

BALL VALVE



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CWT Valve
CWT VALVE INDUSTRIES INC.

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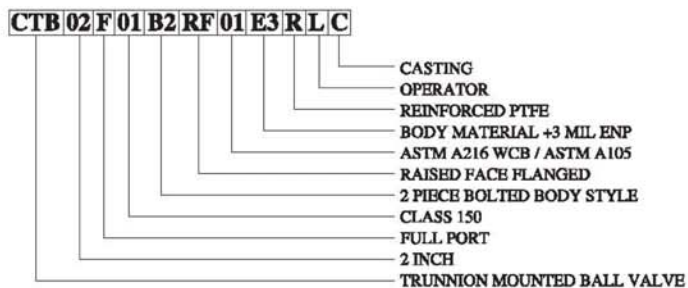
CWT FIGURE NUMBER SYSTEM

1. VALVE TYPE	CFB=FLOATING BALL VALVE CTB=TRUNNION MOUNTED BALL VALVE			
2. SIZE	25=1/4"	04=4"	20=20"	
	41=1 1/4"	05=5"	24=24"	
	50=1/2"	06=6"	26=26"	
	75=3/4"	08=8"	28=28"	
	01=1"	10=10"	30=30"	
	15=1 1/2"	12=12"	32=32"	
	02=2"	14=14"	36=36"	
	21=2 1/2"	16=16"	40=40"	
	03=3"	18=18"	42=42"	
3. PORT	F=FULL		R=REDUCED	
4. PRESSURE	01=ANSI CLASS 150 03=ANSI CLASS 300 06=ANSI CLASS 600 08=ANSI CLASS 800 09=ANSI CLASS 900 15=ANSI CLASS 1500		25=ANSI CLASS 2500 10=1000PSI 80=800PSI	
5. CONSTRUCTION	E1=1 PIECE END ENTRY STYLE B2=2 PIECE BOLTED BODY STYLE T2=2 PIECE THREADED BODY STYLE B3=3 PIECE BOLTED BODY STYLE T3=3 PIECE THREADED BODY STYLE			
6. ENDS	RF=RAISED FACE FLANGED JF=RTJ FLANGED RW=RAISED FACE FLANGEDxWELD END JR=RTJxRAISED FACE FLANGED JW=RTJxWELD END		BW=BUTT WELD FF=FLAT FACE SN=SWxNPT SW=SOCKET WELD NT=NPT FEMALE	
7. BODY MATERIAL	01=WCB / A105 02=LCC / LP2 03=CF8M / F316 04=DUPLEX F51 05=DUPLEX F55 06=A105N 07=WCB+ENP / A105+ENP 08=DUCTILE IRON 09=CF8 / F304			10=WC6 / F11 11=C5 / F5 12=CF3 / F304L 13=CF3M / F316L 14=MONEL 15=CN7M (ALLOY 20) 16=C12 / F9 17=WC9 / F22 18=CAST IRON
			19=WCC 20=LCB 21=C12A / F91 22=F12 23=F321 24=WC1 25=BRONZE (B61 / B62) 26=F60 27=HASTELLOY	

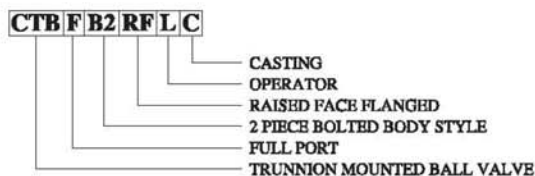
CWT FIGURE NUMBER SYSTEM

8. TRIM MATERIAL	E1=BODY MATERIAL+1 MIL ENP	E3=BODY MATERIAL+3 MIL ENP
	S2=304SS / CP8	S3=316SS / CP8M
	S4=410SS / F6A	S5=DUPLEX-ASTM A182 F51
	S6=SUPER DUPLEX-ASTM A182 F55	S7=316LSS / CP3M
	S8=304LSS / CP3	S9=17-4PH
	S10=4140+ENP	
9. BALL VALVE SEAT	P=PTFE / TEFLON	M=METAL TO METAL
	R=REINFORCED PTFE	C=PCTFE
	D=DELRIN / POM	L=PPL
	K=PEEK	T=VITON
	V=DEVLON V API GRADE	O=OTHER
	N=NYLON	
10. OPERATOR	L=LEVER / WRENCH	E=ELECTRICAL OPERATOR
	G=GEAR BOX	P=PNEUMATIC OPERATOR
	B=BARE STEM	H=HYDRAULIC OPERATOR
	W=HANDWHEEL	S=SOLENOID OPERATOR
11.MATERIAL TYPE	C=CASTING	F=FORGED

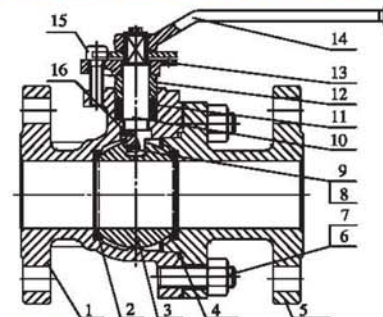
1. PART NUMBER EXAMPLE:



2. SERIES NUMBER EXAMPLE:



CAST STEEL FLOATING BALL VALVE



DESIGN FEATURES:

- FULL PORT DESIGN / REDUCED PORT DESIGN
- 2 PIECE BOLTED BODY
- FLOATING BALL TYPE
- BLOW-OUT PROOF STEM
- FIRE SAFE DESIGN
- ANTI-STATIC DEVICE
- ISO 5211 DIRECT MOUNTING TYPE
- WITH LOCKING DEVICE

STANDARDS:

- DESIGN AND MANUFACTURE: BS 5351 / API 608 / API 6D / ASME B16.34
- FACE TO FACE DIMENSIONS: ASME B16.10 / API 6D
- FLANGE ENDS DIMENSIONS: NPS 1/2"-24"
- BW ENDS DIMENSIONS: ASME B16.5
- PRESSURE-TEMPERATURE RATINGS: ASME B16.25
- FIRE SAFE DESIGN: ASME B16.34
- NORMAL PRESSURE: API 607 / API 6FA
- NORMAL DIAMETER: CLASS 150-1500
- NORMAL DIAMETER: NPS 2"-10"

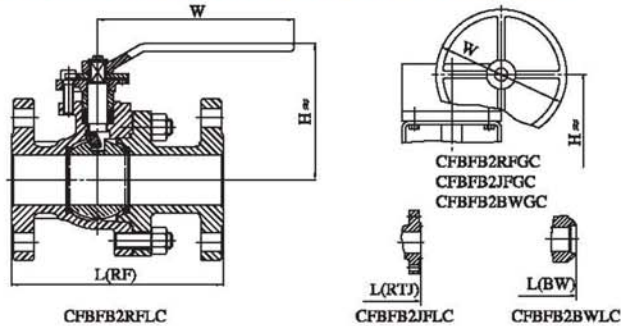


BILL OF MATERIAL (PARTIAL)

ITEM	PART NAME	STANDARD	LOW TEMPERATURE	STAINLESS STEEL
1	BODY	ASTM A216 WCB	ASTM A352 LCC	ASTM A351 CF8M
2	SEAT	PTFE / RPTFE	PTFE / RPTFE	PTFE / RPTFE
3	BALL	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
4	GASKET	304SS/316SS+GRAPHITE		
5	BONNET	ASTM A216 WCB	ASTM A352 LCC	ASTM A351 CF8M
6	BOLT	ASTM A193 B7/B7M	ASTM A320 L7/L7M	ASTM A193 B8M
7	NUT	ASTM A194 2H/2HM	ASTM A194 7/7M	ASTM A194 8M
8	ANTI STATIC BALL	304SS	304SS	316SS
9	ANTI STATIC SPRING	304SS	304SS	316SS
10	STEM	AISI 1040+ENP / AISI 1045+ENP	AISI 4140+ENP	ASTM A276 316
11	PACKING	GRAPHITE / PTFE		
12	GLAND	ASTM 276 410	ASTM 276 410	ASTM A276 316
13	GLAND FLANGE	ASTM A216 WCB	ASTM A352 LCC	ASTM A351 CF8
14◆	LEVER	CARBON STEEL		
15	BOLT	ASTM A193 B7/B7M	ASTM A320 L7/L7M	ASTM A193 B8
16	THRUST WASHER	PTFE		

◆ GEAR OPERATOR, ELECTRICAL OPERATOR, PNEUMATIC OPERATOR, HYDRAULIC OPERATOR AND ETC. ARE AVAILABLE
 NOTE: OTHER MATERIALS ARE AVAILABLE UPON REQUEST

CAST STEEL FLOATING BALL VALVE



FULL PORT CLASS 150

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	8	10
DN	mm	15	20	25	32	40	50	65	80	100	150	200	250
L(RF)	mm	108	117	127	140	165	178	191	203	229	394	457	533
L(BW)	mm	140	152	165	178	191	216	241	283	305	457	521	559
L(RTJ)	mm	119	130	140	152	178	191	203	216	241	406	470	546
H	mm	70	93	93	102	118	145	148	152	203	338	456	510
W	mm	130	130	160	180	200	230	300	350	400	750	300	400
WT(RF)	Kg	3	4	5	7	8	12	18	24	38	82	185	280

