Nameplate	AISI 304	AISI 304	AISI 304	AISI 304	AISI 304	AISI 304
24	Rivet	AL	AL	AL	AL	AL	AL
25	Pressure seal seat	A105	A182 F11	A182 F22	A182 F304	A182 F316L	A182 F53
26	Pressure seal gasket	304+flexible graphite					
27	Pressure seal ring	A182 F6a	A182 F6a	A182 F6a	A182 F304	A182 F316L	A182 F53
28	Segment ring	A182 F6a	A182 F11	A182 F22	A182 F304	A182 F316L	A182 F53
31	Hanger bolt	A193 B7	A193 B7	A193 B7	A193 B8	A193 B8M	A193 B8M
32	Nut	A194 2H	A194 2H	A194 2H	A194 8	A194 8M	A194 8M
34	Disc	A105	A182 F11	A182 F22	A182 F304	A182 F316L	A182 F53

Check Valve



CL600

Spec (NAP)	in	6	8	10	12	14	16	18	20
Face to face(mm)	L	457	584	711	813	813	1041	1041	1524
Center height(mm)	H	406	508	635	822	822	1054	1054	1194
Weight (Kg)		182	272	454	658	658	1270	1270	1588

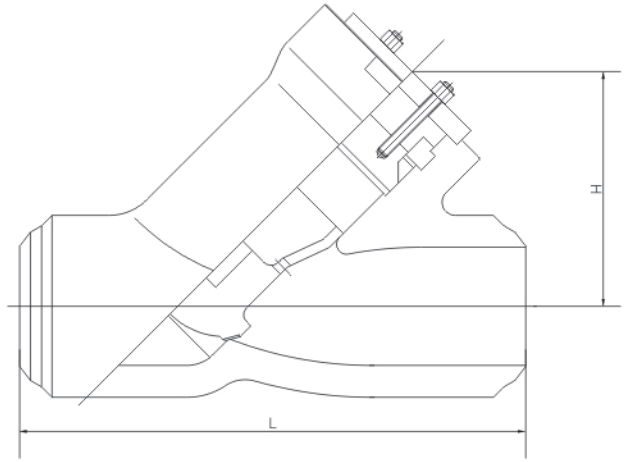
Spec (NAP)	in	8 × 6 × 8	10 × 8 × 10	12 × 10 × 12	14 × 12 × 14	16 × 14 × 16	18 × 16 × 18	20 × 18 × 20	22 × 20 × 22
Face to face(mm)	L	457	584	711	813	813	1041	1041	1524
Center height(mm)	H	406	508	635	822	822	1054	1054	1194
Weight (Kg)		182	303	506	724	724	1397	1397	1770

CL900

Spec (NAP)	in	6	8	10	12	14
Face to face(mm)	L	705	762	921	1041	1092
Center height(mm)	H	457	598	716	891	891
Weight (Kg)		182	284	527	718	718

Spec (NAP)	in	8 × 6 × 8	10 × 8 × 10	12 × 10 × 12	14 × 12 × 14	16 × 14 × 16
Face to face(mm)	L	705	762	921	1041	1092
Center height(mm)	H	457	598	716	891	891
Weight (Kg)		182	316	582	795	794

Check Valve



CL1500

Spec (NAP)	in	6	8	10	12	14	16	18	20
Face to face(mm)	L	705	762	921	1041	1092	1372	1600	1600
Center height(mm)	H	457	598	716	891	891	1129	1129	1129
Weight (Kg)		182	284	527	718	718	1397	1420	1782

Spec (NAP)	in	8 × 6 × 8	10 × 8 × 10	12 × 10 × 12	14 × 12 × 14	16 × 14 × 16	18 × 16 × 18	20 × 18 × 20	22 × 20 × 22
Face to face(mm)	L	705	762	921	1041	1092	1372	1600	1384
Center height(mm)	H	457	598	716	891	891	1129	1129	1332
Weight (Kg)		182	316	582	795	794	1534	1560	1977

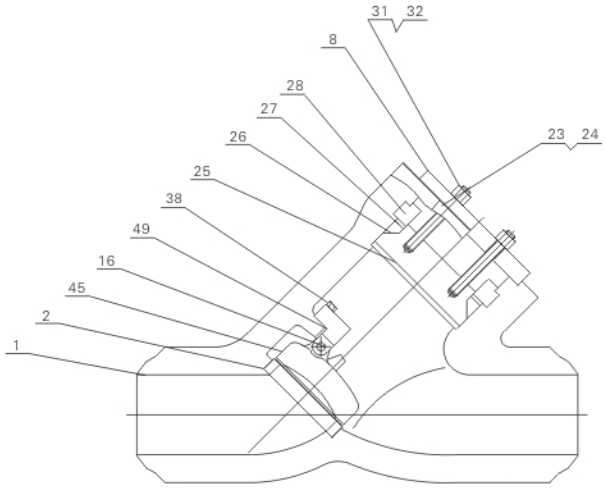
CL2500

Spec (NAP)	in	6	8	10	12	14
Face to face(mm)	L	610	762	914	1041	1238
Center height(mm)	H	521	612	761	879	948
Weight (Kg)		245	300	585	863	1380

Spec (NAP)	in	8 × 6 × 8	10 × 8 × 10	12 × 10 × 12	14 × 12 × 14	16 × 14 × 16
Face to face(mm)	L	610	762	914	1041	1238
Center height(mm)	H	521	612	761	879	948
Weight (Kg)		245	329	594	595	1530

Check Valve

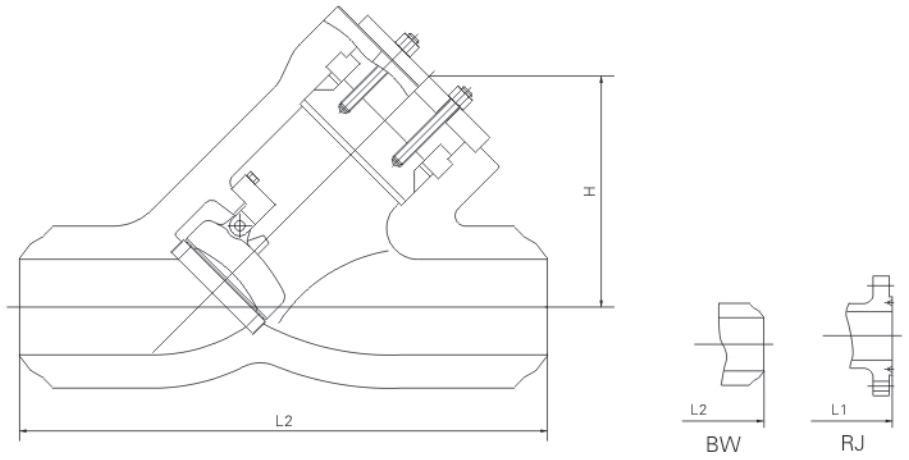
PYH64Y Type



Main parts material sheet

Item	Part name	WCB	WC6	WC9	CF8	CF3M	CE3MN
1	Body	A216 WCB	A217 WC6	A217 WC9	A351 CF8	A351 CF3M	CE3MN
2	Seat	A105	A182 F11	A182 F22	A182 F304	A182 F316L	A182 F53
8	Bonnet	A216 WCB	A216 WCB	A216 WCB	A351 CF8	A351 CF8	A351 CF8
16	Pin	A276 410	A276 410	A276 410	A276 304	A276 316L	A276 F53
23	Nameplate	AISI 304	AISI 304	AISI 304	AISI 304	AISI 304	AISI 304
24	Rivet	AL	AL	AL	AL	AL	AL
25	Pressure seal seat	A105	A182 F11	A182 F22	A182 F304	A182 F316L	A182 F53
26	Pressure seal gasket	304+flexible graphite					
27	Pressure seal ring	A182 F6a	A182 F6a	A182 F6a	A182 F304	A182 F316L	A182 F53
28	Segment ring	A182 F6a	A182 F11	A182 F22	A182 F304	A182 F316L	A182 F53
31	Hanger bolt	A193 B7	A193 B7	A193 B7	A193 B8	A193 B8M	A193 B8M
32	Nut	A194 2H	A194 2H	A194 2H	A194 8	A194 8M	A194 8M
45	Disc	A105	A182 F11	A182 F22	A182 F304	A182 F316L	A182 F53
49	Roke	A216 WCB	A217 WC6	A217 WC9	A351 CF8	A351 CF3M	CE3MN

