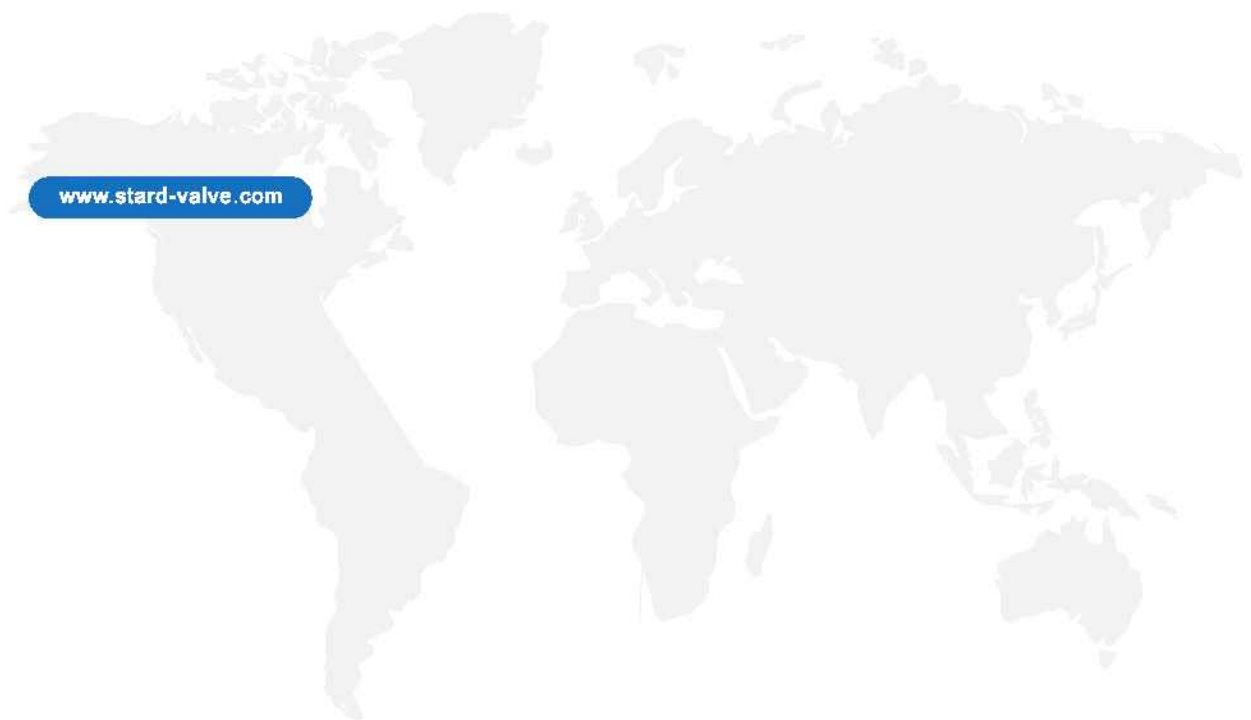
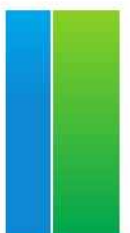




STARD VALVE

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STARD SERIES T2 CAST STEEL TRUNNION MOUNTED BALL VALVE



SUZHOU SIP STARD VALVE CO.LTD.



STARD VALVE

[ABOUT COMPANY]

International Quality, Precision Control



STARD Ball Valves are manufactured and tested in conformance with the requirements of API 6D specifications. These industry standards dictate end-to-end dimensions, flange configuration, port sizes, materials of construction, quality control procedures and testing requirements.



In addition to Trunnion Ball Valves in cast 2pc and forged 3pc design, STARD offers a wide range of threaded end and flanged end floating ball valves in both cast and forged steel design.

As one of the major ball valve manufacturer in China, STARD offer special design of valves such as top entry ball valves, cryogenic ball valves, Metal-Metal seal ball valves for high temperature service, and we have one workshop specially making fully welded ball valves up to 56"

STARD Ball Valves are stocked by a network of authorized distributors to service the petroleum producing and refining industries. STARD products are marketed worldwide by domestic and international representatives.

Base of advanced equipment and processing skills



Production process



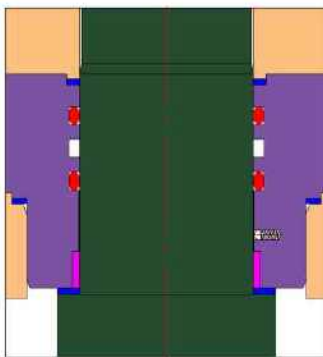
STARD® SERIES T2 TRUNNION MOUNTED BALL VALVES FEATURES AND BENEFITS

STARD SERIES T2 TRUNNION Ball Valves offer a broad range of trim options. These include: Stainless steel, low or high temperature and special graphite seals.

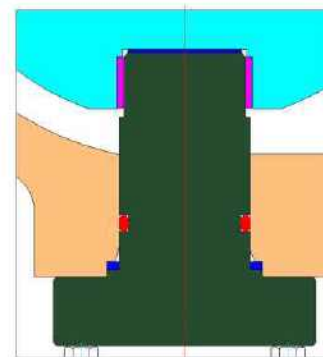
The special graphite seals are provided to effectively prevent external leakage for Fire Safe Applications (conforms to API Specifications 6FA or 607).

STARD Two-Piece End Entry Trunnion Ball Valves are available in flanged connections with sizes ranging from 2 in. (50 mm) to 24 in. (600 mm) bore to ASME Class 150-600, 2 in. (50 mm), to 16 in. (400 mm) Bore to ASME 900 2 in. (50 mm), to 12 in. (300 mm) in 1500 Operating temperature -50°F to +350°F (-46°C to +175°C).

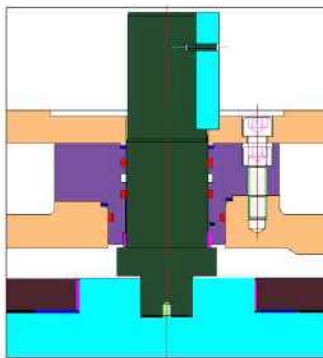
Standard features



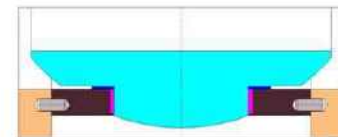
1. Double barrier stem seals:
Double O-rings with stem packing work together assure the low emission property of stem seals.



2. Short coupled Trunnions to minimize unit bearing loads and operating torque. This design features 2"-4"/150-1500lbs ball valves.

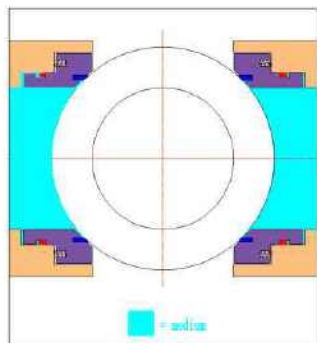


3. Fixed position external stop & stem separate from the ball.



4. Trunnion mounted ball with Metal -backed self lubricated PTFE sleeve bearings and washers reduce torque under high pressure and extend life.

5. Double block and bleed condition is available on all sizes and class, and when the ball is in the closed position, the body cavity pressure can be drained down to Zero by opening the bleed valve and removing the plug to drain the fluid. Each seat works independently to assure the tight shut-off seals both from the up-stream and down-stream side.

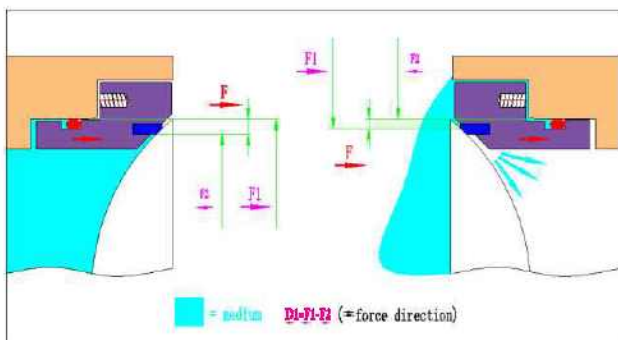


6. Single Piston effect seat design as standard:

Up-stream seat: The difference of area $D1$ times the line pressure creates a force which push the seat against the ball surface, also the spring behind the seat adds the force to the seat against the ball and assure the seat in contact with ball at anytime to provide tight seal.

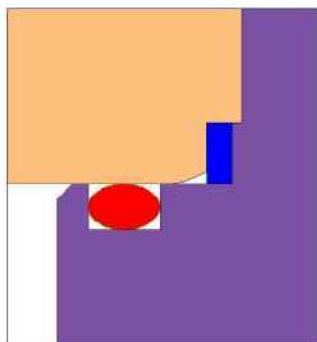
Down-stream seat: when the body cavity pressure exceeds the spring pressure, automatic pressure relief will occur by relieve the cavity pressure past the down-stream seat.

In all, we call this seat design as "Single piston effect and self relief seats"



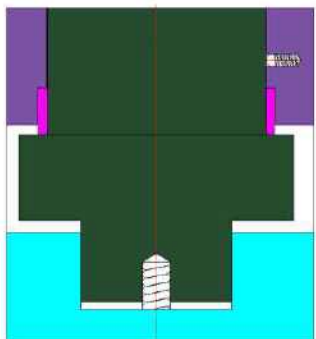
7. Body/Closure seal connection:

Bolted design permits disassembly on job site for repairs and An O ring in this connection insures the positive seal and easy maintenance.



