

Trunnion Mounted Ball Valve Cast Steel

Available Modifications For Cast Steel Valve

- Trim changes
- End connection modifications
- Packing and gasket changes
- Operator mounting
- Handwheel extensions
- Pressure equalizing
- Anti Static or Fire Durable
- Customer specified coatings
- Weld end bore changes
- Oxygen & chlorine cleaning & packaging

Operating

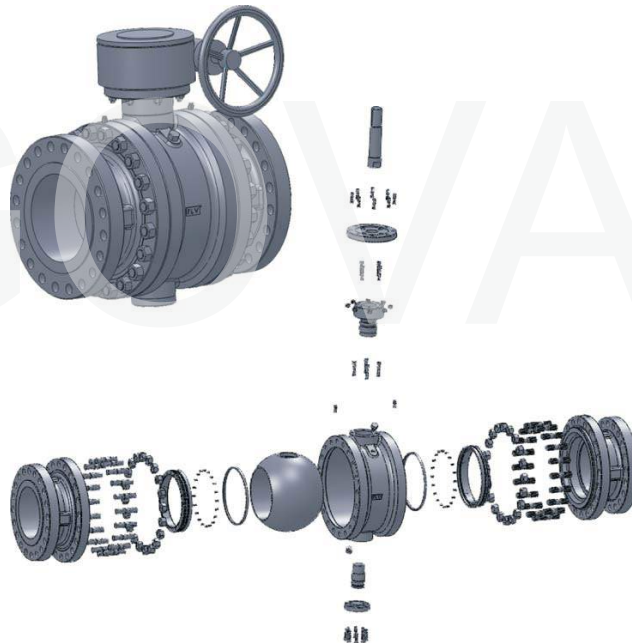
Extended lever for easy operation. Also available with gearing, motor actuators, pneumatic or hydraulic actuators for more difficult services.

Packing

STD Packing multiple V-TEFLON packing, combined with live loading, maintains packing compression under high-cycle and severe service applications. Graphite packing is used for high temperature applications.

Body & Bonnet

Split or 3-piece, split body & bonnet for 12" and smaller. Disassembles easily for repair or replacement of internal components



Design

Steel ball valves are designed and manufactured to provide maximum service life and dependability. All ball valves are full ported and meet the design requirements of American Petroleum Institute standard API 608 & API 6D, British standard BS 5351 and generally conform to American Society of Mechanical Engineers standard ASME B16.34. Valves are available in a complete range of body/bonnet materials and trims.

AS

Anti static. A metallic contact is always granted between ball and stem/body to discharge eventual static build up during operation service.

Bore

Full bore or reduced bore. Full-bore design provides exceptional flow control.

DDB

Double block & bleed. The body cavity is isolated when the ball is in either fully closed or fully opened position, the medium entrapped in it can be bled easily to avoid over pressure.

End Connections

A choice of flanged, RTJ flanged or butt weld ends for piping flexibility.

FR

Fire resistant. Designed to API 607 or BS 6755 to grant their operation suitability in case of fire. Secondary metal-to-metal seal acts as backup if primary seal is destroyed by fire. Valves ordered for compliance with API 607 will be provided with graphite packing and gaskets.

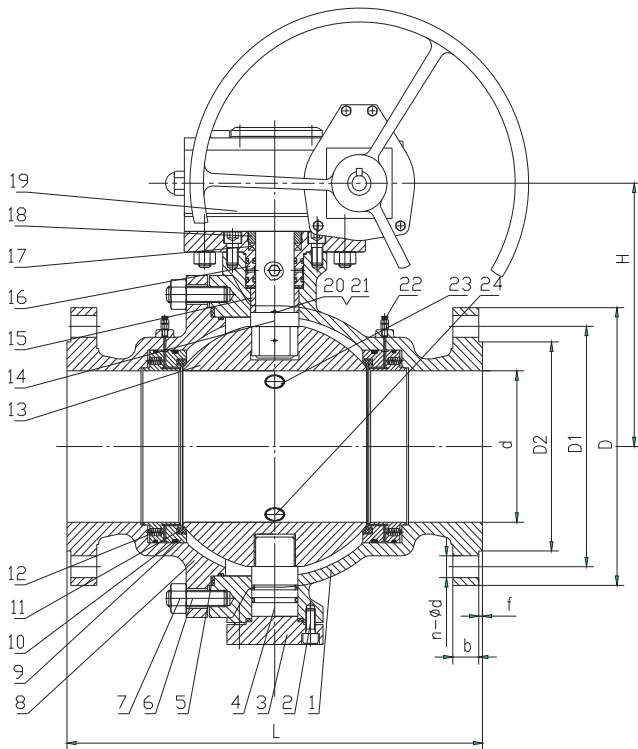
Range Of Materials

Standard body/bonnet materials include nine grades of carbon, low alloy and stainless steels, For special applications they can be supplied in other grades of alloy and stainless steel. There's a full range of trim materials to match any service. Optional packing and gasket materials are available for a full range of service conditions.