FULL PORT CLASS 300

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	8
DN	mm	15	20	25	32	40	50	65	80	100	150	200
L(RF)	mm	140	152	165	178	191	216	241	283	305	403	502
L(BW)	mm	140	152	165	178	191	216	241	283	305	457	521
L(RTJ)	mm	151	165	178	191	203	232	257	298	321	419	518
H	mm	70	93	93	102	118	145	156	170	210	366	440
W	mm	130	130	160	200	230	230	300	350	400	800	400
WT(RF)	Kg	3	5	6	8	11	16	24	34	56	125	267

FULL PORT CLASS 600

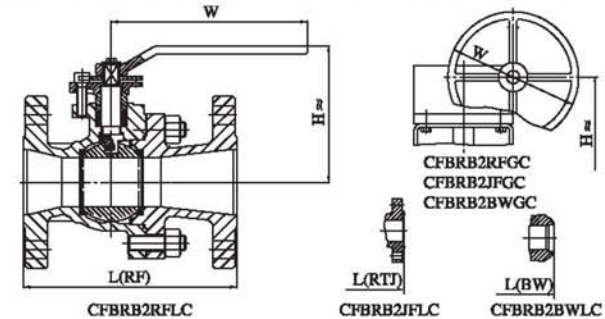
NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
DN	mm	15	20	25	32	40	50	65	80	100
L(RF)	mm	165	191	216	229	241	292	330	356	432
L(BW)	mm	165	191	216	229	241	292	330	356	432
L(RTJ)	mm	163.5	191	216	229	241	295	333	359	435
H	mm	85	93	99	100	115	180	175	244	265
W	mm	160	200	200	200	200	350	600	700	800
WT(RF)	Kg	5	7	9	13	17	25	42	56	85

FULL PORT CLASS 900-CLASS 1500

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2
DN	mm	15	20	25	32	40	50
L(RF)	mm	216	229	254	279	305	368
L(BW)	mm	216	229	254	279	305	368
L(RTJ)	mm	216	229	254	279	305	371
H	mm	85	93	100	110	125	195
W	mm	160	200	200	350	600	800
WT(RF)	Kg	10	14	17	25	33	48

NOTE: CLASS 150-CLASS 300-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 8"

CAST STEEL FLOATING BALL VALVE



REDUCED PORT CLASS 150

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	8sp	8	8sp	10	10sp
DN	mm	15	20	25	32	40	50	65	80	100	150	150sp	200	200sp	250	250sp
L(RF)	mm	108	117	127	140	165	178	191	203	229	394	267	457	292	533	330
L(BW)	mm	140	152	165	178	191	216	241	283	305	457	403	521	419	559	457
L(RTJ)	mm	-	-	140	152	178	191	203	216	241	406	279	470	305	546	343
H	mm	70	70	93	93	93	118	145	145	152	203	203	338	338	456	456
W	mm	130	130	130	160	160	200	230	230	350	400	400	750	750	300	300
WT(RF)	Kg	2.5	3	4.5	5.2	5.5	5.8	13	14	26	70	57	165	75	248	145

REDUCED PORT CLASS 300

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	8	8sp
DN	mm	15	20	25	32	40	50	65	80	100	150	200	200sp
L(RF)	mm	140	152	165	178	191	216	241	283	305	403	502	419
L(BW)	mm	140	152	165	178	191	216	241	283	305	457	521	419
L(RTJ)	mm	151	165	178	191	203	232	257	298	321	419	518	435
H	mm	70	70	93	93	93	118	145	145	170	210	366	366
W	mm	130	130	130	160	160	230	230	230	350	400	800	800
WT(RF)	Kg	3	4	4.5	5.5	5.6	6	13	14	38	57	130	100

REDUCED PORT CLASS 600

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
DN	mm	15	20	25	32	40	50	65	80	100
L(RF)	mm	165	191	216	229	241	292	330	356	432
L(BW)	mm	165	191	216	229	241	292	330	356	432
L(RTJ)	mm	163.5	191	216	229	241	295	333	359	435
H	mm	85	85	93	99	99	115	180	175	244
W	mm	160	200	200	200	200	350	600	700	
WT(RF)	Kg	4	6	7.5	10	13	20	29	33	60

REDUCED PORT CLASS 900-CLASS 1500

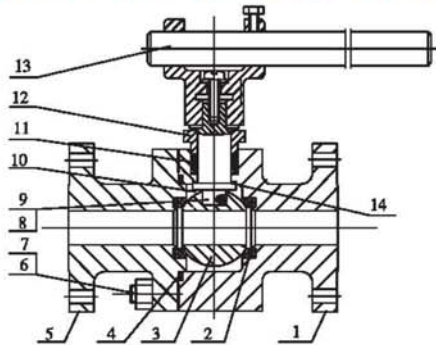
NPS	in	1/2	3/4	1	1-1/4	1-1/2	2
DN	mm	15	20	25	32	40	50
L(RF)	mm	216	229	254	279	305	368
L(BW)	mm	216	229	254	279	305	368
L(RTJ)	mm	216	229	254	279	305	371
H	mm	85	85	93	100	100	125
W	mm	160	160	200	200	200	600
WT(RF)	Kg	8	11	12	20	26	36

SP-SHORT PATTERN

SHORT OR LONG PATTERN TO BE SPECIFIED AT TIME OF ORDER

NOTE: CLASS 150-CLASS 300-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 8"

FORGED STEEL FLOATING BALL VALVE



DESIGN FEATURES:

- FULL PORT DESIGN / REDUCED PORT DESIGN
- 2 PIECE BOLTED BODY
- FLOATING BALL TYPE
- BLOW-OUT PROOF STEM
- FIRE SAFE DESIGN
- ANTI-STATIC DEVICE
- ISO 5211 DIRECT MOUNTING TYPE
- WITH LOCKING DEVICE

STANDARDS:

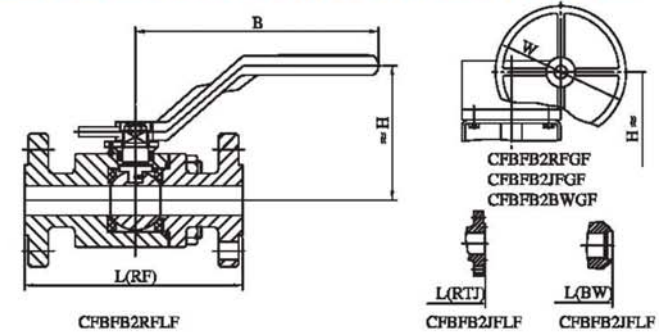
- DESIGN AND MANUFACTURE: BS 5351 / API 608 / API 6D / ASME B16.34
- FACE TO FACE DIMENSIONS: ASME B16.10 / API 6D
- FLANGE ENDS DIMENSIONS:
 - NPS 1/2"-24" ASME B16.5
- BW ENDS DIMENSIONS: ASME B16.25
- PRESSURE-TEMPERATURE RATINGS: ASME B16.34
- FIRE SAFE DESIGN: API 607 / API 6FA
- NORMAL PRESSURE: CLASS 150-1500
- NORMAL DIAMETER: NPS 1/2"-10"

BILL OF MATERIAL (PARTIAL)

ITEM	PART NAME	STANDARD	LOW TEMPERATURE	STAINLESS STEEL
1	BODY	ASTM A105	ASTM A350 LF2	ASTM A182 F316
2	SEAT	PIPE / RPTFE	PIPE / RPTFE	PIPE / RPTFE
3	BALL	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
4	GASKET		304SS/316SS+GRAPHITE	
5	BONNET	ASTM A105	ASTM A350 LF2	ASTM A182 F316
6	BOLT	ASTM A193 B7/B7M	ASTM A320 L7/L7M	ASTM A193 B8M
7	NUT	ASTM A194 2H/2HM	ASTM A194 7/7M	ASTM A194 8M
8	ANTI STATIC BALL	304SS	304SS	316SS
9	ANTI STATIC SPRING	304SS	304SS	316SS
10	STEM	AISI 1040+ENP / AISI 1045+ENP	AISI 4140+ENP	ASTM A276 316
11	PACKING		GRAPHITE / PTFE	
12	GLAND FLANGE	ASTM 276 410	ASTM 276 410	ASTM A276 316
13♦	LEVER		CARBON STEEL	
14	THRUST WASHER		PTFE	

♦ GEAR OPERATOR, ELECTRICAL OPERATOR, PNEUMATIC OPERATOR, HYDRAULIC OPERATOR AND ETC. ARE AVAILABLE
 NOTE: OTHER MATERIALS ARE AVAILABLE UPON REQUEST

FORGED STEEL FLOATING BALL VALVE



FULL PORT CLASS 150

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	8	10
DN	mm	15	20	25	32	40	50	65	80	100	150	200	250
L(RF)	mm	108	117	127	140	165	178	191	203	229	394	457	533
L(BW)	mm	-	-	165	178	191	216	241	283	305	457	521	559
L(RTI)	mm	119	130	140	152	178	191	203	216	241	406	470	546
H	mm	70	93	93	102	118	145	148	152	203	338	456	510
W	mm	130	130	160	180	200	230	300	350	400	750	300	400
WT(RF)	Kg	3	4	5.5	7.6	8.5	12	18	24	40	82	185	300

