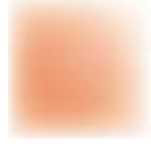


GATE VALVE



GLOBE VALVE



CHECK VALVE



BALL VALVE



Y STRAINER - NEEDLE VALVE
BUTTERFLY VALVE



TECHNICAL DATA

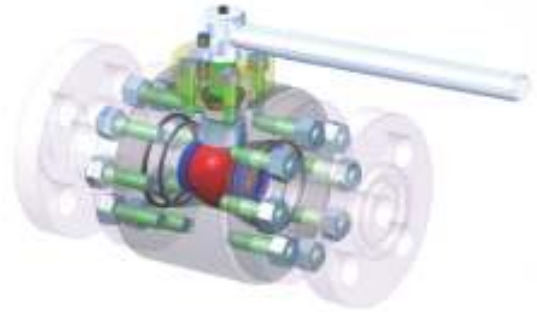
FLOATING BALL VALVE

BALL VALVE APPLICATION

Because of their excellent operating characteristics, ball valves are used for the broadest spectrum of isolation applications and are available in a wide range of sizes, pressure ratings, materials and trim. Ball valves are quick acting, allows flow in either direction, has a low pressure drop with bubble tight shut off. It is easily actuated with multiple designs possible.

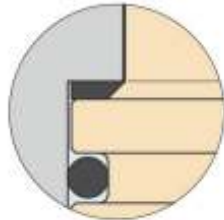
MANUFACTURING STANDARDS

General Design	API 6D
Face To Face	ASME/ANSI B16.10
Flange End	ASME/ANSI B16.5
Butt Weld End	ASME/ANSI B16.25
Fire Safe Design	API 607 / API 6FA
Pressure Rating	ASME/ANSI B16.34
Inspection & Test	API 6D & API 598



BLOW-OUT PROOF STEM

Blow-out proof design is adopted for the stem to ensure that even if the pressure in the body cavity has risen to abnormal levels, the stem will not be blown out by the medium. The stem design includes a collar, with the sealing force greater as the medium pressure is higher.



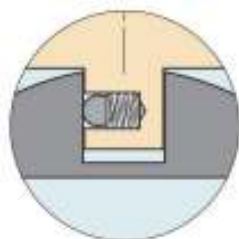
FIRE-SAFE DESIGN

GLT Ball Valve are constructed according to fire-safe design and have been fire tested to API 607 standard. Resilient sealing materials has failure possibility when subjected to high temperatures. As the resilient material are burned or damaged, the edge of the seat holder comes into contact with the ball to form a metal to metal sealing and minimize leakage.



ANTI-STATIC DEVICE

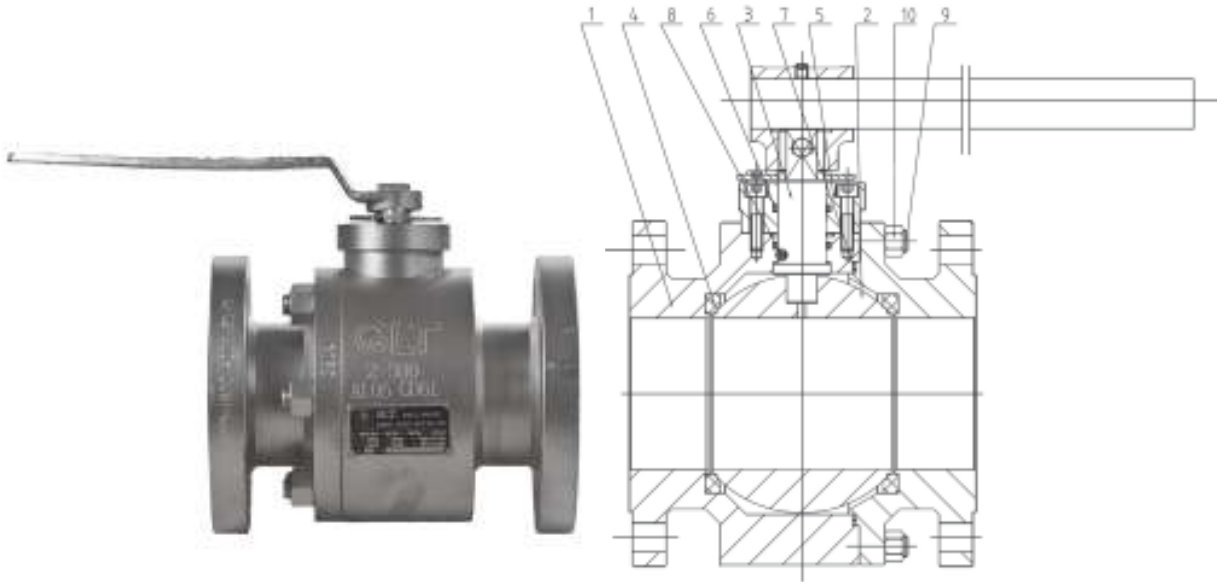
An anti-static device is built into the valve stem to allow the static charges to be led to the piping, thus eliminating electrostatic charging of the ball.



OPERATING INDICATOR

To prevent the ball valve from wrong operation, at the stem head, the stem head and lever is so designed that the valve opens with the lever in parallel to piping, and when closed, with the lever perpendicular to piping.

FLOATING BALL VALVE

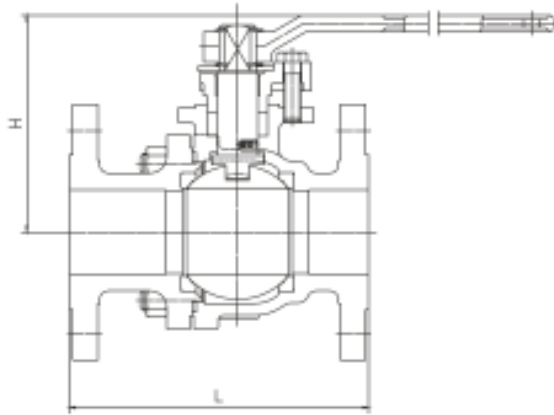


STANDARD PARTS & MATERIAL

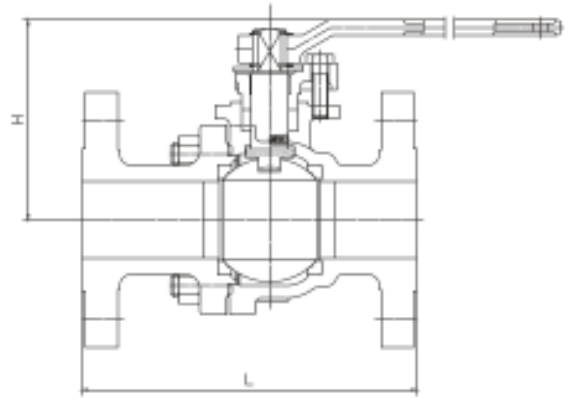
No.	Parts	Standard	SS304/L	SS316/L	Low Temp	Duplex
1	Body & Cover	A216-WCB A105/N	CF8/CF3 A182-F304/L	CF8M/CF3M A182-F316/L	A352-LCB A350-LF2	A182-F51/F53
2	Ball	A105+ENP F304/F316	A182-F304 A182-F304L	A182-F316 A182-F316L	LF2+ENP F304/F316	A182-F51/F53
3	Stem	A182-F6a	A182-F304 A182-F304L	A182-F316 A182-F316L	LF2+ENP F304/F316	A182-F51/F53
4	Seat	PTFE / RTFE / Nylon				
5	Gland	A105	A182-F304 A182-F304L	A182-F316 A182-F316L	A352-LCB A350-LF2	A182-F51/F53
6	O Ring	Viton				
7	Body Gasket	Graphite				
8	Anti Static	Stainless Steel				
9	Stud	A193-B7	193-B8	A193-B8M	A320-L7	A193-B8M
10	Nut	A194-2H	A194-8	A194-8M	A194-4	A194-8M

Other valve material composition are available.

CAST STEEL FLOATING BALL



CLASS 150#



CLASS 300#

CLASS 150 - API 6D	Port	Size (In)	L		H	Wt. (Kg)
			RF	RTJ		
FULL BORE	1/2	108 (4.25)	119 (4.69)	59 (2.32)	3	
	3/4	117 (4.61)	130 (5.11)	63 (2.48)	4	
	1	127 (5.00)	140 (5.51)	75 (2.95)	5	
	1.1/2	165 (6.50)	178 (7.00)	95 (3.74)	7	
	2	178 (7.00)	191 (7.52)	107 (4.21)	10	
	2.1/2	190 (7.48)	203 (7.99)	142 (5.60)	15	
	3	203 (7.99)	216 (8.50)	152 (5.98)	19	
	4	229 (9.02)	242 (9.53)	178 (7.00)	33	
	6	394 (15.51)	407 (16.02)	272 (10.71)	93	

Standard Fig. No. FA1C1

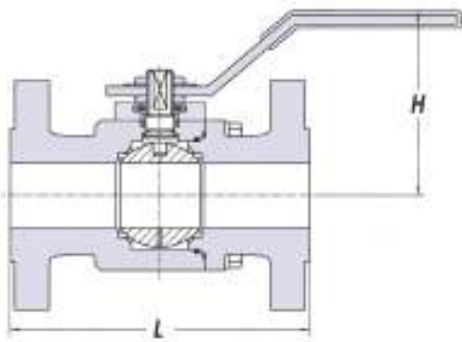
CLASS 300 - API 6D	Port	Size (In)	L		H	Wt. (Kg)
			RF	RTJ		
FULL BORE	1/2	140 (5.51)	151 (5.95)	59 (2.32)	3	
	3/4	152 (5.98)	165 (6.50)	63 (2.48)	5	
	1	165 (6.50)	178 (7.00)	75 (2.95)	6	
	1.1/2	190 (7.48)	203 (7.99)	95 (3.74)	11	
	2	216 (8.50)	232 (9.13)	107 (4.21)	15	
	2.1/2	241 (9.49)	257 (10.12)	142 (5.59)	24	
	3	283 (11.14)	299 (11.77)	152 (5.98)	30	
	4	305 (12.00)	321 (12.64)	178 (7.00)	55	
	6	403 (15.87)	419 (16.50)	272 (10.71)	118	