Trunnion Mounted Ball Valve Cast Steel Class 150lb Figure No. BT-CS150

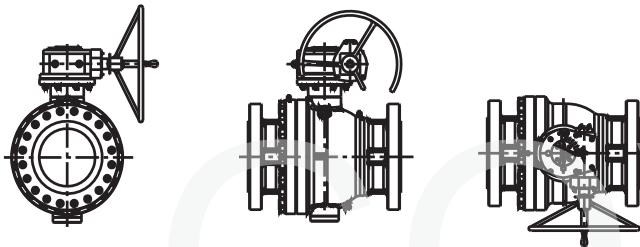
■ SPECIFICATIONS

■ FEATURES



Design	ASME B16,34 / API 608 API6D / ISO 14313
Face to Face	ASME B16,10
End Flange	ASME B16,50
Butt Weld End	ASME B16,25
Fire Resistant	API 607
Anti Static	API 608
Test	API 598/ API6D Optional

Full port design
Bolted bonnet (BB) split body
Trunnion mounted ball type
Two Pieces/Three Pieces
Blow-out proof stem
Fire resistant construction
Anti static device
Stopper device
ISO 5211 Mounting Pad
Flanged / Butt weld ends
Manual worm gear Optional



NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Ball	A182-F304 1)	A182-F316	A182-F304 1)
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Glass filled PTFE	Glass filled PTFE	Glass filled PTFE
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 2)	Graphite+316 2)	Graphite+304 2)
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel	Carbon steel	Carbon steel

Note: 1). A 105+ENP optional ; A 182- F316 2). Spiral wound construction.