FULL PORT CLASS 300

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	8
DN	mm	15	20	25	32	40	50	65	80	100	150	200
L(RF)	mm	140	152	165	178	191	216	241	283	305	403	502
L(BW)	mm	140	152	165	178	191	216	241	283	305	457	521
L(RTI)	mm	151	165	178	191	203	232	257	298	321	419	518
H	mm	70	93	93	102	118	145	156	170	210	366	440
W	mm	130	130	160	200	230	230	300	350	400	800	400
WT(RF)	Kg	4.2	5	6	8	11	16	30	36	56	125	267

FULL PORT CLASS 600

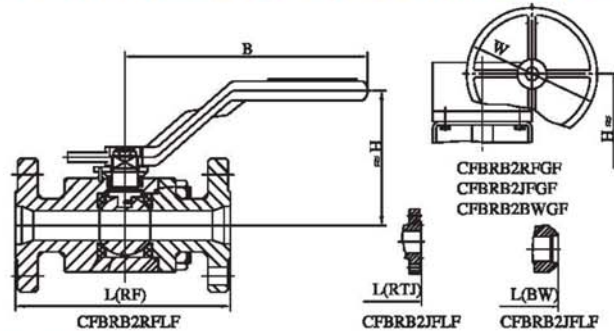
NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
DN	mm	15	20	25	32	40	50	65	80	100
L(RF)	mm	165	191	216	229	241	292	330	356	432
L(BW)	mm	165	191	216	229	241	292	330	356	432
L(RTI)	mm	163.5	191	216	229	241	295	333	359	435
H	mm	85	93	99	100	115	180	175	244	265
W	mm	160	200	200	200	200	350	600	700	800
WT(RF)	Kg	5	7	12	18	24	25	42	56	85

FULL PORT CLASS 900-CLASS 1500

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2
DN	mm	15	20	25	32	40	50
L(RF)	mm	216	229	254	279	305	368
L(BW)	mm	216	229	254	279	305	368
L(RTI)	mm	216	229	254	279	305	371
H	mm	85	93	100	110	125	195
W	mm	160	200	200	350	600	800
WT(RF)	Kg	10	14	17	25	33	48

NOTE: CLASS 150-CLASS 300-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 8"

FORGED STEEL FLOATING BALL VALVE



REDUCED PORT CLASS 150

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	6sp	8	8sp	10	10sp
DN	mm	15	20	25	32	40	50	65	80	100	150	150sp	200	200sp	250	250sp
L(RF)	mm	108	117	127	140	165	178	191	203	229	394	267	457	292	533	330
L(BW)	mm	-	-	165	178	191	216	241	283	305	457	403	521	419	559	457
L(RTJ)	mm	119	130	140	152	178	191	203	216	241	406	279	470	305	546	343
H	mm	70	70	93	93	93	118	145	145	152	203	203	338	338	456	456
W	mm	130	130	130	160	160	200	230	230	350	400	400	750	750	300	300
WT(RF)	Kg	2.5	3	4.5	5.2	5.5	5.8	13	14	26	70	57	165	75	248	145

REDUCED PORT CLASS 300

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	8	8sp
DN	mm	15	20	25	32	40	50	65	80	100	150	200	200sp
L(RF)	mm	140	152	165	178	191	216	241	283	305	403	502	419
L(BW)	mm	140	152	165	178	191	216	241	283	305	457	521	419
L(RTJ)	mm	151	165	178	191	203	232	257	298	321	419	518	435
H	mm	70	70	93	93	93	118	145	145	170	210	366	366
W	mm	130	130	130	160	160	230	230	230	350	400	800	800
WT(RF)	Kg	3	4	4.5	5.5	5.6	6	13	14	38	57	130	100

REDUCED PORT CLASS 600

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
DN	mm	15	20	25	32	40	50	65	80	100
L(RF)	mm	165	191	216	229	241	292	330	356	432
L(BW)	mm	165	191	216	229	241	292	330	356	432
L(RTJ)	mm	163.5	191	216	229	241	295	333	359	435
H	mm	85	85	93	99	99	115	180	175	244
W	mm	160	160	200	200	200	200	350	600	700
WT(RF)	Kg	4	6	7.5	10	13	20	29	33	60

SP=SHORT PATTERN

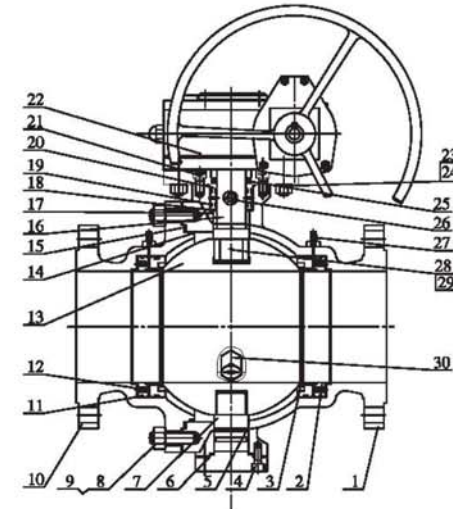
SHORT OR LONG PATTERN TO BE SPECIFIED AT TIME OF ORDER

NOTE: CLASS 150-CLASS 300-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 8"

REDUCED PORT CLASS 900-CLASS 1500

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2
DN	mm	15	20	25	32	40	50
L(RF)	mm	216	229	254	279	305	368
L(BW)	mm	216	229	254	279	305	368
L(RTJ)	mm	216	229	254	279	305	371
H	mm	85	85	93	100	100	125
W	mm	160	160	200	200	200	600
WT(RF)	Kg	8	11	12	20	26	36

CAST STEEL TRUNNION MOUNTED BALL VALVE



DESIGN FEATURES:

- FULL PORT DESIGN / REDUCED PORT DESIGN
- 2 PIECE / 3 PIECE BOLTED BODY
- TRUNNION MOUNTED BALL TYPE
- DOUBLE BLOCK AND BLEED (DBB)
- SECONDARY / EMERGENCY SEALING
- AUTOMATIC BODY CAVITY & RELIEF
- BLOW-OUT PROOF STEM
- FIRE SAFE DESIGN
- ANTI-STATIC DEVICE
- ISO 5211 DIRECT MOUNTING TYPE
- WITH LOCKING DEVICE

STANDARDS:

- DESIGN AND MANUFACTURE: BS 5351 / API 608 / API 6D / ASME B16.34
- FACE TO FACE DIMENSIONS: ASME B16.10 / API 6D
- FLANGE ENDS DIMENSIONS:
 - NPS 1/2"-24" ASME B16.5
 - NPS 26" & ABOVE ASME B16.47
- BW ENDS DIMENSIONS: ASME B16.25
- PRESSURE-TEMPERATURE RATINGS: ASME B16.34
- FIRE SAFE DESIGN: API 607 / API 6FA
- NORMAL PRESSURE: CLASS 150-1500
- NORMAL DIAMETER: NPS 2"-36"



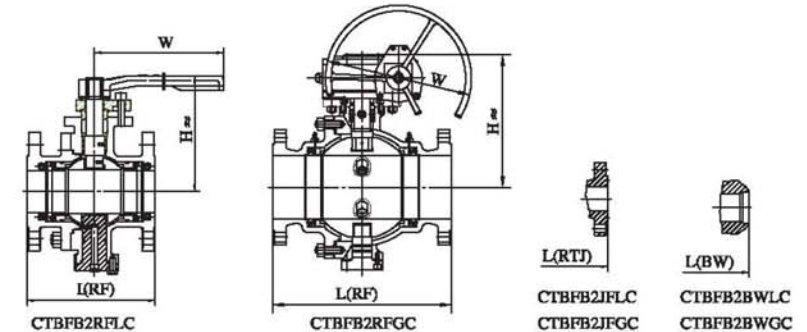
CAST STEEL TRUNNION MOUNTED BALL VALVE

AVAILABLE MATERIAL OF CONSTRUCTION:

ITEM	PART NAME	STANDARD	LOW TEMPERATURE	STAINLESS STEEL
1	BODY	ASTM A216 WCB	ASTM A352 LCC	ASTM A351 CF8M
2	SEAT RING	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
3	SEAT INSERT	PTFE / RPTFE / NYLON	PTFE / RPTFE / NYLON	PTFE / RPTFE / NYLON
4	SCREW	ASTM A193 B7/B7M	ASTM A320 L7/L7M	ASTM A193 B8M
5	O-RING	VITON		
6	GASKET	304SS/316SS+GRAPHITE		
7	TRUNNION	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
8	BOLT	ASTM A193 B7/B7M	ASTM A320 L7/L7M	ASTM A193 B8M
9	NUT	ASTM A194 2H/2HM	ASTM A194 7/7M	ASTM A194 8M
10	BONNET	ASTM A216 WCB	ASTM A352 LCC	ASTM A351 CF8M
11	O-RING	VITON		
12	SPRINGS	INCONEL X-750		
13	BALL	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
14	O-RING	VITON		
15	GASKET	304SS/316SS+GRAPHITE		
16	STEM	AISI 1040+ENP / AISI 1045+ENP	AISI 4140+ENP	ASTM A182 F316
17	BEARING	AISI 1045+RPTFE	304SS+RPTFE	316SS+RPTFE
18	THRUST WASHER	PTFE	PTFE	PTFE
19	O-RING	VITON		
20	PACKING BOX	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
21	SCREW	CARBON STEEL	CARBON STEEL	STAINLESS STEEL
22	GEAR OPERATOR	ASSEMBLY		
23	BOLT	CARBON STEEL	CARBON STEEL	STAINLESS STEEL
24	NUT	CARBON STEEL	CARBON STEEL	STAINLESS STEEL
25	PACKING	GRAPHITE / PTFE		
26	GREASE FITTING (STEM)	CARBON STEEL	STAINLESS STEEL	316SS
27	GREASE FITTING (SEAT)	CARBON STEEL	STAINLESS STEEL	316SS
28	ANTI STATIC BALL	304SS	304SS	316SS
29	ANTI STATIC SPRING	304SS	304SS	316SS
30	DRAIN VALVE AND PLUG	CARBON STEEL	STAINLESS STEEL	316SS

◆ GEAR OPERATOR, ELECTRICAL OPERATOR, PNEUMATIC OPERATOR, HYDRAULIC OPERATOR AND ETC. ARE AVAILABLE
 NOTE: OTHER MATERIALS ARE AVAILABLE UPON REQUEST

CAST STEEL TRUNNION MOUNTED BALL VALVE



FULL PORT CLASS 150

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L(RF)	mm	178	191	203	229	394	457	533	610	686	762	864	914	1067	1143	1245	1295	1372	1524
L(BW)	mm	216	241	283	305	457	521	559	635	762	838	914	991	1143	1245	1346	1397	1524	1727
L(RTJ)	mm	191	203	216	241	406	470	546	622	699	775	876	927	1080	-	-	-	-	-
H	mm	170	186	210	255	392	490	548	688	722	722	804	952	1154	1300	1550	1650	1740	1948
W	mm	300	300	350	450	300	300	300	400	400	400	500	600	600	762	762	762	762	762
WT(RF)	Kg	11	15	20	36	73	110	217	385	457	723	930	1260	2458	3120	3033	3350	3700	6892

FULL PORT CLASS 300

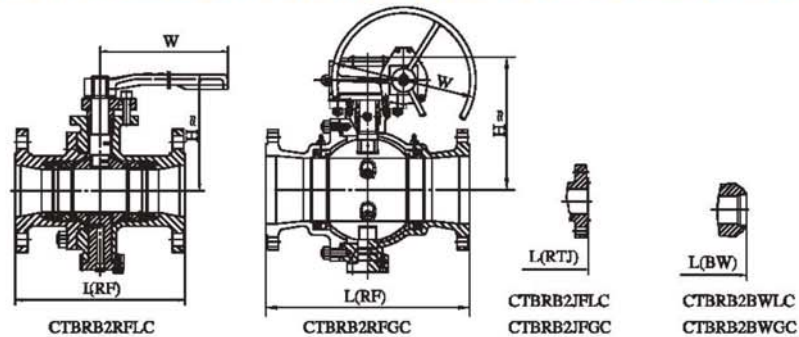
NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L(RF)	mm	216	241	283	305	403	502	568	648	762	838	914	991	1143	1245	1346	1397	1524	1727
L(BW)	mm	216	241	283	305	457	521	559	635	762	838	914	991	1143	1245	1346	1397	1524	1727
L(RTJ)	mm	232	257	298	321	419	518	584	664	778	854	930	1010	1165	1270	1372	1422	1553	1756
H	mm	175	186	210	255	402	498	655	658	686	880	1050	1110	1400	1498	1589	1718	1800	2200
W	mm	300	300	350	450	300	300	400	400	400	600	762	762	762	762	762	762	762	914
WT(RF)	Kg	15	24	30	55	90	201	350	510	720	1167	1326	1672	3008	3416	4016	5223	5957	7944

FULL PORT CLASS 600

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L(RF)	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L(BW)	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L(RTJ)	mm	295	333	359	435	562	663	790	841	892	994	1095	1200	1407
H	mm	195	220	247	275	445	498	653	665	738	920	1100	1200	1480
W	mm	500	600	700	900	400	400	400	500	600	762	762	762	762
WT(RF)	Kg	33	47	58	83	174	339	515	960	1250	1415	1828	2320	3665

NOTE: CLASS 150-CLASS 600-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 6"

CAST STEEL TRUNNION MOUNTED BALL VALVE



REDUCED PORT CLASS 150

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
L(RF)	mm	178	191	203	229	394	457	533	610	686	762	864	914	1067	1295	1524
L(BW)	mm	216	241	283	305	457	521	559	635	762	838	914	991	1143	1397	1727
L(RTJ)	mm	191	203	216	241	406	470	546	622	699	775	876	927	1080	-	-
H	mm	158	170	170	210	255	392	490	548	688	722	722	804	952	1154	1650
W	mm	300	300	300	350	300	300	300	300	400	400	400	500	600	600	762
WT(RF)	Kg	10	11	12	25	41	83	122	235	402	481	765	980	1810	2904	3700

REDUCED PORT CLASS 300

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
L(RF)	mm	216	241	283	305	403	502	568	648	762	838	914	991	1143	1397	1727
L(BW)	mm	216	241	283	305	457	521	559	635	762	838	914	991	1143	1397	1727
L(RTJ)	mm	232	257	298	321	419	518	584	664	778	854	930	1010	1165	1422	1756
H	mm	158	175	175	210	255	402	498	655	658	686	880	1050	1110	1400	1718
W	mm	300	300	300	350	450	300	300	400	400	400	600	762	762	762	762
WT(RF)	Kg	13	16	20	44	66	107	222	381	547	760	1257	1656	2252	3758	5982

REDUCED PORT CLASS 600

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L(RF)	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L(BW)	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L(RTJ)	mm	295	333	359	435	562	663	790	841	892	994	1095	1200	1407
H	mm	180	195	195	247	275	445	498	653	665	738	920	1100	1200
W	mm	500	500	500	700	900	400	400	400	500	600	762	762	762
WT(RF)	Kg	28	38	37	72	103	198	386	545	992	1328	1615	1843	3081

NOTE: CLASS 150-CLASS 300-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 6"

CAST STEEL TRUNNION MOUNTED BALL VALVE

FULL PORT CLASS 900

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16
DN	mm	50	65	80	100	150	200	250	300	350	400
L(RF)	mm	368	419	381	457	610	737	838	965	1029	1130
L(BW)	mm	368	419	381	457	610	737	838	965	1029	1130
L(RTJ)	mm	371	422	384	460	613	740	841	968	1038	1140
H	mm	217	241	259	297	477	520	628	680	750	940
W	mm	500	600	900	1000	400	400	400	500	600	762
WT(RF)	Kg	39	55	68	98	220	500	942	1200	1655	1903

FULL PORT CLASS 1500

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16
DN	mm	50	65	80	100	150	200	250	300	350	400
L(RF)	mm	368	419	470	546	705	832	991	1130	1257	1384
L(BW)	mm	368	419	470	546	705	832	991	1130	1257	1384
L(RTJ)	mm	371	422	473	549	711	841	1000	1146	1276	1407
H	mm	237	261	254	415	580	584	650	700	780	980
W	mm	800	900	1000	300	400	400	500	600	762	762
WT(RF)	Kg	40	64	95	180	380	750	1165	1625	1980	3540

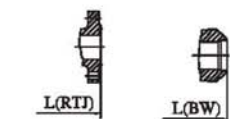
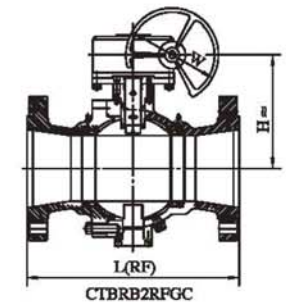
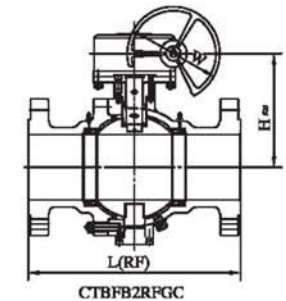
REDUCED PORT CLASS 900

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16
DN	mm	50	65	80	100	150	200	250	300	350	400
L(RF)	mm	368	419	381	457	610	737	838	965	1029	1130
L(BW)	mm	368	419	381	457	610	737	838	965	1029	1130
L(RTJ)	mm	371	422	384	460	613	740	841	968	1038	1140
H	mm	201	217	217	259	297	477	520	628	680	750
W	mm	500	500	500	900	1000	400	400	400	500	600
WT(RF)	Kg	31	33	44	82	127	263	551	1010	1310	1855