Check Valve



CL900

Spec (NAP)	in	2	2.5	3	4	6	8	10	12	14	16	18	20
Face to face(mm)	L	254	254	304	355	508	660	787	914	990	1092	1219	1320
	L1	381	381	381	457	609	736	838	965	1028	1130	1219	1320
	L2	384	384	384	460	612	739	841	968	1039	1140	1232	1333
Center height(mm)	H	190	190	190	190	241	304	381	419	457	501	596	660
Weight (Kg) weld		20	20	20	23	59	109	213	326	408	589	834	1102
Weight (Kg) flange		50	50	50	68	159	276	473	662	907	1179	1655	2143

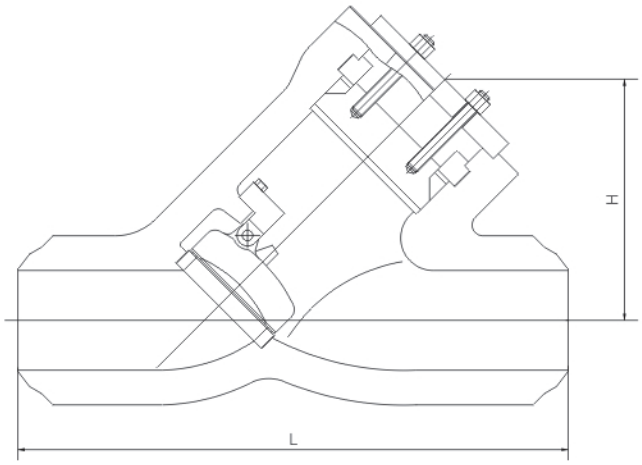
Spec (NAP)	in	8×6×8	10×8×10	12×10×12	14×12×14	16×14×16	18×16×18	20×18×20
Face to face(mm)	L	609	736	838	965	1028	1130	1219
Center height(mm)	H	241	304	381	419	457	501	596
Weight (Kg)		63	113	219	335	421	612	857

CL1500

Spec (NAP)	in	2	2.5	3	4	6	8	10	12
Face to face(mm)	L	254	254	304	406	558	711	863	990
	L1	469	469	469	546	704	831	990	1130
	L2	473	473	473	549	711	841	1000	1146
Center height(mm)	H	196	196	196	215	266	342	419	469
Weight (Kg) weld		25	25	25	36	91	182	326	499
Weight (Kg) flange		68	68	68	99	235	424	725	1088

Spec (NAP)	in	8×6×8	10×8×10	12×10×12	14×12×14
Face to face(mm)	L	705	831	990	1130
Center height(mm)	H	266	342	419	469
Weight (Kg)		99	195	340	517

Check Valve



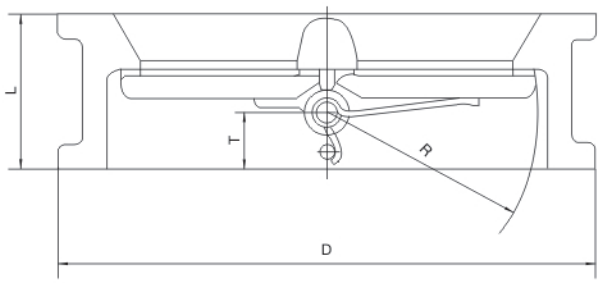
CL2500

Spec (NAP)	in	2	2.5	3	4	6	8	10	12	14	16	18	20
Face to face(mm)	L	330	330	368	457	610	762	914	1041	1117	1219	1346	1447
Center height(mm)	H	203	203	203	304	330	406	457	533	584	660	711	787
Weight (Kg) weld		36	26	26	50	145	281	520	725	975	1247	1587	1927
Weight (Kg) flange		113	113	113	159	445	694	1429	2068	2227	2590	2864	3272

Spec (NAP)	in	8 × 6 × 8	10 × 8 × 10	12 × 10 × 12	14 × 12 × 14	16 × 14 × 16	18 × 16 × 18	20 × 18 × 20
Face to face(mm)	L	711	863	1009	1041	1117	1244	1511
Center height(mm)	H	330	406	457	533	584	660	711
Weight (Kg)		154	290	544	752	1011	1292	1950

Check Valve

H76H Type



In order to settle the problem that exit in traditional valve, our company based on API and DIN standard and combine with our company many year's experiment in valve design field to develop wafer double swing check valve and wafer lift check valve series products that have be wildly used in petrochemical, metallurgy, power station, light industry, food etc field.

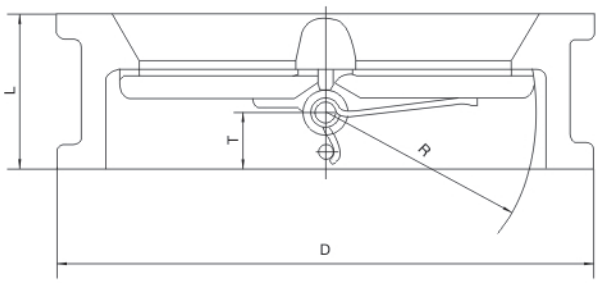
Structure feature

1、Structure more Shorten
2、Volumes more small and weight more light
3、Quickly close and water hammer small
4、Easy to be installed in vertical or horizontal
5、Little Flow instance
6、Action quick and sealing performance well
7、Longer using life and more realizable

Main parts material sheet

Item	Part name	WCB	CF8	CF3	CF3M	CE3MN
1	Body	A216 WCB	A351 Cf8	A351 Cf3	A351 CF3M	A351 CE3MN
7	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite
8	Hinge pin	410	304	304L	316L	F53
23	Nameplate	304	304	304	304	304
24	Rivet	AL	AL	AL	AL	AL
50	Hex. Bolt	A193 B8	A193 B8	A193 B8	A193 B8M	A193 B8M
51	Hanger screw	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7
53	Spring	17–4PH	17–4PH	17–4PH	17–4PH	Inconel
54	Disc	A351 CF8	A351 CF8	A351 CF3	A351 CF3M	CE3MN

Check Valve



CL150

Spec (NAP)	in	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32
Face to face(mm)	L	60	67	73	73	86	98	127	146	181	184	191	203	219	222	305	305	305
Center height(mm)	H	103	122	135	173	195	220	277	337	47	448	512	547	604	715	773	824	878
Weight (Kg)		2	3	4	6	8	13	25	39	54	80	117	138	163	331	380	878	560

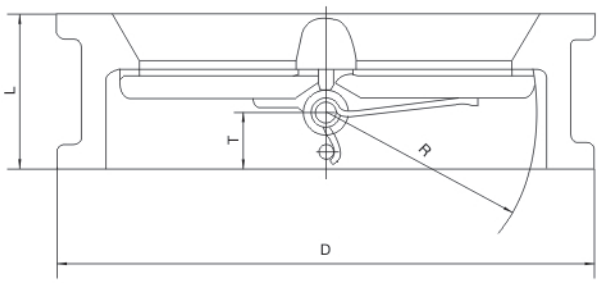
CL300

Spec (NAP)	in	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32
Face to face(mm)	L	60	67	73	73	86	98	127	146	181	222	232	264	292	318	–	368	–
Center height(mm)	H	110	128	147	179	214	249	305	359	420	483	537	594	652	722	–	882	–
Weight (Kg)		3	4	6	8	15	18	51	51	77	117	190	200	265	410	–	660	–

CL600

Spec (NAP)	in	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32
Face to face(mm)	L	60	67	73	79	105	136	165	213	229	273	305	362	368	438	–	–	–
Center height(mm)	H	110	128	147	191	239	264	318	398	455	490	562	610	680	786	–	–	–
Weight (Kg)		4	5	8	11	20	26	55	95	140	223	360	395	518	836	–	–	–