Standard Fig. No. FA1C3

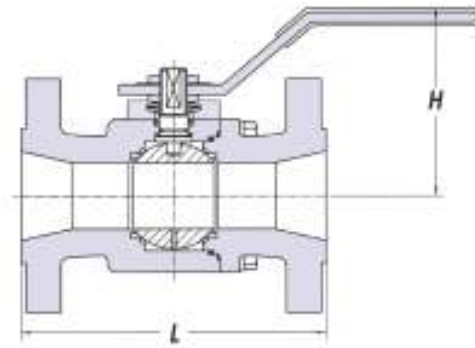
Unit : mm (inch)

FORGED STEEL FLOATING BALL

BALL VALVE



FULL BORE



REDUCE BORE

CLASS 150 - API 6D	Port	Size (In)	L		H	Wt. (Kg)
			RF	RTJ		
			FULL BORE			
	1/2	108 (4.25)	119 (4.69)	59 (2.32)	3	
	3/4	117 (4.61)	130 (5.12)	63 (2.48)	4	
	1	127 (5.00)	140 (5.51)	75 (2.95)	5	
	1.1/2	165 (6.50)	178 (7.00)	95 (3.74)	9	
	2	178 (7.00)	191 (7.52)	107 (4.21)	12	
	2.1/2	190 (7.48)	203 (7.99)	142 (5.59)	17	
	3	203 (7.99)	216 (8.50)	152 (5.98)	25	
	4	229 (9.01)	242 (9.53)	178 (7.00)	38	
	6	394 (15.51)	407 (16.02)	272 (10.71)	95	
	8	457 (17.99)	470 (18.50)	342 (13.46)	175	
REDUCED BORE						
	1/2 x 3/8	108 (4.25)	119 (4.69)	57 (2.24)	2	
	3/4 x 1/2	117 (4.61)	130 (5.12)	61 (2.40)	3	
	1 x 3/4	127 (5.00)	140 (5.51)	71 (2.80)	4	
	1.1/2 x 1	165 (6.50)	178 (7.00)	89 (3.50)	7	
	2 x 1.1/2	178 (7.00)	192 (7.56)	102 (4.02)	10	
	3 x 2	203 (7.99)	216 (8.50)	139 (5.47)	20	
	4 x 3	229 (9.01)	242 (9.53)	162 (6.38)	30	
	6 x 4	394 (15.51)	407 (16.02)	250 (9.84)	70	
	8 x 6	457 (17.99)	470 (18.50)	317 (12.48)	135	

Standard Fig. No. FA1F1

CLASS 300 - API 6D	Port	Size (In)	L		H	Wt. (Kg)
			RF	RTJ		
			FULL BORE			
	1/2	140 (5.51)	151 (5.94)	59 (2.32)	3	
	3/4	152 (5.98)	165 (6.50)	63 (2.48)	5	
	1	165 (6.50)	178 (7.00)	75 (2.95)	6	
	1.1/2	190 (7.48)	203 (7.99)	95 (3.74)	11	
	2	216 (8.50)	232 (9.13)	107 (4.21)	15	
	2.1/2	241 (9.49)	257 (10.12)	142 (5.59)	24	
	3	283 (11.14)	299 (11.77)	152 (5.98)	30	
	4	305 (12.00)	321 (12.64)	178 (7.00)	55	
	6	403 (15.87)	419 (16.50)	272 (10.71)	118	
	8	502 (19.76)	518 (20.39)	342 (13.46)	200	
REDUCED BORE						
	1/2 x 3/8	140 (5.51)	151 (5.94)	57 (2.24)	3	
	3/4 x 1/2	152 (5.98)	165 (6.50)	60 (2.36)	4	
	1 x 3/4	165 (6.50)	178 (7.00)	71 (2.80)	5	
	1.1/2 x 1	190 (7.48)	203 (7.99)	89 (3.50)	9	
	2 x 1.1/2	216 (8.50)	232 (9.13)	102 (4.02)	12	
	3 x 2	283 (11.14)	299 (11.77)	135 (5.31)	24	
	4 x 3	305 (12.00)	321 (12.64)	165 (6.50)	40	
	6 x 4	403 (15.87)	419 (16.50)	250 (9.42)	88	
	8 x 6	502 (19.76)	518 (20.39)	319 (12.56)	162	

Standard Fig. No. FA1F3

CLASS 600 - API 6D	Port	Size (In)	L		H	Wt. (Kg)
			RF	RTJ		
			FULL BORE			
	1/2	165 (6.50)	163 (6.42)	85 (3.35)	6	
	3/4	191 (7.52)	191 (7.52)	93 (3.66)	9	
	1	216 (8.50)	216 (8.50)	99 (3.90)	12	
	1.1/2	241 (9.48)	241 (9.48)	117 (4.61)	24	
REDUCED BORE						
	1/2 x 3/8	165 (6.50)	163 (6.42)	85 (3.35)	5	
	3/4 x 1/2	191 (7.52)	191 (7.52)	85 (3.35)	8	
	1 x 3/4	216 (8.50)	216 (8.50)	93 (3.66)	10	
	1.1/2 x 1	241 (9.48)	241 (9.48)	99 (3.90)	16	
	2 x 1.1/2	292 (11.50)	295 (11.61)	117 (4.61)	34	

Standard Fig. No. FA1F6

Unit : mm (inch)

GLT VALVES

TRUNNION BALL VALVE

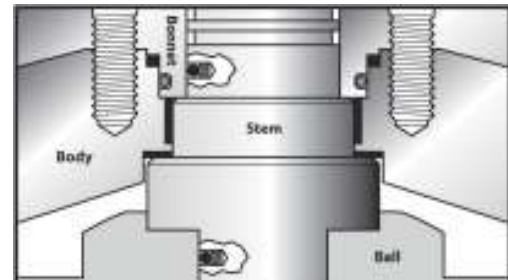
MANUFACTURING STANDARDS

General Design	API 6D
Face To Face	ASME/ANSI B16.10
Flange End	ASME/ANSI B16.5 & ANSI B16.47
Butt Weld End	ASME/ANSI B16.25
Fire Safe Design	API 607 / API 6FA
Pressure Rating	ASME/ANSI B16.34
Inspection & Test	API 6D & API 598



BLOW-OUT PROOF STEM

Stem seal integrity is achieved by the use of double o-rings and graphite gasket. Blow-out proof stem structure is provided standard with the stem independent of the ball which allow a reduction of the operating torque.

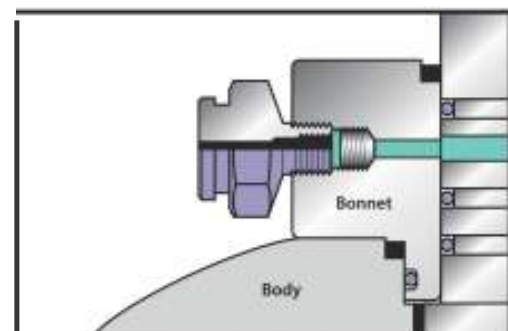
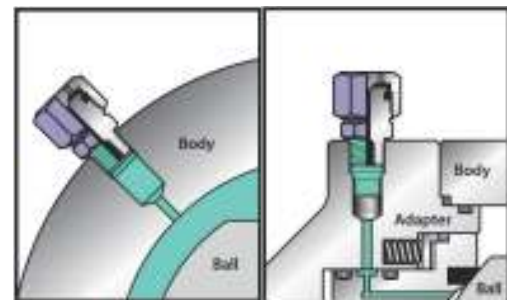


ANTI-STATIC DEVICE

An anti-static device is built into the valve stem to allow the static charges to be led to the piping, thus eliminating electrostatic charging of the ball.

EMERGENCY SEAL RESTORATION

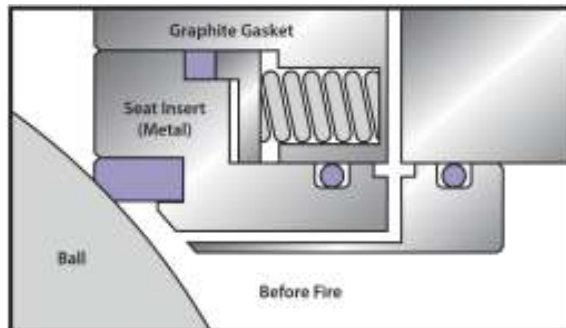
GLT Trunnion ball valves are all designed and made with devices for grease or sealant injection, both on the stem and the seat. The sealant injection system allows the lubrication of the seat and stem area to restore the sealing integrity in case of damages to the sealing surfaces until the valve is properly serviced during maintenance.



TRUNNION BALL VALVE

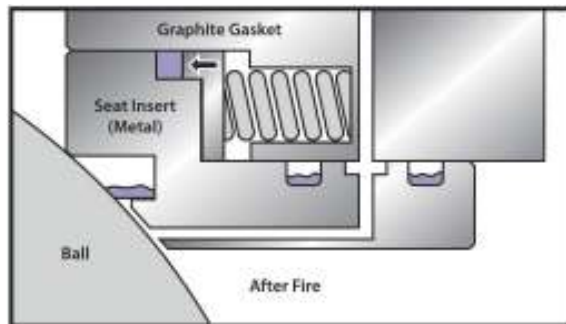
SPRING LOADED SEATS

Independent spring loaded seats are always in contact with the ball to provide an effective tight seal even at low differential pressures. As line pressure increases, the seat area creates a piston effect which forces the seat against the ball, creating an even tighter seal.