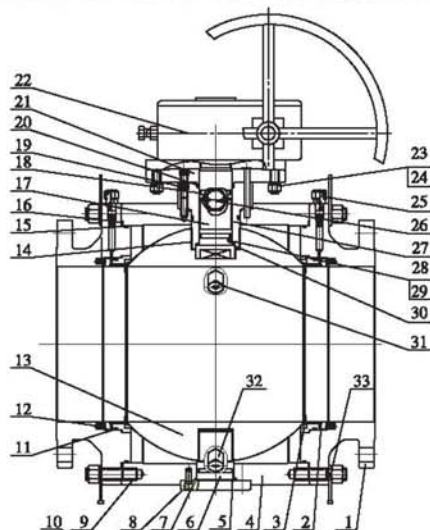
REDUCED PORT CLASS 1500

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16
DN	mm	50	65	80	100	150	200	250	300	350	400
L(RF)	mm	368	419	470	546	705	832	991	1130	1257	1384
L(BW)	mm	368	419	470	546	705	832	991	1130	1257	1384
L(RTJ)	mm	371	422	473	549	711	841	1000	1146	1276	1407
H	mm	217	237	237	254	415	580	584	650	700	780
W	mm	800	800	800	300	300	400	400	500	600	762
WT(RF)	Kg	40	46	50	108	225	485	956	1267	1825	2280

NOTE: CLASS 900-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 4"
NOTE: CLASS 1500-CLASS 2500-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 2"



FORGED STEEL TRUNNION MOUNTED BALL VALVE



DESIGN FEATURES:

- FULL PORT DESIGN / REDUCED PORT DESIGN
- 2 PIECE / 3 PIECE BOLTED BODY
- TRUNNION MOUNTED BALL TYPE
- DOUBLE BLOCK AND BLEED (DBB)
- SECONDARY OR EMERGENCY SEALING
- AUTOMATIC BODY CAVITY & RELIEF
- BLOW-OUT PROOF STEM
- FIRE SAFE DESIGN
- ANTI-STATIC DEVICE
- ISO 5211 DIRECT MOUNTING TYPE
- WITH LOCKING DEVICE

STANDARDS:

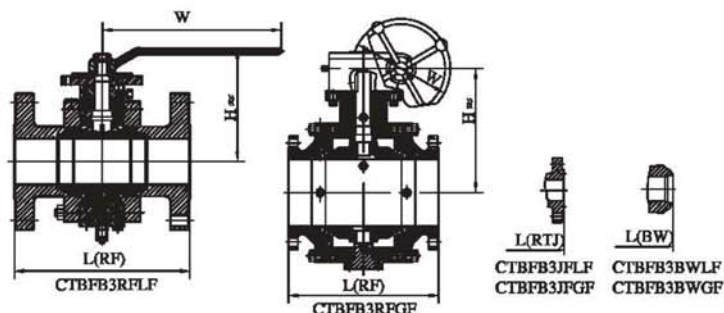
- DESIGN AND MANUFACTURE: BS 5351 / API 608 / API 6D / ASME B16.34
- FACE TO FACE DIMENSIONS: ASME B16.10 / API 6D
- FLANGE ENDS DIMENSIONS:
- NPS 1/2"~24" ASME B16.5
- NPS 26" & ABOVE ASME B16.47
- BW ENDS DIMENSIONS: ASME B16.25
- PRESSURE-TEMPERATURE RATINGS: ASME B16.34
- FIRE SAFE DESIGN: API 607 / API 6FA
- NORMAL PRESSURE: CLASS 150~2500
- NORMAL DIAMETER: NPS 2"~36"

FORGED STEEL TRUNNION MOUNTED BALL VALVE

BILL OF MATERIAL (PARTIAL)

ITEM	PART NAME	STANDARD	LOW TEMPERATURE	STAINLESS STEEL
1	ADAPTER	ASTM A105	ASTM A350 LF2	ASTM A182 F316
2	SEAT RING	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
3	SEAT INSERT	PTFE / RPTFE / NYLON	PTFE / RPTFE / NYLON	PTFE / RPTFE / NYLON
4	BODY	ASTM A105	ASTM A350 LF2	ASTM A182 F316
5	O-RING	VITON		
6	TRUNNION	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
7	GASKET	304SS/316SS+GRAPHITE		
8	SCREW	ASTM A193 B7/B7M	ASTM A320 L7/L7M	ASTM A193 B8M
9	BOLT	ASTM A193 B7/B7M	ASTM A320 L7/L7M	ASTM A193 B8M
10	NUT	ASTM A194 2H/2HM	ASTM A194 7/7M	ASTM A194 8M
11	O-RING	VITON		
12	SPRINGS	INCONEL X-750		
13	BALL	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
14	BEARING	AISI 1045+RPTFE	304SS+RPTFE	316SS+RPTFE
15	O-RING	VITON		
16	GASKET	304SS/316SS+GRAPHITE		
17	STEM	AISI 1040+ENP / AISI 1045+ENP	AISI 4140+ENP	ASTM A182 F316
18	O-RING	VITON		
19	SCREW	CARBON STEEL	CARBON STEEL	STAINLESS STEEL
20	PACKING	GRAPHITE / PTFE		
21	CONNECTING PLATE	CARBON STEEL	CARBON STEEL	STAINLESS STEEL
22◆	GEAR OPERATOR	ASSEMBLY		
23	BOLT	CARBON STEEL	CARBON STEEL	STAINLESS STEEL
24	NUT	CARBON STEEL	CARBON STEEL	STAINLESS STEEL
25	GREASE FITTING (SEAT)	CARBON STEEL	STAINLESS STEEL	316SS
26	GREASE FITTING (STEM)	CARBON STEEL	STAINLESS STEEL	316SS
27	PACKING BOX	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
28	ANTI STATIC BALL	304SS	304SS	316SS
29	ANTI STATIC SPRING	304SS	304SS	316SS
30	THRUST WASHER	PTFE	PTFE	PTFE
31	DRAIN VALVE	CARBON STEEL	STAINLESS STEEL	316SS
32	PLUG	CARBON STEEL	STAINLESS STEEL	316SS
33	SUPPORT	CARBON STEEL	CARBON STEEL	CARBON STEEL

◆ GEAR OPERATOR, ELECTRICAL OPERATOR, PNEUMATIC OPERATOR, HYDRAULIC OPERATOR AND ETC. ARE AVAILABLE

FORGED STEEL TRUNNION MOUNTED BALL VALVE

FULL PORT CLASS 150

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L(RF)	mm	178	191	203	229	394	457	533	610	686	762	864	914	1067	1143	1245	1295	1372	1524
L(BW)	mm	216	241	283	305	457	521	559	635	762	838	914	991	1143	1245	1346	1397	1524	1727
L(RTJ)	mm	191	203	216	241	406	470	546	622	699	775	876	927	1080	-	-	-	-	-
H	mm	170	186	210	255	392	490	548	688	722	722	804	952	1154	1300	1550	1650	1740	1948
W	mm	300	300	350	450	300	300	300	400	400	400	500	600	600	762	762	762	762	762
WT(RF)	Kg	26	42	50	60	101	166	283	463	622	900	1150	1360	2514	3200	4000	4800	5800	8000

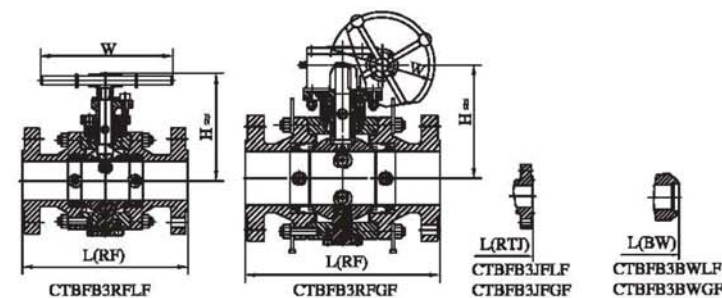
FULL PORT CLASS 300

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L(RF)	mm	216	241	283	305	403	502	568	648	762	838	914	991	1143	1245	1346	1397	1524	1727
L(BW)	mm	216	241	283	305	457	521	559	635	762	838	914	991	1143	1245	1346	1397	1524	1727
L(RTJ)	mm	232	257	298	321	419	518	584	664	778	854	930	1010	1165	1270	1372	1422	1553	1756
H	mm	175	186	210	255	402	498	655	658	686	880	1050	1110	1400	1498	1589	1718	1800	2200
W	mm	300	300	350	450	300	300	400	400	400	500	600	600	762	762	762	762	762	914
WT(RF)	Kg	28	52	55	70	128	234	403	602	803	1273	1450	1700	3100	4500	6000	7500	9000	12000

FULL PORT CLASS 600

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L(RF)	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L(BW)	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L(RTJ)	mm	295	333	359	435	562	663	790	841	892	994	1095	1200	1407
H	mm	195	220	247	275	445	498	653	665	738	920	1100	1200	1480
W	mm	500	600	700	900	400	400	400	500	600	762	762	762	762
WT(RF)	Kg	33	47	68	106	241	444	668	1050	1317	1800	2400	3000	5400

CLASS 150--CLASS 600-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 6"

