

BALL VALVE

DESIGN AND TEST

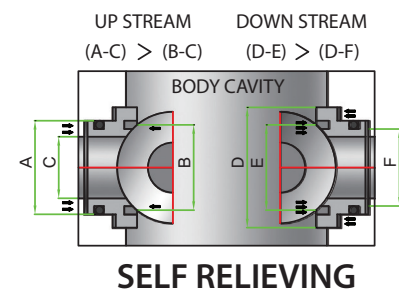
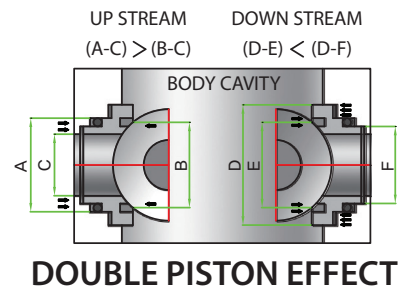
Ball valve are designed, constructed and tested according to API-6D standards.

DOUBLE BLOCK AND BLEED

All trunnion mounted type ball valve employ a sealing principle that facilitates all services requiring double block and bleed integrity.

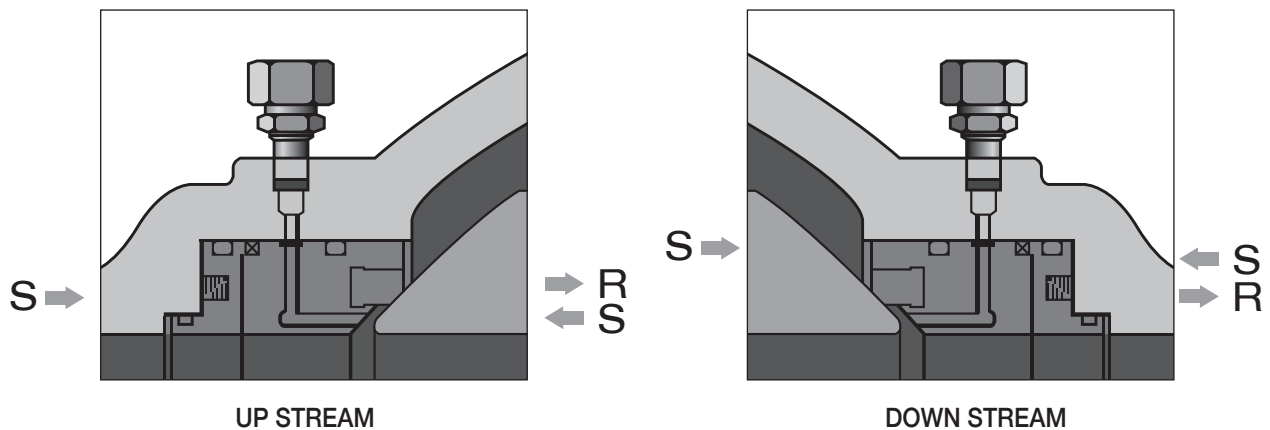
DOUBLE PISTON EFFECT

On request the seat rings design may be modified to perform the double piston effect action. In this case the pressure acting on both the external and internal side of the seat rings, results in force pushing the gams against the ball, therefore each seat rings grants the required tightness even if the pressure is applied in the body cavity. This feature adds an extra sealing feature to the valve, but to release the possible over pressure developed into the body cavity it is necessary to use an external safety relief valve.



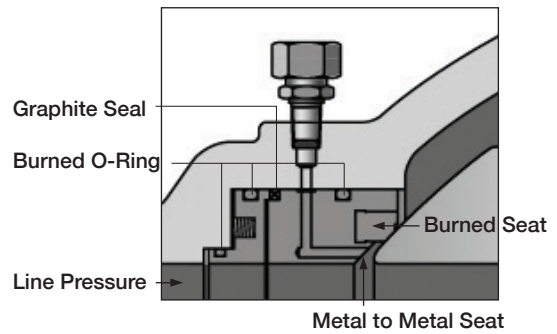
SEALING PRINCIPLE

All model trunnion mounted type ball valve are supplied with spring-loaded seats to ensure that the seats are always in contact with the ball. this design provides a very efficient seal even at low line pressure. As the line pressure increases, the seat is forced into tighter contact with the ball providing a positive shut-off.



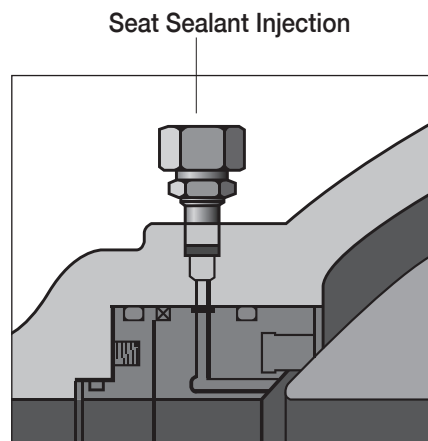
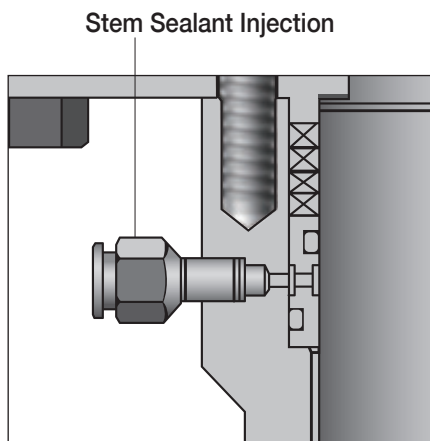
FIRE SAFE CONSTRUCTION

The secondary metal seat is provided to contact between the seat and ball in the event the primary non-metallic seat is destroyed by fire all trunnion mounted type ball valve are fire-safe designed. The double body and cap seals provide maximum security. It is fitted with special graphite seals so as to effectively preclude leakage in the event of fire. All top trunnion mounted ball valve have been tested to API-607 and API-6FA



SECONDARY SEAT AND STEM SEALING OPTION

All model trunnion mounted type ball valve are designed to provide high integrity shut-off. Upon request, sealant lubrication fittings are installed. In the event of seat insert or stem seal damage, external or internal leakage can occur. Emergency sealant injection can save the integrity of the valve by incorporating a sealant seal around the stem or between the seat and the ball until such time the valve may be properly serviced.



AT ALL TIMES-STEM SEAL

This option provides premier valve stem sealing characteristics for adverse conditions of extreme pressure/temperature variations. Designed to meet the most stringent fugitive emission regulations, design is comprised of an extra deep stuffing box/packing/stem seal retainer & conical disc spring. The disc spring provide continuous compression of the packing assembly and compensate for wear.

ACTUATOR MOUNTING ISO 5211

All top flanged end products shall have an integrally cast (ISO) actuator mounting pad. This feature provides for direct mount of gear operators or electric actuators. The additional cast for separate mounting bracket is eliminated.

STATIC SEALED STEM SEAL RETAINER

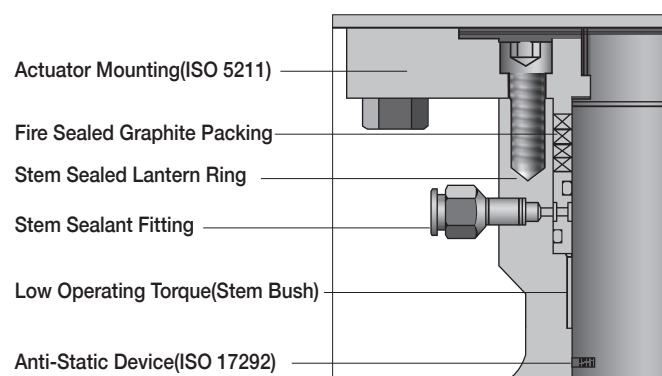
The stem seal retainer, with its (2) static viton o-ring seals; Accepts the forces provided by the combination iso mounting pad/packing gland & transmits those forces as packing/disc spring factory pre-load. A variety of o-ring seals are available for those exceptionally demanding applications. Field maintenance & costly repairs are virtually eliminated.