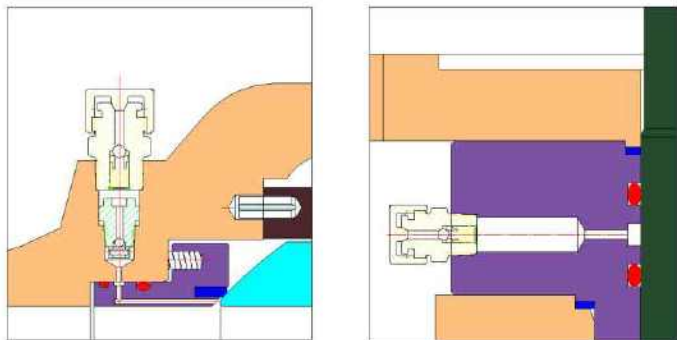
8. Anti-static devices:

A stainless steel grounding plunger/ball between the body/stem & stem/ball permits electricity continuity, and for 2"-4", antistatic accomplished through bearing.

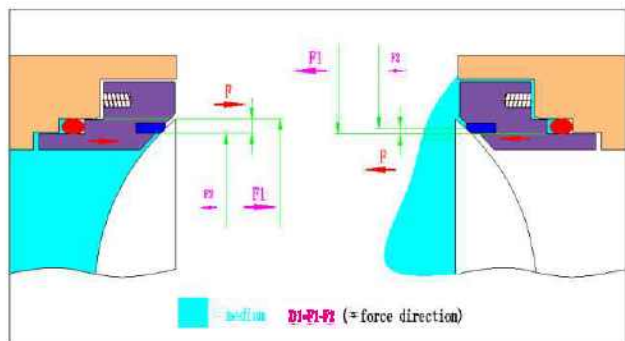


9. Emergency sealant injection system on seats and stem seals:

The sealant Injection located on the stem neck can be utilized in case emergencies, such as stem seal O ring get damaged and stem leaks. The sealant injection on the closure can be used when the seal surface or O rings get damaged to re-store sealing integrity.



10. Meet NACE MR-0175/ISO 15156 & Fire-safe as per API 607



11. Double piston effect seat design as special option:

On request, the seat ring design can be modified to perform "Double Piston effect " action, in this case, the pressure acts on both internal and external surface of seat rings, and results in a force pushing the same against the ball, therefore, each seat ring grants the required tightness even the pressure is applied in the body cavity. This provides extra sealing feather to the valve, but to release the possible over pressure in the body cavity, safety relief valve maybe used as external bleed valve.

12. Various soft seal seat insert materials are available, such as Devlon V, Nylon, Peek, PTFE, KEL-F and etc., Metal-Metal seal on request, such Tungsten Carbide Coating, Stellite Coating, Chromium Carbide Coating by HVOF. Cryogenic service design is available on request.

Certificate

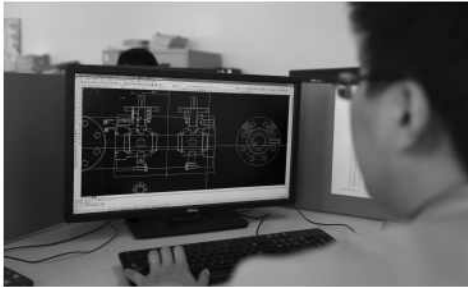


API 6D

ISO 9001

CE/PED

ATEX



Elaborate design
is realized by strict
control of details.



Zero-defect process control
is the reliable guarantee for superior
performance of STARD valves.



FIRE SAFE TEST

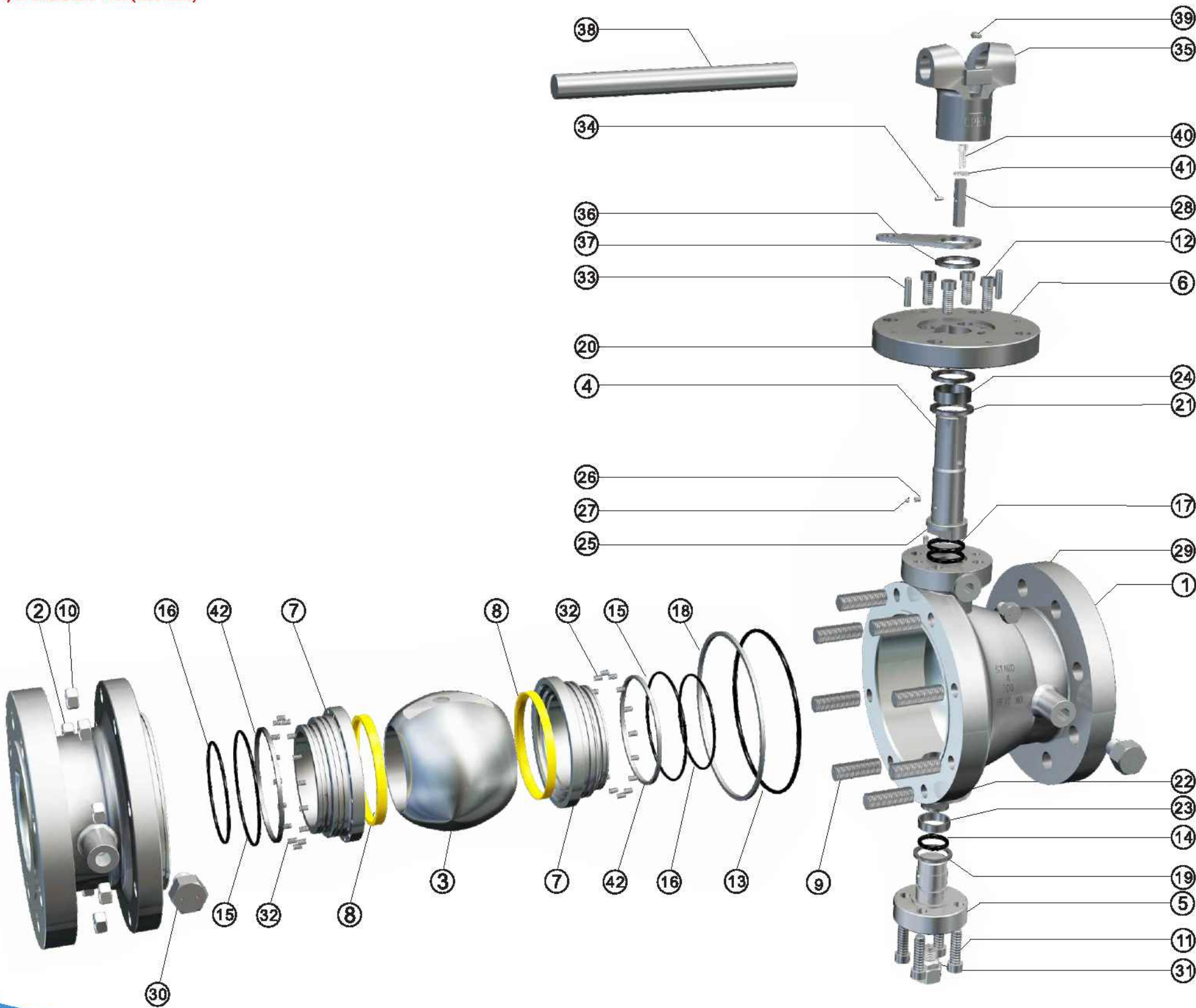
Innovation is the
sources of an
enterprise's life,
Innovation is to
create new
value!



» A provider of high-performance valves
High-quality ball valves

STARD® SERIES T2-A DESIGN TRUNNION MOUNTED BALL VALVES

VALVE ASSEMBLY – ASME CLASS 150 - 300
2 In. (50 mm) THROUGH 4 In. (100 mm)