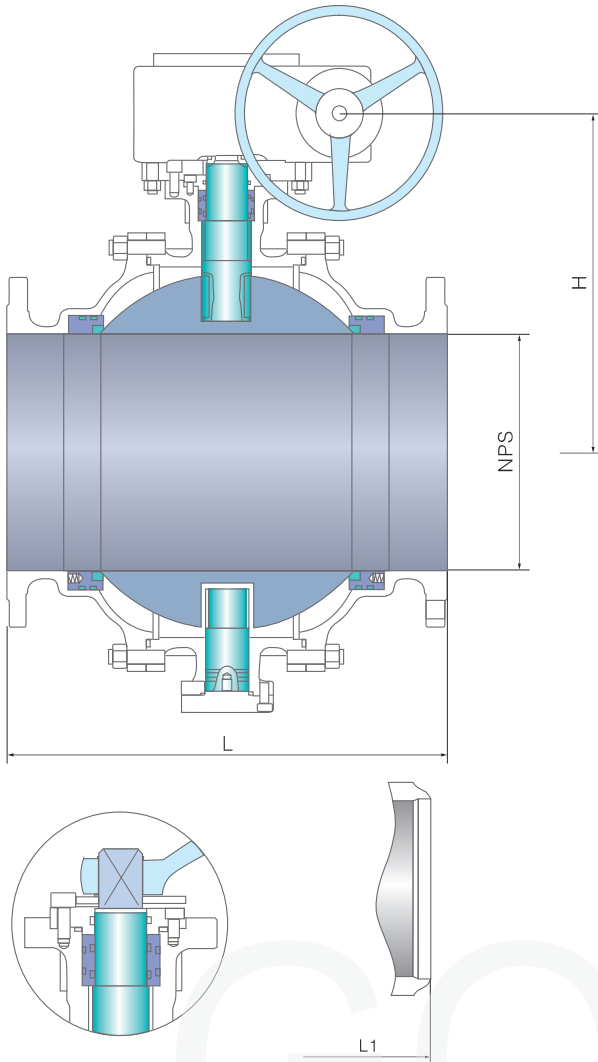
■ Dimensions and Weights

Size		L (RF)		L1 (BW)		H		W		WT (Kg)	
in	mm	in	mm	in	mm	in	mm	in	mm	RF	BW
2	50	7.00	178	8.50	216	7.00	177	14	350	15	13.5
2 1/2	65	7.50	190	9.50	241	7.50	190	16	400	19	15.5
3	80	8.00	203	11.12	283	8.25	210	20	500	27	24.5
4	100	9.00	229	12.00	305	9.25	235	20	500	38	32.5
6	150	15.50	394	18.00	457	20.88	530	24	600	81	76
8	200	18.00	457	20.50	521	24.62	625	24	600	140	132
10	250	21.00	533	22.00	559	25.62	650	24	600	160	147
12	300	24.00	610	25.00	635	30.75	780	24	600	205	182
14	350	27.00	686	30.00	762	31.00	790	32	800	260	241
16	400	30.00	762	33.00	838	36.25	920	32	800	390	370
18	450	34.00	864	36.00	914	38.25	970	32	800	510	495
20	500	36.00	914	39.00	991	43.38	1100	32	800	750	726
24	600	42.00	1067	45.00	1143	5.25	1150	32	800	1200	1125
26	650	45.00	1143	49.00	1245	50.75	1290	32	800	1400	1250
28	700	49.00	1245	53.00	1346	55.12	1400	32	800	1860	1640
30	750	51.00	1295	55.00	1397	64.12	1630	32	800	2100	1930
32	800	54.00	1372	60.00	1524	70.88	1840	32	800	2530	2390
36	900	60.00	1524	68.00	1727	80.75	2050	32	800	2970	2760

Trunnion Mounted Ball Valve Cast Steel Class 300lb Figure No. BT-CS300

■ SPECIFICATIONS

■ FEATURES



Design	ASME B16,34 / API 608 API6D / ISO 14313
Face to Face	ASME B16,10
End Flange	ASME B16,50
Butt Weld End	ASME B16,25
Fire Resistant	API 607
Anti Static	API 608
Test	API 598/ API6D Optional

Full port design
Bolted bonnet (BB) split body
Trunnion mounted ball type
Two Pieces/Three Pieces
Blow-out proof stem
Fire resistant construction
Anti static device
Stopper device
ISO 5211 Mounting Pad
Flanged / Butt weld ends
Manual worm gear Optional

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Ball	A182-F304 1)	A182-F316	A182-F304 1)
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Glass filled PTFE	Glass filled PTFE	Glass filled PTFE
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 2)	Graphite+316 2)	Graphite+304 2)
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel	Carbon steel	Carbon steel

Note: 1). A 105+ENP optional ; A 182- F316 2). Spiral wound construction.