SPRING FORCE

Optional conical disc springs insure adequate loading of packing at all times. Excessive stem torque and packing deformation due to over-tightening of conventional packing glands is eliminated. The constant "LOAD" provided by the disc springs compensates for normal wear-repair and maintenance costs are virtually eliminated.

PACKING

The high pressure/high temperature packing set is comprised of self-cleaning, die-formed, high-density and low-density graphite molded packing materials. This unique design eliminates stem galling, lowers required valve stem torque and increases product performance.



ANTI-STATIC DESIGN ISO 17292

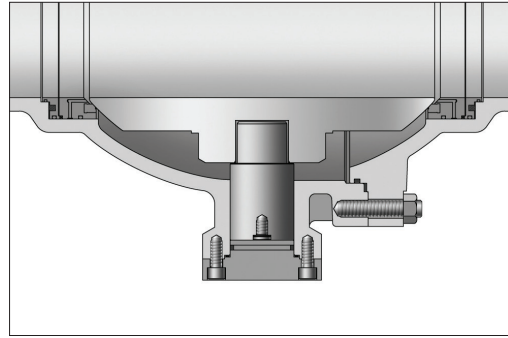
Ball valve present a particular problem with the build up of static electricity around the ball. They have anti-static design which provides contact between stem and ball, and stem and body to eliminate static electricity.

TRUNNION LOW STEM DESIGN

Trunnion mount design locates the low stem trunnion assembly within the confines of body & cap. In so doing, both the line pressure and media act upon all valve cavity components equally.

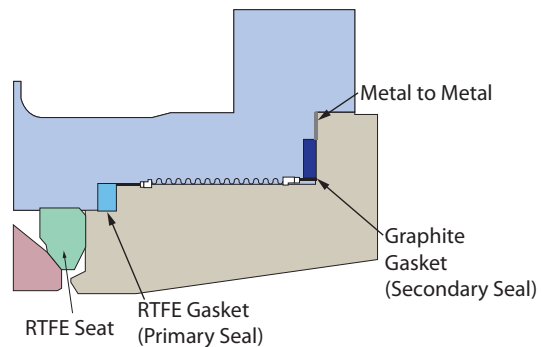
The advantages of such a design include:

1. The pressure & media does not concentrate in one location only, instead the forces are dispersed equally throughout the pressurized areas.
2. Ball movement and side loading of lower stem is minimized, thereby decreasing operational torque valve and improving stem seal life end.
3. Guarantee the low torque and extend valve life.



UNIQUE DOUBLE SEALING DESIGN AND METAL TO METAL CONTACT

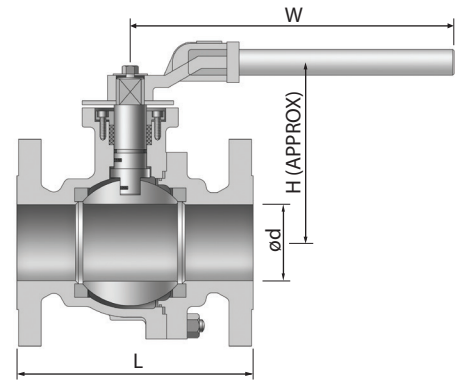
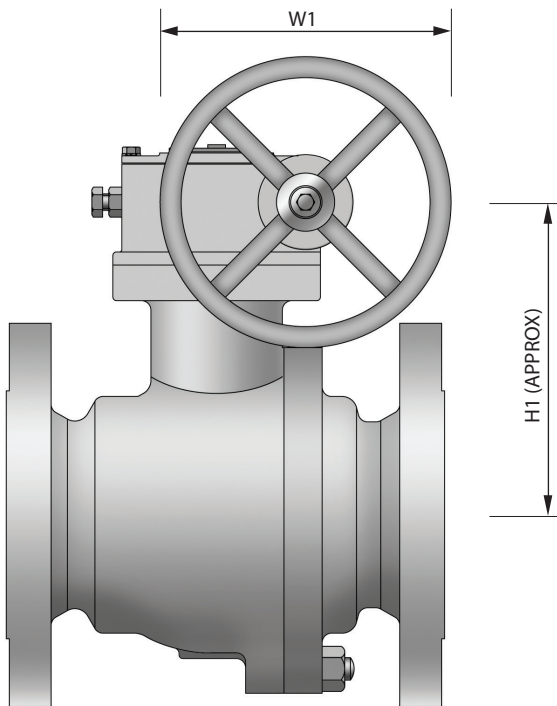
The PTFE gasket acts as the primary seal for top unibody ball valve. the secondary seal is made of flexible graphite; A material with extremely good resistance to fire conditions.



APPLICATION OF SEAT PER TEMPERATURE

CLASS	SEAT METARIAL	DESIGN TEMPERATURE
150#	RTFE	- 50°C ~ +180°C
300#	RTFE	- 50°C ~ +150°C
600#	RTFE	- 50°C ~ +100°C
900#	NYLON(DEVLON)	- 45°C ~ +190°C
1500#	NYLON(DEVLON)	- 45°C ~ +170°C
2500#	NYLON(DEVLON)	- 45°C ~ +160°C
ALL CLASS	PEEK	200°C & OVER
ALL CLASS	METAL	250°C & OVER

FLOATING BALL, FULL BORE ASME CLASS 150#, 300#, 600#



END CONNECTION

- R.F FLANGED ENDS TO ASME B16.5
- B.W. ENDS TO ASME B16.25
- R.T.J FLANGED ENDS TO ASME B16.5
- SIZE 26" AND LARGER, FLANGED ENDS ACCORDING TO ASME B16.47 SER.A OR SER.B
- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A216 - WCB
2	CAP	A216 - WCB
3	BALL	A351-CF8M
4	STEM	A276-316
5	PACKING GLAND	A276-316
6	SEAT RING	RTFE
7	PACKING	GRAPHITE
8	THRUST BEARING(STEM)	PTFE
9	CAP GASKET	GRAPHITE
10	CAP BOLT	A193-B7
11	NUT	A194-2H
12	O-RING(CAP)	VITON
13	O-RING(STEM)	VITON
14	GLAND BOLT	A193-B7
15	STOP BOLT	A193-B7
16	LEVER BOLT	A283-D+GAL'V
17	STOPPER	A283-D+GAL'V
18	WASHER	A307-B
19	LEVER	CARBON STEEL
20	ANTI STATIC	316SS

DIMENSION AND WEIGHT

CLASS 150

UNIT : mm

SIZE	B	1/2	3/4	1	1 1/2	2	3	4	6	8
Ød		15	20	25	38	50	76	100	152	203
L	RF	108	117	127	165	178	203	229	394	457
	RTJ	-	-	-	178	190	216	241	406	470
	BW	-	-	-	190	216	282	305	457	521
H		90	100	106	128	145	195	215	285	337
H1		-	-	-	-	-	178	198	258	325
W		180	180	230	250	250	350	350	450	500
W1		-	-	-	-	-	250	250	300	400
WEIGHT(kg)		2.2	3.2	4.8	8.2	11.5	28.5	42.0	84.5	152.0