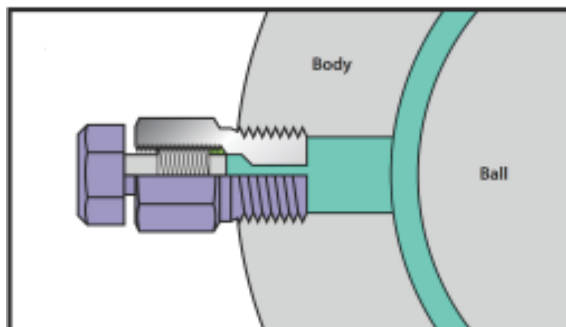
FIRE-SAFE DESIGN WITH SECONDARY METAL SEAT

GLT Ball Valves are constructed according to fire-safe design and have been fire tested to API 607 and API 6FA standards. Resilient sealing materials has failure possibility when subjected to high temperatures. As the resilient material are burned or damaged, the edge of the metal seat retainer preloaded by the seat spring comes into contact with the ball to form a metal to metal sealing.



BODY VENT & DRAIN

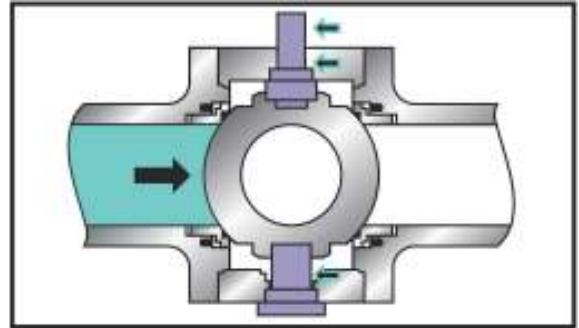
The body cavity may be vented and drain in both open and close state.



TRUNNION BALL VALVE

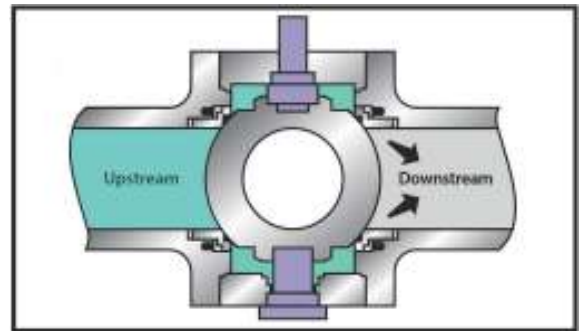
TRUNNION MOUNTED BALL

Trunnion mounted stem absorb the thrust from line pressure thus preventing additional friction between ball and seats, thus helping to keep the operational torque lower.



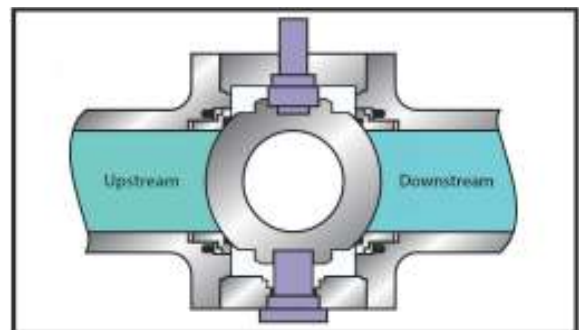
CAVITY PRESSURE SELF-RELIEF

In the event of an unusually high increase of temperature, liquified gas or highly volated liquid trapped within the body cavity may cause an abnormal rise in the cavity pressure to exceeds the line pressure. The medium itself would propel the seat and self-relieves the pressure from the cavity into the valve bore.

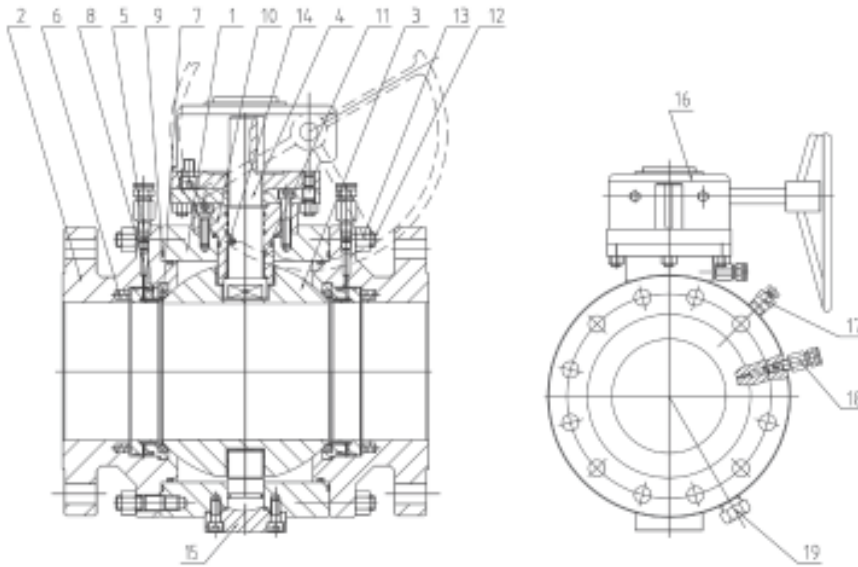


DOUBLE BLOCK AND BLEED FUNCTION

Ball seals shut off the flow line independently on the upstream and downstream side of the ball. The valve bore and the body cavity are isolated from each other when the valve is fully opened or closed so that residue and pressure within the body cavity may be disposed through the drain plug/valve. This design prevents fluid contamination or pressure build up within the valve interior.



TRUNNION BALL VALVE

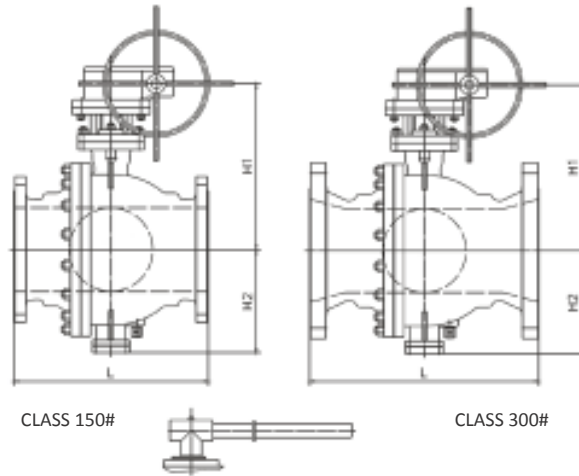


STANDARD PARTS & MATERIAL

No.	Parts	Standard	SS304/L	SS316/L	Low Temp	Duplex
1	Body	A216 - WCB A105/N	CF8/CF3 A182-F304/L	CF8M/CF3M A182-F316/L	A352-LCB A350-LF2	A182-F51/F3
2	Cover	A216 - WCB A105/N	CF8/CF3 A182-F304/L	CF8M/CF3M A182-F316/L	A352-LCB A350-LF2	A182-F51/F3
3	Ball	A105+HCr/ENP F304/F316	A182-F304 A182-F304L	A182-F316 A182-F316L	LF2+ENP F304/F316	A182-F51/F53
4	Stem	A182-F6a F304/F316	A182-F304 A182-F304L	A182-F316 A182-F316L	LF2+ENP F304/F316	A182-F51/F53
5	Seat Ring	A105+ENP F304/F316	A182-F304 A182-F304L	A182-F316 A182-F316L	LF2+ENP F304/F316	A182-F51/F53
6	Spring	Inconel X750				
7	Seat Insert	PTFE / RTFE / Nylon / Devlon / PEEK				
8	O Ring	Viton				
9	Body Gasket	Graphite				
10	Gland	A105	A182-F304 A182-F304L	A182-F316 A182-F316L	A350-LF2	A182-F51/F53
11	Bearing	PTFE				
12	Stud	A193-B7	A193-B8	A193-B8	A320-L7	A193-B8M
13	Nut	A194-2H	A194-8	A194-8M	A194-4	A194-8M
14	Anti Static	Stainless Steel				
15	Trunnion	A182-F6a F304/F316	A182-F304 A182-F304L	A182-F316 A182-F316L	LF2+ENP F304/F316	A182-F51/F53
16	Gear	Assembly				
17	Vent	Assembly				
18	Sealant Injection	Assembly				
19	Plug	Assembly				

Other valve material composition are available.