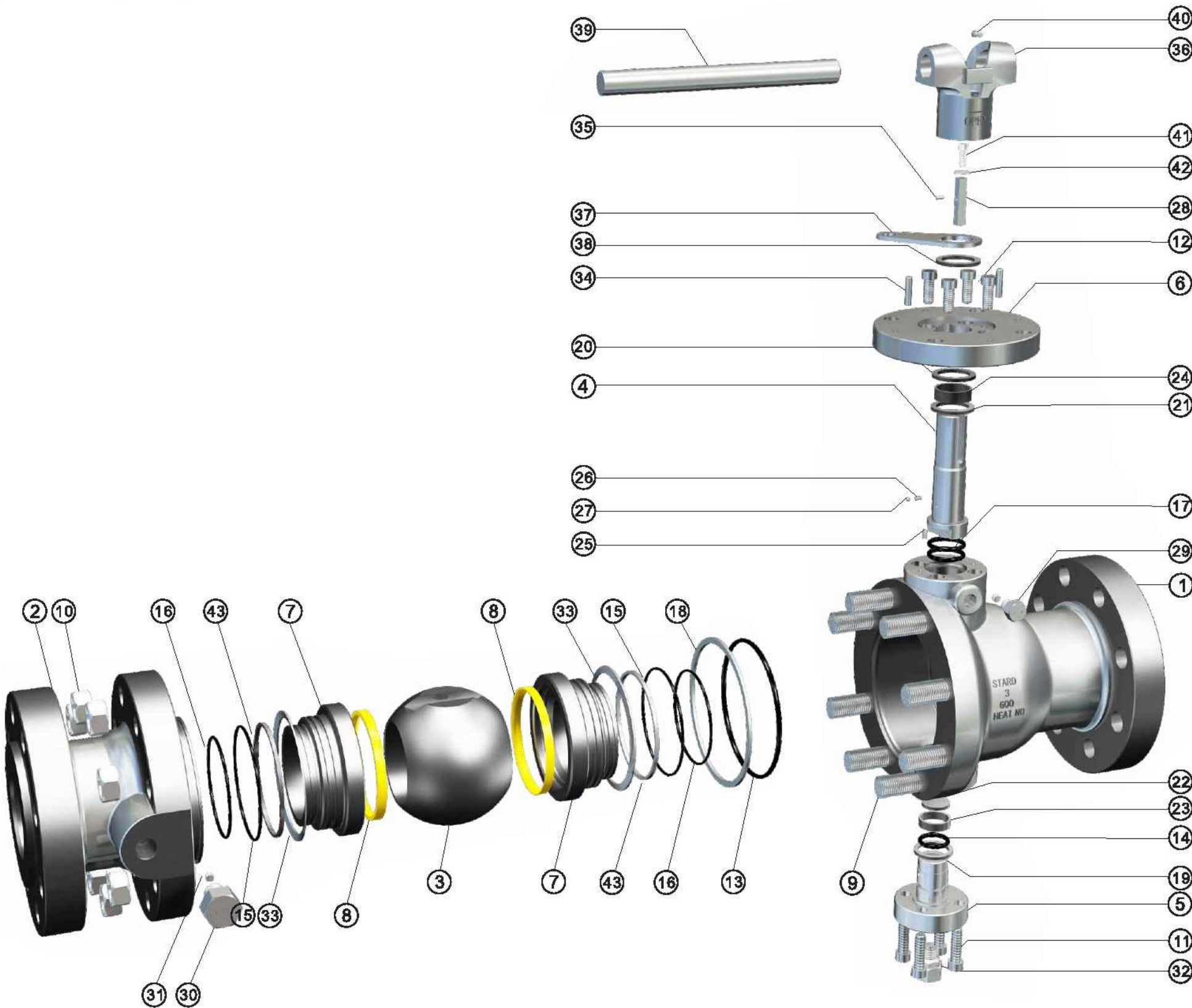


Item	Part
1	Body
2	Adapter
3	Ball
4	Stem
5	Trunnion
6	Mountain plate
7	Seat Retainer
8	Seat Insert
9	Body Bolt
10	Body Nut
11	Trunnion Screws
12	Mountain plate Screws
13	Adapter O-Ring
14	Trunnion O-Ring
15	Seat O-Ring
16	Seat O-Ring
17	Stem O-Ring
18	Adapter Gasket
19	Trunnion Gasket
20	Mountain plate Gasket
21	Thrust Washer
22	Washer
23	Trunnion Bearing
24	Stem Bearing
25	Antistatic Spring
26	Antistatic Spring
27	Antistatic Ball
28	Square Key
29	Stem Injection valve
30	Seat Injection valve
31	Drain Plug
32	Seat Spring
33	Mountain plate Pin
34	Square Key Pin
35	Wrench
36	Locking Plate
37	Washer
38	Wrench Pipe
39	Wrench Screws
40	Wrench Screws
41	Washer
42	Packing

STARD® SERIES T2-B DESIGN TRUNNION MOUNTED BALL VALVES

VALVE ASSEMBLY – ASME CLASS 600 - 1500

2 in. (50 mm) THROUGH 4 in. (100 mm)



Item	Part
1	Body
2	Adapter
3	Ball
4	Stem
5	Trunnion
6	Mounting plate
7	Seat Retainer
8	Seat Insert
9	Body Bolt
10	Body Nut
11	Trunnion Srews
12	Mounting plate Srews
13	Adapter O-Ring
14	Trunnion O-Ring
15	Seat O-Ring
16	Seat O-Ring
17	Stem O-Ring
18	Adapter Gasket
19	Trunnion Gasket
20	Mounting plate Gasket
21	Thrust Washer
22	Washer
23	Trunnion Bearing
24	Stem Bearing
25	Antistatic Spring
26	Antistatic Spring
27	Antistatic Ball
28	Squace Key
29	Stem Injection valve
30	Seat Injection valve
31	Check valve
32	Drain Valve
33	Seat Spring
34	Mounting plate Pin
35	Squace Key Pin
36	Wrench
37	Locking Plate
38	Washer
39	Wrench Pipe
40	Wrench Srews
41	Wrench Srews
42	Washer
43	Packing

STARD® SERIES T2 - A & B TRUNNION MOUNTED BALL VALVES

MATERIALS OF CONSTRUCTION – ASME CLASS 150 – 1500

2 in. (50 mm) THROUGH 4 in.(100 mm)

Item	Part	Carbon Steel NACE	Exotic alloy steel (NACE)
1	Body	ASTM A216 WCB/ASTM A352 LCB	ASTM A216 WCB/ASTM A352 LCB
2	Adapter	ASTM A216 WCB/ASTM A352 LCB	ASTM A216 WCB/ASTM A352 LCB
3	Ball	ASTM A105/A350 LF2 +3 MIL ENP	ASTM A351 CF8M/ASTM A182 F316/F51
4	Stem	ASTM A322 4140 +3 MIL ENP	ASTM A182 F316/F51/A564 GR 630 (17-4PH)
5	Trunnion	ASTM A105/A350 LF2 +3 MIL ENP	ASTM A182 F316/F51/A564 GR 630 (17-4PH)
6	Mounting Plate	ASTM A105/A350 LF2	ASTM A105/A350 LF2
7	Seat Retainer	ASTM A105/A350 LF2 +3 MIL ENP	ASTM A182 F316/F51
8	Seat Insert	DEVLON	DEVLON
9	Body Bolt	ASTM A193 B7M/ASTM A320 L7M	ASTM A193 B7M/ASTM A320 L7M
10	Body Nut	ASTM A194 2HM/ASTM A194 4/7M	ASTM A194 2HM/ASTM A194 4/7M
11	Trunnion Screws	ASTM A193 B7M/ASTM A320 L7M	ASTM A193 B7M/ASTM A320 L7M
12	Mounting Plate Screws	ASTM A193 B7M/ASTM A320 L7M	ASTM A193 B7M/ASTM A320 L7M
13	Adapter O-Ring	VITON AED / HNBR	VITON AED / HNBR
14	Trunnion O-Ring	VITON AED / HNBR	VITON AED / HNBR
15	Seat O-Ring	VITON AED / HNBR	VITON AED / HNBR
16	Seat O-Ring	VITON AED / HNBR	VITON AED / HNBR
17	Stem O-Ring	VITON AED / HNBR	VITON AED / HNBR
18	Adapter Gasket	GRAPHITE	GRAPHITE
19	Trunnion Gasket	GRAPHITE	GRAPHITE
20	Mounting Plate Gasket	GRAPHITE	GRAPHITE
21	Thrust Washer	PEEK	PEEK
22	Washer	PTFE	PTFE
23	Trunnion Bearing	ASTM A516 70+PTFE	ASTM A182 F304+PTFE
24	Stem Bearing	ASTM A516 70+PTFE	ASTM A182 F304+PTFE
25	Antistatic Spring	ASTM A313 316	ASTM A313 316
26	Antistatic Spring	ASTM A313 316	ASTM A313 316
27	Antistatic Ball	ASTM A276 304	ASTM A276 304
28	Square Key	ASTM A29 1045	ASTM A29 1045
29	Stem Injection Valve	ASTM A105/A350 LF2+Zn	ASTM A105/A350 LF2+Zn
30	Seat Injection Valve	ASTM A105/A350 LF2+Zn	ASTM A105/A350 LF2+Zn
31	Check Valve	ASTM A182 F304	ASTM A182 F304
32	Drain Plug	ASTM A105/A350 LF2+Zn	ASTM A105/A350 LF2+Zn
33	Seat Spring	Inconel X-750	Inconel X-750
34	Mounting Plate Pin	ASTM A29 1566	ASTM A29 1566
35	Square Key Pin	ASTM A29 1566	ASTM A29 1566
36	Wrench	ASTM A216 WCB	ASTM A216 WCB
37	Locking Plate	ASTM A182 SS304	ASTM A182 SS304
38	Washer	NYLON	NYLON
39	Washer Pipe	ASTM A29 1020	ASTM A29 1020
40	Washer Screws	ASTM A193 B8	ASTM A193 B8
41	Washer Screws	ASTM A193 B8	ASTM A193 B8
42	Washer	ASTM A182 F316	ASTM A182 F316
43	Packing	Braided Graphite	Braided Graphite

Notes: 1. Materials listed are minimum requirements. STARD reserves the right to substitute materials listed on this page with alternate materials for the designated service.