CLASS 300

UNIT : mm

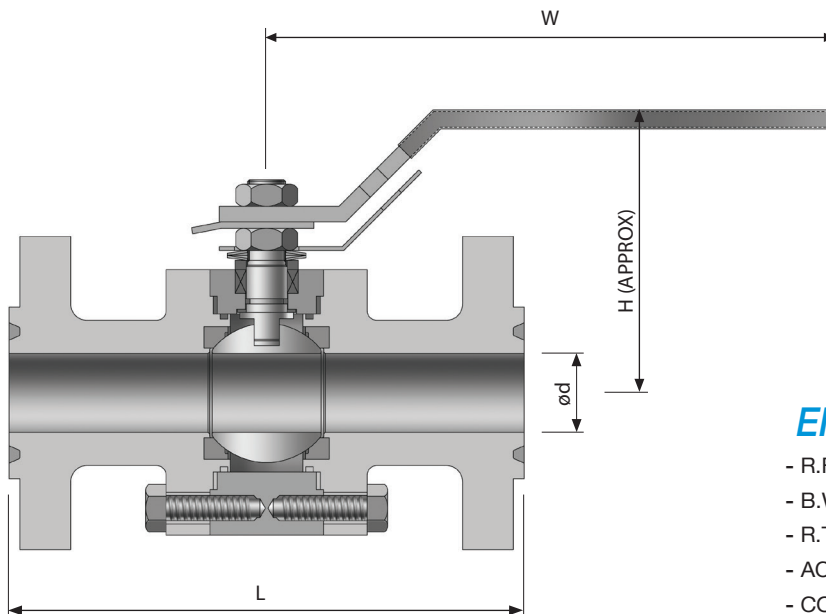
SIZE	B	1/2	3/4	1	1 1/2	2	3	4	6	8
Ød		15	20	25	38	50	76	100	152	203
L	RF	140	152	165	190	216	282	305	403	502
	RTJ	-	-	-	203	232	298	321	419	517
	BW	-	-	-	190	216	282	305	457	521
H		90	100	106	128	145	195	215	285	337
H1		-	-	-	-	-	178	198	258	325
W		180	180	230	250	250	350	350	450	500
W1		-	-	-	-	-	250	250	300	400
WEIGHT(kg)		2.8	3.8	5.6	10.5	15.0	33.0	50.5	108.0	184.0

CLASS 600

UNIT : mm

SIZE	B	1/2	3/4	1	1 1/2	2	3	4	6	8
Ød		15	20	25	38	50	76	100	152	203
L	RF	165	191	216	241	292	356	432	559	660
	RTJ	165	191	216	241	295	359	435	562	664
	BW	165	191	216	241	292	356	432	559	660
H		90	100	106	128	148	201	220	290	340
H1		-	-	-	-	-	182	202	263	335
W		180	180	230	250	250	400	500	700	1000
W1		-	-	-	-	-	250	250	300	400
WEIGHT(kg)		3.7	5.6	7.8	13.5	27.5	53.6	93.0	178.5	340.5

FLOATING BALL, FULL BORE ASME CLASS 900#, 1500#



END CONNECTION

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- B.W. ENDS TO ASME B16.25
- R.T.J FLANGED ENDS TO ASME B16.5
- ACCORDING TO ASME B16.47 SER.A OR SER.B
- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A105
2	CAP	A105
3	BALL	A276-316
4	STEM	A564-630
5	SEAT RING	NYLON
6	PACKING GLAND	A276-316
7	CAP BOLT	A193-B7
8	LEVER NUT	A194-2H
9	STEM NUT	A194-2H
10	STOPPER	A283D+GAL'V
11	LOCKING DEVICE	A283D+GAL'V
12	PACKING	GRAPHITE
13	GASKET	GRAPHITE
14	SEAT SEAL	GRAPHITE
15	BACK SEAT	GRAPHITE
16	O-RING(CAP)	VITON
17	O-RING(SEAT)	VITON
18	THRUST WASHER	RTFE
19	ANTI STATIC DEVICE	316SS
20	CONICAL SPRING	C.S+GAL'V
21	LEVER	A108-1020+VINYL

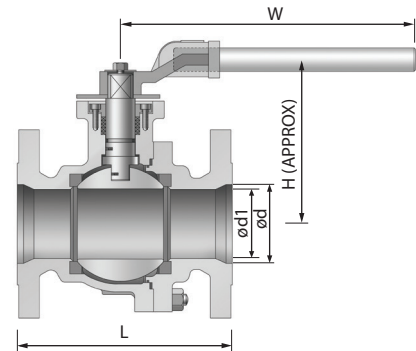
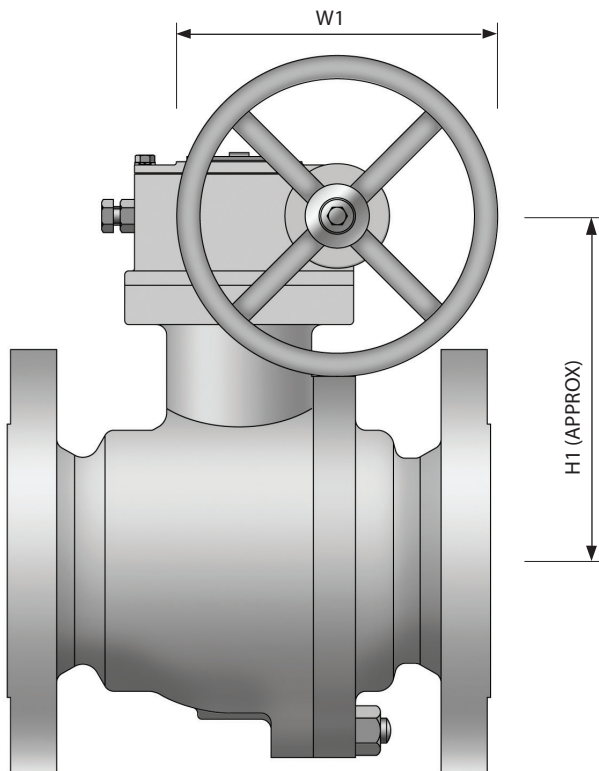
DIMENSION AND WEIGHT

CLASS 900 / 1500

UNIT : mm

SIZE	B	1/2	3/4	1	1 1/2
Ød		13	20	25	38
L	RF	216	229	254	305
	RTJ	216	229	254	305
	BW	216	229	254	305
H		95	100	110	118
W		180	180	230	250
WEIGHT(kg)		2.2	3.2	4.8	8.2

FLOATING BALL, REDUCED BORE ASME CLASS 150#, 300#, 600#



END CONNECTION

- R.F FLANGED ENDS TO ASME B16.5
- B.W. ENDS TO ASME B16.25
- R.T.J FLANGED ENDS TO ASME B16.5
- SIZE 26" AND LARGER, FLANGED ENDS ACCORDING TO ASME B16.47 SER.A OR SER.B
- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A216 - WCB
2	CAP	A216 - WCB
3	BALL	A351-CF8M
4	STEM	A276-316
5	PACKING GLAND	A276-316
6	SEAT RING	RTFE
7	PACKING	GRAPHITE
8	THRUST BEARING(STEM)	PTFE
9	CAP GASKET	316/GRAPHITE
10	CAP BOLT	A193-B7
11	NUT	A194-2H
12	O-RING(CAP)	VITON
13	O-RING(STEM)	VITON
14	GLAND BOLT	A193-B7
15	STOP BOLT	A193-B7
16	LEVER BOLT	A283-D+GAL'V
17	STOPPER	A283-D+GAL'V
18	WASHER	A307-B
19	LEVER	CARBON STEEL
20	ANTI STATIC	316SS

DIMENSION AND WEIGHT

CLASS 150

UNIT: mm

SIZE	B	1/2	3/4	1	1 1/2	2	3	4	6	8	10
Ød		15	20	25	38	50	76	100	152	203	252
Ød1		13	15	20	25	38	50	76	100	152	203
L	RF	108	117	127	165	178	203	229	394	457	533
	RTJ	-	-	-	178	190	216	241	406	470	546
	BW	-	-	-	190	216	282	305	457	521	559
H		90	90	100	106	128	145	195	215	285	337
H1		-	-	-	-	-	-	178	198	258	325
W		180	180	180	230	250	250	350	350	450	500
W1		-	-	-	-	-	-	250	250	300	400
WEIGHT(kg)		2.2	2.8	3.5	5.2	10.2	22.5	32.5	52.5	105.5	180.5

