



Design

Cast steel ball valve are designed and manufactured to provide maximum service life and dependability. All gate valves are full ported and meet the design requirements of American petroleum Institute Standard API 600 & API 6D, British Standard BS 5351 and generally conform to American Society of Mechanical Engineers Standard ASME B 16.34. Valves are available in a complete range of body/bonnet materials and trims.

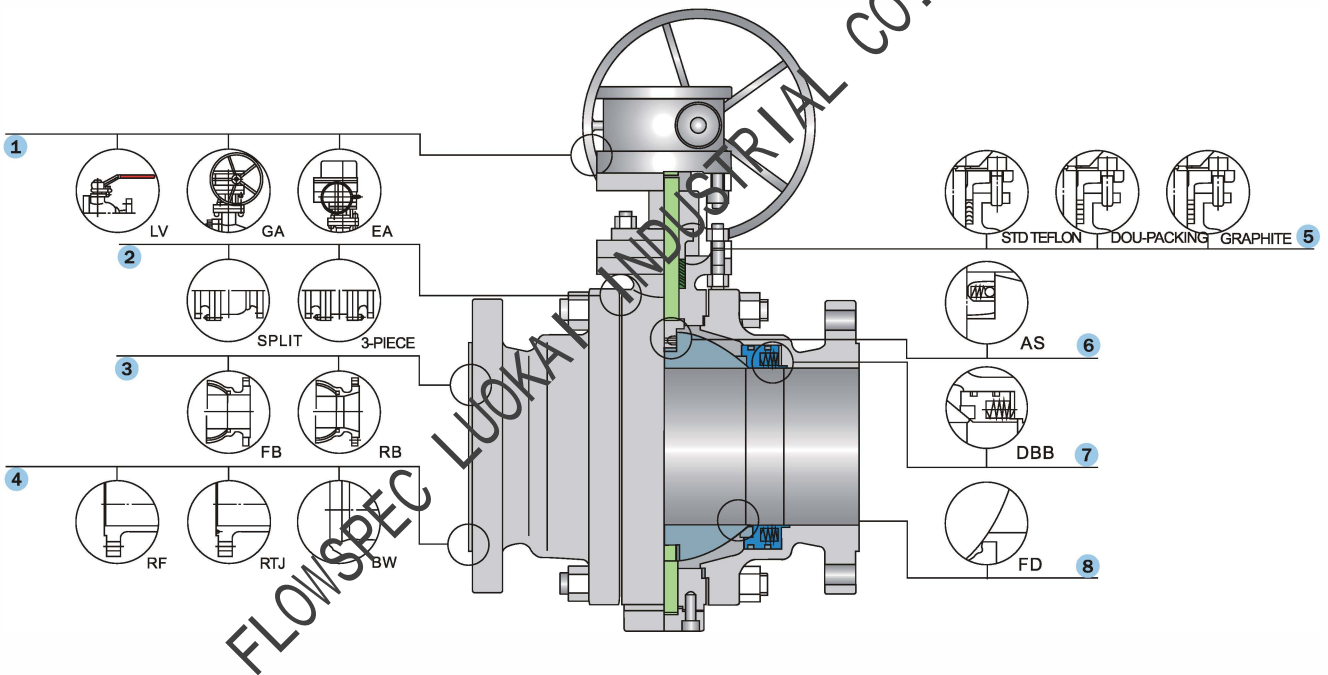
Rang of Materials

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.

Available Modifications For Cast Steel Valves

- * Trim changes
- * End connection Modifications
- * Packing and Gasket Changes
- * Operator Mounting
- * Handwheel Extensions

- * Pressure Equalizing
- * AS or FD
- * Customer specified Coatings
- * Weld End Bore Changes
- * Oxygen & Chlorine Cleaning & Packaging



1 Operating

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

3 BORE

Full Bore or Reduced Bore. Full-bore design provides exceptional flow control

5 Packing

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

7 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 easily be bled to avoid over pressure.

2 BODY & BONNET

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

4 End Connections

A choice of Flanged, RTJ flanged or Buttwelding end for piping flexibility

6 AS

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

8 FD

Fire Durable. 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.