2. Component and Adapter plate required in lieu of bearing housing on actuated valves.

STARD® SERIES T2 - A & B TRUNNION MOUNTED BALL VALVES

MATERIALS OF CONSTRUCTION – ASME CLASS 150 – 1500

2 in. (50 mm) THROUGH 4 in.(100 mm)

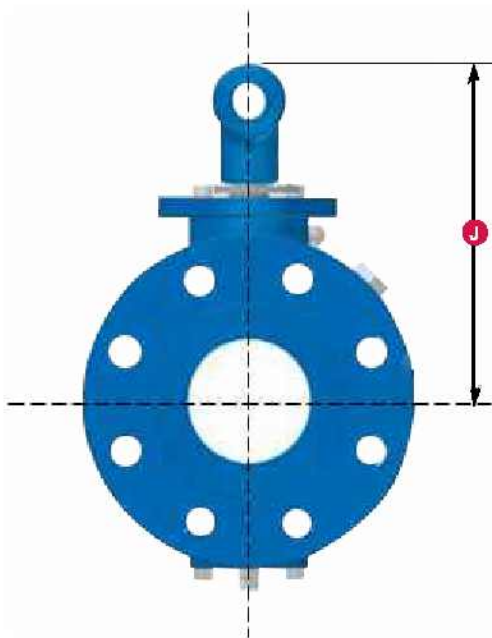
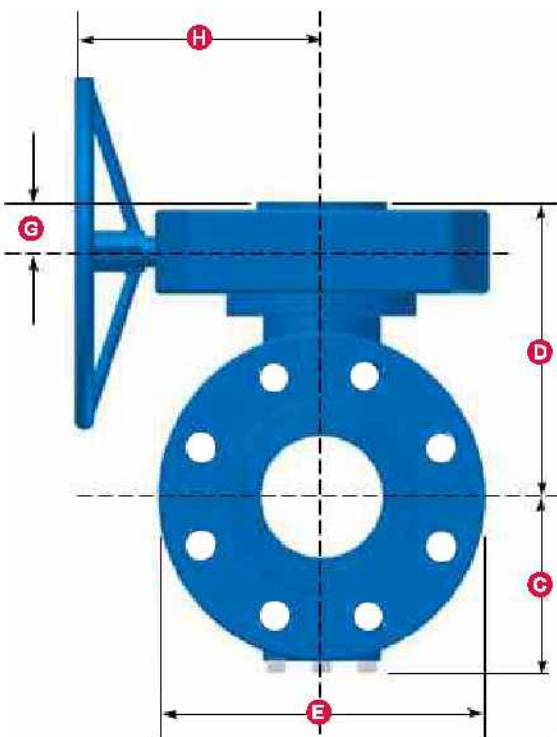
Item	Part	Stainless Steel NACE	Exotic alloy steel (NACE) ASTM A995 GR.6A as exp.
1	Body	ASTM A351 CF8M	ASTM A351 CK3MCUN/A995 GR.6A
2	Adapter	ASTM A351 CF8M	ASTM A351 CK3MCUN/A995 GR.6A
3	Ball	ASTM A351 CF8M/A182 F316/F51	ASTM A182 F904L/F44/F55/A995 GR.6A
4	Stem	ASTM A182 F316/F51/A564-630 (174PH)	ASTM A182 F904L/F44/F55
5	Trunnion	ASTM A182 F316/F51/A564-630 (174PH)	ASTM A182 F904L/F44/F55
6	Mounting Plate	ASTM A182 F304	ASTM A182 F304
7	Seat Retainer	ASTM A182 F316/F51	ASTM A182 F904L/F44/F55
8	Seat Insert	DEVLON	DEVLON
9	Body Bolt	ASTM A193 B8M	ASTM A193 B8M
10	Body Nut	ASTM A194 8M	ASTM A194 8M
11	Trunnion Screws	ASTM A193 B8M	ASTM A193 B8M
12	Mounting Plate Screws	ASTM A193 B8M	ASTM A193 B8M
13	Adapter O-Ring	VITON AED / HNBR	VITON AED / HNBR
14	Trunnion O-Ring	VITON AED / HNBR	VITON AED / HNBR
15	Seat O-Ring	VITON AED / HNBR	VITON AED / HNBR
16	Seat O-Ring	VITON AED / HNBR	VITON AED / HNBR
17	Stem O-Ring	VITON AED / HNBR	VITON AED / HNBR
18	Adapter Gasket	GRAPHITE	GRAPHITE
19	Trunnion Gasket	GRAPHITE	GRAPHITE
20	Mounting Plate Gasket	GRAPHITE	GRAPHITE
21	Thrust Washer	PEEK	PEEK
22	Washer	PTFE	PTFE
23	Trunnion Bearing	ASTM A240 316+PTFE	PEEK
24	Stem Bearing	ASTM A240 316+PTFE	PEEK
25	Antistatic Spring	ASTM A316 316	Inconel X-750
26	Antistatic Spring	ASTM A316 316	Inconel X-750
27	Antistatic Ball	ASTM A276 316	Monel
28	Square Key	ASTM A29 1045	ASTM A29 1045
29	Stem Injection Valve	ASTM A182 F316	ASTM A182 F55
30	Seat Injection Valve	ASTM A182 F316	ASTM A182 F55
31	Drain Plug	ASTM A182 F316	ASTM A182 F55
32	Seat Spring	Inconel X-750	Inconel X-750
33	Mounting Plate Pin	ASTM A29 1566	ASTM A29 1566
34	Square Key Pin	ASTM A29 1566	ASTM A29 1566
35	Wrench	ASTM A216 WCB	ASTM A216 WCB
36	Locking Plate	ASTM A182 SS304	ASTM A182 SS304
37	Washer	NYLON	NYLON
38	Washer Pipe	ASTM A29 1020	ASTM A29 1020
39	Washer Screws	ASTM A193 B8	ASTM A193 B8
40	Washer Screws	ASTM A193 B8	ASTM A193 B8
41	Washer	ASTM A182 F316	ASTM A182 F316
42	Packing	Braided Graphite	Braided Graphite

3. Stainless steel locking device available upon request.

4. For exotic alloy steel, STARD is able to supply various body material in ASTM A995 Gr. 4A, 5A, 6A duplex stainless steel, ASTM A351 CN7M, CK3MCuN, Inconel 625 (ASTM A494 CW6MC), Monel (ASTM A494 M35-1), and Hastalloy (ASTM A494 CW12MW)

STARD® SERIES T2 TRUNNION MOUNTED BALL VALVES

DIMENSIONS AND WEIGHTS – ASME CLASS 150 - 1500
2 in. (50 mm) through 4 in. (100 mm)



STARD® SERIES T2 TRUNNION MOUNTED BALL VALVES

DIMENSIONS AND WEIGHTS – ASME CLASS 150 - 1500
2 in. (50 mm) THROUGH 4 in. (100 mm)

ASME CLASS 150		Design in T2-A construction								Working pressure - 285 psig (19.7 barg)				
SIZE	In.	B	A	C	D	E	F	G	H	I	J	K	Weight lb.	Weight lb.
	(mm)		(RF)										Valve (kg)	Gearbox(kg)
2	2	7	4.45	7.32	5.91	1.77	1.38	5.83	2.95	7.28	13.78	22.0	9.9	
(50)	49	178	113	186	150	45	35	148	75	185	350	10	4.5	
3	3	8	5.39	8.86	7.48	2.48	1.69	8.46	3.94	9.06	15.75	46.3	26.4	
(80)	76	203	137	225	190	63	43	215	100	230	400	21	12	
4	4	9	6.89	11.36	9.06	3.05	2.05	9.02	5.91	11.42	17.72	66.1	33	
(100)	100	229	170	288.5	230	77.5	52	229	100	290	450	30	15	

ASME CLASS 300		Design in T2-A construction								Working pressure - 740 psig (51.0 barg)				
SIZE	in.	B	A	C	D	E	F	G	H	I	J	K	Weight lb.	Weight lb.
	(mm)		(RF)										Valve (kg)	Gearbox(kg)
2	2	8 1/2	4.45	7.32	8.50	1.77	1.38	5.83	2.95	7.28	15.75	39.8	9.9	
(50)	49	216	113	186	165	45	35	148	75	185	400	18	4.5	
3	3	11	5.39	8.86	8.27	2.48	1.69	8.46	3.94	9.06	17.72	68.3	26.4	
(80)	76	283	137	225	210	63	43	215	100	230	450	31	12	
4	4	12	8.89	11.36	10.04	3.05	2.05	9.02	5.91	11.42	23.82	99.1	33.0	
(100)	100	305	170	288.5	255	77.5	52	229	150	290	600	45	15	

ASME CLASS 600		Design in T2-B construction								Working pressure - 1480 psig (102 barg)				
SIZE	in.	B	A	C	D	E	F	G	H	I	J	K	Weight lb.	Weight lb.
	(mm)		RF	RTJ									Valve (kg)	Gearbox(kg)
2	2	11 1/2	11 5/8	5.31	8.18	6.50	2.48	1.88	8.46	3.94	8.27	19.89	59.5	26.4
(50)	50	292	296	135	208	165	63	43	215	100	210	500	27	12
3	3	14	14 1/8	5.61	8.86	8.27	2.48	1.69	8.46	5.91	9.06	21.65	110.1	26.4
(80)	76	358	358	140	225	210	63	43	215	150	230	550	50	12
4	4	17	17 1/8	6.69	11.57	10.83	3.05	2.05	9.02	7.48	11.61	27.56	209.3	33.0
(100)	100	432	435	170	294	275	77.5	52	229	190	295	700	95	15

ASME CLASS 900		Design in T2-B construction								Working pressure - 2220 psig (153.1 barg)				
SIZE	in.	B	A	C	D	E	F	G	H	I	J	K	Weight lb.	Weight lb.
	(mm)		RF	RTJ									Valve (kg)	Gearbox(kg)
2	2	14 1/2	14 5/8	5.31	8.18	8.46	2.48	1.88	8.46	5.91	8.27	23.62	85.9	26.4
(50)	50	368	371	135	208	215	63	43	215	150	210	600	39	12
3	3	15	15 1/8	6.50	9.80	9.45	3.05	2.05	9.02	7.48	9.84	27.56	154.2	33.0
(80)	76	381	384	165	249	240	77.5	52	229	190	250	700	70	15
4	4	18	18 1/8	6.97	11.57	11.42	3.05	2.05	9.02	8.88	11.61	31.50	273.1	33.0
(100)	100	457	460	177	294	290	77.5	52	229	227.5	295	800	124	15

Notes: Please contact STARD for the dimensions and weight of the reduced bore design ball valves, and hereby, we only list the data for full bore ball valves.