Check Valve



CL900

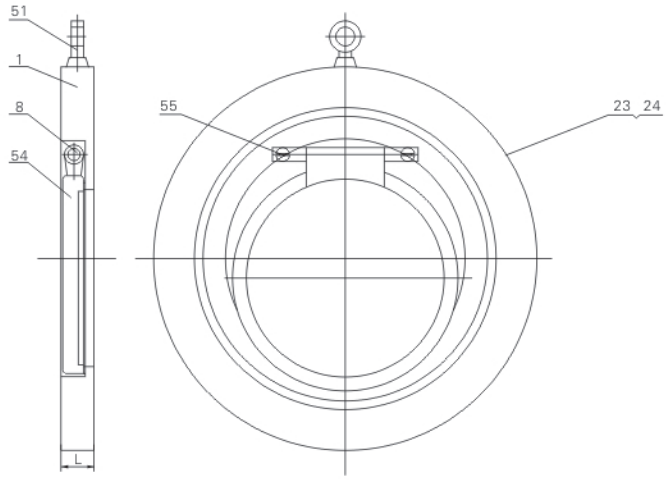
Spec (NAP)	in	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32
Face to face(mm)	L	70	83	83	102	110	159	206	241	292	356	384	451	451	495	–	–	–
Center height(mm)	H	140	162	165	204	245	286	356	432	495	518	572	635	695	835	–	–	–
Weight (Kg)		8	11	14	20	30	42	84	145	220	350	470	605	820	1050	–	–	–

CL1500

Spec (NAP)	in	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32
Face to face(mm)	L	70	83	83	102	110	159	206	248	305	356	384	–	–	–	–	–	–
Center height(mm)	H	140	162	172	207	252	280	350	433	518	576	639	–	–	–	–	–	–
Weight (Kg)		8	11	19	26	51	68	130	210	384	550	635	–	–	–	–	–	–

Check Valve

H74H Type



Main parts material sheet

Item	Part name	WCB	CF8	CF3	CF3M	CE3MN
1	Body	A216 WCB	A351 CF8	A351 CF3	A351 CF3M	CE3MN
8	Bonnet	410	304	304L	316L	F53
23	Nameplate	304	304	304	304	304
24	Rivet	AL	AL	AL	AL	AL
51	Hanger bolt	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7
54	Disc	A351 CF8	A351 CF8	A351 CF3	A351 CF3M	CE3MN
55	Dormant screw	A193 B8	A193 B8	A193 B8	A193 B8M	A193 B8M

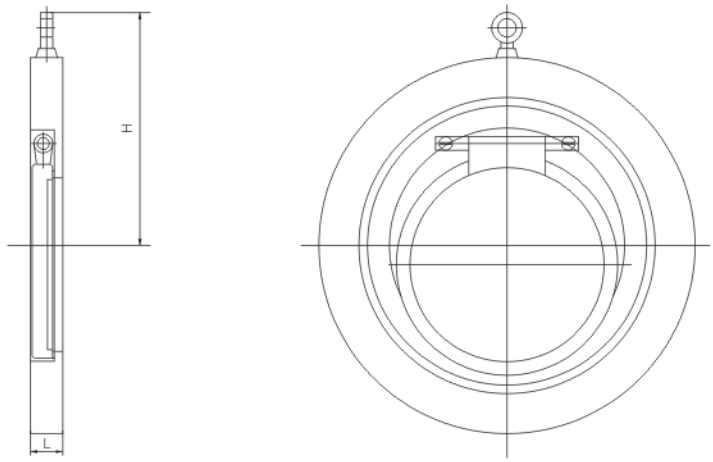
CL150

Spec (NAP)	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
Face to face(mm)	L	114	127	140	165	280	305	330	356	381	406	432	457	508
Center height(mm)	H	90	105	121	147	170	210	245	280	320	365	420	470	510

CL300

Spec (NAP)	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
Face to face(mm)	L	114	127	140	165	280	305	330	356	381	406	432	457	508
Center height(mm)	H	110	120	130	147	175	220	257	305	340	385	430	475	252

Check Valve



CL600

Spec (NAP)	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
Face to face(mm)	L	152	170	190	229	280	318	330	356	381	406	432	457	508
Center height(mm)	H	111	128	134	147	189	234	275	3178	360	400	450	490	540

CL1900

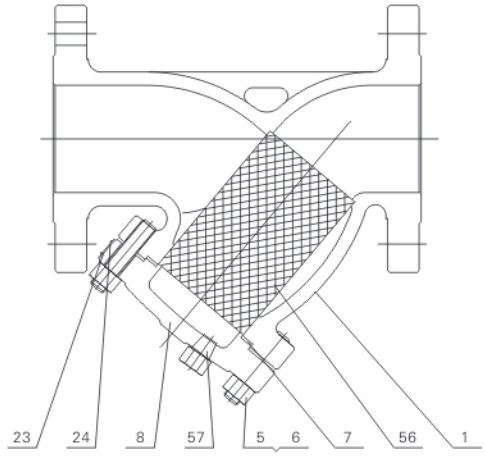
Spec (NAP)	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
Face to face(mm)	L	203	224	241	260	323	450	500	545	608	670	725	776	877
Center height(mm)	H	138	158	174	190	220	260	300	335	386	448	496	554	596

CL1500

Spec (NAP)	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
Face to face(mm)	L	203	224	241	279	343	470	521	585	648	711	775	826	927
Center height(mm)	H	152	180	205	235	260	300	340	385	440	490	545	595	650

Strainer

Y-Strainer

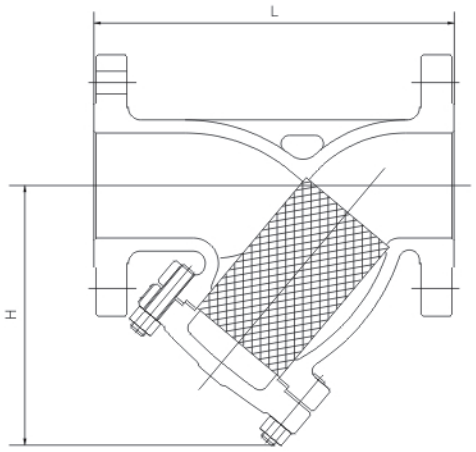


Main parts material sheet

Item	Part name	WCB	CF8	CF3	CF3M	CE3MN
1	Body	A216 WCB	A351 CF8	A351 CF3	A351 CF3M	CE3MN
5	Bolt	A193 B7	A193 B8	A193 B8	A193 B8M	A193 B8M
6	Nut	A194 2H	A194 8	A194 8	A194 8M	A194 8M
7	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite
8	Bonnet	A216 WCB	A351 CF8	A351 CF3	A351 CF3M	CE3MN
23	Nameplate	AISI 304	AISI 304	AISI 304	AISI 304	AISI 304
24	Rivet	AL	AL	AL	AL	AL
56	Strainer net	304	304	304	316	316
57	Waste plug	1035	304	304	316	316

Note: please give strainer net mesh when you order

Y-Strainer



Please give strainer net mesh when you order

CL150

Spec (NAP)	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6	8
Face to face(mm)	L	130	150	160	200	230	290	310	350	480	600
Center height(mm)	H	70	70	95	135	165	180	189	235	345	410
Weight (Kg)		1.8	3	6	8	10	13	15	26	53	76

CL300

Spec (NAP)	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6	8
Face to face(mm)	L	130	150	160	200	230	290	310	350	480	600
Center height(mm)	H	70	70	95	135	165	180	189	235	345	410
Weight (Kg)		3	5	8	10	13	20	40	60	83	112

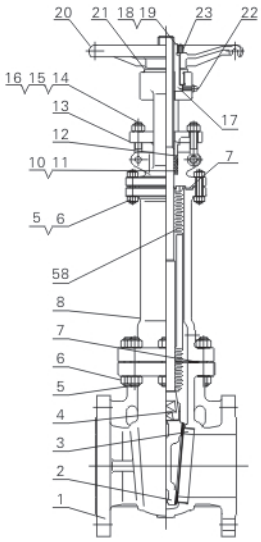
CL600

Spec (NAP)	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6	8
Face to face(mm)	L	160	160	175	230	250	290	310	350	480	560
Center height(mm)	H	80	80	110	150	180	195	200	255	370	430
Weight (Kg)		2.5	5	10	12	15	25	50	75	113	155