CLASS 300

UNIT: mm

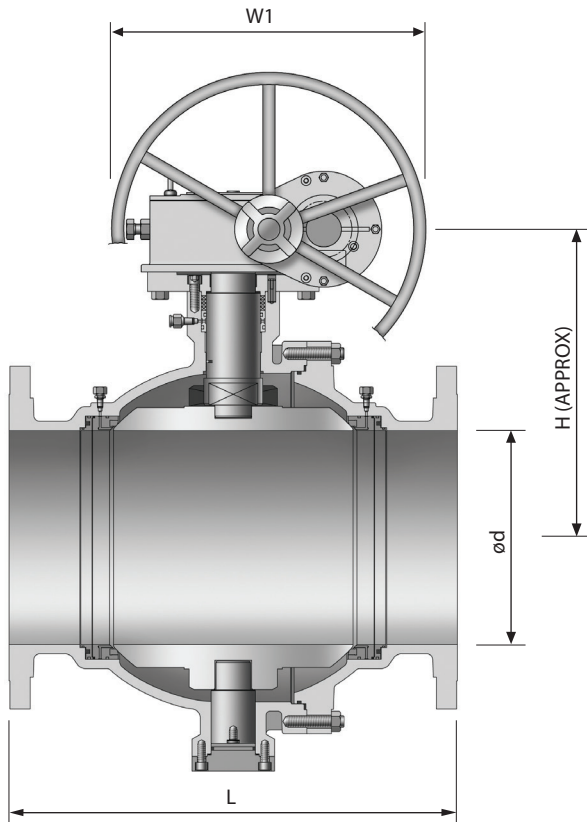
SIZE	B	1/2	3/4	1	1 1/2	2	3	4	6	8	10
Ød		15	20	25	38	50	76	100	152	203	252
Ød1		13	15	20	25	38	50	76	100	152	203
L	RF	140	152	165	190	216	282	305	403	502	568
	RTJ	-	-	-	203	232	298	321	419	517	584
	BW	-	-	-	190	216	282	305	457	521	559
H		90	90	100	106	128	145	195	215	285	337
H1		-	-	-	-	-	-	178	198	258	325
W		180	180	180	230	250	250	350	350	450	500
W1		-	-	-	-	-	-	250	250	300	400
WEIGHT(kg)		2.8	3.2	4.6	8.5	13.2	31.0	42.5	79.8	135.0	220.5

CLASS 600

UNIT: mm

SIZE	B	1/2	3/4	1	1 1/2	2	3	4	6	8
Ød		15	20	25	38	50	76	100	152	203
Ød1		13	15	20	25	38	50	76	100	152
L	RF	165	191	216	241	292	356	432	559	660
	RTJ	165	191	216	241	295	359	435	562	663
	BW	165	191	216	241	292	356	432	559	660
H		90	90	100	106	128	148	201	220	290
H1		-	-	-	-	-	-	182	202	263
W		180	180	180	230	250	250	400	500	700
W1		-	-	-	-	-	-	250	250	300
WEIGHT(kg)		3.7	4.8	6.5	9.8	18.5	30.5	67.8	122.5	182.5

TRUNNION BALL, FULL BORE ASME CLASS 150#, 300#, 600#



END CONNECTION

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- B.W. ENDS TO ASME B16.25
- R.T.J FLANGED ENDS TO ASME B16.5
- SIZE 26" AND LARGER, FLANGED ENDS ACCORDING TO ASME B16.47 SER.A OR SER.B
- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A216-WCB
2	CAP	A216-WCB
3	LOWER COVER	A216-WCB
4	BALL	A351-CF8M
5	SEAT RETAINER	A351-CF8M
6	STEM	A276-316
7	LOWER STEM	A276-316
8	LANTERN RING	A276-316
10	CAP BOLT	A193-B7
11	NUT	A194-2H
12	LOWER COVER BOLT	A193-B7
13	PAD BOLT	A193-B7
14	SEAT RING	RTFE
15	PACKING	GRAPHITE
16	CAP GASKET	GRAPHITE
17	LOWER COVER GASKET	GRAPHITE
18	FIRE SAFE SEAL	GRAPHITE
19	THRUST BEARING	DU-BUSH
21	STEM BEARING	DU-BUSH
22	LOWER STEM BEARING	DU-BUSH
23	PAD BEARING	DU-BUSH
24	O-RING	VITON
31	SPRING	INCONEL-X750
32	PIN	316SS
33	GEAR BOX	DUCTILE
34	STEM SEALANT FITTING	316SS
35	DRAIN PLUG	316SS

DIMENSION AND WEIGHT

CLASS 150

UNIT : mm

SIZE	B	10	12	14	16	18	20	24
$\varnothing d$		254	305	337	387	438	489	591
L	RF	533	610	686	762	864	914	1067
	RTJ	546	622	698	775	876	927	1079
	BW	559	635	762	838	914	991	1143
H		356	415	485	550	598	640	745
W		500	500	560	560	710	710	800
WEIGHT(kg)		272	473	571	875	938	1525	2152

CLASS 300

UNIT : mm

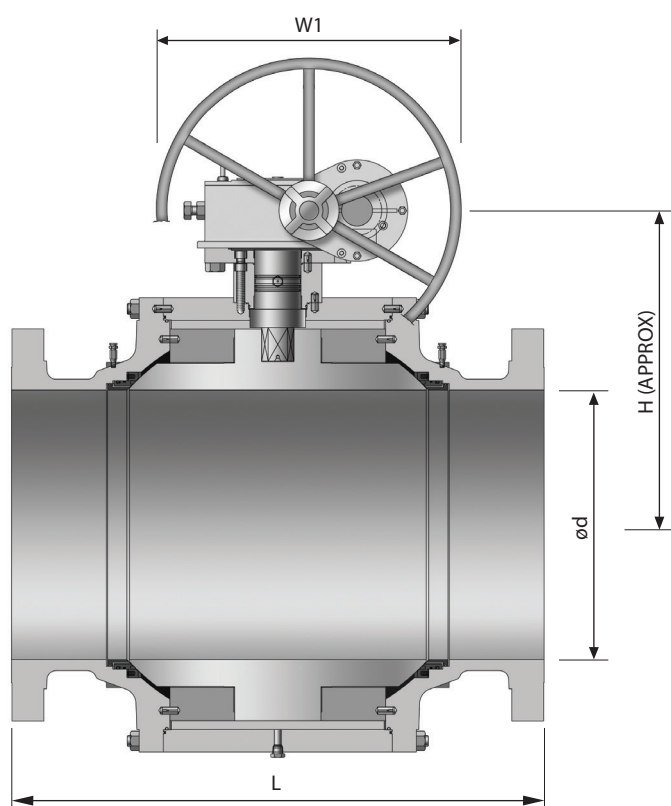
SIZE	B	10	12	14	16	18	20	24
$\varnothing d$		254	305	337	387	438	489	591
L	RF	568	648	762	838	914	991	1143
	RTJ	584	664	778	854	930	1010	1165
	BW	559	635	762	838	914	991	1143
H		362	420	490	555	603	645	750
W		500	500	560	560	710	710	800
WEIGHT(kg)		303	502	602	1005	1158	1825	2558