ASME CLASS 1500			Design in T2-B construction										Working pressure - 3625psig (250barg)		
SIZE	In.	B	A	C	D	E	F	G	H	I	J	K	Weight lb.	Weight lb.	
	(mm)		RF	RTJ									Valve (kg)	Gearbox(kg)	
2	2	14 1/2	14 5/8	5.31	8.19	8.48	2.48	1.89	8.48	5.91	8.27	23.82	85.9	26.4	
(50)	50	368	371	135	208	215	63	43	215	150	210	600	39	12	
3	3	19	18 5/8	6.50	9.80	10.43	3.05	2.05	9.02	8.94	9.84	27.66	276.3	33.0	
(80)	78	470	473	165	249	265	77.5	52	229	227	250	700	125	15	
4	4	21	21 5/8	6.97	11.93	12.20	3.54	2.05	14.17	9.84	11.97	31.50	451.5	48.5	
(100)	100	548	549	177	303	310	90	62	360	250	304	800	205	22	

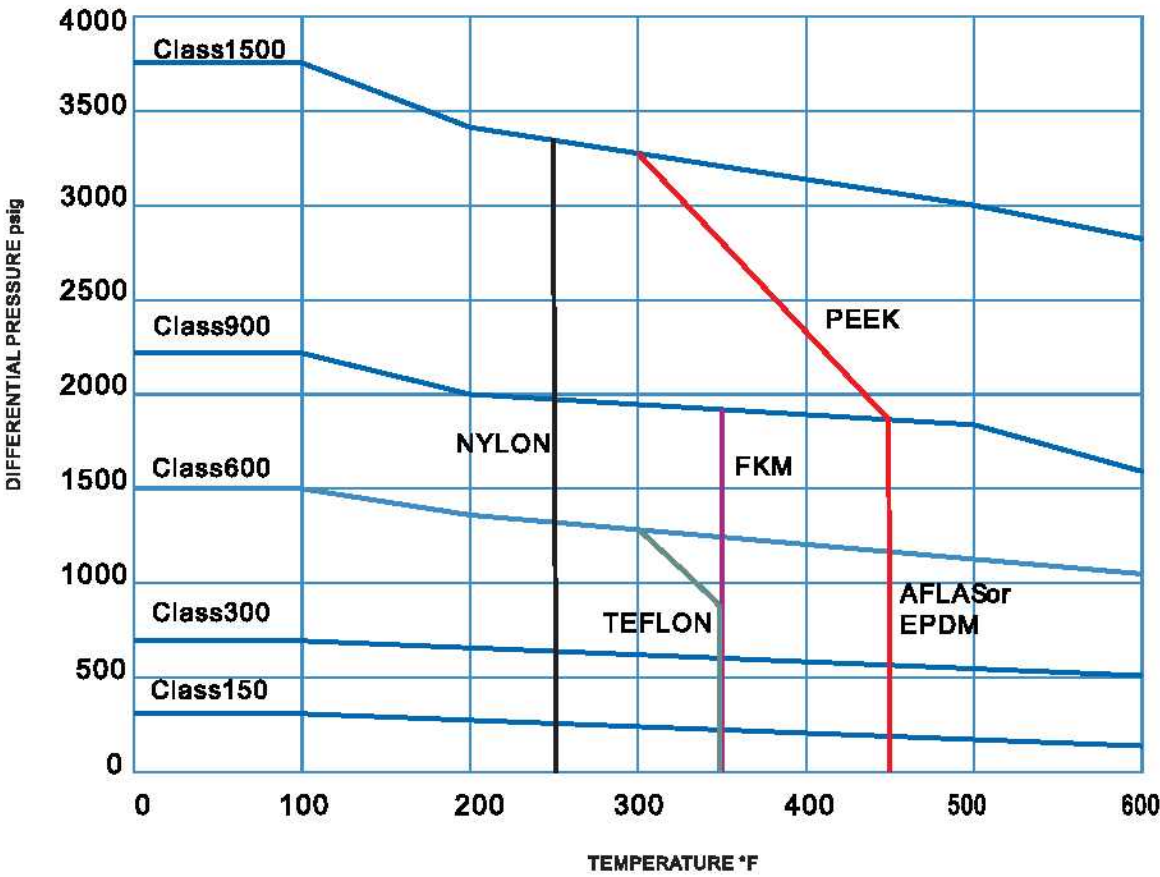
Notes: 1. 2"-4"/150-600, 2"-3"/900/1500 ball valves are operated by wrench as standard, 2"-3"/900 are operated by wrench as standard, and 4"/900, 4"/1500lbs are operated by gear box as standard
2. Please contact STARD for the dimensions and weight of the reduced bore design ball valves, and hereby, we only list the data for full bore ball valves.



STARD® SERIES T2 TRUNNION MOUNTED BALL VALVES

PRESSURE TEMPERATURE DATA

PRESSURE TEMPERATURE CHART API 6D



LOW TEMPERATURE LIMITS

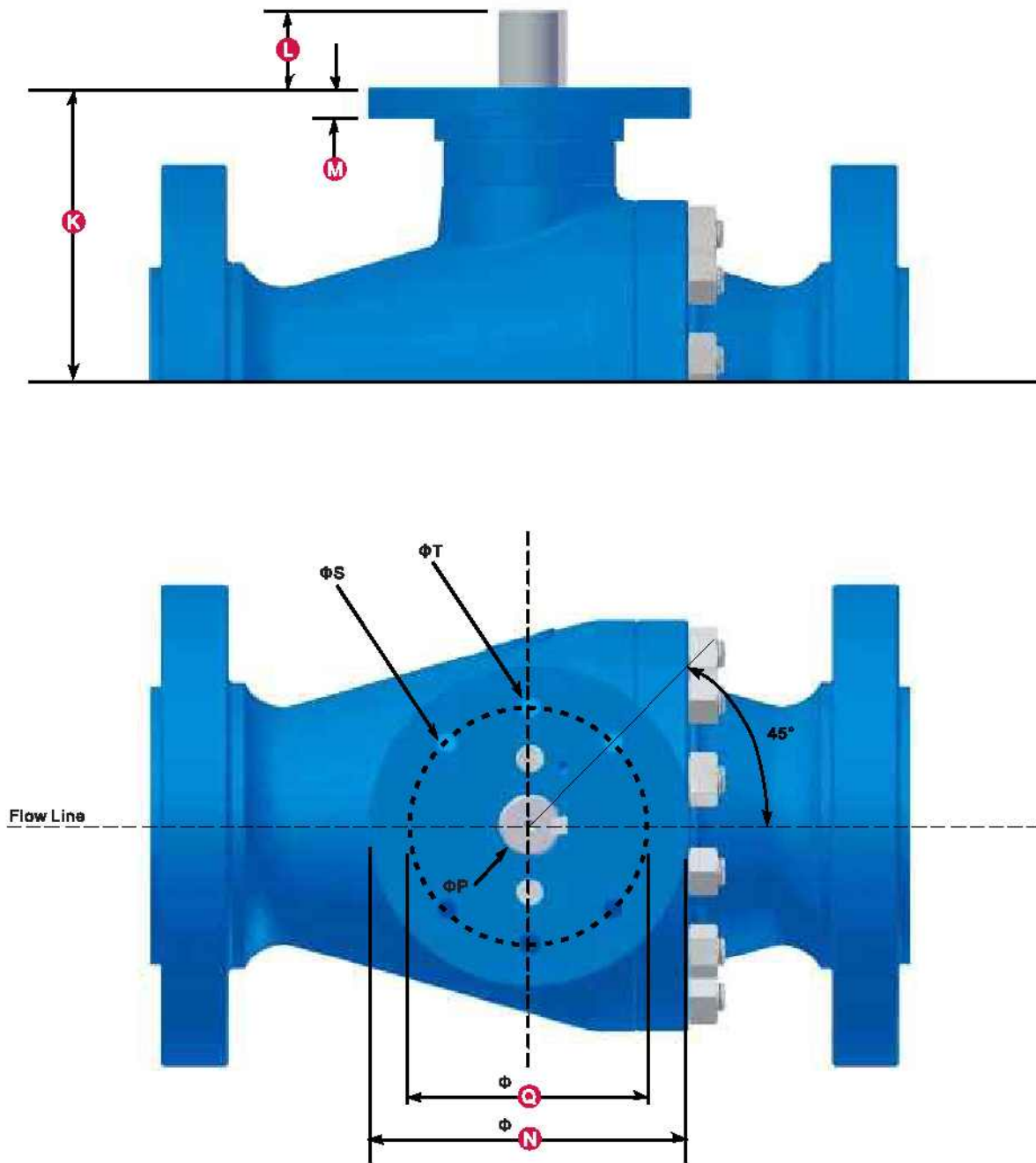
Body material	°F	°C
WCB (WCC)	-20	-28.9
LCB (LCC)	-50	-45.6
CF8M	-320.8	-196