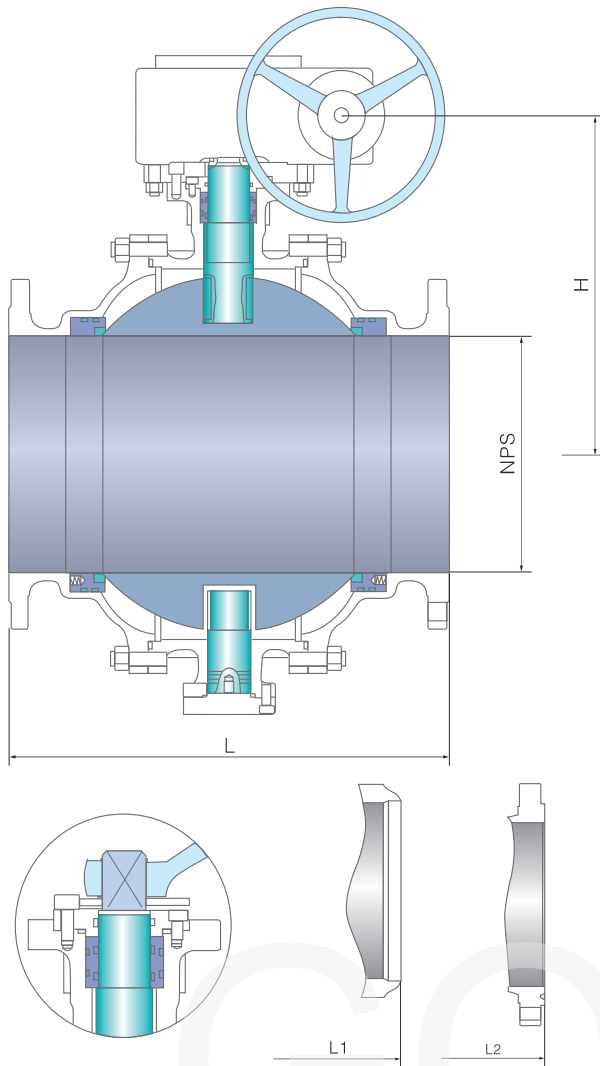
■ Dimensions and Weights

Size		L (RF)		L1 (BW)		H		W		WT (Kg)	
in	mm	in	mm	in	mm	in	mm	in	mm	RF	BW
2	50	8.50	216	8.50	216	7.00	177	14	350	19	14
2 1/2	65	9.50	241	9.50	241	7.50	190	16	400	24	16
3	80	11.12	283	11.12	283	8.25	210	20	500	34	25
4	100	12.00	305	12.00	305	9.25	235	20	500	48	34
6	150	15.88	403	18.00	403	20.88	530	24	600	101	82
8	200	19.75	502	20.50	521	24.62	625	24	600	175	145
10	250	22.38	568	22.00	559	25.62	650	24	600	200	155
12	300	25.50	648	25.00	635	30.75	780	24	600	255	185
14	350	30.00	762	30.00	762	31.00	790	32	800	325	238
16	400	33.00	838	33.00	838	36.25	920	32	800	485	375
18	450	36.00	914	36.00	914	38.25	970	32	800	635	516
20	500	39.00	991	39.00	991	43.38	1100	32	800	935	782
24	600	45.00	1143	45.00	1143	45.25	1150	32	800	1500	1280
26	650	49.00	1245	49.00	1245	50.75	1290	32	800	1750	1375
28	700	53.00	1346	53.00	1346	55.12	1400	32	800	2225	1825
30	750	55.00	1397	55.00	1397	64.12	1630	32	800	2450	2180
32	800	60.00	1524	60.00	1524	70.88	1800	32	800	2870	2260
36	900	-	-	-	-	-	-	-	-	-	-

Trunnion Mounted Ball Valve Cast Steel Class 600lb Figure No. BT-CS600

■ SPECIFICATIONS

■ FEATURES



Design	ASME B16,34 / API 608 API6D / ISO 14313
Face to Face	ASME B16,10
End Flange	ASME B16,50
Butt Weld End	ASME B16,25
Fire Resistant	API 607
Anti Static	API 608
Test	API 598/ API6D Optional

Full port design
Bolted bonnet (BB) split body
Trunnion mounted ball type
Two Pieces/Three Pieces
Blow-out proof stem
Fire resistant construction
Anti static device
Stopper device
ISO 5211 Mounting Pad
Flanged / Butt weld ends
Manual worm gear Optional

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Ball	A182-F304 1)	A182-F316	A182-F304 1)
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Glass filled PTFE	Glass filled PTFE	Glass filled PTFE
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 2)	Graphite+316 2)	Graphite+304 2)
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel	Carbon steel	Carbon steel

Note: 1). A 105+ENP optional ; A 182- F316 2). Spiral wound construction.