CLASS 600

UNIT : mm

SIZE	B	10	12	14	16	18	20	24
$\varnothing d$		254	305	337	387	438	489	591
L	RF	787	838	889	991	1092	1194	1397
	RTJ	791	841	892	994	1095	1200	1406
	BW	787	838	889	991	1092	1194	1397
H		425	475	540	610	655	710	815
W		560	560	630	710	800	800	900
WEIGHT(kg)		552	787	849	1489	2172	2628	3392

TRUNNION BALL, FULL BORE ASME CLASS 150#, 300#, 600#



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- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A216-WCB or A105
2	CAP	A216-WCB or A105
3	BALL	A351-CF8M
4	STEM	A276-316
5	SEAT RING	RTFE
6	PACKING	GRAPHITE
7	CAP GASKET	GRAPHITE
8	GLAND GASKET	GRAPHITE
9	FIRE SAFE SEAL	GRAPHITE
10	SEAT RETAINER	A351-CF8M
11	TRUNNION PLATE	A105+ENP
12	GLAND	AISI-1020
14	STEM BEARING	DU-BUSH
16	TRUNNION BEARING	DU-BUSH
17	PAD BEARING	DU-BUSH
18	THRUST BEARING	DU-BUSH
20	O-RING	VITON
25	CAP BOLT	A193-B7
26	NUT	A194-2H
27	GLAND BOLT	A193-B7
28	PAD BOLT	A193-B7
29	PIN	A276-316
33	SPRING	INCONEL-X750
34	GEAR BOX	DUCTILE
35	STEM SEALANT FITTING	316SS
36	DRAIN PLUG	316SS

DIMENSION AND WEIGHT

CLASS 150

UNIT : mm

SIZE	B	16	18	20	24	26	28	30	32	34	36
$\varnothing d$		387	438	489	591	635	686	737	781	832	876
L	RF	762	864	914	1067	1143	1244	1295	1371	1473	1524
	RTJ	775	876	927	1079	-	-	-	-	-	-
	BW	838	914	991	1143	1245	1346	1397	1524	1626	1727
H		503	515	553	585	685	723	778	906	920	955
W1		560	710	710	800	800	900	900	900	900	900
WEIGHT(kg)		870	1210	1850	3180	3770	4635	5370	6960	7950	8950

CLASS 300

UNIT : mm

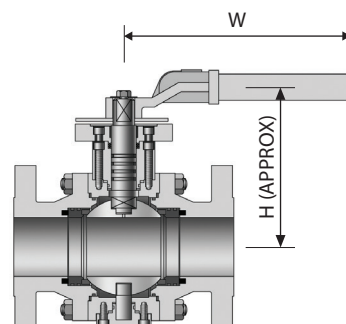
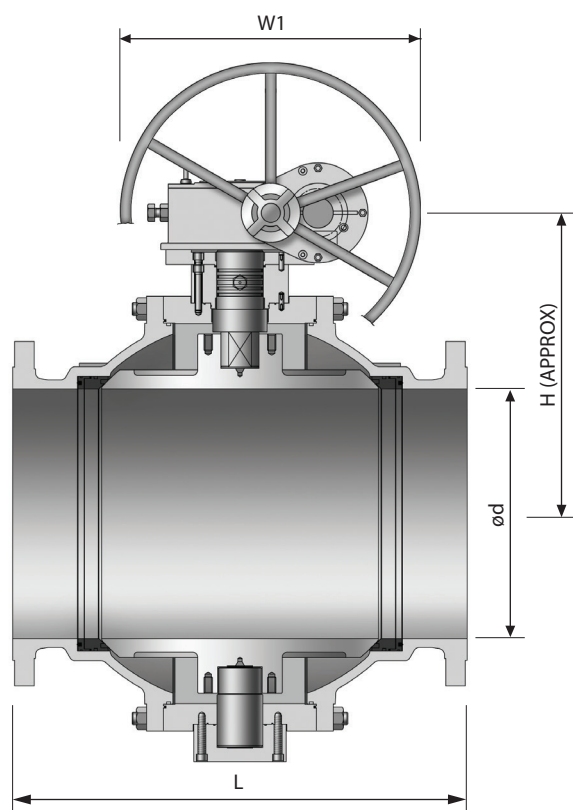
SIZE	B	16	18	20	24	26	28	30	32	34	36
$\varnothing d$		387	438	489	591	635	686	737	781	832	876
L	RF	838	914	991	1143	1245	1346	1397	1524	1626	1727
	RTJ	854	930	1010	1165	1270	1372	1422	1553	1654	1756
	BW	838	914	991	1143	1245	1346	1397	1524	1626	1727
H		513	525	565	595	705	745	798	926	940	975
W1		560	710	710	800	800	900	900	900	900	900
WEIGHT(kg)		1480	1685	2290	3610	4810	5920	6740	8080	9260	10280

CLASS 600

UNIT : mm

SIZE	B	16	18	20	24	26	28	30	32	34	36
$\varnothing d$		387	438	489	591	635	686	737	781	832	876
L	RF	991	1092	1194	1397	1448	1549	1651	1778	1930	2083
	RTJ	994	1095	1200	1406	1460	1562	1664	1794	1946	2098
	BW	991	1092	1194	1397	1448	1549	1651	1778	1930	2083
H		518	535	575	605	615	755	815	940	956	995
W1		710	800	800	900	800	900	900	900	900	900
WEIGHT(kg)		1580	2180	2780	3930	5830	6940	8560	9940	11570	13530

TRUNNION BALL, FULL BORE ASME CLASS 900#, 1500#



END CONNECTION

- R.F FLANGED ENDS TO ASME B16.5
- B.W. ENDS TO ASME B16.25
- R.T.J FLANGED ENDS TO ASME B16.5
- SIZE 26" AND LARGER, FLANGED ENDS ACCORDING TO ASME B16.47 SER.A OR SER.B
- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A216 WCB or A105
2	CAP	A216-WCB
3	BALL	A351-CF8M
4	STEM	A564-630
5	LOWER STEM	A564-630
6	SEAT POCKET	A351-CF8M
7	SEAT RETAINER	A351-CF8M
8	LOWER COVER	A105
9	GLAND	AISI-1020
11	SEAT RING	NYLON
12	PACKING	GRAPHITE
13	CAP GASKET	GRAPHITE
14	LOWER COVER GASKET	GRAPHITE
15	GLAND GASKET	GRAPHITE
16	SEAT POCKET SEAL	GRAPHITE
17	STEM BEARING	DU-BUSH
19	PAD BEARING	DU-BUSH
20	LOWER STEM BEARING	DU-BUSH
21	THRUST BEARING	DU-BUSH / PTFE
23	O-RING	VITON
28	CAP BOLT	A193-B7
29	NUT	A194-2H
30	LOWER COVER BOLT	A193-B7
31	GLAND BOLT	A193-B7
32	PAD BOLT	A193-B7
33	PIN	A276-316
35	SPRING	INCONEL-X750
36	GEAR BOX	DUCTILE