Seat Material	°F	°C
DEVLON	-50	-45.6
TEFLON	166	110
PEEK	50	45.6
NYLON	50	45.6
PCTFE (KEL-F)	-320.8	-196

Seal material	°F	°C
Viton AED	-15	-26.8
HNBR	-40	-40
EPDM	-50	-45.6
Buna N	-30	-34.4
Aflas	+32	0
Low temp. Buna N	-50	-45.6

STARD® SERIES T2 TRUNNION MOUNTED BALL VALVES

TOPWORKS DIMENSIONS – ASME CLASS 150 - 1500
2 in. (50 mm) THROUGH 4 in. (100 mm)



STARD® SERIES T2 TRUNNION MOUNTED BALL VALVES

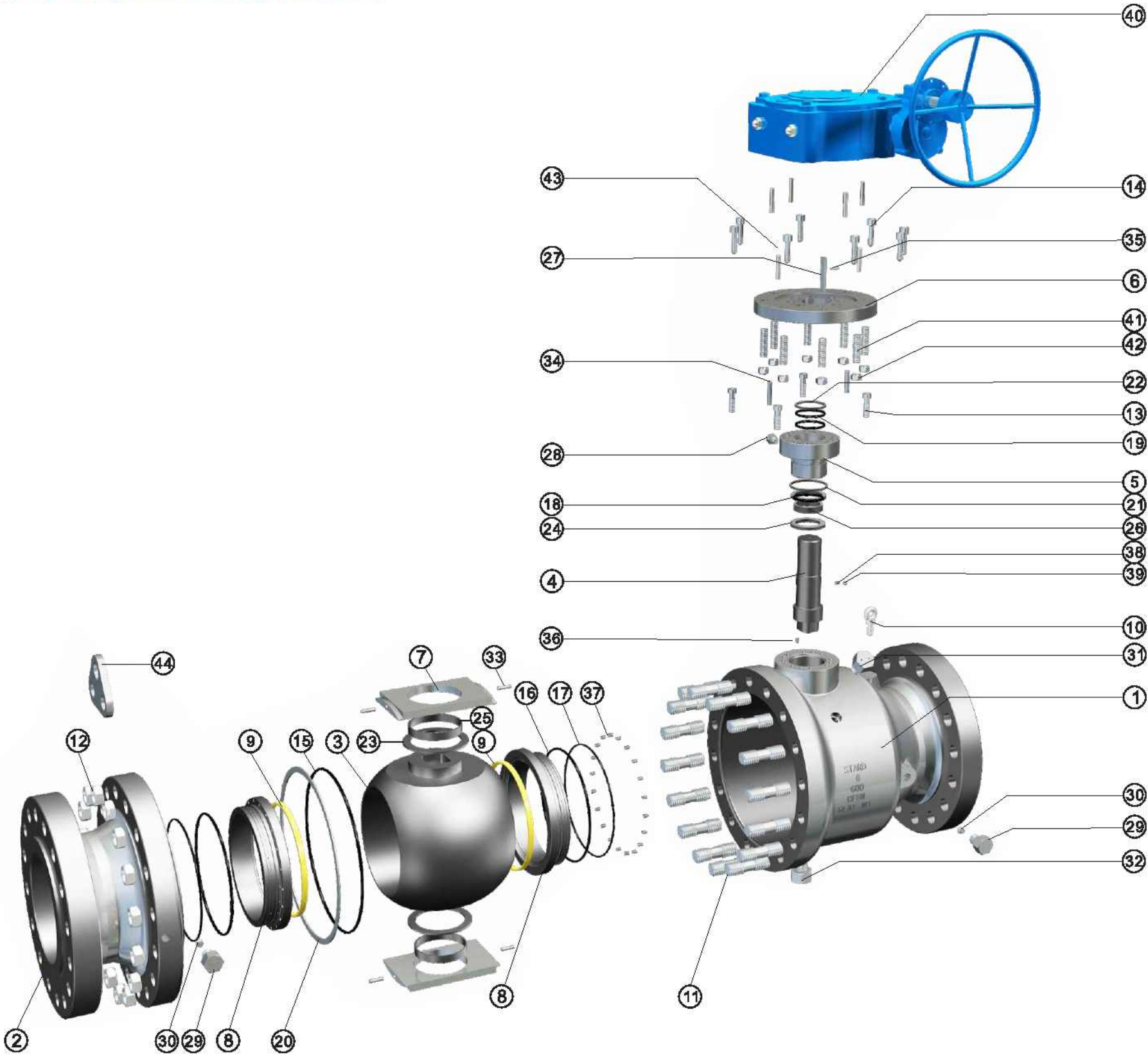
TOPWORKS DIMENSIONS – ASME CLASS 150 - 1500
2 in. (50 mm) THROUGH 4 in. (100 mm)

Ball in. Size mm	ASME Class	K	L	M	N	P	Q	Orientation	S	T
2 (50)	150	4.37 111	1.18 30	0.63 16	4.92 125	0.79 20	4.02 102	4 HOLES	0.433 11	0.236 6
3 (75)	150	5.51 140	1.44 36.5	0.79 20	4.92 125	1.1 28	4.02 102	4 HOLES	0.433 11	0.236 6
4 (100)	150	7.15 181.5	1.50 38	0.98 25	6.89 175	1.34 34	5.5 140	4 HOLES	0.709 18	0.394 10
2 (50)	300	4.53 115	1.18 30	0.63 16	4.92 125	0.79 20	4.02 102	4 HOLES	0.433 11	0.236 6
3 (75)	300	5.43 138	1.44 36.5	0.79 20	4.92 125	1.1 28	4.02 102	4 HOLES	0.433 11	0.236 6
4 (100)	300	7.15 181.5	1.50 38	0.98 25	6.89 175	1.34 34	5.5 140	4 HOLES	0.709 18	0.394 10
2 (50)	600	4.84 123	1.42 36	0.79 20	4.92 125	1.1 28	4.02 102	4 HOLES	0.512 11	0.236 6
3 (75)	600	5.5 140	1.44 36.5	0.79 20	5.91 150	1.1 28	4.92 125	4 HOLES	0.512 13	0.236 6
4 (100)	600	7.36 187	1.52 38.5	0.98 25	8.27 210	1.34 34	6.5 165	4 HOLES	0.866 22	0.394 10
2 (50)	900	4.78 121.5	1.42 36	0.79 20	4.92 125	1.1 28	4.02 102	4 HOLES	0.433 11	0.236 6
3 (75)	900	7.91 201	1.46 37	0.83 21	5.91 150	1.34 34	5.50 140	4 HOLES	0.512 13	0.236 6
4 (100)	900	7.36 187	1.52 38.5	0.98 25	8.27 210	1.50 38	6.5 165	4 HOLES	0.866 22	0.394 10
2 (50)	1500	4.86 123.5	1.42 36	0.79 20	4.92 125	1.1 28	4.02 102	4 HOLES	0.433 11	0.236 6
3 (75)	1500	5.59 142	1.46 37	0.83 21	6.89 175	1.34 34	4.02 102	4 HOLES	0.433 11	0.236 6
4 (100)	1500	7.72 196	1.63 41.5	0.98 25	8.27 210	1.50 38	5.5 140	4 HOLES	0.709 18	0.394 10

STARD® SERIES T2-C TRUNNION MOUNTED BALL VALVES

VALVE ASSEMBLY – ASME CLASS 150 – 600 6 in. (150 mm) THROUGH 24 in. (600 mm)

VALVE ASSEMBLY – ASME CLASS 900-1500 6 in. (150 mm) THROUGH 16 in. (400 mm)



Item	Part
1	Body
2	Adapter
3	Ball
4	Stem
5	Bonnet
6	Bonnet plate
7	Trunnion plate
8	Seat Retainer
9	Seat Insert
10	Life Eye
11	Body Bolt
12	Body Nut
13	Bonnet Screw
14	Mountain plate Srew
15	Adapter O-Ring
16	Seat O-Ring
17	Grease Seal O-Ring
18	Bonnet O-Ring
19	Stem O-Ring
20	Adapter Gasket
21	Bonnet Gasket
22	Mountain plate Srew
23	Washer
24	Thrust Washer
25	Ball Bearing
26	Washer
27	Stem Square valve
28	Stem Injection valve
29	Seat Injection valve
30	Seat Check valve
31	Vent valve
32	Drain Plug
33	Trunnion plate Pin
34	Bonnet Pin
35	Squace Key Pin
36	Antistatic Spring
37	Seat Spring
38	Antistatic Spring
39	Antistatic Ball
40	Gear
41	Gear Bolt
42	Gear Nut
43	Gear Pin
44	Lift Eye