CAST STEEL TRUNNION BALL



CLASS 150 - API 6D	Port	Size (In)	L			H1	H2	Wt. (Kg)
			RF	RTJ	BW			
FULL BORE	2	178 (7.01)	191 (7.52)	216 (8.50)	107 (4.21)	102 (4.02)	12	
	3	203 (7.99)	216 (8.50)	283 (11.14)	152 (5.98)	127 (5.00)	22	
	4	229 (9.02)	242 (9.53)	305 (12.01)	178 (7.00)	152 (5.98)	35	
	6	394 (15.51)	407 (16.02)	457 (17.99)	330 (12.99)	219 (8.62)	74	
	8	457 (17.99)	470 (18.50)	521 (20.51)	398 (15.67)	273 (10.75)	205	
	10	533 (20.98)	546 (21.50)	559 (22.01)	495 (19.49)	360 (14.17)	322	
	12	610 (24.02)	623 (24.53)	635 (25.00)	580 (22.83)	395 (15.55)	460	
	14	686 (27.01)	699 (27.52)	762 (30.00)	625 (24.61)	430 (16.93)	576	
	16	762 (30.00)	775 (30.51)	838 (32.99)	670 (26.38)	470 (18.50)	864	
	18	864 (34.02)	877 (34.53)	914 (35.98)	698 (27.48)	550 (21.65)	1280	
	20	914 (35.98)	927 (36.50)	991 (39.02)	840 (33.07)	580 (22.83)	1600	
	24	1067 (42.01)	1080 (42.52)	1143 (45.00)	1050 (41.34)	700 (27.56)	3540	

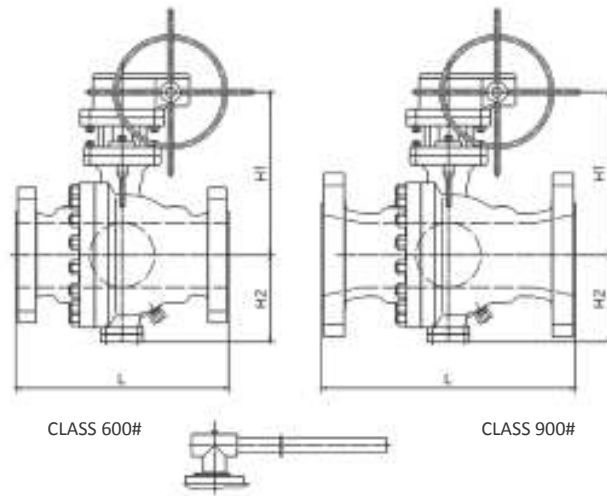
Standard Fig. No. TA1C1

CLASS 300 - API 6D	Port	Size (In)	L			H1	H2	Wt. (Kg)
			RF	RTJ	BW			
FULL BORE	2	216 (8.50)	232 (9.13)	216 (8.50)	107 (4.21)	102 (4.02)	15	
	3	283 (11.14)	299 (11.77)	283 (11.14)	152 (5.98)	127 (5.00)	30	
	4	305 (12.01)	321 (12.64)	305 (12.01)	178 (7.00)	152 (5.98)	55	
	6	403 (15.87)	419 (16.50)	403 (15.87)	330 (12.99)	219 (8.62)	118	
	8	502 (19.76)	518 (20.39)	502 (19.76)	398 (15.67)	273 (10.75)	255	
	10	568 (22.36)	584 (22.99)	568 (22.36)	495 (19.49)	360 (14.17)	370	
	12	648 (25.51)	664 (26.14)	648 (25.51)	580 (22.83)	395 (15.55)	533	
	14	762 (30.00)	778 (30.63)	762 (30.00)	625 (24.61)	430 (16.93)	640	
	16	838 (32.99)	854 (33.62)	838 (32.99)	670 (26.38)	470 (18.50)	1030	
	18	914 (35.98)	930 (36.61)	914 (35.98)	698 (27.48)	550 (21.65)	1542	
	20	991 (39.02)	1007 (39.65)	991 (39.02)	840 (33.07)	580 (22.83)	2100	
	24	1143 (45.00)	1159 (45.62)	1143 (45.00)	1050 (41.34)	700 (27.56)	4200	

Standard Fig. No. TA1C3

Unit : mm (inch)

CAST STEEL TRUNNION BALL



CLASS 600 - API 6D	Port	Size (In)	L			H1	H2	Wt. (Kg)
			RF	RTJ	BW			
FULL BORE		2	292 (11.50)	295 (11.61)	292 (11.50)	114 (4.49)	108 (4.25)	35
		3	356 (14.02)	359 (14.13)	356 (14.02)	197 (7.76)	133 (5.28)	55
		4	432 (17.01)	435 (17.13)	432 (17.01)	235 (9.25)	159 (6.26)	102
		6	559 (22.01)	562 (22.13)	559 (22.01)	300 (12.18)	250 (9.84)	232
		8	660 (25.98)	664 (26.14)	660 (25.98)	374 (14.72)	294 (11.57)	390
		10	787 (30.98)	791 (31.14)	787 (30.98)	445 (17.52)	395 (15.55)	710
		12	838 (32.99)	841 (33.11)	838 (32.99)	512 (20.16)	445 (17.52)	960
		14	889 (35.00)	892 (35.11)	889 (35.00)	550 (21.65)	500 (19.69)	1700
		16	991 (39.02)	994 (39.13)	991 (39.02)	615 (24.21)	530 (20.87)	1970
		18	1092 (42.99)	1095 (43.11)	1092 (42.99)	700 (27.56)	580 (22.83)	2530
		20	1194 (47.01)	1197 (47.13)	1200 (47.24)	810 (31.89)	660 (25.98)	3150
		24	1397 (55.00)	1400 (55.11)	1407 (55.39)	1010 (41.02)	800 (31.50)	5800

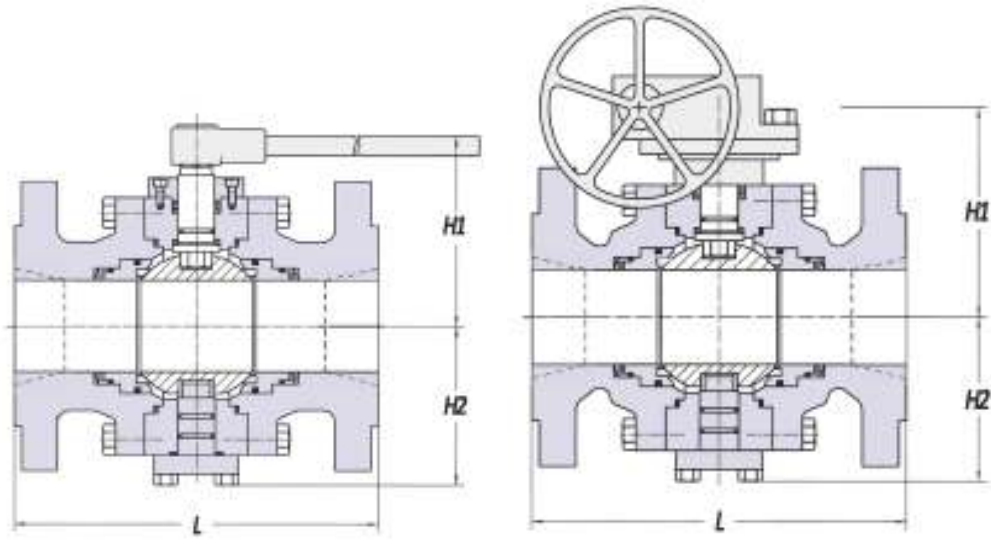
Standard Fig. No. TA1C6

CLASS 900 - API 6D	Port	Size (In)	L			H1	H2	Wt. (Kg)
			RF	RTJ	BW			
FULL BORE		2	368 (14.49)	371 (14.61)	368 (14.49)	217 (8.54)	126 (4.96)	50
		3	381 (15.00)	384 (15.12)	381 (15.00)	259 (10.20)	191 (7.52)	80
		4	457 (17.99)	460 (18.11)	457 (17.99)	297 (11.69)	216 (8.50)	125
		6	610 (24.02)	613 (24.13)	610 (24.02)	360 (14.17)	270 (10.63)	270
		8	737 (29.02)	740 (29.13)	737 (29.02)	394 (15.51)	322 (12.68)	310
		10	838 (32.99)	841 (33.11)	838 (32.99)	502 (19.76)	420 (16.54)	550
		12	965 (37.99)	968 (38.11)	965 (37.99)	572 (22.52)	470 (18.50)	1250
		14	1029 (40.51)	1038 (40.87)	1029 (40.51)	675 (26.57)	510 (20.08)	1530
	16	1130 (44.49)	1146 (45.12)	1130 (44.49)	831 (32.72)	670 (26.38)	2150	

Standard Fig. No. TA1C9

Unit : mm (inch)