Bellow Valve

Bellow Gate Valve

WZ40H Type

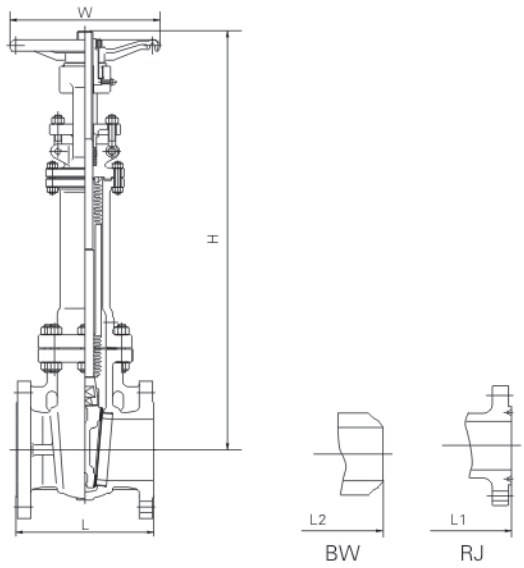


Main parts material sheet

Item	Part name	WCB	CF8	CF3	CF3M	CE3MN
1	Body	A216 WCB	A351 CF8	A351 CF3	A351 CF3M	CE3MN
2	Wedge	A216 WCB	A351 CF8	A351 CF3	A351 CF3M	CE3MN
3	Seat	A105	A182 F304	A182 F304L	A182 F316L	F53
4	Stem	A182 F6a	A182 F304	A182 F304L	A182 F316L	F53
5	Bolt	A193 B7	A193 B8	A193 B8	A193 B8M	A193 B8M
6	Nut	A194 2H	A194 8	A194 8	A194 8M	A194 8M
7	Gasket	304+flexible graphite	304+flexible graphite	304+flexible graphite	316+flexible graphite	316+flexible graphite
8	Bonnet	A216 WCB	A351 Cf8	A351 Cf3	A351 CF3M	A351 CE3MN
10	Packing	304+flexible graphite	304+flexible graphite	304+flexible graphite	316+flexible graphite	316+flexible graphite
11	Distance ring	A182 F6a	A182 F304	A182 F304	A182 F316	F53
12	Packing gland	A182 F6a	A182 F304	A182 F304	A182 F316	F53
13	Packing plate	A216 WCB	A351 CF8	A351 CF8	A351 CF8	A351 CF8
14	Eye bolt	A193 B7	A193 B8	A193 B8	A193 B8M	A193 B8M
15	Nut	A194 2H	A194 8	A194 8	A194 8M	A194 8M
16	Pin	1035	304	304	304	304
17	Stem bolt	A439 type D2	A439 type D2	A439 type D2	A439 type D2	A439 type D2
18	Locking nut	1035	1035	1035	1035	1035
19	Locking screw	1035	1035	1035	1035	1035
20	Hand wheel	Ducerle Ll0m	Ducerle L10m	Ducerle L10m	Ducerle L10m	Ducerle L10m
21	Bearing gland	1035	1035	1035	1035	1035
22	Oil cup	Finished product	Finished product	Finished product	Finished product	Finished product
23	Nameplate	AL	AL	AL	AL	AL
58	Bellow	F321	F321	F321	F316L	F53

Note: the distance ring should be installed if user require

Bellow Gate Valve



CL150

Spec (NAP)	in	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24
Face to face(mm)	L	178	190	203	229	254	267	292	330	356	381	406	432	457	508
	L1	191	203	216	241	267	279	305	343	368	394	419	445	470	521
	L2	216	241	283	305	381	403	419	457	502	572	610	660	711	813
Center height(mm)	H	440	520	570	690	810	920	1200	1430	1650	1920	2120	2450	2700	3200
Hand wheel diameter (mm)	W	200	200	250	280	300	300	350	400	450	500	600	680	750	800
Weight (Kg)		30	50	65	80	95	122	160	260	340	500	610	780	900	1350

CL300

Spec (NAP)	in	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24
Face to face(mm)	L	216	241	283	305	381	403	419	457	502	762	838	914	991	1143
	L1	232	257	298	321	397	419	435	473	518	778	854	930	1010	1165
	L2	216	241	283	305	381	403	419	457	502	762	838	914	991	1143
Center height(mm)	H	450	560	590	730	850	960	1250	1500	1720	2010	2250	2620	2900	3360
Hand wheel diameter (mm)	W	200	200	250	300	300	350	400	450	500	550	680	750	920	–
Weight (Kg)		35	55	70	85	100	125	175	290	365	540	650	820	930	1400

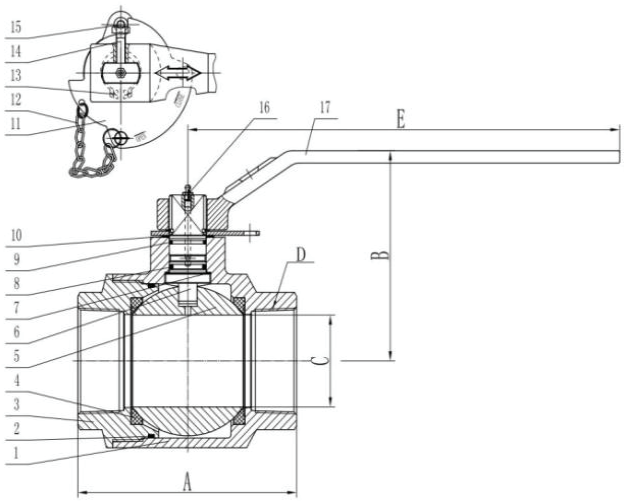
CL600

Spec (NAP)	in		2 1/2	3	4	5	6	8	10	12	14	16	18	20	24
Face to face(mm)	L	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397
	L1	295	333	359	435	511	562	664	791	841	892	994	1095	1200	1407
	L2	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397
Center height(mm)	H	465	585	600	750	870	980	1270	1525	1750	2140	2270	2650	2930	3390
Hand wheel diameter (mm)	W	200	250	280	300	400	450	500	680	750	700	–	–	–	–
Weight (Kg)		45	65	80	95	125	135	185	310	395	575	690	850	970	1460

CARBON STEEL BALL VALVE

BT30DF SERIES

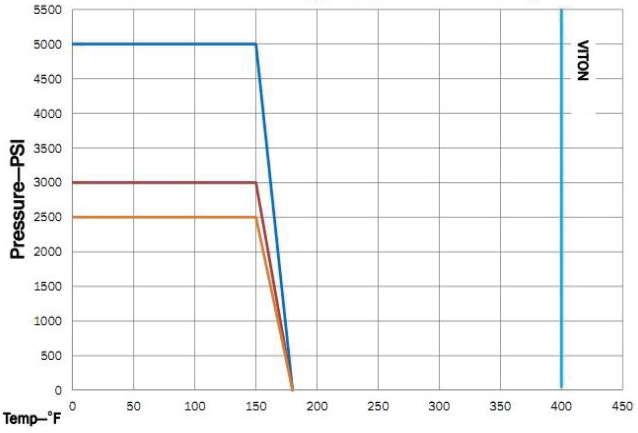
FLOW CONTROL



Features

- 2500/3000/5000 W.O.G. Full Port
- Cast steel body
- Blow out proof stem
- Delrin seat
- Inspection and test: API598
- Threads conform to ASME B1.20.1(NPT)
- NACE MR-01-75

Pressure Temperature Ratings



Parts & Materials

No.	Part	Material
1	BODY	ASTM A216 WCB
2	BODY SEAL	VITON
3	ADAPTER	ASTM A216 WCB
4	SEATS	DELRIN
5	BALL	SS420
6	STEM	ASTM A276 420
7	THRUST BEARING	PTFE
8	STEM SEAL	VITON
9	STEM SEAL	VITON
10	STEM BEARING	PTFE
11	STOP PLATE	STEEL PLATE
12	PIN WITH CHAIN	STAINLESS STEEL
13	RETAINER RING	SPRING STEEL
14	STOP PIN	SPRING STEEL
15	HEXAGON BOLTS	CARBON STEEL
16	GREASE ZERK	CARBON STEEL
17	HANDLE	DUCTILE IRON

Dimensions(in)

Size	Part#	PORT	Pressure	Weight (lbs)	A	B	C	D	E	Torque In.lbs
1"	B01T50DF	FP	5000	4.74	4.03	4.00	1.03	11.5NPT	6.00	1500
2"	B02T30DF	FP	3000	18.65	6.00	5.93	2.02	11.5NPT	10.00	2350
3"	B03T30DF	FP	3000	54.65	8.72	7.39	3.02	8NPT	20.00	4100
4"	B04T30DF	FP	3000	83.22	9.38	9.76	4.06	8NPT	31.50	8100