STARD® SERIES T2-C TRUNNION MOUNTED BALL VALVES

MATERIALS OF CONSTRUCTION – ASME CLASS 150 - 1500

Item	Part	CarbonSteel NACE	Carbon x Stainless SteelNACE
1	Body	ASTMA216 WCB/ASTMA352 LCB	ASTMA216 WCB/ASTMA352 LCB
2	Adapter	ASTMA216 WCB/ASTMA352 LCB	ASTMA216 WCB/ASTMA352 LCB
3	Ball	ASTMA105/A350 LF2 +3 MIL ENP	ASTMA351 CF8M/ASTMA182 F316/F51
4	Stem	ASTMA322 4140 +3 MIL ENP	ASTMA182 F316/F51/A584 GR 630 (17-4PH)
5	Bonnet	ASTMA105/A350 LF2 +3 MIL ENP	ASTMA105/A350 LF2+3 MIL ENP
6	Mounting Plate	ASTMA105/A350 LF2	ASTMA105/A350 LF2
7	Trunnion Plate	ASTMA105/A350 LF2+3 MIL ENP	ASTMA182 F316/F51
8	Seat Retainer	ASTMA105/A350 LF2+3 MIL ENP	ASTMA182 F316/F51
9	Seat Insert	DEVLON	DEVLON
10	Lift Eye	ASTMA29 1020	ASTMA36
11	Body Bolt	ASTMA193 B7M/ASTMA320 L7M	ASTMA193 B7M/ASTMA320 L7M
12	Body Nut	ASTMA194 2HM/ASTMA194 4/7M	ASTMA194 2HM/ASTMA194 4/7M
13	Bonnet Screws	ASTMA193 B7M/ASTMA320 L7M	ASTMA193 B7M/ASTMA320 L7M
14	Mounting Plate Screws	ASTMA193 B7M/ASTMA320 L7M	ASTMA193 B7M/ASTMA320 L7M
15	Adapter O-Ring	VITON AED / HNBR	VITON AED / HNBR
16	Seat O-Ring	VITON AED / HNBR	VITON AED / HNBR
17	Grease Seal O-Ring	VITON AED / HNBR	VITON AED / HNBR
18	Bonnet O-Ring	VITON AED / HNBR	VITON AED / HNBR
19	Stem O-Ring	VITON AED / HNBR	VITON AED / HNBR
20	Adapter Gasket	GRAPHITE	GRAPHITE
21	Bonnet Gasket	GRAPHITE	GRAPHITE
22	Mounting Plate Gasket	GRAPHITE	GRAPHITE
23	Washer	PTFE	PTFE
24	Thrust Washer	PEEK	PEEK
25	Ball Bearing	ASTMA516 70+PTFE	ASTMA516 70+PTFE
26	Washer	PTFE	PTFE
27	Stem Square Key	ASTMA29 1045	ASTMA29 1045
28	Stem Injection Valve	ASTMA105/A350 LF2+Zn	ASTMA105/A350 LF2+Zn
29	Seat Injection Valve	ASTMA105/A350 LF2+Zn	ASTMA105/A350 LF2+Zn
30	Seat Check Valve	ASTMA182 F304	ASTMA182 F304
31	Vent Valve	ASTMA105/A350 LF2+Zn	ASTMA105/A350 LF2+Zn
32	Drain Plug	ASTMA105/A350 LF2+Zn	ASTMA105/A350 LF2+Zn
33	Trunnion Plate Pin	ASTMA29 1020	ASTMA29 1020
34	Bonnet Pin	ASTMA29 1566	ASTMA29 1566
35	Square Key Pin	ASTMA29 1566	ASTMA29 1566
36	Antistatic Spring	ASTMA313 316	ASTMA313 316
37	Seat Spring	Inconel X-750	Inconel X-750
38	Antistatic Spring	ASTMA313 316	ASTMA313 316
39	Antistatic Ball	ASTMA276 304	ASTMA276 304
40	Gear	ASTMA48 No.35A	ASTMA48 No.35A
41	Gear Bolt	ASTMA193 B7M	ASTMA193 B7M
42	Gear Nut	ASTMA194 2HM	ASTMA194 2HM
43	Gear Pin	ASTMA29 1566	ASTMA29 1566
44	Lift Eye	ASTMA36	ASTMA36

Notes:1. Materials listed are minimum requirements. STARD reserves the right to substitute materials listed on this page with alternate materials for the designated service.

2. Alternate seal materials are available for special applications.

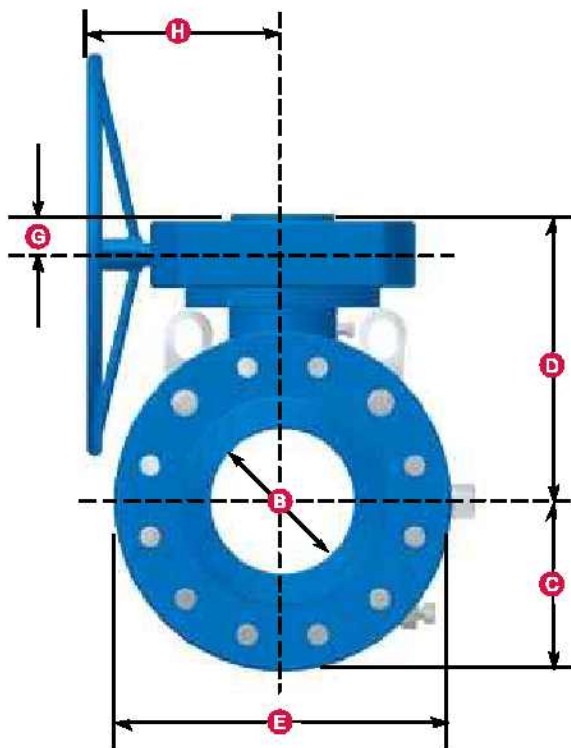
3. For 900lbs & 1500lbs service, O-ring back-up (not shown) made by Nylon/PEEK are used to prevent the extruding of O-rings under high working pressure.

STARD® SERIES T2-C TRUNNION MOUNTED BALL VALVES

MATERIALS OF CONSTRUCTION – ASME CLASS 150 - 1500

Item	Part	Stainless Steel NACE	Exotic alloy steel (NACE) ASTMA995 GR.6A as exp.
1	Body	ASTMA351 CF8M	ASTMA351 CK3MCUN/A995 GR.6A
2	Adapter	ASTMA351 CF8M	ASTMA351 CK3MCUN/A995 GR.6A
3	Ball	ASTMA351 CF8M/A182 F316/F51	ASTMA182 F904L/F44/F55/A995 GR.6A
4	Stem	ASTMA182 F316/F51/A584 GR 630 (17	ASTMA182 F904L/F44/F55
5	Bonnet	ASTMA182 F316	ASTMA182 F904L/F44/F55
6	Mounting Plate	ASTMA182 F316	ASTMA182 F304
7	Trunnion Plate	ASTMA182 F316	ASTMA182 F904L/F44/F55
8	Seat Retainer	ASTMA182 F316/F51	ASTMA182 F904L/F44/F55
9	Seat Insert	DEVLON	DEVLON
10	Lift Eye	SS	SS
11	Body Bolt	ASTMA193 B8M	ASTMA193 B8M
12	Body Nut	ASTMA194 8M	ASTMA194 8M
13	Bonnet Screws	ASTMA193 B8M	ASTMA193 B8M
14	Mounting Plate Screws	ASTMA193 B8M	ASTMA193 B8M
15	Adapter O-Ring	VITON AED / HNBR	VITON AED / HNBR
16	Seat O-Ring	VITON AED / HNBR	VITON AED / HNBR
17	Grease Seal O-Ring	VITON AED / HNBR	VITON AED / HNBR
18	Bonnet O-Ring	VITON AED / HNBR	VITON AED / HNBR
19	Stem O-Ring	VITON AED / HNBR	VITON AED / HNBR
20	Adapter Gasket	GRAPHITE	GRAPHITE
21	Bonnet Gasket	GRAPHITE	GRAPHITE
22	Mounting Plate Gasket	GRAPHITE	GRAPHITE
23	Washer	PTFE	PTFE
24	Thrust Washer	PEEK	PEEK
25	Ball Bearing	ASTMA240 316+PTFE	PEEK
26	Washer	PTFE	PTFE
27	Stem Square Key	ASTMA29 1045	ASTMA29 1045
28	Stem Injection Valve	ASTMA182 F316	ASTMA182 F316
29	Seat Injection Valve	ASTMA182 F316	ASTMA182 F316
30	Seat Check Valve	ASTMA182 F304	ASTMA182 F316
31	Vent Valve	ASTMA182 F316	ASTMA182 F316
32	Drain Plug	ASTMA182 F316	ASTMA182 F316
33	Trunnion Plate Pin	ASTMA29 1020	ASTMA29 1020
34	Bonnet Pin	ASTMA29 1566	ASTMA29 1566
35	Square Key Pin	ASTMA29 1566	ASTMA29 1566
36	Antistatic Spring	ASTMA313 316	ASTMA313 316
37	Seat Spring	Inconel X-750	Inconel X-750
38	Antistatic Spring	ASTMA313 316	ASTMA313 316
39	Antistatic Ball	ASTMA276 304	ASTMA276 304
40	Gear	ASTMA48 No.35A	ASTMA48 No.35A
41	Gear Bolt	ASTMA193 B8M	ASTMA193 B8M
42	Gear Nut	ASTMA194 8M	ASTMA194 8M
43	Gear Pin	ASTMA29 1566	ASTMA29 1566
44	Lift Eye	SS	SS

T2-C TRUNNION MOUNTED BALL VALVES
DIMENSIONS AND WEIGHTS



STARD® SERIES T2-C TRUNNION MOUNTED BALL VALVES
DIMENSIONS AND WEIGHTS

ASME CLASS 150 - 600 6 in. (150 mm) THROUGH 24 in. (600 mm)
ASME CLASS 900 6 in. (150 mm) THROUGH 16 in. (400 mm)
ASME CLASS 1500 6 in. (150 mm) THROUGH 12 in. (300 mm)