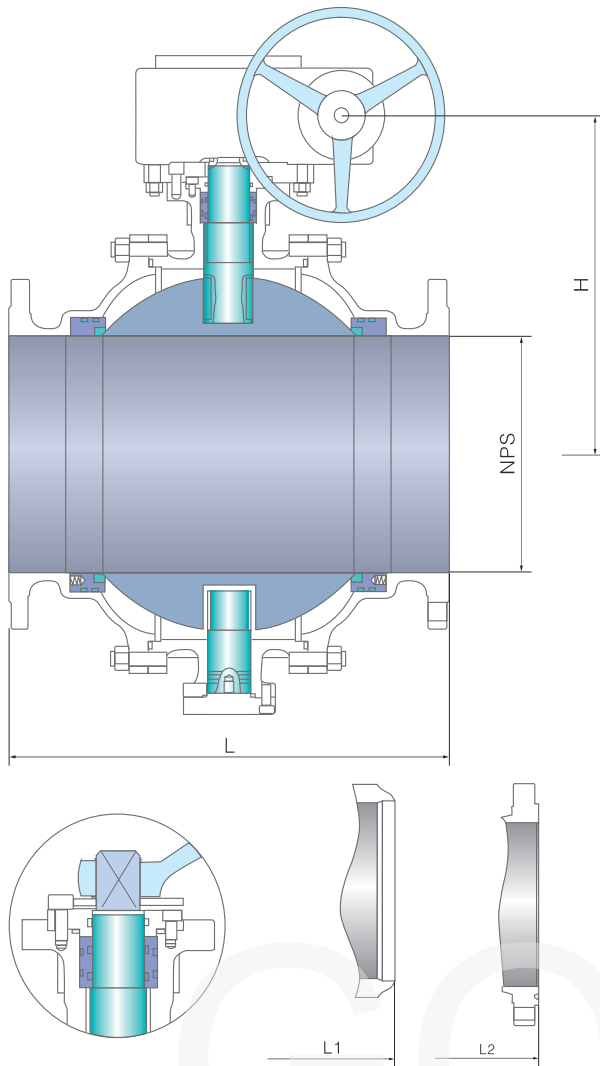
■ Dimensions and Weights

Size		L/L1 (RF/BW)		L2 (RTJ)		H		W		WT (Kg)	
in	mm	in	mm	in	mm	in	mm	in	mm	RF/RTJ	BW
2	50	11.50	292	11.62	295	7.12	180	14	350	26	19
2 1/2	65	13.00	330	13.12	333	7.62	193	16	400	35	25
3	80	14.00	356	14.12	359	8.50	215	20	500	58	42
4	100	17.00	432	17.12	435	9.50	241	20	500	81	51
6	150	22.00	559	22.12	562	21.52	540	24	600	142	82
8	200	26.00	660	26.12	664	25.00	635	24	600	287	200
10	250	31.00	787	31.12	791	26.12	665	24	600	540	395
12	300	33.00	838	33.12	841	31.12	790	24	600	780	610
14	350	35.00	889	35.12	892	31.88	810	32	800	1000	805
16	400	39.00	991	39.12	994	36.38	925	32	800	1300	1010
18	450	43.00	1092	43.12	1095	38.75	985	32	800	1700	1350
20	500	47.00	1194	47.25	1200	44.50	1130	32	800	2100	1656
24	600	55.00	1397	55.38	1407	46.62	1185	32	800	3400	2775
26	650	57.00	1448	57.50	1461	52.50	1335	32	800	3800	3125
28	700	61.00	1549	61.50	1562	57.00	1450	32	800	4500	3790

Trunnion Mounted Ball Valve Cast Steel Class 900lb Figure No. BT-CS900

■ SPECIFICATIONS

■ FEATURES



Design	ASME B16,34 / API 608 API6D / ISO 14313
Face to Face	ASME B16,10
End Flange	ASME B16,50
Butt Weld End	ASME B16,25
Fire Resistant	API 607
Anti Static	API 608
Test	API 598/ API6D Optional

Full port design
Bolted bonnet (BB) split body
Trunnion mounted ball type
Two Pieces/Three Pieces
Blow-out proof stem
Fire resistant construction
Anti static device
Stopper device
ISO 5211 Mounting Pad
Flanged / Butt weld ends
Manual worm gear Optional

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Ball	A182-F304 1)	A182-F316	A182-F304 1)
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Glass filled PTFE	Glass filled PTFE	Glass filled PTFE
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 2)	Graphite+316 2)	Graphite+304 2)
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel	Carbon steel	Carbon steel

Note: 1). A 105+ENP optional ; A 182- F316 2). Spiral wound construction.