FORGED STEEL TRUNNION MOUNTED BALL VALVE

FULL PORT CLASS 900

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16
DN	mm	50	65	80	100	150	200	250	300	350	400
L(RF)	mm	368	419	381	457	610	737	838	965	1029	1130
L(BW)	mm	368	419	381	457	610	737	838	965	1029	1130
L(RTJ)	mm	371	422	384	460	613	740	841	968	1038	1140
H	mm	217	241	259	297	477	520	628	680	750	940
W	mm	500	600	900	1000	400	400	400	500	600	762
WT(RF)	Kg	45	55	94	141	325	580	850	1330	1660	2280

FULL PORT CLASS 1500

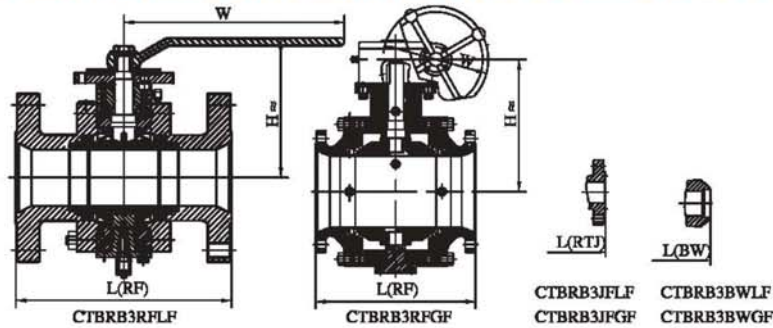
NPS	in	2	2-1/2	3	4	6	8	10	12	14	16
DN	mm	50	65	80	100	150	200	250	300	350	400
L(RF)	mm	368	419	470	546	705	832	991	1130	1257	1384
L(BW)	mm	368	419	470	546	705	832	991	1130	1257	1384
L(RTJ)	mm	371	422	473	549	711	841	1000	1146	1276	1407
H	mm	217	261	254	415	580	584	650	700	780	980
W	mm	500	900	1000	300	400	400	500	600	762	762
WT(RF)	Kg	67	80	130	192	475	820	1320	2050	1980	3540

FULL PORT CLASS 2500

NPS	in	2	2-1/2	3	4	6	8	10
DN	mm	50	65	80	100	150	200	250
L(RF)	mm	451	508	578	673	914	1022	1270
L(BW)	mm	451	508	578	673	914	1022	1270
L(RTJ)	mm	454	540	584	683	927	1038	1292
H	mm	237	261	300	415	580	584	650
W	mm	1000	1000	1000	400	500	500	600
WT(RF)	Kg	104	140	202	305	760	1200	2080

 NOTE: CLASS 900-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 4"
 CLASS 1500--CLASS2500-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 2"

FORGED STEEL TRUNNION MOUNTED BALL VALVE



REDUCED PORT CLASS 150

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
L(RF)	mm	178	191	203	229	394	457	533	610	686	762	864	914	1067	1295	1524
L(BW)	mm	216	241	283	305	457	521	559	635	762	838	914	991	1143	1397	1727
L(RTJ)	mm	191	203	216	241	406	470	546	622	699	775	876	927	1080	-	-
H	mm	158	170	170	210	255	392	490	548	688	722	722	804	952	1154	1650
W	mm	300	300	300	350	300	300	300	300	400	400	400	500	600	600	762
WT(RF)	Kg	10	11	12	25	41	83	122	235	402	481	765	980	1810	2904	3700

REDUCED PORT CLASS 300

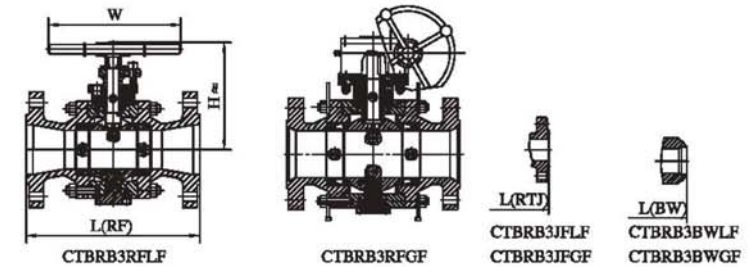
NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
L(RF)	mm	216	241	283	305	403	502	568	648	762	838	914	991	1143	1397	1727
L(BW)	mm	216	241	283	305	457	521	559	635	762	838	914	991	1143	1397	1727
L(RTJ)	mm	232	257	298	321	419	518	584	664	778	854	930	1010	1165	1422	1756
H	mm	158	175	175	210	255	402	498	655	658	686	880	1050	1110	1400	1718
W	mm	300	300	300	350	450	300	300	400	400	400	600	762	762	762	762
WT(RF)	Kg	13	16	20	44	66	107	222	381	547	760	1257	1656	2252	3758	5982

REDUCED PORT CLASS 600

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L(RF)	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L(BW)	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L(RTJ)	mm	295	333	359	435	562	663	790	841	892	994	1095	1200	1407
H	mm	180	195	195	247	275	445	498	653	665	738	920	1100	1200
W	mm	500	500	500	700	900	400	400	400	500	600	762	762	762
WT(RF)	Kg	28	38	37	72	103	198	386	545	992	1328	1615	1843	3081

CLASS 150-CLASS 600-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 6"

FORGED STEEL TRUNNION MOUNTED BALL VALVE



REDUCED PORT CLASS 900

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16
DN	mm	50	65	80	100	150	200	250	300	350	400
L(RF)	mm	368	419	381	457	610	737	838	965	1029	1130
L(BW)	mm	368	419	381	457	610	737	838	965	1029	1130
L(RTJ)	mm	371	422	384	460	613	740	841	968	1038	1140
H	mm	208	217	217	259	297	477	520	628	680	750
W	mm	500	500	500	900	1000	400	400	400	500	600
WT(RF)	Kg	31	33	44	82	127	263	551	1010	1310	1855

REDUCED PORT CLASS 1500

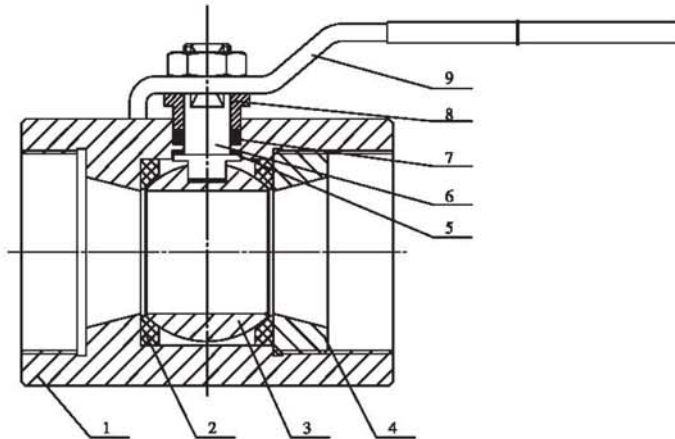
NPS	in	2	2-1/2	3	4	6	8	10	12	14	16
DN	mm	50	65	80	100	150	200	250	300	350	400
L(RF)	mm	368	419	470	546	705	832	991	1130	1257	1384
L(BW)	mm	368	419	470	546	705	832	991	1130	1257	1384
L(RTJ)	mm	371	422	473	549	711	841	1000	1146	1276	1407
H	mm	208	217	217	254	415	580	584	650	700	780
W	mm	500	500	500	300	300	400	400	500	600	762
WT(RF)	Kg	58	65	70	124	296	595	988	1505	2476	3198

REDUCED PORT CLASS 2500

NPS	in	2	2-1/2	3	4	6	8	10
DN	mm	50	65	80	100	150	200	250
L(RF)	mm	451	508	578	673	914	1022	1270
L(BW)	mm	451	508	578	673	914	1022	1270
L(RTJ)	mm	454	540	584	683	927	1038	1292
H	mm	218	237	237	300	415	580	584
W	mm	1000	1000	1000	400	400	500	500
WT(RF)	Kg	96	115	185	275	526	960	1800

NOTE: CLASS 900-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 4"
 CLASS 1500-CLASS 2500-GEAR OPERATOR IS APPLIED TO SIZE MORE THAN OR EQUAL TO NPS 2"

SOCKET WELDED AND NPT ENDS BALL VALVE 1 PIECE THREADED BALL VALVE



DESIGN FEATURES:

- REDUCED PORT DESIGN
- 1 PIECE THREADED BODY
- FLOATING BALL TYPE
- BLOW-OUT PROOF STEM
- ANTI-STATIC DEVICE
- WITH LOCKING DEVICE

STANDARDS:

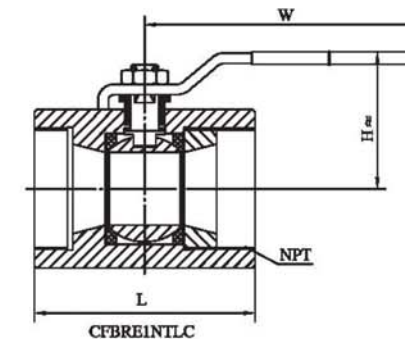
- DESIGN AND MANUFACTURE: BS 5351 / ASME B16.34
- FACE TO FACE DIMENSIONS: MANUFACTURER'S SPECIFICATION
- THREAD ENDS DIMENSIONS: ASME B1.20.1
- PRESSURE-TEMPERATURE RATINGS: ASME B16.34
- NORMAL PRESSURE: 800PSI-1000PSI
- NORMAL DIAMETER: NPS 1/2"-2"