DIMENSION AND WEIGHT

CLASS 900

UNIT : mm

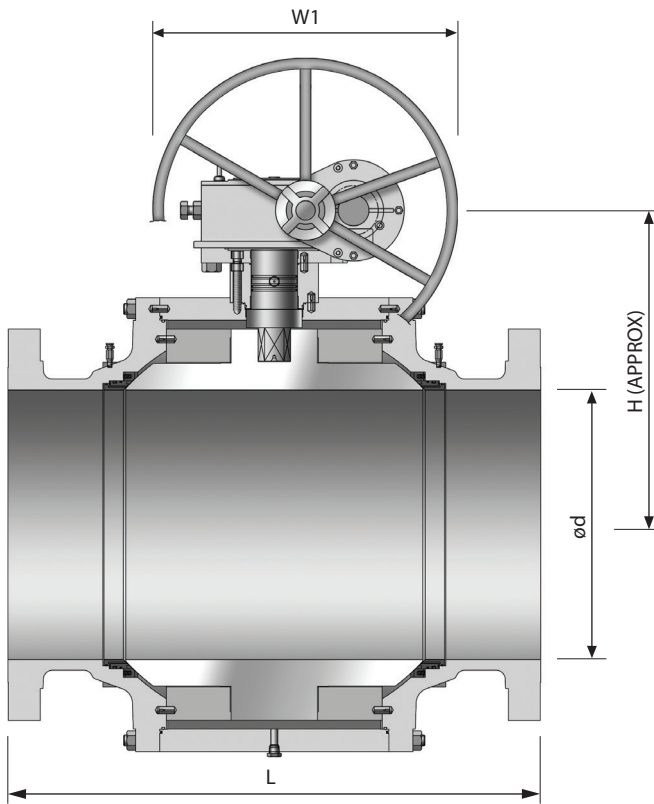
SIZE	B	2	3	4	6	8	10	12
Ød		50	76	100	152	203	254	305
L	RF	368	381	457	610	737	838	965
	RTJ	371	384	460	613	740	841	968
	BW	368	381	457	610	737	838	965
H		205	235	270	-	-	-	-
H1		155	178	264	325	355	450	520
W		300	400	500	-	-	-	-
W1		300	300	400	630	630	630	630
WEIGHT(kg)		52.0	81.0	170.0	390.0	640.0	1070.0	1610.0

CLASS 1500

UNIT : mm

SIZE	B	2	3	4	6	8	10	12
Ød		50	76	100	152	203	254	305
L	RF	368	470	546	705	832	991	1130
	RTJ	371	473	549	711	841	1000	1146
	BW	368	470	546	705	832	991	1130
H		205	240	275	-	-	-	-
H1		160	183	270	350	410	465	565
W		300	400	500	-	-	-	-
W1		300	300	400	630	630	710	710
WEIGHT(kg)		52.0	105.0	205.0	525.0	880.0	1560.0	2355.0

TRUNNION BALL, FULL BORE ASME CLASS 900#, 1500#



END CONNECTION

- R.F FLANGED ENDS TO ASME B16.5
- B.W. ENDS TO ASME B16.25
- R.T.J FLANGED ENDS TO ASME B16.5
- SIZE 26" AND LARGER, FLANGED ENDS ACCORDING TO ASME B16.47 SER.A OR SER.B
- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A216 WCB or A105
2	CAP	A216 WCB or A105
3	BALL	A351-CF8M
4	STEM	A276-316
5	SEAT RING	RTFE
6	PACKING	GRAPHITE
7	CAP GASKET	GRAPHITE
8	GLAND GASKET	GRAPHITE
9	FIRE SAFE SEAL	GRAPHITE
10	SEAT RETAINER	A351-CF8M
11	TRUNNION PLATE	A105+ENP
12	GLAND	AISI-1020
14	STEM BEARING	DU-BUSH
16	TRUNNION BEARING	DU-BUSH
17	PAD BEARING	DU-BUSH
18	THRUST BEARING	DU-BUSH
20	O-RING	VITON
25	CAP BOLT	A193-B7
26	NUT	A194-2H
27	GLAND BOLT	A193-B7
28	PAD BOLT	A193-B7
29	PIN	A276-316
33	SPRING	INCONEL-X750
34	GEAR BOX	DUCTILE
35	STEM SEALANT FITTING	316SS
36	DRAIN PLUG	316SS

DIMENSION AND WEIGHT

CLASS 900

UNIT : mm

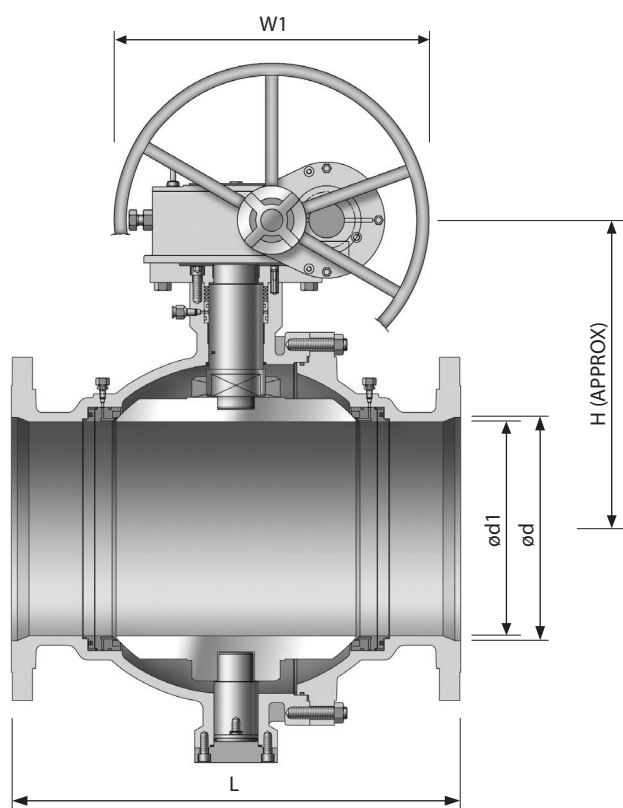
SIZE	B	8	10	12	14	16	18	20	24
Ød		203	254	305	324	375	425	473	571
L	RF	737	838	965	1029	1130	1219	1321	1549
	RTJ	740	841	968	1038	1140	1232	1333	1568
	BW	737	838	965	1029	1130	1219	1321	1549
H		396	485	531	600	620	700	750	840
W1		630	710	800	900	900	900	1000	1000
WEIGHT(kg)		645	1070	1610	1560	2240	3000	4360	7030

CLASS 1500

UNIT : mm

SIZE	B	8	10	12	14	16	18	20	24
Ød		194	241	289	317	362	407	457	534
L	RF	832	991	1130	1257	1384	1537	1664	2043
	RTJ	841	1000	1146	1276	1406	1559	1686	2071
	BW	832	991	1130	1257	1384	1537	1664	2043
H		410	495	565	605	625	710	760	850
W1		630	710	800	900	900	900	1000	1000
WEIGHT(kg)		880	1560	2355	3020	4260	6400	9300	14550

TRUNNION BALL, REDUCED BORE ASME CLASS 150#, 300#, 600#



END CONNECTION

- R.F FLANGED ENDS TO ASME B16.5
- B.W. ENDS TO ASME B16.25
- R.T.J FLANGED ENDS TO ASME B16.5
- SIZE 26" AND LARGER, FLANGED ENDS ACCORDING TO ASME B16.47 SER.A OR SER.B
- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A216-WCB
2	CAP	A216-WCB
3	LOWER COVER	A216-WCB
4	BALL	A351-CF8M
5	SEAT RETAINER	A351-CF8M
6	STEM	A276-316
7	LOWER STEM	A276-316
8	LANTERN RING	A276-316
10	CAP BOLT	A193-B7
11	NUT	A194-2H
12	LOWER COVER BOLT	A193-B7
13	PAD BOLT	A193-B7
14	SEAT RING	RTFE
15	PACKING	GRAPHITE
16	CAP GASKET	GRAPHITE
17	LOWER COVER GASKET	GRAPHITE
18	FIRE SAFE SEAL	GRAPHITE
19	THRUST BEARING	DU-BUSH
21	STEM BEARING	DU-BUSH
22	LOWER STEM BEARING	DU-BUSH
23	PAD BEARING	DU-BUSH
24	O-RING	VITON
31	SPRING	INCONEL-X750
32	PIN	316SS
33	GEAR BOX	DUCTILE
34	STEM SEALANT FITTING	316SS
35	DRAIN PLUG	316SS