*Torque at Full Rated Pressure

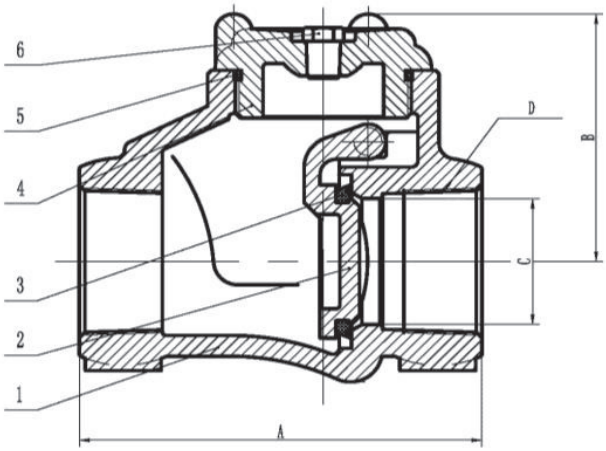
CARBON STEEL SWING CHECK VALVE

CT30C SERIES

FLOW CONTROL

Features

- Carbon steel swing check valves
- 1” to 3” size range
- 1” - 2” Carbon Steel: (300 - 5000 WOG pressure range)
  2’ - Longbody, 3” Carbon Steel: (300 - 3600 WOG pressure range)
- Full Opening
- Threaded ends to ANSI B1.20.1(NPT)
- NACE MR0175



Parts & Materials

No.	Part	Material
1	BODY	ASTM A216WCB
2	DISK	ASTM A351 CF8
3	SEAL	VITON
4	BONNET	\ASTM A216WCB
5	O-RING	VITON
6	BONNET SCREW	CARBON STEEL

Dimensions(in)

Size	Part#	Connection	Pressure	Weight (lbs)	A	B	C	D
1"	C01T50D	NPT	5000	5.25	4.72	3.07	1.00	11.5NPT
2"	C02T30D	NPT	3600	12.17	6.30	4.06	2.00	11.5NPT
2"	C02T50D	NPT	5000	13.89	6.30	4.06	2.00	11.5NPT
3"	C03T30D	NPT	3000	33.95	8.00	5.43	3.00	8NPT

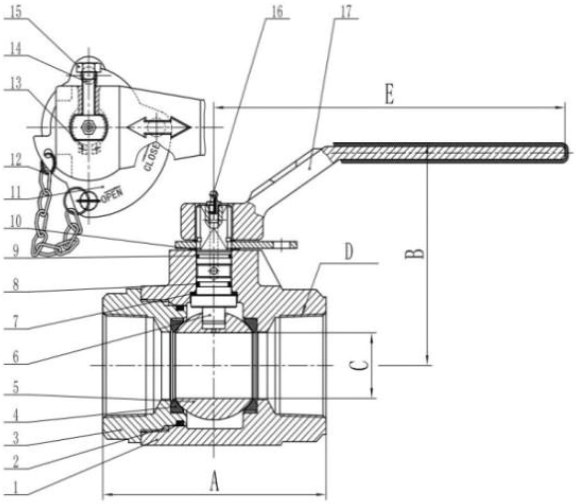
FORGED STEEL BALL VALVE

BT50DR SERIES

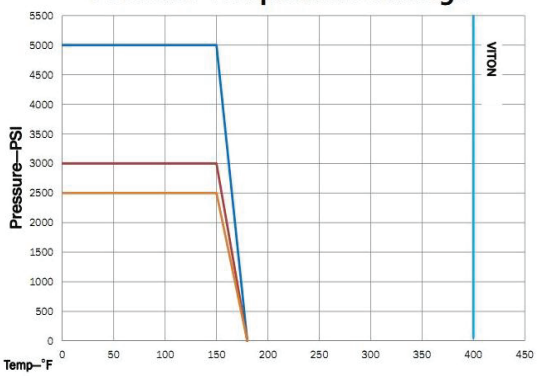
WTV FLOW CONTROL

Features

- 5000 W.O.G. Standard Port
- Forged Steel A105 Body
- Blow out proof stem
- Delrin/nylon (optional) seat
- Inspection and test: API598
- Threads conform to ASME B1.20.1(NPT)
- NACE MR-01-75



Pressure Temperature Ratings



Parts & Materials

No.	Part	Material
1	BODY	ASTM A105
2	BODY SEAL	VITON
3	ADAPTER	ASTM A105
4	SEATS	DELRIN
5	BALL	SS420
6	STEM	ASTM A276 420
7	THRUST BEARING	PTFE
8	STEM SEAL	VITON
9	STEM SEAL	VITON
10	STEM BEARING	PTFE
11	STOP PLATE	STEEL PLATE
12	PIN WITH CHAIN	STAINLESS STEEL
13	RETAINER RING	SPRING STEEL
14	STOP PIN	SPRING STEEL
15	HEXAGON BOLTS	CARBON STEEL
16	GREASE ZERK	CARBON STEEL
17	HANDLE	DUCTILE IRON

Dimensions(in)

Size	Part#	PORT	Pressure	Weight (lbs)	A	B	C	D	E	Torque In.lbs
2"	B02T50DR	RP	5000	14.44	5.51	5.07	1.50	11.5NPT	10.00	2700

*Torque at Full Rated Pressure

Flanged End Ball Valve 150LB

BF01FF SERIES

WTV FLOW CONTROL

Features

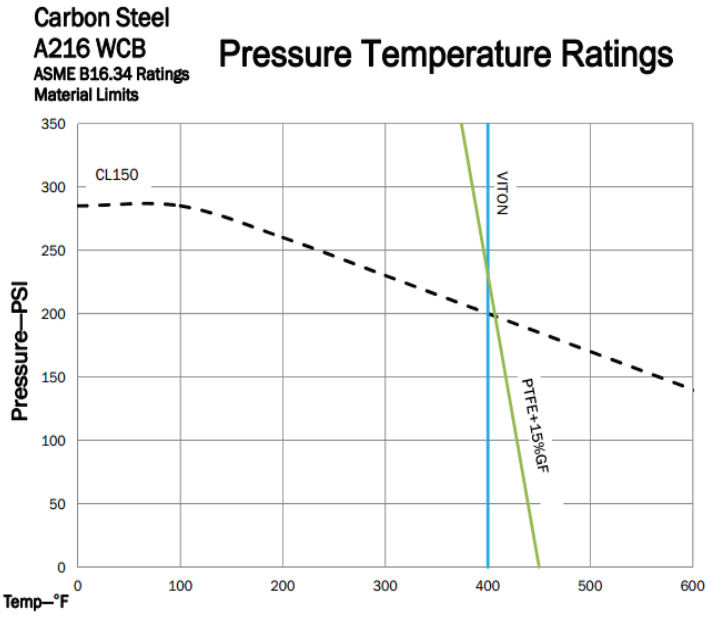
- WCB Cast Body and Adapter
- Blowout proof stem design
- Valves Designed to API 6D
- Valves meet ASME B16.34 B16.10 B16.5 and BS5351
- Fire safe design
- Locking Devices Standard for Lever or Gear Operated Valves
- NACE MR0175
- Antistatic grounding between ball.stem and body
- 1" 2" 2-1/2" 3" 4" 6" 8" 10" Lever Operated 6" 8" 10" Gear Operated
- ISO 5211 Compatible Mounting Pads

SPECIFICATIONS		
NOMINAL PRESSURE	285Psi	2.0 Mpa
SHELL STRENGTH (WATER)	450Psi	3.0 Mpa
SEALING TEST (WATER)	315 Psi	2.2Mpa
AIR SEAT PING (AIR)	80.8 Psi	0.55 Mpa