FORGED STEEL TRUNNION BALL



LEVER OPERATED

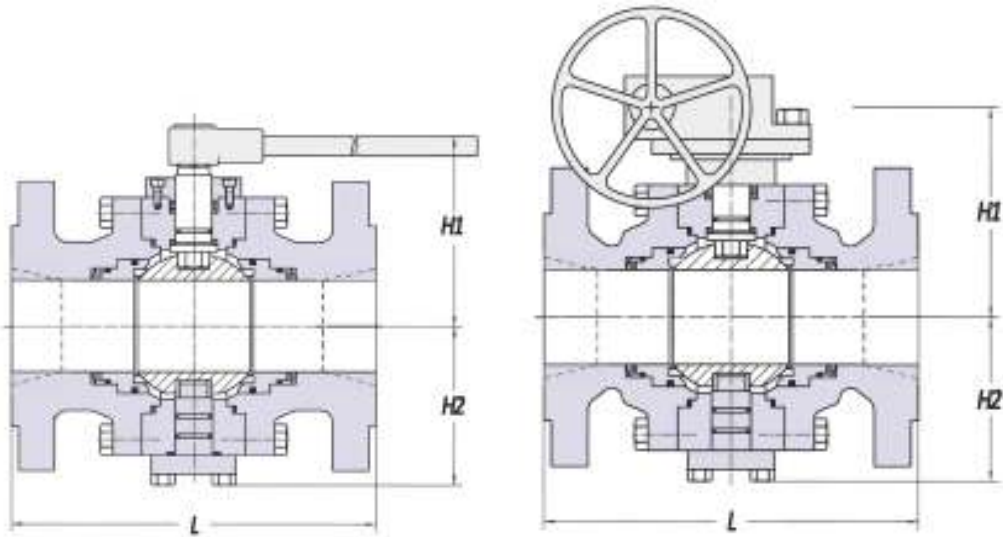
GEAR OPERATED

Port	Size (In)	L			H1	H2	Wt. (Kg)
		RF	RTJ	BW			
FULL BORE	2	178 (7.00)	191 (7.52)	216 (8.50)	105 (4.13)	100 (3.94)	28
	3	203 (7.99)	216 (8.50)	283 (11.14)	155 (6.10)	125 (4.92)	53
	4	229 (9.01)	242 (9.53)	305 (12.01)	200 (7.87)	160 (6.30)	90
	6	394 (15.51)	407 (16.02)	457 (17.99)	250 (9.84)	185 (7.28)	163
	8	457 (17.99)	470 (18.50)	521 (20.51)	278 (10.94)	222 (8.74)	250
	10	533 (20.98)	546 (21.50)	559 (22.01)	323 (12.71)	280 (11.02)	385
	12	610 (24.01)	623 (24.52)	635 (25.00)	340 (13.39)	303 (11.93)	562
	14	686 (27.00)	699 (27.52)	762 (30.00)	375 (14.76)	330 (12.99)	765
	16	762 (30.00)	775 (30.51)	838 (32.99)	410 (16.14)	355 (13.98)	1030
	18	864 (34.01)	877 (34.53)	914 (35.98)	440 (17.32)	390 (15.35)	1218
	20	914 (35.98)	927 (36.50)	991 (39.02)	495 (19.49)	430 (16.93)	1798
	24	1067 (42.00)	1080 (42.52)	1143 (45.00)	585 (23.03)	520 (20.47)	3097
REDUCED BORE	2 x 1.1/2	178 (7.00)	191 (7.52)	216 (8.50)	95 (3.74)	100 (3.94)	26
	3 x 2	203 (7.99)	216 (8.50)	283 (11.14)	105 (4.13)	100 (3.94)	31
	4 x 3	229 (9.01)	242 (9.53)	305 (12.01)	155 (6.10)	125 (4.92)	63
	6 x 4	394 (15.51)	407 (16.02)	457 (17.99)	200 (7.87)	160 (6.30)	102
	8 x 6	457 (17.99)	470 (18.50)	521 (20.51)	250 (9.84)	185 (7.28)	188
	10 x 8	533 (20.98)	546 (21.50)	559 (22.01)	278 (10.94)	222 (8.74)	290
	12 x 10	610 (24.01)	623 (24.52)	635 (25.00)	323 (12.71)	280 (11.02)	465
	14 x 12	686 (27.00)	699 (27.52)	762 (30.00)	340 (13.39)	303 (11.93)	622
	16 x 14	762 (30.00)	775 (30.51)	838 (32.99)	375 (14.76)	330 (12.99)	830
	18 x 16	864 (34.01)	877 (34.53)	914 (35.98)	410 (16.14)	355 (13.98)	1080
	20 x 18	914 (35.98)	927 (36.50)	991 (39.02)	440 (17.32)	390 (15.35)	1298
	24 x 20	1067 (42.00)	1080 (42.52)	1143 (45.00)	495 (19.49)	430 (16.93)	2048

Standard Fig. No. TA1F1

Unit : mm (inch)

FORGED STEEL TRUNNION BALL



LEVER OPERATED

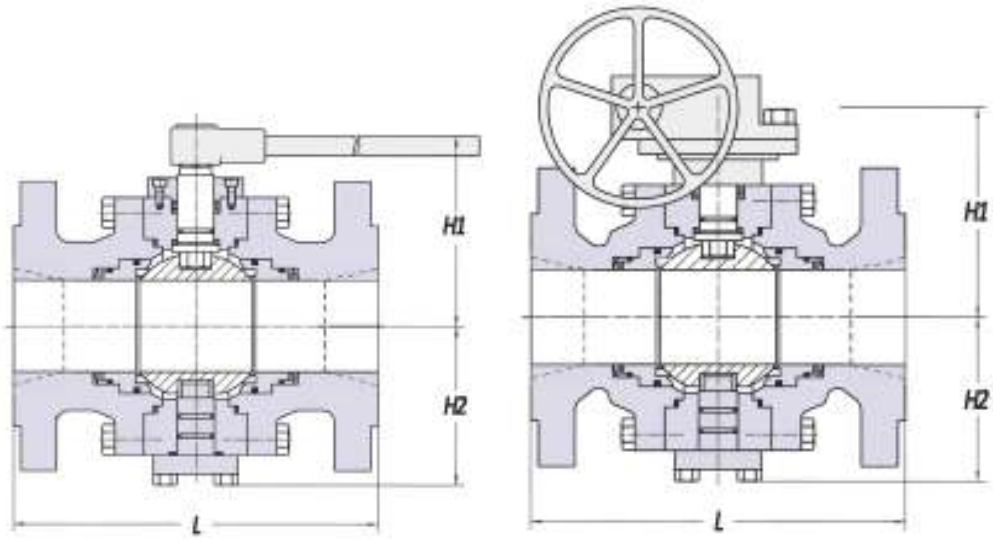
GEAR OPERATED

CLASS 300 - API 6D	Port	Size (In)	L			H1	H2	Wt. (Kg)
			RF	RTJ	BW			
			FULL BORE	2	216 (8.50)			
	3	283 (11.14)	299 (11.77)	283 (11.14)	155 (6.10)	125 (4.92)	57	
	4	305 (12.00)	321 (12.64)	305 (12.00)	200 (7.87)	160 (6.30)	95	
	6	403 (15.87)	419 (16.50)	457 (17.99)	250 (9.84)	203 (7.99)	185	
	8	502 (19.76)	518 (20.39)	521 (20.51)	278 (10.94)	232 (9.13)	287	
	10	568 (22.36)	584 (22.99)	559 (22.01)	333 (13.11)	298 (11.73)	507	
	12	648 (25.51)	664 (26.14)	635 (25.00)	360 (14.17)	333 (13.11)	740	
	14	762 (30.00)	778 (30.63)	762 (30.00)	395 (15.55)	350 (13.78)	1038	
	16	838 (15.08)	854 (33.62)	838 (15.08)	433 (17.05)	398 (15.67)	1428	
	18	914 (35.98)	930 (36.61)	914 (35.98)	460 (18.11)	410 (16.14)	1602	
	20	991 (39.02)	1007 (39.64)	991 (39.02)	505 (19.88)	470 (18.50)	2207	
	24	1143 (45.00)	1159 (45.63)	1143 (45.00)	590 (23.23)	550 (21.65)	3470	
	REDUCED BORE	2 x 1.1/2	216 (8.50)	232 (9.13)	216 (8.50)	95 (3.74)	100 (3.94)	27
		3 x 2	283 (11.14)	299 (11.77)	283 (11.14)	105 (4.13)	100 (3.94)	34
		4 x 3	305 (12.00)	321 (12.64)	305 (12.00)	155 (6.10)	125 (4.92)	65
		6 x 4	403 (15.87)	419 (16.50)	457 (17.99)	200 (7.87)	160 (6.30)	118
		8 x 6	502 (19.76)	518 (20.39)	521 (20.51)	250 (9.84)	203 (7.99)	222
		10 x 8	568 (22.36)	584 (22.99)	559 (22.01)	278 (10.94)	232 (9.13)	297
		12 x 10	648 (25.51)	664 (26.14)	635 (25.00)	333 (13.11)	298 (11.73)	597
		14 x 12	762 (30.00)	778 (30.63)	762 (30.00)	360 (14.17)	333 (13.11)	820
		16 x 14	838 (15.08)	854 (33.62)	838 (15.08)	395 (15.55)	350 (13.78)	1130
		18 x 16	914 (35.98)	930 (36.61)	914 (35.98)	433 (17.05)	398 (15.67)	1598
		20 x 18	991 (39.02)	1007 (39.64)	991 (39.02)	460 (18.11)	410 (16.14)	1797
		24 x 20	1143 (45.00)	1159 (45.63)	1143 (45.00)	505 (19.88)	470 (18.50)	2667

Standard Fig. No. TA1F3

Unit : mm (inch)