SOCKET WELDED AND NPT ENDS BALL VALVE 1 PIECE THREADED BALL VALVE

BILL OF MATERIAL (PARTIAL)

ITEM	PART NAME	STANDARD	STAINLESS STEEL
1	BODY	ASTM A216 WCB	ASTM A351 CF8M
2	SEAT	PTFE / RPTFE	PTFE / RPTFE
3	BALL	ASTM A105+ENP	ASTM A182 F316
4	BONNET	ASTM A216 WCB	ASTM A351 CF8M
5	THRUST WASHER		RPTFE
6	STEM	ASTM 276 410	ASTM A276 316
7	PACKING		GRAPHITE / PTFE
8	GLAND FLANGE	ASTM A216 WCB	ASTM A351 CF8
9	LEVER		STAINLESS STEEL

NOTE: OTHER MATERIALS ARE AVAILABLE UPON REQUEST

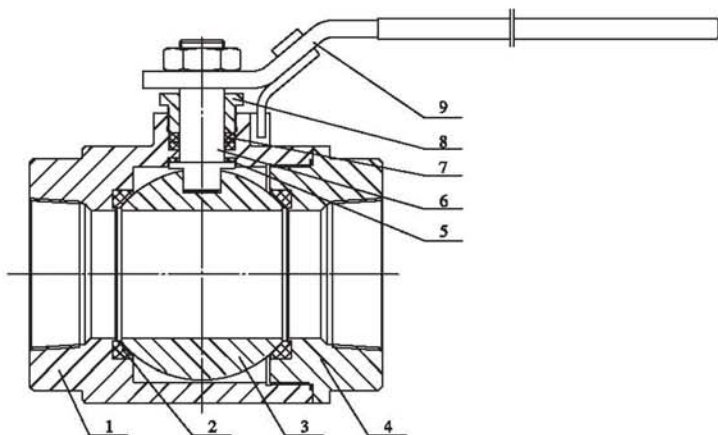


800PSI-1000PSI

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2
DN	mm	15	20	25	32	40	50
L	mm	57	59	71	80	83	100
NPT	in	1/2	3/4	1	1-1/4	1-1/2	2
H	mm	44	47	55	60	75	80
W	mm	95	95	110	110	140	140
WT	Kg	0.3	0.4	0.6	1.1	1.5	2.8

SOCKET WELDED AND NPT ENDS BALL VALVE

2 PIECE THREADED BALL VALVE



DESIGN FEATURES:

- FULL PORT DESIGN
- 2 PIECE THREADED BODY
- FLOATING BALL TYPE
- BLOW-OUT PROOF STEM
- FIRE SAFE DESIGN
- ANTI-STATIC DEVICE
- WITH LOCKING DEVICE

STANDARDS:

- DESIGN AND MANUFACTURE: BS 5351 / ASME B16.34
- FACE TO FACE DIMENSIONS: MANUFACTURER'S SPECIFICATION
- THREAD ENDS DIMENSIONS: ASME B1.20.1
- PRESSURE-TEMPERATURE RATINGS: ASME B16.34
- NORMAL PRESSURE: 800PSI-1000PSI
- NORMAL DIAMETER: NPS 1/2"-2"

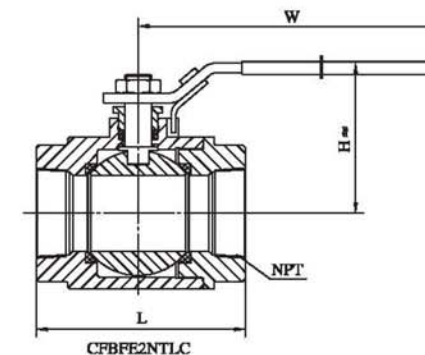
SOCKET WELDED AND NPT ENDS BALL VALVE

2 PIECE THREADED BALL VALVE

BILL OF MATERIAL (PARTIAL)

ITEM	PART NAME	STANDARD	STAINLESS STEEL
1	BODY	ASTM A216 WCB	ASTM A351 CF8M
2	SEAT	PTFE / RPTFE	PTFE / RPTFE
3	BALL	ASTM A105+ENP	ASTM A182 F316
4	BONNET	ASTM A216 WCB	ASTM A351 CF8M
5	THRUST WASHER		RPTFE
6	STEM	ASTM 276 410	ASTM A276 316
7	PACKING		GRAPHITE / PTFE
8	GLAND FLANGE	ASTM A216 WCB	ASTM A351 CF8
9	LEVER		STAINLESS STEEL

NOTE: OTHER MATERIALS ARE AVAILABLE UPON REQUEST

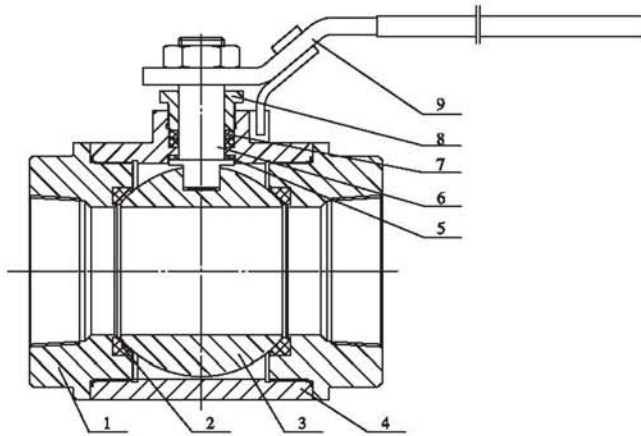


800PSI-1000PSI

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3
DN	mm	15	20	25	32	40	50	65	80
L	mm	65	78	88	105	40	125	165	184
NPT	in	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3
H	mm	68	70	80	85	100	110	130	150
W	mm	110	110	140	140	180	180	200	250
WT	Kg	0.4	0.6	1.0	1.6	2.3	3.3	6.0	9.8

SOCKET WELDED AND NPT ENDS BALL VALVE

3 PIECE THREADED BALL VALVE



DESIGN FEATURES:

- FULL PORT DESIGN
- 3 PIECE THREADED BODY
- FLOATING BALL TYPE
- BLOW-OUT PROOF STEM
- FIRE SAFE DESIGN
- ANTI-STATIC DEVICE
- WITH LOCKING DEVICE

STANDARDS:

- DESIGN AND MANUFACTURE: BS 5351 / ASME B16.34
- FACE TO FACE DIMENSIONS: MANUFACTURER'S SPECIFICATION
- THREAD ENDS DIMENSIONS: ASME B1.20.1
- PRESSURE-TEMPERATURE RATINGS: ASME B16.34
- NORMAL PRESSURE: 800PSI-1000PSI
- NORMAL DIAMETER: NPS 1/2"-2"

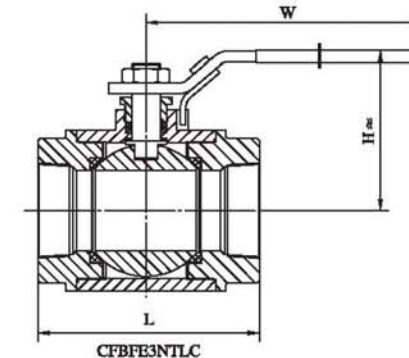
SOCKET WELDED AND NPT ENDS BALL VALVE

3 PIECE THREADED BALL VALVE

BILL OF MATERIAL (PARTIAL)

ITEM	PART NAME	STANDARD	STAINLESS STEEL
1	BODY	ASTM A216 WCB	ASTM A351 CF8M
2	SEAT	PTFE / RPTFE	PTFE / RPTFE
3	BALL	ASTM A105+ENP	ASTM A182 F316
4	BONNET	ASTM A216 WCB	ASTM A351 CF8M
5	THRUST WASHER		RPTFE
6	STEM	ASTM 276 410	ASTM A276 316
7	PACKING		GRAPHITE / PTFE
8	GLAND FLANGE	ASTM A216 WCB	ASTM A351 CF8
9	LEVER		STAINLESS STEEL

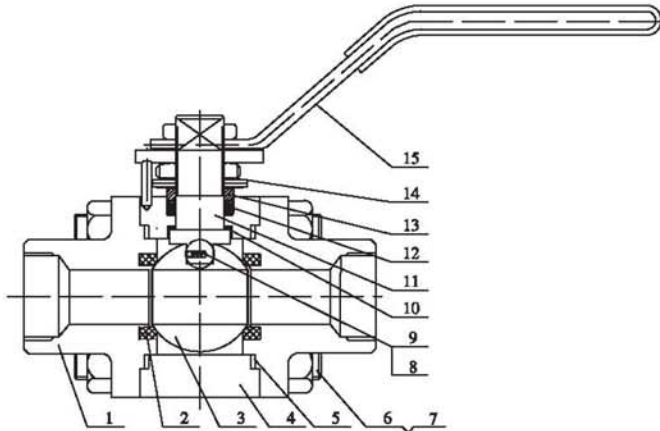
NOTE: OTHER MATERIALS ARE AVAILABLE UPON REQUEST