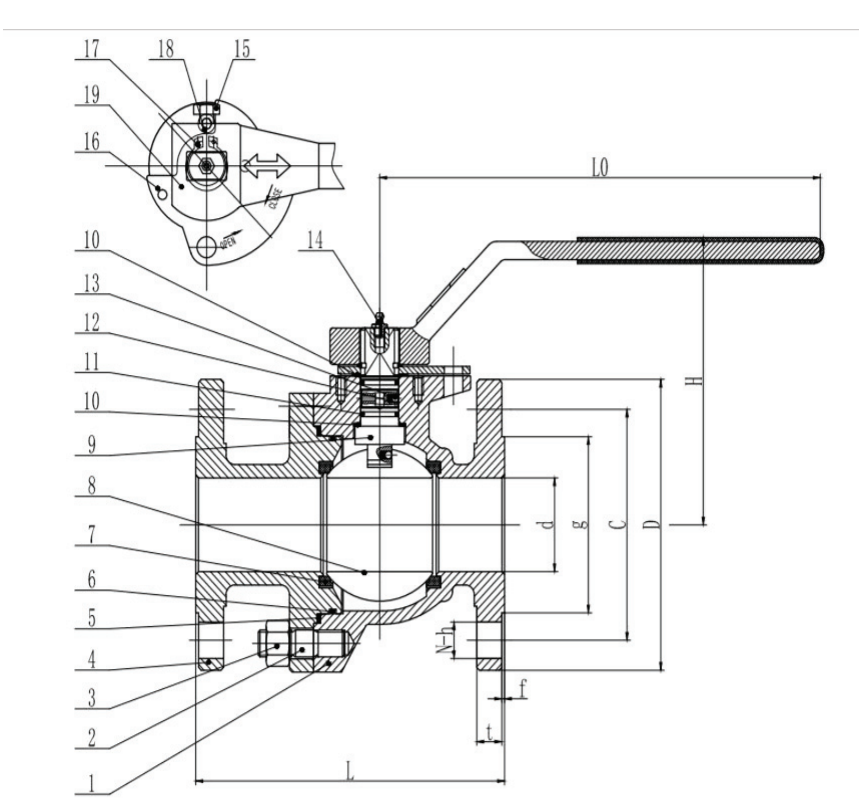
Parts Materials

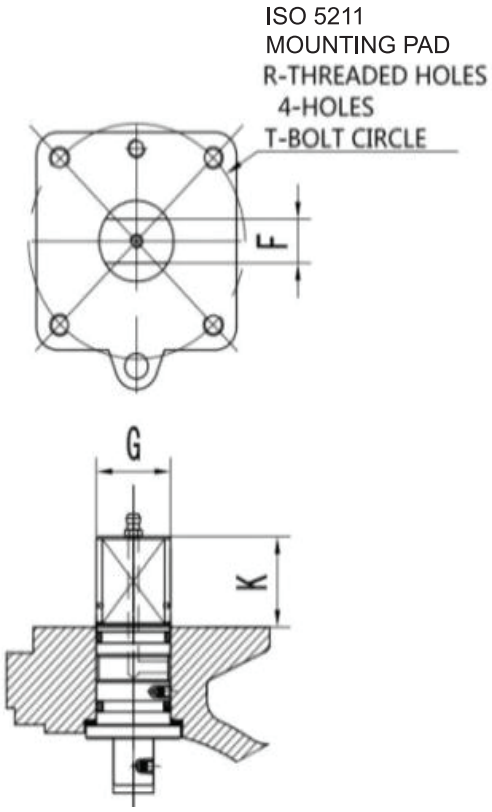
NO.	Description	Material
1	Body	ASTM A216 WCB
2	Stud	ASTM A193 B7M
3	Nut	ASTM A194 2HM
4	Adapter Cap	ASTM A216 WCB
5	Gasket.Body	SS304+Graphite
6	O-ring.Body	HNBR-90
7	Seat *	PTFE+15%GF
8	Ball *	SS316
9	Stem *	SS316
10	Stem.gasket	PTFE
11	O-ring.Stem	HNBR-90
12	Antistatic steel ball	SS304
13	Antistatic spring	SS304
14	Grease Zerk	Carbon steel
15	Handle Screw	Carbon steel
16	Stop Plate	CS+zn
17	Retainer	CS
18	Stop	CS
19	Screw Handle	Ductile Iron

"*"Customer requirements



150LB Flanged End Ball Valve





Dimensions(in)

NPS	1"	2"	2-1/2"	3"	4"	5"	6"	8"	10"
L	5.00	7.00	7.52	8.00	9.00	14.02	15.50	18.00	20.98
D	4.33	6.00	7.09	7.50	9.00	10.04	10.98	13.58	15.94
C	3.13	4.75	5.50	6.00	7.50	8.50	9.50	11.75	14.25
g	2.01	3.62	4.13	5.00	6.18	7.32	8.50	10.63	12.76
d	1.00	1.93	2.56	2.91	3.94	4.92	5.91	7.91	9.92
N	4.00	4.00	4.00	4.00	8.00	8.00	8.00	8.00	12.00
h	0.63	0.75	0.75	0.75	0.75	0.88	0.88	0.88	1.02
t	0.50	0.69	0.71	0.88	0.88	0.88	0.94	1.06	1.12
f	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
H	4.27	5.91	6.32	6.88	9.11	10.83	12.52	14.37	16.34
R	M6	1/4-20	1/4-20	5/16-18	3/8-16	0.55	0.71	0.866	0.866
T	1.800	1.969	1.969	2.750	4.016	4.920	6.500	6.500	6.500
G	0.630	0.866	0.866	1.244	1.374	1.374	1.575	1.969	1.969
F	0.370	0.551	0.551	0.866	0.945	0.945	1.063	1.417	1.417
K	0.945	0.984	0.984	1.339	1.555	1.496	1.594	1.970	2.362
L0	6.2	12.0	12.0	14.0	21.7	25.6	31.5	39.4	76.6
Torque (ft.lb)	11	50	70	90	130	200	625	1000	1916
Weight (Lbs)	9.0	26.5	33.1	46.3	77.2	105	145.5	220.5	407

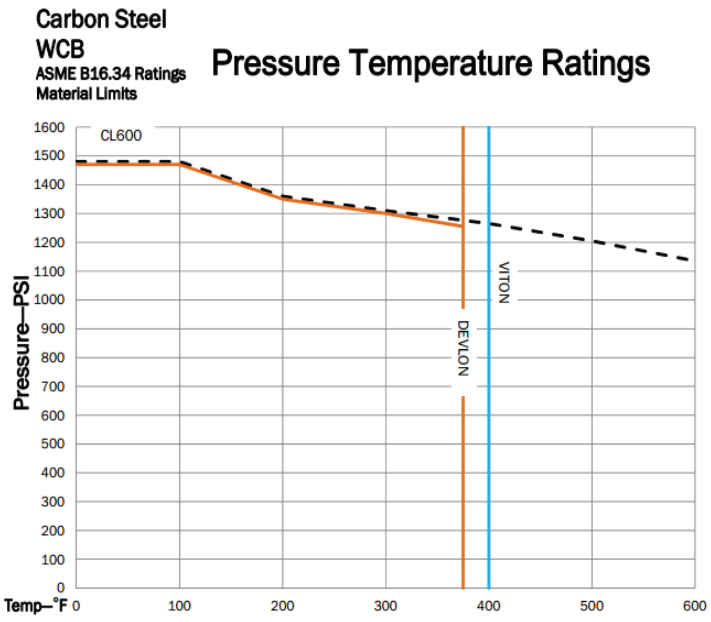
600LB Flanged End Ball Valve

WTV FLOW CONTROL

Features

- WCB Cast Body and Adapter
- Blowout proof stem design
- Valves Designed to API 6D
- Valves meet ASME B16.34 B16.10 B16.5 and BS5351
- Fire safe design
- Locking Devices Standard for Lever or Gear Operated Valves
- NACE MR0175
- Antistatic grounding between ball, stem and body
- ISO 5211 Compatible Mounting Pads

SPECIFICATIONS		
NOMINAL PRESSURE	1480Psi	10.21 Mpa
SHELL STRENGTH (WATER)	2225 Psi	15.6 Mpa
SEALING TEST (WATER)	1630 Psi	11.5 Mpa
AIR SEAT PING (AIR)	80 Psi	0.55 Mpa