FORGED STEEL TRUNNION BALL



LEVER OPERATED

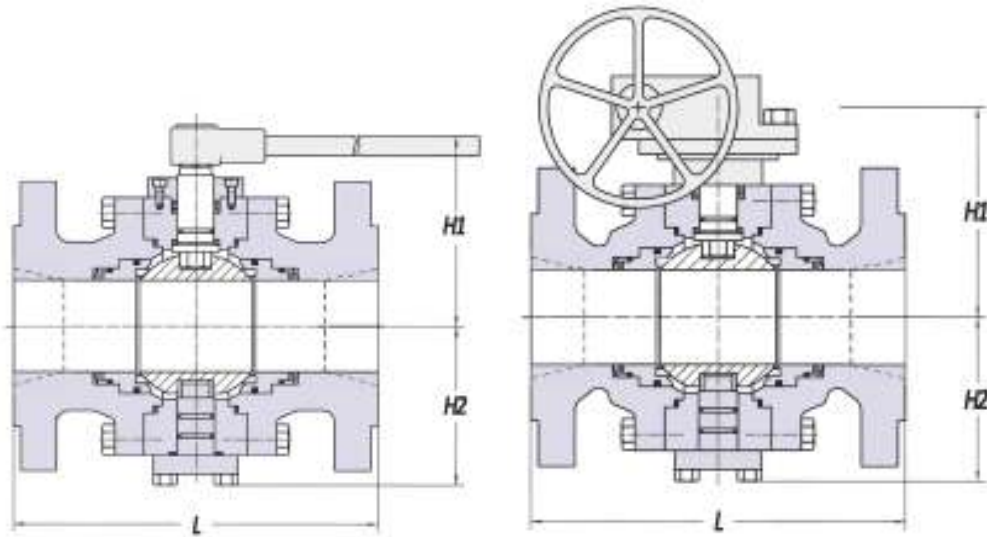
GEAR OPERATED

Port	Size (In)	L			H1	H2	Wt. (Kg)
		RF	RTJ	BW			
FULL BORE	2	292 (11.50)	295 (11.61)	292 (11.50)	105 (4.13)	100 (3.94)	33
	3	356 (14.02)	359 (14.13)	356 (14.02)	165 (6.50)	165 (6.50)	64
	4	432 (17.00)	435 (17.13)	432 (17.01)	210 (8.27)	210 (8.27)	114
	6	559 (22.00)	562 (22.13)	559 (22.01)	253 (9.96)	253 (9.96)	255
	8	660 (25.98)	664 (26.14)	660 (25.98)	290 (11.42)	290 (11.42)	487
	10	787 (30.98)	791 (31.14)	787 (30.98)	333 (13.11)	333 (13.11)	760
	12	838 (32.99)	841 (33.11)	838 (32.99)	380 (14.96)	380 (14.96)	1070
	14	889 (35.00)	892 (35.11)	889 (35.00)	395 (15.55)	395 (15.55)	1085
	16	991 (39.02)	994 (39.13)	991 (39.02)	433 (17.05)	433 (17.04)	1527
	18	1092 (42.99)	1095 (43.11)	1092 (42.99)	470 (18.50)	470 (18.50)	2097
	20	1194 (47.00)	1197 (47.13)	1200 (47.24)	505 (19.88)	505 (19.88)	2640
	24	1397 (55.00)	1400 (55.11)	1407 (55.39)	595 (23.43)	595 (23.43)	4740
REDUCED BORE	2 x 1.1/2	292 (11.50)	295 (11.61)	292 (11.50)	95 (3.74)	100 (3.94)	30
	3 x 2	356 (14.02)	359 (14.13)	356 (14.02)	105 (4.13)	100 (3.94)	40
	4 x 3	432 (17.00)	435 (17.13)	432 (17.01)	165 (6.50)	130 (5.12)	80
	6 x 4	559 (22.00)	562 (22.13)	559 (22.01)	210 (8.27)	162 (6.38)	153
	8 x 6	660 (25.98)	664 (26.14)	660 (25.98)	253 (9.96)	203 (7.99)	290
	10 x 8	787 (30.98)	791 (31.14)	787 (30.98)	290 (11.42)	257 (10.12)	547
	12 x 10	838 (32.99)	841 (33.11)	838 (32.99)	333 (13.11)	310 (12.20)	810
	14 x 12	889 (35.00)	892 (35.11)	889 (35.00)	380 (14.96)	350 (13.78)	1140
	16 x 14	991 (39.02)	994 (39.13)	991 (39.02)	395 (15.55)	360 (14.17)	1308
	18 x 16	1092 (42.99)	1095 (43.11)	1092 (42.99)	433 (17.05)	413 (16.26)	1682
	20 x 18	1194 (47.00)	1197 (47.13)	1200 (47.24)	470 (18.50)	430 (16.93)	2377
	24 x 20	1397 (55.00)	1400 (55.11)	1407 (55.39)	505 (19.88)	490 (19.29)	3250

Standard Fig. No. TA1F6

Unit : mm (inch)

FORGED STEEL TRUNNION BALL



LEVER OPERATED

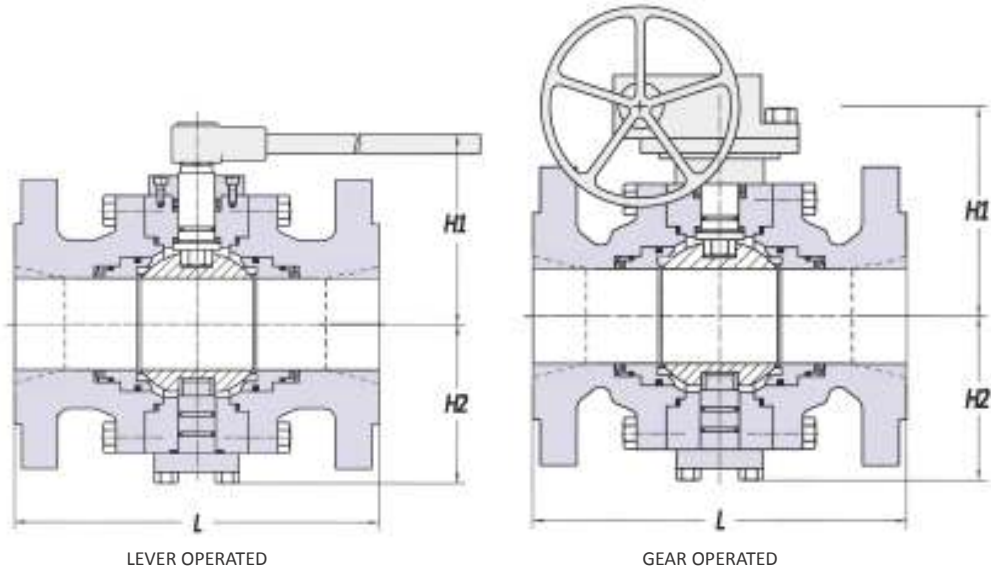
GEAR OPERATED

CLASS 900 - API 6D	Port	Size (In)	L			H1	H2	Wt. (Kg)
			RF	RTJ	BW			
			FULL BORE					
		2	368 (14.49)	371 (14.61)	368 (14.49)	105 (4.13)	105 (4.13)	50
		3	381 (15.00)	384 (15.12)	381 (15.00)	165 (6.50)	130 (5.12)	76
		4	457 (17.99)	460 (18.11)	457 (17.99)	210 (8.27)	167 (6.57)	150
		6	610 (24.02)	613 (24.13)	610 (24.02)	260 (10.24)	210 (8.27)	367
		8	737 (29.02)	740 (29.13)	737 (29.02)	295 (11.61)	266 (10.47)	600
		10	838 (32.99)	841 (33.11)	838 (32.99)	345 (13.58)	330 (12.99)	1027
		12	965 (37.99)	968 (38.11)	965 (37.99)	390 (15.35)	380 (14.96)	1558
		14	1029 (40.51)	1038 (40.87)	1029 (40.51)	400 (15.75)	390 (15.35)	1477
		16	1130 (44.49)	1146 (45.12)	1130 (44.49)	440 (17.32)	435 (17.13)	2157
	REDUCED BORE							
		2 x 1.1/2	368 (14.49)	371 (14.61)	368 (14.49)	95 (3.74)	105 (4.13)	40
		3 x 2	381 (15.00)	384 (15.12)	381 (15.00)	105 (4.13)	105 (4.13)	53
		4 x 3	457 (17.99)	460 (18.11)	457 (17.99)	165 (6.50)	130 (5.12)	97
		6 x 4	610 (24.02)	613 (24.13)	610 (24.02)	210 (8.27)	167 (6.57)	210
		8 x 6	737 (29.02)	740 (29.13)	737 (29.02)	260 (10.24)	210 (8.27)	447
		10 x 8	838 (32.99)	841 (33.11)	838 (32.99)	295 (11.61)	266 (10.47)	700
		12 x 10	965 (37.99)	968 (38.11)	965 (37.99)	345 (13.58)	330 (12.99)	1148
		14 x 12	1029 (40.51)	1038 (40.87)	1029 (40.51)	390 (15.35)	380 (14.96)	1643
		16 x 14	1130 (44.49)	1146 (45.12)	1130 (44.49)	400 (15.75)	390 (15.35)	1717

Standard Fig. No. TA1F9

Unit : mm (inch)