DIMENSION AND WEIGHT

CLASS 150

UNIT : mm

SIZE	B	10	12	14	16	18	20	24	30
Ød		254	305	337	387	438	489	591	737
Ød1		203	254	254	305	337	387	489	591
L	RF	533	610	686	762	864	914	1067	1295
	RTJ	546	622	698	775	876	927	1079	-
	BW	559	635	762	838	914	991	1143	1397
H		325	356	356	415	485	550	640	745
W1		400	500	500	500	560	560	710	800
WEIGHT(kg)		230	282	478	583	889	954	1652	4450

CLASS 300

UNIT : mm

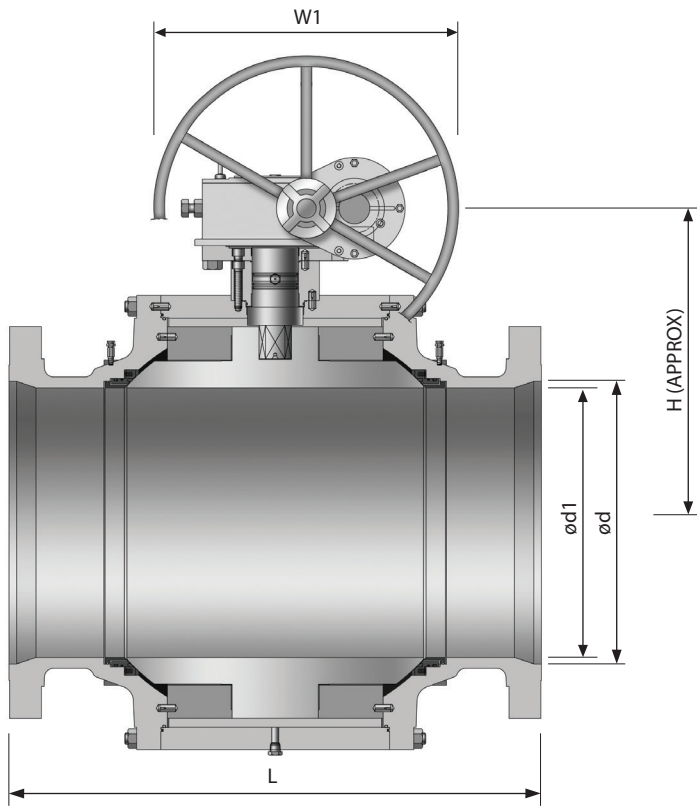
SIZE	B	10	12	14	16	18	20	24	30
Ød		254	305	337	387	438	489	591	737
Ød1		203	254	254	305	337	387	489	591
L	RF	568	648	762	838	914	991	1143	1397
	RTJ	584	664	778	854	930	1010	1165	1422
	BW	559	635	762	838	914	991	1143	1397
H		325	362	362	420	490	555	645	745
W1		400	500	500	500	560	560	710	800
WEIGHT(kg)		280	312	521	623	1025	1180	1950	6100

CLASS 600

UNIT : mm

SIZE	B	10	12	14	16	18	20	24	30
Ød		254	305	337	387	438	489	591	737
Ød1		203	254	254	305	337	387	489	591
L	RF	787	838	889	991	1092	1194	1397	1651
	RTJ	791	841	892	994	1095	1200	1406	1664
	BW	787	838	889	991	1092	1194	1397	1651
H		335	425	425	475	540	610	710	815
W1		400	560	560	560	630	710	800	900
WEIGHT(kg)		350	605	820	980	1805	2480	3800	5910

TRUNNION BALL, REDUCED BORE ASME CLASS 150#, 300#, 600#



END CONNECTION

- R.F FLANGED ENDS TO ASME B16.5
- B.W. ENDS TO ASME B16.25
- R.T.J FLANGED ENDS TO ASME B16.5
- SIZE 26" AND LARGER, FLANGED ENDS ACCORDING TO ASME B16.47 SER.A OR SER.B
- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A216-WCB or A105
2	CAP	A216-WCB or A105
3	BALL	A351-CF8M
4	STEM	A276-316
5	SEAT RING	RTFE
6	PACKING	GRAPHITE
7	CAP GASKET	GRAPHITE
8	GLAND GASKET	GRAPHITE
9	FIRE SAFE SEAL	GRAPHITE
10	SEAT RETAINER	A351-CF8M
11	TRUNNION PLATE	A105+ENP
12	GLAND	AISI-1020
14	STEM BEARING	DU-BUSH
16	TRUNNION BEARING	DU-BUSH
17	PAD BEARING	DU-BUSH
18	THRUST BEARING	DU-BUSH
20	O-RING	VITON
25	CAP BOLT	A193-B7
26	NUT	A194-2H
27	GLAND BOLT	A193-B7
28	PAD BOLT	A193-B7
29	PIN	A276-316
33	SPRING	INCONEL-X750
34	GEAR BOX	DUCTILE
35	STEM SEALANT FITTING	316SS
36	DRAIN PLUG	316SS

DIMENSION AND WEIGHT

CLASS 150

UNIT: mm

SIZE	B	16	18	20	24	30	36
Ød		387	438	489	591	737	876
Ød1		305	337	387	489	591	737
L	RF	762	864	914	1067	1295	1524
	RTJ	775	876	927	1079	-	-
	BW	838	914	991	1143	1397	1727
H		415	435	503	553	585	778
W1		500	630	710	710	800	900
WEIGHT(kg)		730	1025	1210	2100	3430	6450

CLASS 300

UNIT: mm

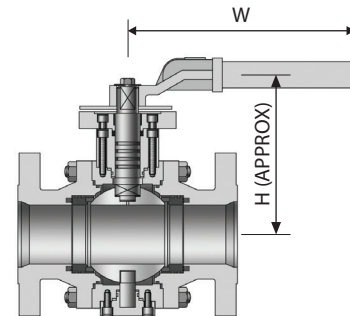
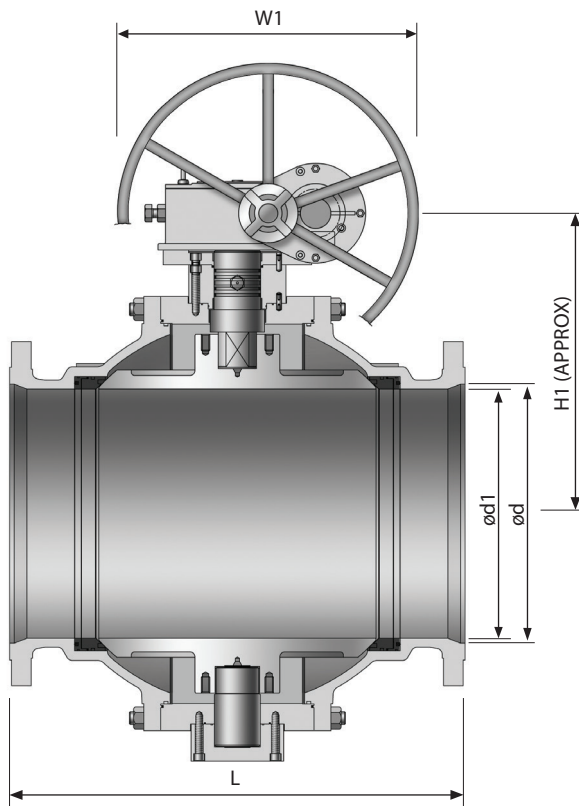
SIZE	B	16	18	20	24	30	36
Ød		387	438	489	591	737	876
Ød1		305	337	387	489	591	737
L	RF	838	914	991	1143	1397	1727
	RTJ	854	930	1010	1165	1422	1756
	BW	838	914	991	1143	1397	1727
H		420	440	510	560	590	785
W1		500	630	710	710	800	900
WEIGHT(kg)		1010	1420	1729	2750	4630	8330