TRUNNION MOUNTED CAST STEEL BALL VALVE 150LB

Applicable standards:

STEEL BALL VALVES, API 608/API 6D
STEEL BALL VALVES, ISO 10434/ISO 14313
FIRE DURABLE, API 607
ANTI STATIC, API 608
STEEL VALVES, ASME B 16.34
FACE TO FACE, ASME B 16.10
END FLANGES, ASME B 16.5
BUTTWELDING ENDS, ASME B 16.25
INSPECTION AND TEST, API 598/API 6D

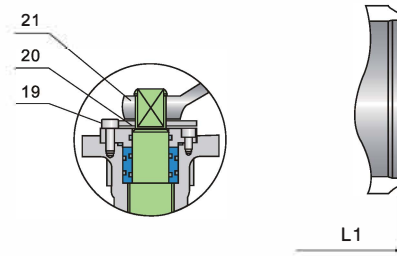
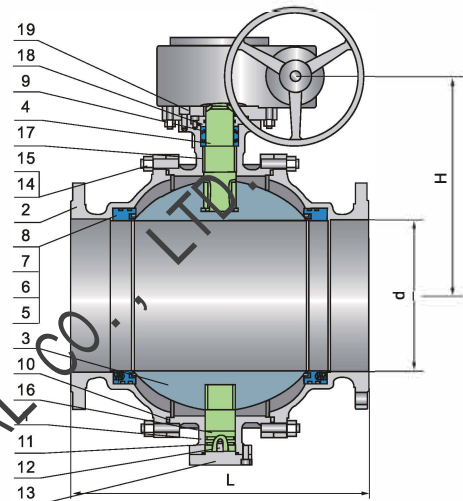
Design description:

FULL PORT DESIGN
BB, BOLTED BONNET, SPLIT BODY
THREE PIECE BODY FOR 12" & ABOVE
TRUNNION MOUNTED BALL TYPE
BLOW-OUT PROOF STEM
FIRE DURABLE CONSTRUCTION
ANTI STATIC DEVICE
STOPPER DEVICE
ISO5211 MOUNTING PAD
FLANGED OR BUTT WELDING ENDS
AVAILABLE WITH BG OPERATOR

Materials of parts

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	Seat Insert	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		

Note: 1). A105+ENP optional
2). Spiral wound construction.



Dimensions data

NPS	2	2½	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36	in
DN	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900	mm

ANSI Class 150Lb

L (RF)	7.00	7.50	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00	45.00	49.00	51.00	54.00	60.00	in
	178	190	203	229	394	457	533	610	686	762	864	914	1067	1143	1245	1295	1372	1524	mm
L1 (BW)	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	68.00	in
	216	241	283	305	457	521	559	635	762	838	914	991	1143	1245	1346	1397	1524	1727	mm
H	7.00	7.50	8.25	9.25	20.88	24.62	25.62	30.75	31.00	36.25	38.25	43.38	45.25	50.75	55.12	64.12	70.88	80.75	in
	177	190	210	235	530	625	650	780	790	920	970	1100	1150	1290	1400	1630	1840	2050	mm
(d)	49	62	74	100	150	201	252	303	334	385	436	487	589	633	684	735	779	874	mm
	14	16	20	20	24	24	24	24	32	32	32	32	32	32	32	32	32	32	in
WT (kg)	15	19	27	38	81	140	160	205	260	390	510	750	1200	1400	1860	2100	2530	2970	RF
	13.5	15.5	24.5	32.5	76	132	147	182	241	370	495	726	1125	1250	1640	1930	2390	2760	BW

TRUNNION MOUNTED CAST STEEL BALL VALVE 300LB

Applicable standards:

STEEL BALL VALVES, API 608/API 6D
 STEEL BALL VALVES, ISO 10434/ISO 14313
 FIRE DURABLE, API 607
 ANTI STATIC, API 608
 STEEL VALVES, ASME B 16.34
 FACE TO FACE, ASME B 16.10
 END FLANGES, ASME B 16.5
 BUTTWELDING ENDS, ASME B 16.25
 INSPECTION AND TEST, API 598/API 6D

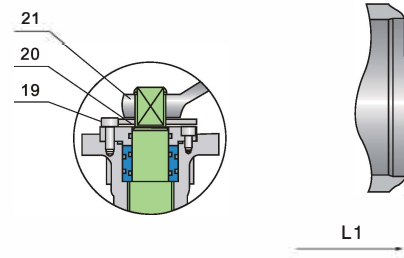
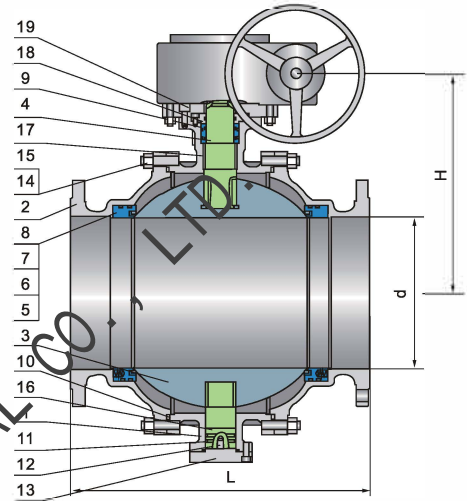
Design description:

FULL PORT DESIGN
 BB, BOLTED BONNET, SPLIT BODY
 THREE PIECE BODY FOR 12" & ABOVE
 TRUNNION MOUNTED BALL TYPE
 BLOW-OUT PROOF STEM
 FIRE DURABLE CONSTRUCTION
 ANTI STATIC DEVICE
 STOPPER DEVICE
 ISO5211 MOUNTING PAD
 FLANGED OR BUTT WELDING ENDS
 AVAILABLE WITH BG OPERATOR

Materials of parts

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-F2+ENP
6	Seat Insert	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		

Note: 1). A105+ENP optional
 2). Spiral wound construction.



Dimensions data

NPS	2	2½	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	in
DN	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	mm

ANSI Class 300Lb

L (RF)	8.50	9.50	11.12	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	in
	216	241	283	305	403	502	568	648	762	838	914	991	1143	1245	1346	1397	1524	mm
L1 (BW)	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	in
	216	241	283	305	403	521	559	635	762	838	914	991	1143	1245	1346	1397	1524	mm
H	7.00	7.50	8.25	9.25	20.88	24.62	56.62	30.75	31.00	36.25	38.25	43.38	45.25	50.75	55.12	64.12	70.88	in
	177	190	210	235	530	625	650	780	790	920	970	1100	1150	1290	1400	1630	1800	mm
(d)	49	62	74	100	150	201	252	303	334	385	436	487	589	633	684	735	779	mm
	14	16	20	20	24	24	24	24	32	32	32	32	32	32	32	32	32	in
WT (kg)	19	24	34	48	101	175	200	255	325	485	635	935	1500	1750	2225	2450	2870	RF
	14	16	25	34	82	145	155	185	238	375	516	782	1280	1375	1825	2180	2260	BW

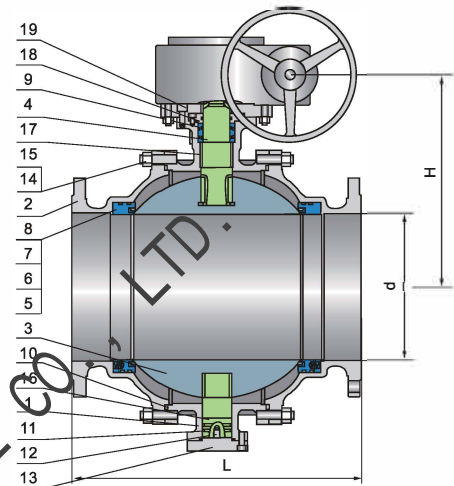
TRUNNION MOUNTED CAST STEEL BALL VALVE 600LB

Applicable standards:

STEEL BALL VALVES, API 608/API 6D
 STEEL BALL VALVES, ISO 10434/ISO 14313
 FIRE DURABLE, API 607
 ANTI STATIC, API 608
 STEEL VALVES, ASME B 16.34
 FACE TO FACE, ASME B 16.10
 END FLANGES, ASME B 16.5
 BUTTWELDING ENDS, ASME B 16.25
 INSPECTION AND TEST, API 598/API 6D

Design description:

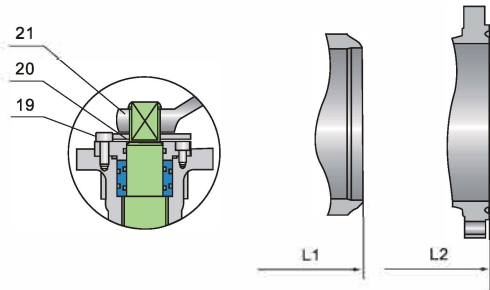
FULL PORT DESIGN
 BB, BOLTED BONNET, SPLIT BODY
 THREE PIECE BODY FOR 12" & ABOVE
 TRUNNION MOUNTED BALL TYPE
 BLOW-OUT PROOF STEM
 FIRE DURABLE CONSTRUCTION
 ANTI STATIC DEVICE
 STOPPER DEVICE
 ISO5211 MOUNTING PAD
 FLANGED OR BUTT WELDING ENDS
 AVAILABLE WITH BG OPERATOR



Materials of parts

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-F2+ENP
6	Seat Insert	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	A182-F316	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		

Note: 1). A105+ENP optional
 2). Spiral wound construction.