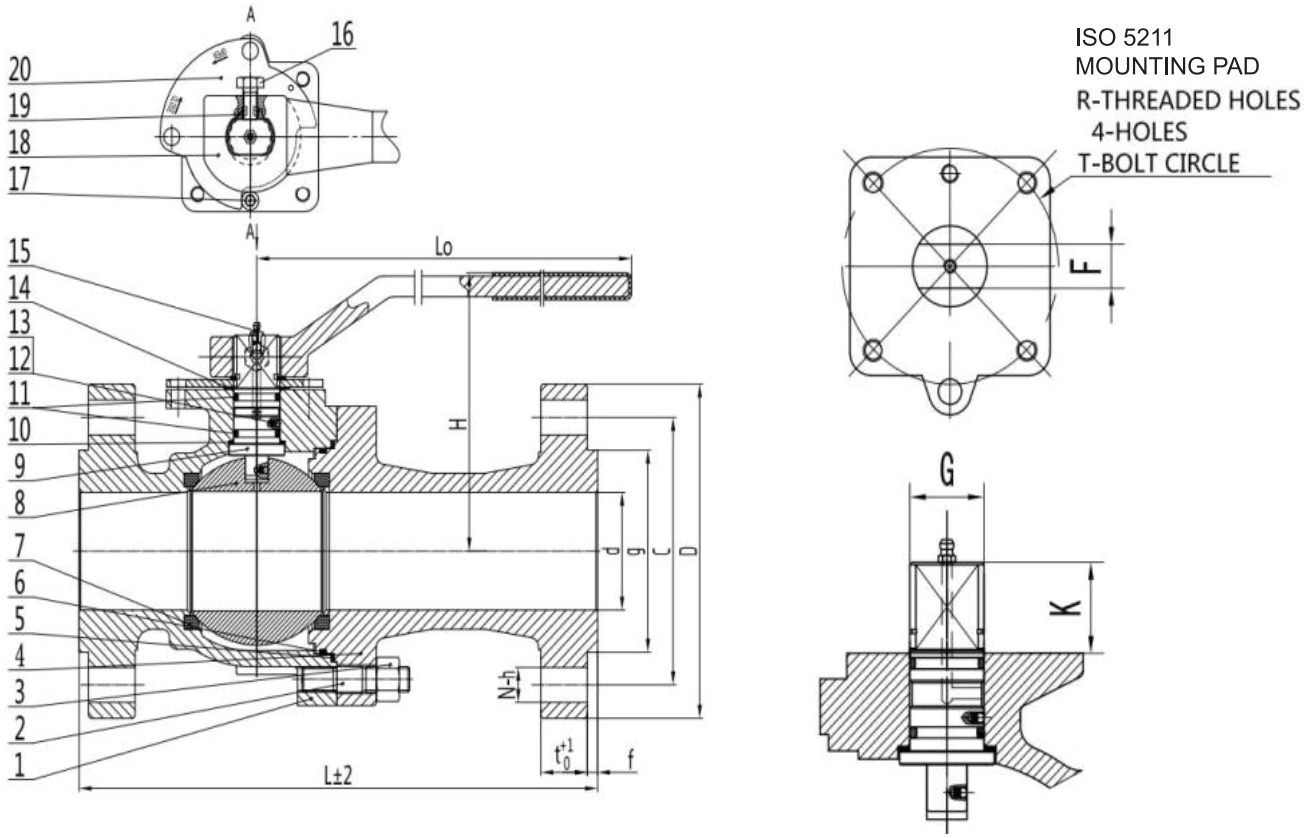
Parts & Materials

NO.	Description	Material
1	Body	ASTM A216 WCB
2	Stud	ASTM A193 B7M
3	Nut	ASTM A194 2HM
4	Adapter Cap	ASTM A216 WCB
5	Gasket.Body	SS304+Graphite
6	O-ring.Body	HNBR-90
7	Seat *	DEVLON
8	Ball *	SS316
9	Stem *	SS316
10	Stem.gasket	PTFE
11	O-ring.Stem	HNBR-90
12	Antistatic spring	SS304
13	Antistatic steel ball	SS304
14	Gasket	PTFE
15	Grease Zerk	CS
16	Handle Screw	CS
17	Stop Screw	CS
18	Handle	Ductile Iron
19	Snap Ring	Spring Steel
20	Stop Plate	CS+zn

"*"Customer requirements

600LB Flanged End Ball Valve

FLOW CONTROL



Dimensions(in)

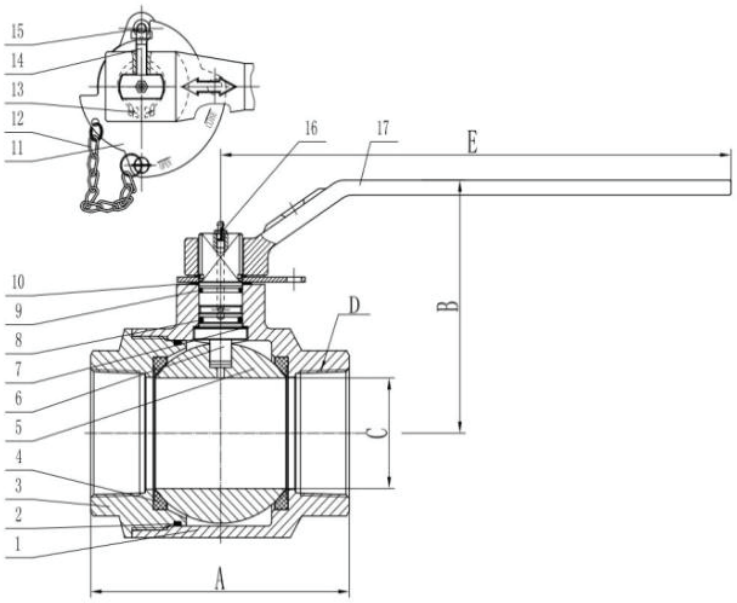
NPS	2"	3"	4"	
L	11.50	14.00	17.00	
D	6.50	8.25	10.75	
C	5.00	6.62	8.50	
g	3.625	5.00	6.18	
d	1.93	2.91	3.94	
N	8.00	8.00	8.00	
h	0.75	0.88	1.00	
t	1.00	1.25	1.50	
f	0.25	0.25	0.25	
H	5.91	6.88	9.11	
R	1/4-20	3/8-16	3/8-16	
T	1.969	4.016	4.016	
G	0.866	1.244	1.374	
F	0.551	0.866	0.945	
K	0.984	1.339	1.555	
L0	12.00	20.00	31.50	
Torque (ft.lb)	100	180	240	
Weight (Lbs)	44.3	87.0	158.7	

2000PSI DI BALL VALVE FP

FLOW CONTROL

Features

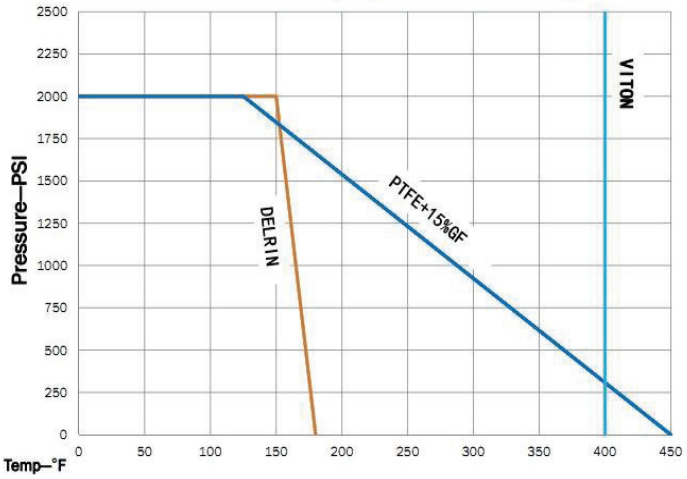
- 2000 W.O.G. full port
- Ductile iron body
- Blow out proof stem
- (1”, 2”) RPTFE (2 1/2”, 3”, 4”) DELRIN seat
- Inspection and test: API598
- Threads conform to ASME B1.20.1 (NPT)
- Nace MR0175



Parts & Materials

No.	Part	Material
1	BODY	ASTM A395 DI
2	BODY SEAL	VITON
3	ADAPTER	ASTM A395 DI
4	SEATS	PTFE+15%GF/DELRIN
5	BALL	SS420
6	STEM	ASTM A276 420
7	THRUST BEARING	PTFE
8	STEM SEAL	VITON
9	STEM SEAL	VITON
10	STEM BEARING	PTFE
11	STOP PLATE	STEEL PLATE
12	PIN WITH CHAIN	STAINLESS STEEL
13	RETAINER RING	SPRING STEEL
14	STOP PIN	SPRING STEEL
15	HEXAGON BOLTS	CARBON STEEL
16	GREASE ZERK	CARBON STEEL
17	HANDLE	DUCTILE IRON

Pressure Temperature Ratings



Dimensiong(in)

Size	Part#	PORT	Pressure	Weight (lbs)	A	B	C	D	E	Torque In. lbs
1"	B01T20DF	FP	2000	4.25	4.02	3.39	1.00	11.5NPT	6.57	750
2"	B02T20DF	FP	2000	17.97	6.00	5.51	2.02	11.5NPT	10.00	1625
3"	B03T20DF	FP	2000	42.33	8.74	6.85	2.99	8NPT	15.00	3660
4"	B04T20DF	FP	2000	63.49	9.40	6.77	3.94	8NPT	29.53	6000