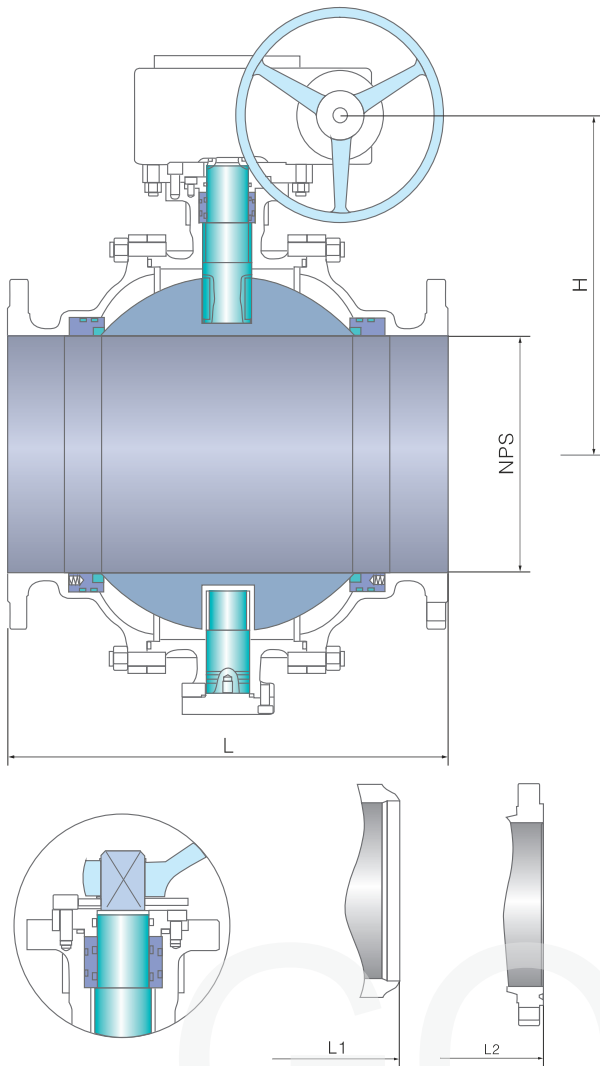
■ Dimensions and Weights

Size		L/L1 (RF/BW)		L2 (RTJ)		H		W		WT (Kg)	
in	mm	in	mm	in	mm	in	mm	in	mm	RF/RTJ	BW
2	50	14.50	368	14.62	371	8.62	219	20	500	31	23
2 1/2	65	16.50	419	16.62	422	9.25	235	20	500	43	31
3	80	15.00	381	15.12	384	10.25	260	20	500	68	51
4	100	18.00	457	18.12	460	15.38	390	24	600	98	61
6	150	24.00	610	24.12	613	25.75	655	24	600	171	102
8	200	29.00	737	29.12	740	30.25	770	24	600	345	240
10	250	33.00	838	33.12	841	31.75	805	24	600	650	480
12	300	38.00	965	38.12	968	38.00	965	32	800	940	735
14	350	40.50	1029	40.88	1038	38.50	980	32	800	1205	965
16	400	44.50	1130	44.88	1140	45.00	1145	32	800	1565	1215
18	450	48.00	1219	48.50	1232	47.00	1195	32	800	2050	1625
20	500	52.00	1321	52.50	1334	53.50	1360	32	800	2535	1995
24	600	61.00	1549	61.75	1568	56.00	1425	32	800	3950	3335

Trunnion Mounted Ball Valve Cast Steel Class 1500lb Figure No. BT-CS1500

■ SPECIFICATIONS

■ FEATURES



Design	ASME B16,34 / API 608 API6D / ISO 14313
Face to Face	ASME B16,10
End Flange	ASME B16,50
Butt Weld End	ASME B16,25
Fire Resistant	API 607
Anti Static	API 608
Test	API 598/ API6D Optional

Full port design
Bolted bonnet (BB) split body
Trunnion mounted ball type
Two Pieces/Three Pieces
Blow-out proof stem
Fire resistant construction
Anti static device
Stopper device
ISO 5211 Mounting Pad
Flanged / Butt weld ends
Manual worm gear Optional

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Ball	A182-F304 1)	A182-F316	A182-F304 1)
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Glass filled PTFE	Glass filled PTFE	Glass filled PTFE
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 2)	Graphite+316 2)	Graphite+304 2)
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel	Carbon steel	Carbon steel

Note: 1). A 105+ENP optional ; A 182- F316 2). Spiral wound construction.