Dimensions data

NPS	2	2½	3	4	6	8	10	12	14	16	18	20	24	26	28	in
DN	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	mm

ANSI Class 600Lb

L (RF)	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	57.00	61.00	in
	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	1448	1549	mm
L1 (BW)	11.62	13.12	14.12	17.12	22.12	26.12	21.12	33.12	35.12	39.12	43.12	47.25	55.38	57.50	61.50	in
	295	333	359	435	562	664	791	841	892	994	1095	1200	1407	1461	1562	mm
H	7.12	7.62	8.50	9.50	21.25	25.00	26.12	31.12	31.88	36.38	38.75	44.50	46.62	52.50	57.00	in
	180	193	215	241	540	635	665	790	810	925	985	1130	1185	1335	1450	mm
(d)	49	62	74	100	150	201	252	303	334	385	436	487	589	633	684	mm
W	14	16	20	20	24	24	24	24	32	32	32	32	32	32	32	in
	350	400	500	500	600	600	600	600	800	800	800	800	800	800	800	mm
WT (kg)	26	35	58	81	142	287	540	780	1000	1300	1700	2100	3400	3800	4500	RF
	19	25	42	51	85	200	395	610	805	1010	1350	1656	2775	3125	3790	BW

TRUNNION MOUNTED CAST STEEL BALL VALVE 900LB

Applicable standards:

STEEL BALL VALVES, API 608/API 6D
 STEEL BALL VALVES, ISO 10434/ISO 14313
 FIRE DURABLE, API 607
 ANTI STATIC, API 608
 STEEL VALVES, ASME B 16.34
 FACE TO FACE, ASME B 16.10
 END FLANGES, ASME B 16.5
 BUTTWELDING ENDS, ASME B 16.25
 INSPECTION AND TEST, API 598/API 6D

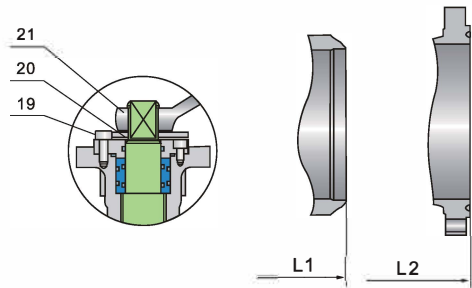
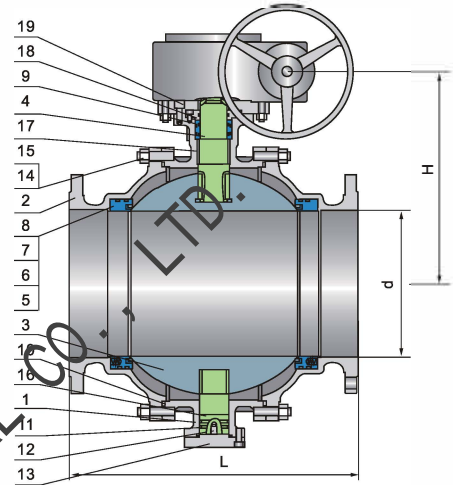
Design description:

FULL PORT DESIGN
 BB, BOLTED BONNET, SPLIT BODY
 THREE PIECE BODY FOR 12" & ABOVE
 TRUNNION MOUNTED BALL TYPE
 BLOW-OUT PROOF STEM
 FIRE DURABLE CONSTRUCTION
 ANTI STATIC DEVICE
 STOPPER DEVICE
 ISO5211 MOUNTING PAD
 FLANGED OR BUTT WELDING ENDS
 AVAILABLE WITH BG OPERATOR

Materials of parts

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	Seat Insert	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	A182-F316	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		

Note: 1). A105+ENP optional
 2). Spiral wound construction.