FORGED STEEL TRUNNION BALL



LEVER OPERATED

GEAR OPERATED

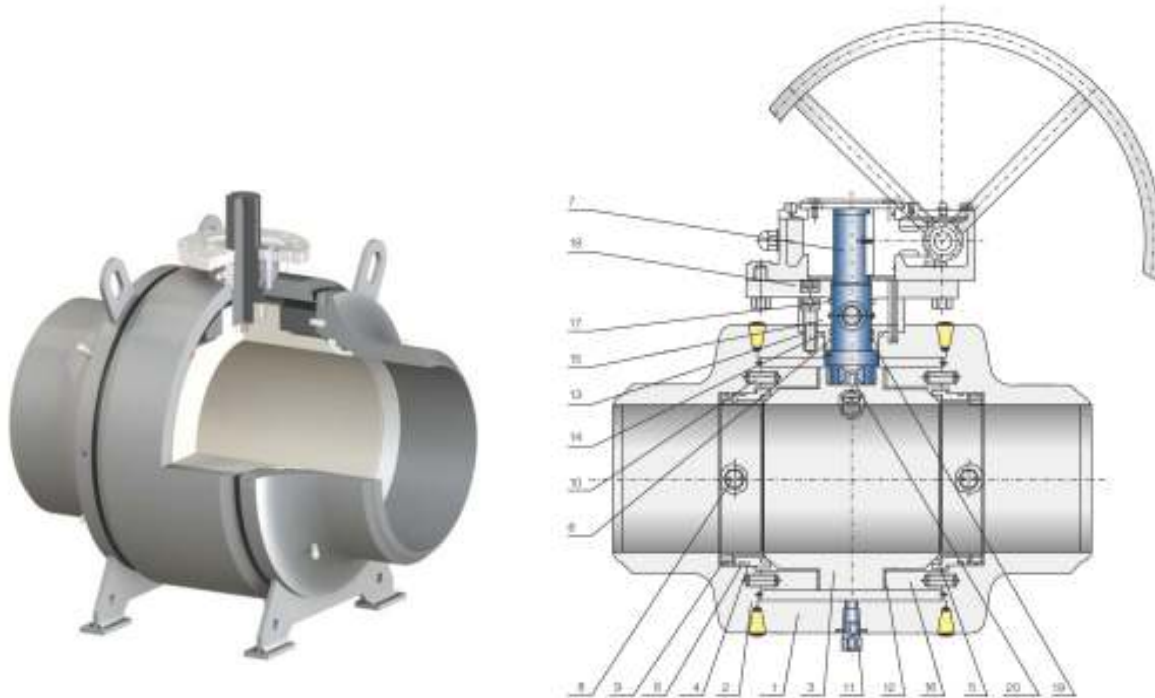
Port	Size (In)	L			H1	H2	Wt. (Kg)	
		RF	RTJ	BW				
CLASS 1500 - API 6D	FULL BORE	2	368 (15.67)	371 (14.61)	368 (15.67)	105 (4.13)	105 (4.13)	53
		3	470 (18.50)	473 (18.62)	470 (18.50)	165 (6.50)	130 (5.12)	98
		4	546 (21.50)	549 (21.61)	546 (21.50)	215 (8.46)	167 (6.57)	200
		6	705 (27.76)	711 (27.99)	705 (27.76)	260 (10.23)	230 (9.06)	485
		8	832 (32.76)	842 (33.15)	832 (32.76)	300 (11.81)	285 (11.22)	827
		10	991 (39.02)	1000 (39.37)	991 (39.02)	365 (14.37)	350 (13.78)	1507
		12	1130 (44.49)	1146 (45.12)	1130 (44.49)	420 (16.54)	423 (16.65)	2272
		14	1257 (49.49)	1276 (50.24)	1257 (49.49)	440 (17.32)	430 (16.93)	2880
		16	1384 (54.49)	1407 (55.40)	1384 (54.49)	480 (18.90)	500 (19.69)	4120
	REDUCED BORE	2 x 1.1/2	368 (15.67)	371 (14.61)	368 (15.67)	95 (3.74)	105 (4.13)	45
		3 x 2	470 (18.50)	473 (18.62)	470 (18.50)	105 (4.13)	105 (4.13)	66
		4 x 3	546 (21.50)	549 (21.61)	546 (21.50)	165 (6.50)	130 (5.12)	126
		6 x 4	705 (27.76)	711 (27.99)	705 (27.76)	215 (8.46)	167 (6.57)	290
		8 x 6	832 (32.76)	842 (33.15)	832 (32.76)	260 (10.23)	230 (9.06)	575
		10 x 8	991 (39.02)	1000 (39.37)	991 (39.02)	300 (11.81)	285 (11.22)	1032
		12 x 10	1130 (44.49)	1146 (45.12)	1130 (44.49)	365 (14.37)	350 (13.78)	1767
		14 x 12	1257 (49.49)	1276 (50.24)	1257 (49.49)	420 (16.54)	423 (16.65)	2537
		16 x 14	1257 (49.49)	1407 (55.40)	1257 (49.49)	440 (17.32)	430 (16.93)	3280
CLASS 2500 - API 6D	FULL BORE	2	451 (17.76)	454 (17.87)	451 (17.76)	160 (6.30)	110 (4.33)	118
		3	578 (22.76)	584 (22.99)	578 (22.76)	181 (7.13)	140 (5.51)	218
		4	673 (26.50)	683 (26.89)	673 (26.50)	200 (7.87)	250 (9.84)	362
		6	914 (35.98)	927 (36.50)	914 (35.98)	235 (9.25)	290 (11.42)	750
		8	1022 (40.24)	1038 (40.87)	1022 (40.24)	393 (15.47)	385 (15.16)	1970
		10	1270 (50.00)	1292 (50.87)	1270 (50.00)	465 (18.31)	435 (17.13)	2990
	REDUCED BORE	2 x 1.1/2	451 (17.76)	454 (17.87)	451 (17.76)	140 (5.51)	100 (3.94)	86
		3 x 2	578 (22.76)	584 (22.99)	578 (22.76)	160 (6.30)	100 (3.94)	152
		4 x 3	673 (26.50)	683 (26.89)	673 (26.50)	181 (7.13)	140 (5.51)	282
		6 x 4	914 (35.98)	927 (36.50)	914 (35.98)	200 (7.87)	250 (9.84)	570
		8 x 6	1022 (40.24)	1038 (40.87)	1022 (40.24)	235 (9.25)	290 (11.42)	990
		10 x 8	1270 (50.00)	1292 (50.87)	1270 (50.00)	393 (15.47)	385 (15.16)	2480
12 x 10	1422 (55.98)	1445 (56.89)	1422 (55.98)	465 (18.31)	435 (17.13)	3500		

Standard Fig. No. TA1F15

Standard Fig. No. TA1F25

Unit : mm (inch)

FULLY WELDED BALL VALVE



STANDARD PARTS & MATERIAL

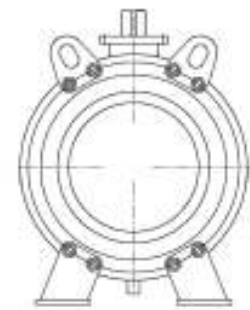
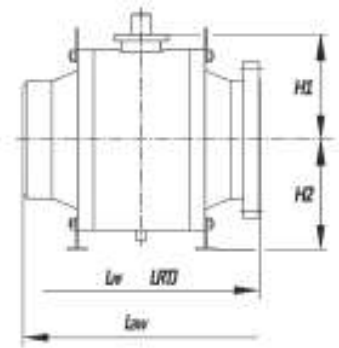
No.	Parts	Standard		Low Temp Service		Stainless Steel
1	Body	A105/N		A350-LF2		A182-F316/L
2	Cover	A105/N		A350-LF2		A182-F316/L
3	Ball	A105+ENP	A182-F304 A182-F316	A350-LF2+ENP	A182-F304 A182-F316	A182-F316/L
4	Seat Ring	A105+ENP	A182-F304 A182-F316	A350-LF2+ENP	A182-F304 A182-F316	A182-F316/L
5	Seat Insert	RTFE/Nylon/PEEK/Viton				
6	O-Ring	NBR/HNBR/Viton				
7	Stem	A182-F6a	A182-F304 A182-F316	A350-LF2+ENP	A182-F304 A182-F316	A182-F316/L
8	Seat Injection	Assembly				
9	Spring	Inconel X750				
10	Alignment Pin	Stainless Steel				
11	Bleed	Assembly				
12	Stem Bearing	SS+PTFE				
13	Bolt	A193-B7		A320-L7		A193-B8M
14	Gland Gasket	Graphite				
15	Gland Cap	A105		A350-LF2		A182-F316/L
16	Trunnion Support	A105+ENP	A182-F304 A182-F316	A350-LF2+ENP	A182-F304 A182-F316	A182-F316/L
17	O-Ring	NBR/HNBR/Viton				
18	Top Flange	A105		A350-LF2		A182-F316/L
19	Stem Bearing	SS+PTFE				
20	Anti Static	Stainless Steel				

Other valve material composition are available.

FULLY WELDED BALL

Port	Size (In)	L			H1	H2	Wt. (Kg)
		RF	RTJ	BW			
FULL BORE	2	178 (7.00)	191 (7.52)	216 (8.50)	118 (4.65)	93 (3.66)	27
	3	203 (7.99)	216 (8.50)	283 (11.14)	133 (5.24)	108 (4.25)	45
	4	229 (9.01)	241 (9.49)	305 (12.01)	210 (8.27)	128 (5.04)	69
	6	394 (15.51)	406 (15.98)	457 (17.99)	245 (9.65)	231 (9.09)	170
	8	457 (17.99)	470 (18.50)	521 (20.51)	288 (11.34)	277 (10.91)	270
	10	533 (20.98)	548 (21.57)	559 (22.01)	331 (13.03)	310 (12.20)	354
	12	610 (24.01)	622 (24.49)	635 (25.00)	368 (14.49)	344 (13.54)	610
	14	686 (27.00)	699 (27.52)	762 (30.00)	393 (15.47)	370 (14.57)	925
	16	762 (30.00)	775 (30.51)	838 (32.99)	437 (17.20)	415 (16.34)	1206
	18	864 (34.01)	878 (34.57)	914 (35.98)	470 (18.50)	453 (17.83)	1540
	20	914 (35.98)	927 (36.50)	991 (39.02)	515 (20.28)	491 (19.33)	1832
	24	1067 (42.00)	1080 (42.52)	1143 (45.00)	605 (23.82)	598 (23.54)	2970

Standard Fig. No. WA1F1



Port	Size (In)	L			H1	H2	Wt. (Kg)
		RF	RTJ	BW			
FULL BORE	2	216 (8.50)	232 (9.13)	216 (8.50)	118 (4.65)	93 (3.66)	28
	3	283 (11.14)	298 (11.73)	283 (11.14)	133 (5.24)	113 (4.45)	55
	4	305 (12.00)	321 (12.64)	305 (12.00)	225 (8.86)	130 (5.12)	78
	6	403 (15.87)	419 (16.50)	457 (17.99)	245 (9.65)	231 (9.09)	178
	8	502 (19.76)	518 (20.39)	521 (20.51)	288 (11.34)	277 (10.91)	293
	10	568 (22.36)	584 (22.99)	559 (22.01)	331 (13.03)	310 (12.20)	392
	12	648 (25.51)	664 (26.14)	635 (25.00)	368 (14.49)	344 (13.54)	660
	14	762 (30.00)	778 (30.63)	762 (30.00)	393 (15.47)	370 (14.57)	990
	16	838 (15.08)	854 (33.62)	838 (15.08)	437 (17.20)	415 (16.34)	1286
	18	914 (35.98)	930 (36.61)	914 (35.98)	470 (18.50)	453 (17.83)	1640
	20	991 (39.02)	1010 (39.76)	991 (39.02)	515 (20.28)	491 (19.33)	1928
	24	1143 (45.00)	1165 (45.87)	1143 (45.00)	605 (23.82)	598 (23.54)	3060