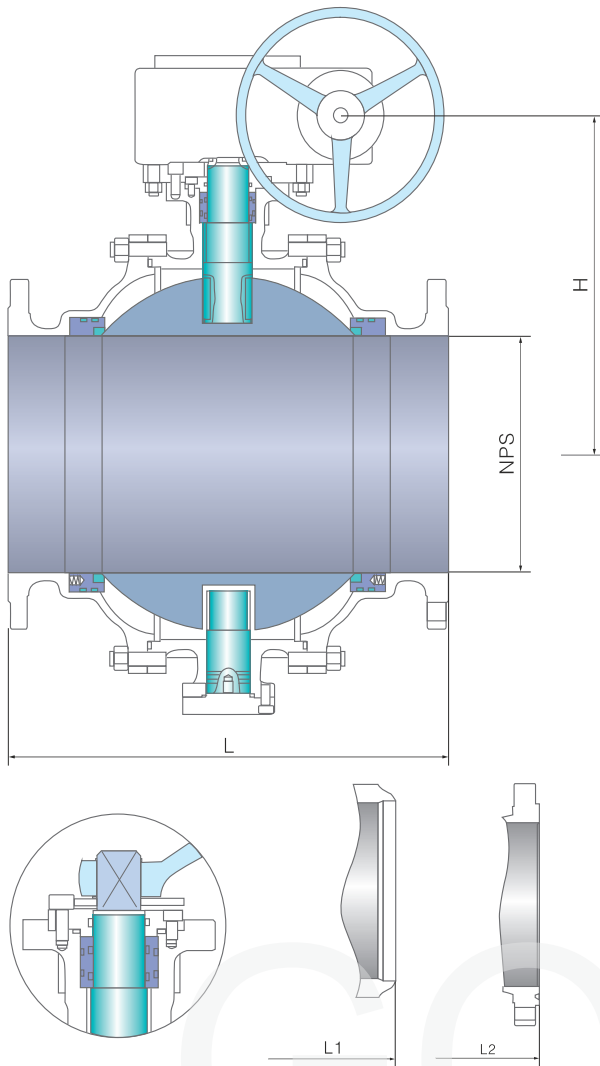
■ Dimensions and Weights

Size		L/L1 (RF/BW)		L2 (RTJ)		H		W		WT (Kg)	
in	mm	in	mm	in	mm	in	mm	in	mm	BW	
2	50	14.50	368	14.62	371	11.25	285	20	500	49	33
2 1/2	65	16.50	419	16.62	422	12.00	306	20	500	67	44
3	80	18.50	470	18.62	473	13.25	338	24	600	106	73
4	100	21.50	546	21.62	549	20.00	506	24	600	153	87
6	150	27.75	705	28.00	711	33.50	852	24	600	268	145
8	200	32.75	832	33.12	841	39.38	1000	32	800	540	345
10	250	39.00	991	39.38	1000	41.12	1045	32	800	1020	685
12	300	44.50	1130	45.12	1146	49.38	1255	32	800	1475	1050
14	350	49.50	1257	50.25	1276	50.00	1270	32	800	1885	1385
16	400	54.50	1384	55.38	1407	58.50	1485	32	800	2455	1735

Trunnion Mounted Ball Valve Cast Steel Class 2500lb Figure No. BT-CS2500

■ SPECIFICATIONS

■ FEATURES



Design	ASME B16,34 / API 608 API6D / ISO 14313
Face to Face	ASME B16,10
End Flange	ASME B16,50
Butt Weld End	ASME B16,25
Fire Resistant	API 607
Anti Static	API 608
Test	API 598/ API6D Optional

Full port design
Bolted bonnet (BB) split body
Trunnion mounted ball type
Two Pieces/Three Pieces
Blow-out proof stem
Fire resistant construction
Anti static device
Stopper device
ISO 5211 Mounting Pad
Flanged / Butt weld ends
Manual worm gear Optional

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Ball	A182-F304 1)	A182-F316	A182-F304 1)
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Glass filled PTFE	Glass filled PTFE	Glass filled PTFE
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 2)	Graphite+316 2)	Graphite+304 2)
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel	Carbon steel	Carbon steel

Note: 1). A 105+ENP optional ; A 182- F316 2). Spiral wound construction.

■ Dimensions and Weights

Size		L/L1 (RF/BW)		L2 (RTJ)		H		W		WT (Kg)	
in	mm	in	mm	in	mm	in	mm	in	mm	RF/RTJ	BW
2	50	17.75	451	17.88	454	12.00	304	20	500	55	41
2 1/2	65	20.00	508	21.25	540	12.88	327	24	600	76	55
3	80	22.75	578	23.00	584	14.25	362	24	600	120	91
4	100	26.50	673	26.88	683	21.25	540	24	600	173	110
6	150	36.00	914	36.50	927	35.88	911	32	800	302	182
8	200	40.25	1022	40.88	1038	42.12	1070	32	800	612	430
10	250	50.00	1270	50.88	1292	44.00	1120	32	800	1150	855
12	300	56.00	1422	56.88	1445	53.00	1345	32	800	1665	1315
14	350	-	-	-	-	-	-	-	-	-	-
16	400	-	-	-	-	-	-	-	-	-	-