Dimensions data

NPS	2	2½	3	4	6	8	10	12	14	16	18	20	24	in
DN	50	65	80	100	150	200	250	300	350	400	450	500	600	mm

ANSI Class 900Lb

L	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00	in
(RF)	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549	mm
L1	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.50	52.50	61.75	in
(BW)	371	422	384	460	613	740	841	968	1038	1140	1232	1334	1568	mm
H	8.62	9.25	10.25	15.38	25.75	30.25	31.75	38.00	38.50	45.00	47.00	53.50	56.00	in
	219	235	260	390	655	770	805	965	980	1145	1195	1360	1425	mm
(d)	49	62	74	100	150	201	252	303	322	373	423	471	570	mm
W	20	20	20	24	24	24	24	32	32	32	32	32	32	in
	500	500	500	600	600	600	600	800	800	800	800	800	800	mm
WT	31	43	68	98	171	345	650	940	1205	1565	2050	2535	3950	RF
(kg)	23	31	51	61	102	240	480	735	965	1215	1625	1995	3335	BW

TRUNNION MOUNTED CAST STEEL BALL VALVE 1500LB/2500LB

Applicable standards:

STEEL BALL VALVES, API 608/API 6D
 STEEL BALL VALVES, ISO 10434/ISO 14313
 FIRE DURABLE, API 607
 ANTI STATIC, API 608
 STEEL VALVES, ASME B 16.34
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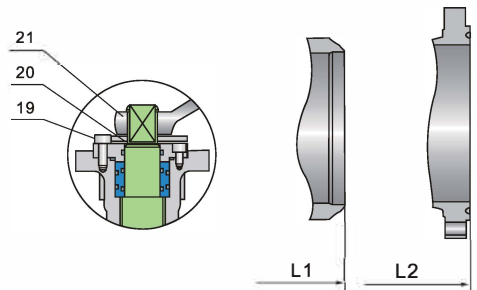
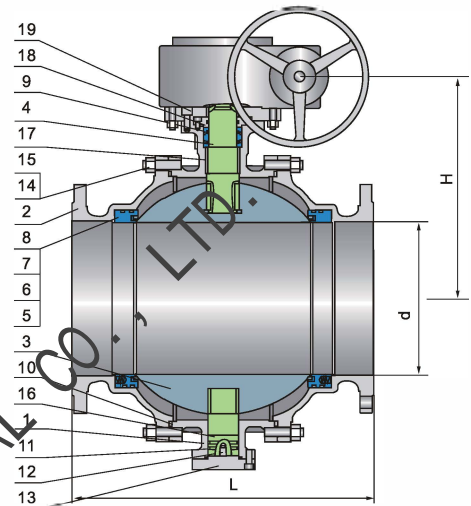
Design description:

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 THREE PIECE BODY FOR 12" & ABOVE
 TRUNNION MOUNTED BALL TYPE
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 FIRE DURABLE CONSTRUCTION
 ANTI STATIC DEVICE
 STOPPER DEVICE
 ISO5211 MOUNTING PAD
 FLANGED OR BUTT WELDING ENDS
 AVAILABLE WITH BG OPERATOR

Materials of parts

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
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4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Seat Insert	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	StopPlate	Carbon Steel	Carbon Steel+Zn	Carbon Steel
21	Handle	Carbon Steel		

Note: 1). A105+ENP optional
 2). Spiral wound construction.



Dimensions data

NPS	2	2½	3	4	6	8	10	12	14	16	2	2½	3	4	6	8	10	12	in
DN	50	65	80	100	150	200	250	300	350	400	50	65	80	100	150	200	250	300	mm
ANSI Class 1500Lb										ANSI Class 2500Lb									
L/L1 (RF)/(BW)	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	in
	368	419	470	546	705	832	991	1130	1257	1384	451	508	578	673	914	1022	1270	1422	mm
L2 (RTJ)	14.62	16.62	18.62	21.62	28.00	33.12	39.38	45.12	50.25	55.38	17.88	21.25	23.00	26.88	36.50	40.88	50.88	56.88	in
	371	422	473	549	711	841	1000	1146	1276	1407	454	540	584	683	927	1038	1292	1445	mm
H	11.25	12.00	13.25	20.00	33.50	39.38	41.12	49.38	50.00	58.50	12.00	12.88	14.25	21.25	35.88	42.12	44.00	53.00	in
	285	306	338	506	852	1000	1045	1255	1270	1485	304	327	362	540	911	1070	1120	1345	mm
(d)	49	62	74	100	144	192	239	287	315	360	42	52	62	87	131	179	223	265	mm
W	20	20	24	24	24	32	32	32	32	32	20	24	24	24	32	32	32	32	in
	500	500	600	600	600	800	800	800	800	800	500	600	600	600	800	800	800	800	mm
WT (kg)	49	67	106	153	268	540	1020	1475	1885	2455	55	76	120	173	302	612	1150	1665	RF/RTJ
	33	44	73	87	145	345	685	1050	1385	1735	41	55	91	110	182	430	855	1315	BW