Standard Fig. No. WA1F3

Port	Size (In)	L			H1	H2	Wt. (Kg)
		RF	RTJ	BW			
FULL BORE	2	292 (11.50)	295 (11.61)	292 (11.50)	125 (4.92)	93 (3.66)	31
	3	356 (14.02)	359 (14.13)	356 (14.02)	148 (5.83)	113 (4.45)	78
	4	432 (17.00)	435 (17.13)	432 (17.00)	200 (7.87)	130 (5.12)	100
	6	559 (22.00)	562 (22.13)	559 (22.00)	249 (9.80)	237 (9.33)	208
	8	660 (25.98)	664 (26.14)	660 (25.98)	297 (11.69)	277 (10.91)	378
	10	787 (30.98)	791 (31.14)	787 (30.98)	337 (13.27)	314 (12.36)	560
	12	838 (32.99)	841 (33.11)	838 (32.99)	378 (14.88)	355 (13.98)	824
	14	889 (35.00)	892 (35.12)	889 (35.00)	400 (15.75)	381 (15.00)	1080
	16	991 (39.02)	994 (39.13)	991 (39.02)	448 (17.64)	427 (16.82)	1714
	18	1092 (42.99)	1095 (43.11)	1092 (42.99)	492 (19.37)	460 (18.11)	2120
	20	1194 (47.00)	1200 (47.24)	1194 (47.00)	538 (21.18)	500 (19.69)	2664
	24	1397 (55.00)	1407 (55.39)	1397 (55.00)	615 (24.21)	615 (24.21)	4092

Standard Fig. No. WA1F6

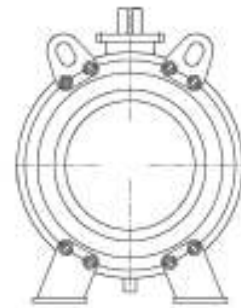
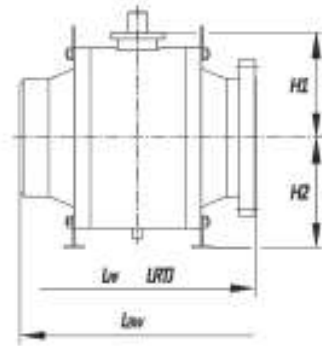
Unit : mm (inch)

FULLY WELDED BALL

BALL VALVE

CLASS 900 - API 6D	Port	Size (In)	L			H1	H2	Wt. (Kg)
			RF	RTJ	BW			
FULL BORE	2	368 (14.49)	371 (14.61)	368 (14.49)	135 (5.31)	102 (4.02)	63	
	3	381 (15.00)	384 (15.12)	381 (15.00)	148 (5.83)	113 (4.45)	83	
	4	457 (17.99)	460 (18.11)	457 (17.99)	225 (8.86)	130 (5.12)	157	
	6	610 (24.02)	613 (24.13)	610 (24.02)	255 (10.04)	288 (11.34)	286	
	8	737 (29.02)	740 (29.13)	737 (29.02)	295 (11.61)	333 (13.11)	440	
	10	838 (32.99)	841 (33.11)	838 (32.99)	357 (14.06)	376 (14.80)	720	
	12	965 (37.99)	968 (38.11)	965 (37.99)	386 (15.20)	419 (16.50)	990	
	14	1029 (40.51)	1038 (40.87)	1029 (40.51)	420 (16.54)	453 (17.83)	1220	
	16	1130 (44.49)	1140 (44.88)	1130 (44.49)	471 (18.54)	487 (19.17)	1610	
	18	1219 (47.99)	1232 (48.50)	1219 (47.99)	509 (20.04)	524 (20.63)	2600	
	20	1321 (52.01)	1334 (52.52)	1321 (52.01)	547 (21.54)	565 (22.24)	3480	
	24	1549 (60.98)	1568 (61.73)	1549 (60.98)	644 (25.35)	670 (26.38)	5230	

Standard Fig. No. WA1F9



CLASS 1500 - API 6D	Port	Size (In)	L			H1	H2	Wt. (Kg)
			RF	RTJ	BW			
FULL BORE	2	368 (15.67)	371 (14.61)	368 (15.67)	135 (5.31)	102 (4.02)	99	
	3	470 (18.50)	473 (18.62)	470 (18.50)	158 (6.22)	125 (4.92)	115	
	4	546 (21.50)	549 (21.61)	546 (21.50)	203 (8.23)	152 (5.98)	180	
	6	705 (27.76)	711 (27.99)	705 (27.76)	300 (11.81)	333 (13.11)	400	
	8	832 (32.76)	841 (33.11)	832 (32.76)	350 (13.78)	388 (15.28)	735	
	10	991 (39.02)	1000 (39.37)	991 (39.02)	427 (16.81)	446 (17.56)	1120	
	12	1130 (44.49)	1146 (45.12)	1130 (44.49)	470 (18.50)	503 (19.80)	1550	
	14	1257 (49.49)	1276 (50.24)	1257 (49.49)	522 (20.55)	569 (22.40)	1915	
	16	1384 (54.49)	1407 (55.39)	1384 (54.49)	598 (23.43)	629 (24.76)	2350	
	18	1537 (60.51)	1559 (61.38)	1537 (60.51)	650 (25.59)	680 (26.77)	3300	
	20	1664 (65.51)	1686 (66.38)	1664 (65.51)	692 (27.24)	725 (28.54)	4455	
	24	1943 (76.50)	1972 (77.64)	1943 (76.50)	817 (32.16)	858 (33.78)	6660	

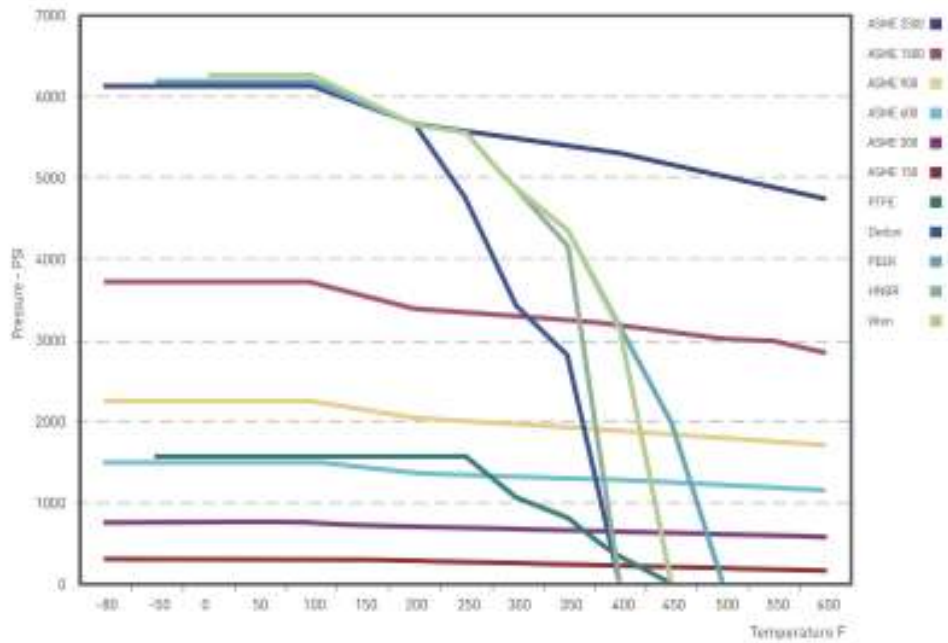
Standard Fig. No. WA1F15

Unit : mm (inch)

GLT VALVES

BALL VALVE TECHNICAL DATA

BALL VALVE PRESSURE TEMPERATURE RANGE



BALL VALVE TORQUE DATA

Size (In)	TRUNNION BALL VALVE						FLOATING BALL VALVE				
	CLASS						CLASS				
	150 (N.m)	300 (N.m)	600 (N.m)	900 (N.m)	1500 (N.m)	2500 (N.m)	150 (N.m)	300 (N.m)	600 (N.m)	900 (N.m)	1500 (N.m)
1/2	-	-	-	-	-	-	12	17	30	38	51
3/4	-	-	-	-	-	-	14	23	38	56	71
1	-	-	-	-	-	-	27	48	66	98	130
1.1/2	-	-	-	-	-	-	55	89	120	189	238
2	42	80	115	150	468	790	75	100	160	240	350
2.1/2	-	-	-	-	-	-	125	141	233	390	550
3	140	220	334	440	810	1390	162	216	308	610	980
4	220	360	460	830	1500	3520	234	476	635	-	-
6	380	680	1000	1880	3750	5160	804	1338	1944	-	-
8	629	1180	2000	3600	5501	7235	1410	3100	-	-	-
10	1200	2120	3580	5281	7561	11218	-	-	-	-	-
12	1654	2489	5391	7381	9801	15187	-	-	-	-	-
14	2793	4217	6521	8825	17520	-	-	-	-	-	-
16	3755	5639	8689	11738	28882	-	-	-	-	-	-
18	5089	8244	13348	18453	37822	-	-	-	-	-	-
20	6406	11025	18499	25973	48665	-	-	-	-	-	-
24	12296	19398	30888	42379	69810	-	-	-	-	-	-
26	13998	22857	34540	-	-	-	-	-	-	-	-
28	15698	26379	38191	-	-	-	-	-	-	-	-
30	17402	29945	41810	-	-	-	-	-	-	-	-
36	22939	36160	51528	-	-	-	-	-	-	-	-