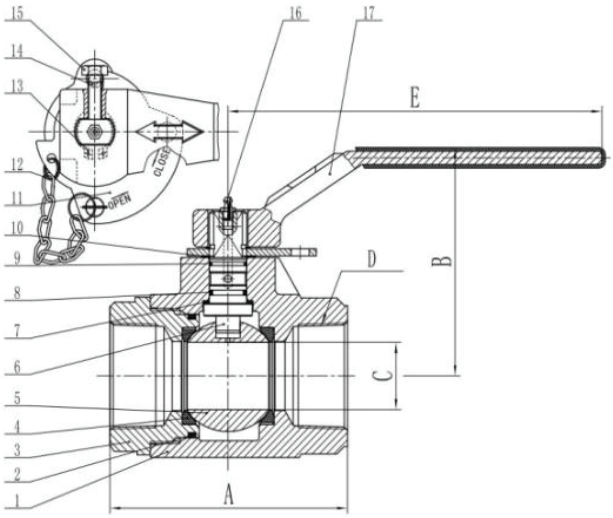
*Torque at Full Rated Pressure

2000PSI DI BALL VALVE RP

FLOW CONTROL

Features

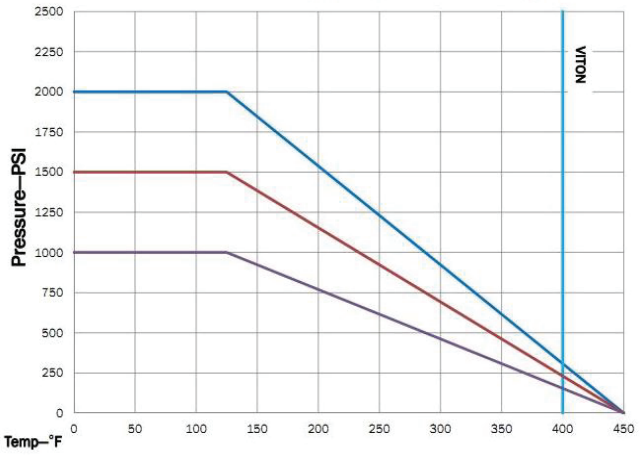
- 1000/2000 W.O.G. standard port
- Ductile iron body
- Blow out proof stem
- RPTFE/DELRIN seat
- Fire safe design
- Inspection and test: API598
- Threads conform to ASME B1.20.1 (NPT)
- Nace MR0175



Parts & Materials

No.	Part	Material
1	BODY	ASTM A395 DI
2	BODY SEAL	VITON
3	ADAPTER	ASTM A395 DI
4	SEATS	PTFE+15%GF
5	BALL	SS420
6	STEM	ASTM A276 420
7	THRUST BEARING	PTFE
8	STEM SEAL	VITON
9	STEM SEAL	VITON
10	STEM BEARING	PTFE
11	STOP PLATE	STEEL PLATE
12	PIN WITH CHAIN	STAINLESS STEEL
13	RETAINER RING	SPRING STEEL
14	STOP PIN	SPRING STEEL
15	HEXAGON BOLTS	CARBON STEEL
16	GREASE ZERK	CARBON STEEL
17	HANDLE	DUCTILE IRON

Pressure Temperature Ratings



Dimensiong(in)

Size	Part#	PORT	Pressure	Weight (lbs)	A	B	C	D	E	Torque In.lbs
2"	B02T20DR	RP	2000	11.29	5.51	5.59	1.50	11.5NPT	8.54	1200
3"	B03T20DR	RP	2000	19.44	7.44	5.53	2.05	8NPT	10.00	1625
4"	B04T20DR	RP	1000	35.16	8.70	6.85	2.99	8NPT	13.50	2155

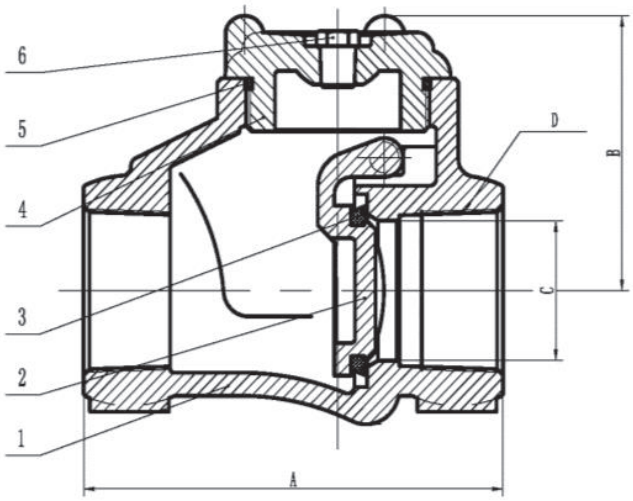
*Torque at Full Rated Pressure

2000PSI DI Swing Check Valve

WTV FLOW CONTROL

Features

- Ductile iron swing check valves
- 1” to 4” range
- Ductile iron: 2000WOG pressure range
- Full opening
- Threaded ends to ANSI B1.20.1 (NPT)
- Nace MR0175



No.	Part	Material
1	BODY	DUCTILE IRON/ASTM A395
2	DISK	ASTM A351 CF8
3	O-RING SEAL	VITON
4	BONNET	DUCTILE IRON/ASTM A395
5	GASKET	VITON
6	BONNET SCREW	CARBON STEEL

Dimensions(in)

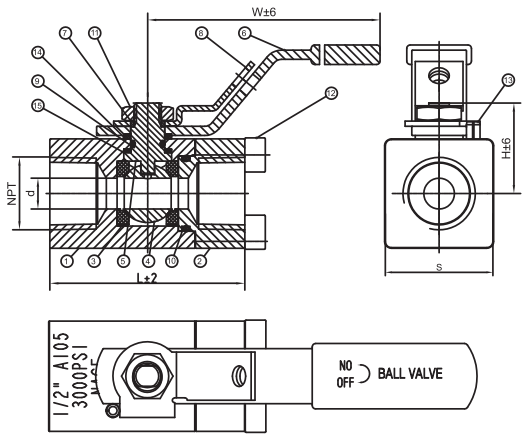
Size	Part#	Connection	Pressure	Weight (lbs)	A	B	C	D
1"	C01T20D	NPT	2000	5.86	4.72	3.23	1.00	11.5NPT
2"	C02T20D	NPT	2000	12.13	6.30	4.09	2.00	11.5NPT
3"	C03T20D	NPT	2000	22.49	8.25	5.39	3.05	8NPT
4"	C04T10D	NPT	1000	35.80	10.00	6.30	3.94	8NPT
4"	C04T20D	NPT	2000	57.76	10.00	7.80	3.98	8NPT

Floating Ball Valve
Threaded End 3000PSI

FLOW CONTROL

Description

- Size 1/4” TO 1”
- 3000PSI WP
- Bolted Body Construction
- Blow-out Proof Stem
- 316SS Ball and Stem
- Locking Handle
- Test Acc. to API598
- NACW MRO175



NO.	Part Name	MATERIAL
1	Body	ASTM A105
2	CAP	ASTM A105
3	SEAT	NYLON
4	BALL	316SS
5	STEM	316SS
6	HANDLE	Carbon Steel
7	WASHER	Carbon Steel
8	STOP PLATE	Carbon Steel
9	STEM O-RING	VITON
10	BODY O-RING	VITON
11	NUT	A193 2H
12	BOLT	A193 B7
13	STOP PIN	STAINLESS STEEL
14	STEM WASHER	RPTFE
15	THRUST WASHER	RPTFE

PART# A105	Size	d	S	L	H	W	Weight lbs
B14T30SF	1/4"	0.37	1.25	2.25	1.02	3.74	1.00
B12T30SR	1/2"	0.37	1.25	2.25	1.02	3.74	0.94
B34T30SF	3/4"	0.75	2.00	3.62	1.57	4.72	3.75
B01T30SR	1"	0.75	2.00	3.62	1.57	4.72	3.65

PART# A105	Size	d	S	L	H	W	Weight kgs
B14T30SF	1/4"	9	31	57	26	96	0.45
B12T30SR	1/2"	9	31	57	26	96	0.43
B34T30SF	3/4"	19	50	92	40	120	1.70
B01T30SR	1"	19	50	92	40	120	1.60