CLASS 600

UNIT: mm

SIZE	B	16	18	20	24	30	36
Ød		387	438	489	591	737	876
Ød1		305	337	387	489	591	737
L	RF	991	1092	1194	1397	1651	2083
	RTJ	994	1095	1200	1406	1664	2098
	BW	991	1092	1194	1397	1651	2083
H		425	445	518	575	605	815
W1		710	710	800	800	900	900
WEIGHT(kg)		1360	1580	2170	3390	5910	10560

TRUNNION BALL, REDUCED BORE ASME CLASS 900#, 1500#



END CONNECTION

- R.F FLANGED ENDS TO ASME B16.5
- B.W. ENDS TO ASME B16.25
- R.T.J FLANGED ENDS TO ASME B16.5
- SIZE 26" AND LARGER, FLANGED ENDS ACCORDING TO ASME B16.47 SER.A OR SER.B
- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A216 WCB or A105
2	CAP	A216-WCB
3	BALL	A351-CF8M
4	STEM	A564-630
5	LOWER STEM	A564-630
6	SEAT POCKET	A351-CF8M
7	SEAT RETAINER	A351-CF8M
8	LOWER COVER	A105
9	GLAND	AISI-1020
11	SEAT RING	NYLON
12	PACKING	GRAPHITE
13	CAP GASKET	GRAPHITE
14	LOWER COVER GASKET	GRAPHITE
15	GLAND GASKET	GRAPHITE
16	SEAT POCKET SEAL	GRAPHITE
17	STEM BEARING	DU-BUSH
19	PAD BEARING	DU-BUSH
20	LOWER STEM BEARING	DU-BUSH
21	THRUST BEARING	DU-BUSH / PTFE
23	O-RING	VITON
28	CAP BOLT	A193-B7
29	NUT	A194-2H
30	LOWER COVER BOLT	A193-B7
31	GLAND BOLT	A193-B7
32	PAD BOLT	A193-B7
33	PIN	A276-316
35	SPRING	INCONEL-X750
36	GEAR BOX	DUCTILE

DIMENSION AND WEIGHT

CLASS 900

UNIT : mm

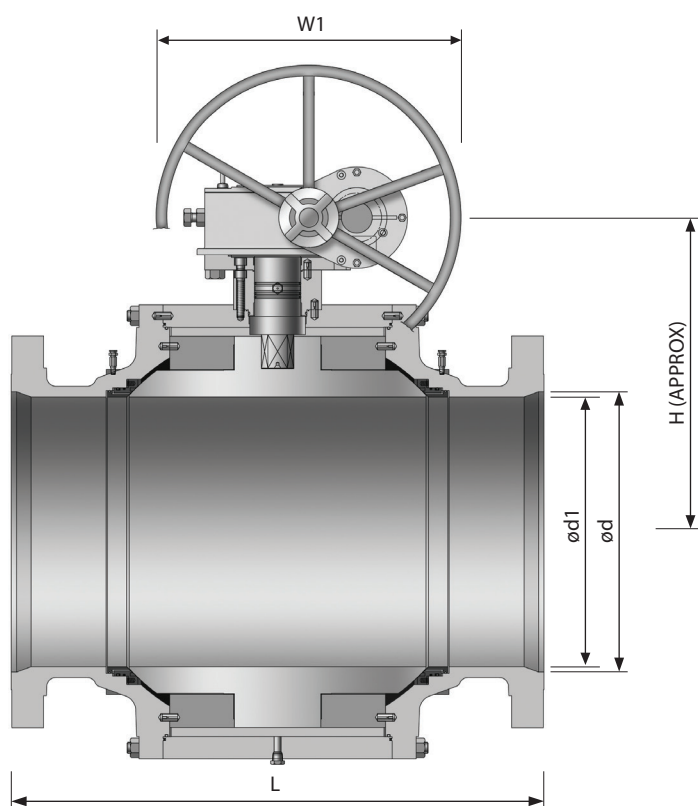
SIZE	B	2	3	4	6	8	10	12
Ød		50	76	100	152	203	254	305
Ød1		38	50	76	100	152	203	254
L	RF	368	381	457	610	737	838	965
	RTJ	371	384	460	613	740	841	968
	BW	368	381	457	610	737	838	965
H		195	205	235	270	-	-	-
H1		148	155	178	264	325	355	450
W		300	300	400	500	-	-	-
W1		300	300	300	300	400	630	630
WEIGHT(kg)		45.0	58.0	105.0	230.0	470.0	530.0	1200.0

CLASS 1500

UNIT : mm

SIZE	B	2	3	4	6	8	10	12
Ød		50	76	100	152	203	254	305
Ød1		38	50	76	100	152	203	254
L	RF	368	470	546	705	832	991	1130
	RTJ	371	473	549	711	841	1000	1146
	BW	368	470	546	705	832	991	1130
H		195	205	240	275	-	-	-
H1		148	160	183	270	350	410	465
W		300	300	400	500	-	-	-
W1		300	300	300	300	400	630	630
WEIGHT(kg)		45.0	75.0	130.0	301.0	615.0	1085.0	1850.0

TRUNNION BALL, REDUCED BORE ASME CLASS 900#, 1500#



END CONNECTION

- R.F FLANGED ENDS TO ASME B16.5
- B.W. ENDS TO ASME B16.25
- R.T.J FLANGED ENDS TO ASME B16.5
- SIZE 26" AND LARGER, FLANGED ENDS ACCORDING TO ASME B16.47 SER.A OR SER.B
- CONSULT US FOR LARGER SIZE

STANDARD MATERIAL SPECIFICATIONS

NO.	PART NAME	MATERIAL
1	BODY	A216 WCB or A105
2	CAP	A216 WCB or A105
3	BALL	A351-CF8M
4	STEM	A276-316
5	SEAT RING	RTFE
6	PACKING	GRAPHITE
7	CAP GASKET	GRAPHITE
8	GLAND GASKET	GRAPHITE
9	FIRE SAFE SEAL	GRAPHITE
10	SEAT RETAINER	A351-CF8M
11	TRUNNION PLATE	A105+ENP
12	GLAND	AISI-1020
14	STEM BEARING	DU-BUSH
16	TRUNNION BEARING	DU-BUSH
17	PAD BEARING	DU-BUSH
18	THRUST BEARING	DU-BUSH
20	O-RING	VITON
25	CAP BOLT	A193-B7
26	NUT	A194-2H
27	GLAND BOLT	A193-B7
28	PAD BOLT	A193-B7
29	PIN	A276-316
33	SPRING	INCONEL-X750
34	GEAR BOX	DUCTILE
35	STEM SEALANT FITTING	316SS
36	DRAIN PLUG	316SS

DIMENSION AND WEIGHT

CLASS 900

UNIT : mm

SIZE	B	8	10	12	14	16	18	20	24
Ød		203	254	305	324	375	425	473	571
Ød1		152	203	254	305	305	324	375	473
L	RF	737	838	965	1029	1130	1219	1321	1549
	RTJ	740	841	968	1038	1140	1232	1333	1568
	BW	737	838	965	1029	1130	1219	1321	1549
H		375	396	485	531	531	600	620	750
W1		630	630	710	800	800	900	900	1000
WEIGHT(kg)		470	530	1200	1695	1790	2240	2970	5580

CLASS 1500

UNIT : mm

SIZE	B	8	10	12	14	16	18	20	24
Ød		194	241	289	317	362	407	457	534
Ød1		146	194	241	289	289	317	362	457
L	RF	832	991	1130	1257	1384	1537	1664	2043
	RTJ	841	1000	1146	1276	1406	1559	1686	2071
	BW	832	991	1130	1257	1384	1537	1664	2043
H		320	410	495	565	565	605	625	760
W1		630	630	710	800	800	900	900	1000
WEIGHT(kg)		615	1085	1850	2620	2890	5348	6950	11520