800PSI-1000PSI

NPS	in	1/2	3/4	1	1-1/4	1-1/2	2
DN	mm	15	20	25	32	40	50
L	mm	98	108	108	159	159	259
NPT	in	1/2	3/4	1	1-1/4	1-1/2	2
H	mm	83	90	94	122	122	150
W	mm	110	110	140	140	180	180
WT	Kg	0.5	0.7	1.2	1.9	2.7	3.9

SOCKET WELDED AND NPT ENDS BALL VALVE 3 PIECE BOLTED BALL VALVE



DESIGN FEATURES:

- FULL PORT DESIGN
- 3 PIECE BOLTED BODY
- FLOATING BALL TYPE
- BLOW-OUT PROOF STEM
- FIRE SAFE DESIGN
- ANTI-STATIC DEVICE
- WITH LOCKING DEVICE

STANDARDS:

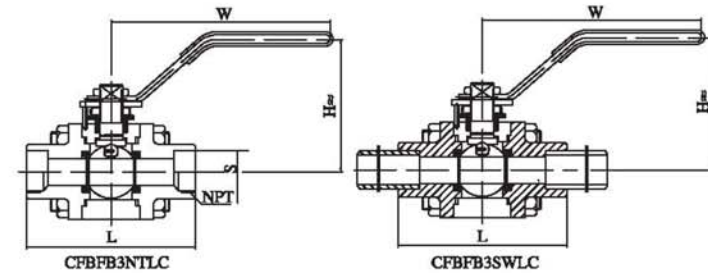
- DESIGN AND MANUFACTURE: BS 5351 OR ASME B16.34
- FACE TO FACE DIMENSIONS: MANUFACTURE'S SPECIFICATION
- THREAD ENDS DIMENSIONS: ASME B1.20.1
- SOCKET ENDS DIMENSIONS: ASME B16.11
- PRESSURE-TEMPERATURE RATINGS: ASME B16.34
- NORMAL PRESSURE: CLASS 150-1500
- NORMAL DIAMETER: NPS 1/2"-2"

SOCKET WELDED AND NPT ENDS BALL VALVE 3 PIECE BOLTED BALL VALVE

BILL OF MATERIAL (PARTIAL)

ITEM	PART NAME	STANDARD	STAINLESS STEEL
1	ADAPTER	ASTM A105	ASTM A182 F316
2	SEAT	PTFE / RPTFE	PTFE / RPTFE
3	BALL	ASTM A105+ENP	ASTM A182 F316
4	BODY	ASTM A105	ASTM A182 F316
5	GASKET	304SS/316SS+GRAPHITE	
6	BOLT	ASTM A193 B7/B7M	ASTM A193 B8M
7	NUT	ASTM A194 2H/2HM	ASTM A194 8M
8	ANTI STATIC BALL	304SS	316SS
9	ANTI STATIC SPRING	304SS	316SS
10	THRUST WASHER	RPTFE	
11	STEM	ASTM 276 410	ASTM A276 316
12	PACKING	GRAPHITE / PTFE	
13	GLAND	ASTM 276 410	ASTM A276 316
14	BUTTERFLY SPRING	AISI 1566	
15	LEVER	STAINLESS STEEL	

NOTE: OTHER MATERIALS ARE AVAILABLE UPON REQUEST



CLASS150~CLASS1500

NPS	in	1/2	3/4	1	1-1/2	2	2-1/2
DN	mm	15	20	25	40	50	65
L	mm	92	112	126	152	178	222
S	mm	21.8	27.1	33.8	48.7	61.1	74
NPT	in	1/2	3/4	1	1-1/2	2	2-1/2
H	mm	66	72	98	106	115	152
W	mm	138	148	195	246	246	283
WT	Kg	2.5	3.0	4.7	6	9	23

BREAK TORQUE CHART FOR BALL VALVE

in	TORQUE TRUNNION MOUNTED BALL VALVE				
	CLASS 150	CLASS 300	CLASS 600	CLASS 900	CLASS 1500
	N.M	N.M	N.M	N.M	N.M
2	49	86	146	207	327
3	60	109	190	270	431
4	151	268	459	649	1032
6	314	540	907	1274	2011
8	1018	1604	2557	3511	5424
10	1083	1829	3044	4258	6694
12	1559	2601	4297	5993	9396
14	2423	4243	7203	10163	16103
16	3016	5348	9141	12934	20546
18	4571	7970	13499		
20	6011	10570	17986		
22	6933	12141	20610		
24	9712	17239	29481		
26	11950	20341			
28	14513	25069			
30	17986	31628			
32	21346	37536			
34	25360	43012			
36	33174	56336			

in	TORQUE FLOATING BALL VALVE				
	CLASS 150	CLASS 300	CLASS 600	CLASS 900	CLASS 1500
	N.M	N.M	N.M	N.M	N.M
1/2	6	9	16	20	32
3/4	7	12	20	35	45
1	15	20	42	70	115
(1-1/2)	40	60	90	140	171
2	50	70	130	200	296
(2-1/2)	80	90	150	320	440
3	90	120	200	431	590
4	130	230	370		
6	560	930			
8	980	2197			
10	2000	4500			

NOTE: THE CALCULATION OF THIS FORM IS BASED ON THE NORMAL TEMPERATURE.
 PTFE SEAT IS APPLIED TO CL.150 & CL.300 AND NYLON SEAT IS APPLIED TO CL.600-CL.1500.
 ALL TORQUE VALUES ARE JUST FOR REFERENCE. SAFETY FACTOR IS NOT INCLUDED IN VALVE TORQUES.
 CONVERSION FACTOR IN.M=0.737561 Ft/Lbs

INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTION BALL VALVES

1.0 STORAGE PROCEDURE

- 1.1 Care should be taken to cover both ends of the valve with covers to prevent foreign materials from entering the valve body which could result in damage to the valve seats.
- 1.2 For long term storage valve machined surface should be covered with a light film of oil or grease to prevent these areas from rusting.
- 1.3 The Ball valve should be stored in a clean dry place with the ball in open position.

2.0 VALVE INSTALLATION

- 2.1 Seat and body ratings-The practical and safe use of this product is determined by both the seat and body ratings. Read the name tag and body to confirm proper maximum pressure rating of valve. This product is available with a variety of seat materials. Some of the seat materials have pressure ratings that are less than the body ratings. All of the body and seat ratings are dependent on valve type and size, seat material, bolting material, and temperature. Do not exceed these ratings.
- 2.2 Place the valve in the open position.
- 2.3 Flow through the valve can be in either direction. For good performance however, it is recommended that the valve be installed conforming with the actual pipeline conditions.
- 2.4 The valve should be tightened between flanges using appropriate gaskets and fasteners for the service. Tighten the bolts in compliance with the requirements of the gasket manufacturer.

3.0 VALVE MAINTENANCE

- 3.1 Trunnion mounted Ball valves are considered to be maintenance free. However a small amount of fresh grease or valve cleaner into the stem injection fitting and seat injection fittings for cleaning and lubrication on a normal plant maintenance schedule is recommended but is not necessary.
- 3.2 For floating ball valves, overhaul maintenance consists of replacing seats and seals. A standard service kit consisting of these parts can be obtained from Canawest

4.0 VALVE OVERHAUL

- 4.1 Valve removal from line For your safety and protection, it is important that the following precautions are taken prior to removing the valve from service, or before any disassembly of the valve.
 - 4.1.1 Keep hands safely out of the valve at all times during this entire procedure to avoid accidents resulting in serious injury. (i.e.: closure of valve by a remote controlled actuator.)
 - 4.1.2 Know what media is in the line. If there is any doubt, check with the proper authority.
 - 4.1.3 Wear any protective clothing or equipment normally required when working with the media involved.
 - 4.1.4 Depressurize the line and valve as follows:
 - A) Open the valve and drain the line.
 - B) Close and open the valve to relieve any residual pressure that may be in the valve prior to removing the valve from service and leave the valve in the open position.
 - C) After removal and prior to any disassembly, drain any remaining media by placing the valve in the vertical position and carefully open and close the valve several times.
 - D) Open body bleed located at the bottom of the valve and leave open to ensure all trapped pressure is removed.

5.0 TROUBLE SHOOTING

FAILURE	CAUSE	CLEAN UP METHOD
The turning of the stem is not agile and difficult to move.	1. Bend of the stem	Alignment or change the stem
	2. The packing is too tight or gland pressure in a wrong direction.	Re-adjust the packing tightness or symmetry.
Leakage from packing	1. The packing is too loose.	Tighten the packing
	2. Packing damaged or aged	Change the packing
Leakage from bonnet gasket	1. The bonnet bolt isn't tighten enough	Tighten the bolts.
	2. The gasket damaged.	Change the gasket
	3. Foreigner or damaged in the flanges' sealing face.	Clean the sealing face or re-grind the face.
Leakage from sealing face	1. Foreigner between the ball and sealing face.	Clean the foreigner
	2. Sealing face damaged.	Change the ball and seat
Valve can't totally close	1. Foreigner deposited in the valve's body	Clean the deposit
	2. Drive system damaged	Maintain or change the drive system.