ASME CLASS 150								Working pressure - 285 psig (19.7 barg)			
SIZE	in. (mm)	B	A (RF)	C	D	E	F	G	H	I	Weight lb. Valve (kg)
6	6	6	15 1/2	7.64	13.56	11.00	3.05	2.05	9.02	7.09	264.3
(150)	150	150	394	194	344.5	279.4	77.5	52	229	180	120
8	8	8	18	8.66	15.02	13.50	3.05	2.05	9.02	8.96	418.5
(200)	203	203	457	220	381.5	343	77.5	52	229	227.5	190
10	10	10	21	10.08	16.69	15.94	4.96	2.05	15.83	9.84	682.8
(250)	254	254	533	256	424	405	126	52	402	250	310
12	12	12	24	11.61	18.70	18.09	4.96	2.05	15.83	11.81	793.0
(300)	305	305	610	295	475	485	126	52	402	300	360
14	13.15	13.15	27	12.80	23.41	21.06	4.96	5.04	20.20	11.81	1321.6
(350)	334	334	686	325	594.5	535	126	128	513	300	600
16	15.16	15.16	30	13.98	26.77	23.43	5.43	6.61	21.42	14.76	2015.4
(400)	385	385	762	355	680	595	138	168	544	375	915
18	17.17	17.17	34	16.14	28.35	25.00	5.43	6.61	21.42	14.76	2687.2
(450)	436	436	864	410	720	635	138	168	544	375	1220
20	19.17	19.17	36	17.72	30.12	27.5	5.43	6.61	21.42	14.76	3601.3
(500)	487	487	914	450	765	699	138	168	544	375	1635
24	23.19	23.19	42	20.47	33.66	32.0	7.01	7.20	23.07	14.76	5759.9
(600)	589	589	1067	520	855	813	178	183	586	375	2615

ASME CLASS 300							Working pressure - 740psig (51.0 barg)				
SIZE	in. (mm)	B	A (RF)	C	D	E	F	G	H	I	Weight lb. Valve (kg)
6	6	8	15 7/8	7.64	14.00	12.5	3.54	2.05	14.17	7.09	286.3
(150)	150	150	403	194	355.5	317.5	90	52	360	180	130
8	8	8	20	8.70	15.61	14.96	4.96	2.05	15.83	9.84	473.6
(200)	203	203	502	221	396.5	380	126	52	402	250	215
10	10	10	22	10.08	17.09	17.52	4.96	2.05	15.83	11.81	748.9
(250)	254	254	568	256	434	445	126	52	402	300	340
12	12	12	26	11.61	19.13	20.47	4.96	2.05	15.83	11.81	1277.5
(300)	305	305	648	295	486	520	126	52	402	300	580
14	13.15	13.15	30	12.80	23.41	22.99	4.96	5.04	20.20	11.81	1431.7
(350)	334	334	762	325	594.5	584	126	128	513	300	650
16	15.16	15.16	33	13.98	26.77	25.51	5.43	6.61	21.42	14.76	2356.8
(400)	385	385	838	355	680	648	138	168	544	375	1070
18	17.17	17.17	36	16.14	28.35	27.99	5.43	6.61	21.42	14.76	3546.3
(450)	436	436	914	410	720	711	138	168	544	375	1610
20	19.17	19.17	39	17.72	30.83	30.5	7.01	7.20	23.07	14.76	4537.4
(500)	487	487	991	450	783	775	178	183	586	375	2060
24	23.19	23.19	45	20.47	34.21	36.0	9.06	7.48	25.28	14.76	6718.1
(600)	589	589	1143	520	869	914	230	190	642	375	3050

Notes: Please contact STARD for the dimensions and weight of the reduced bore design ball valves, and hereby, we only list the data for full bore ball valves

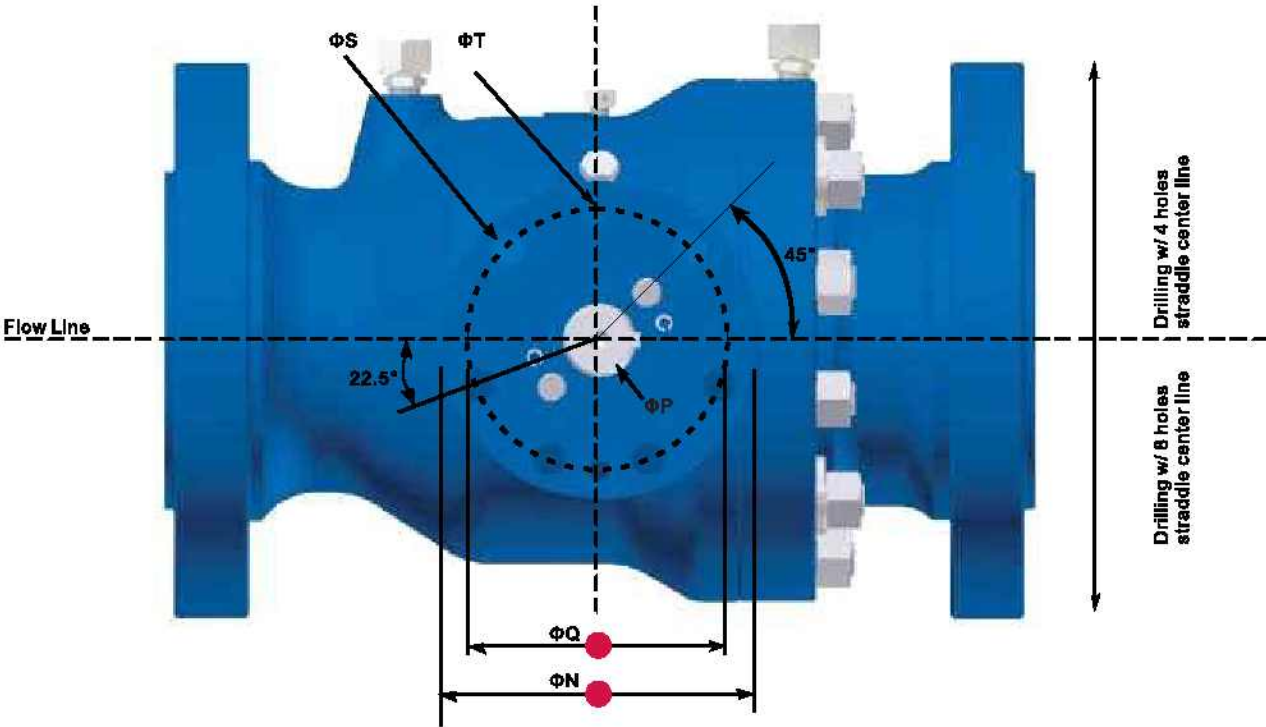
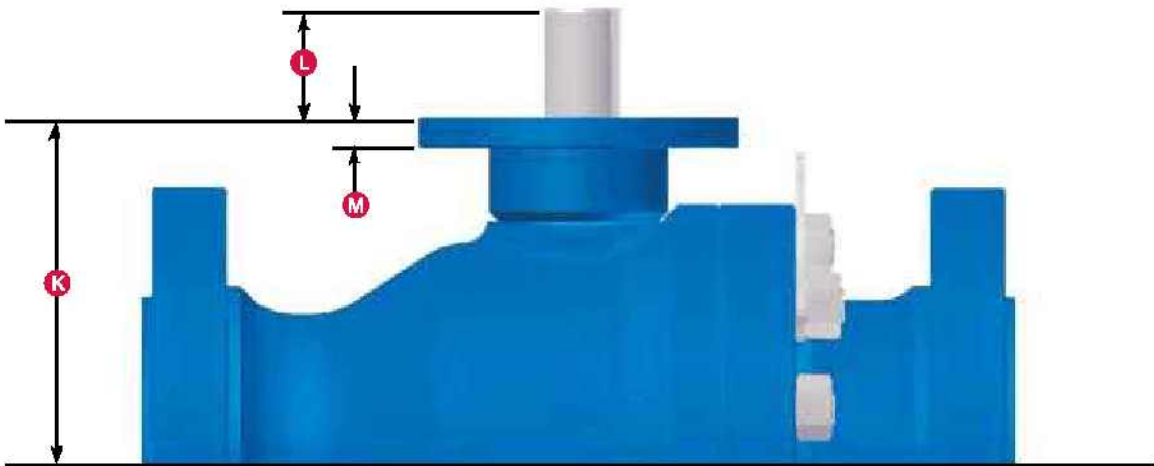
STARD® SERIES T2-C TRUNNION MOUNTED BALL VALVES
DIMENSIONS AND WEIGHTS

ASME CLASS 600							Working pressure - 1480psig (102.0 barg)				
Size (In.) (mm)	B	A (RF)	C	D	E	F	G	H	I	Weight lbs Valve (kg)	
6 (150)	8 150	22 559	22 1/8 562	8.89 170	14.53 369	14.00 355.6	3.54 90	2.05 52	14.17 360	9.84 250	352.4 160
8 (200)	8 203	26 660	26 1/8 664	8.74 222	16.18 411	16.50 419	4.96 128	2.05 52	15.83 402	11.81 300	748.9 340
10 (250)	10 254	31 787	31 1/8 791	10.55 268	23.43 595	20.00 508	5.43 138	6.61 168	21.42 544	14.76 375	1233.5 560
12 (300)	12 305	33 838	33 1/8 841	12.40 315	25.31 643	22.05 560	5.43 138	8.81 168	21.42 544	14.76 375	1894.3 860
14 (350)	13.15 334	35 889	35 1/8 892	12.99 330	25.26 641.5	23.82 605	5.43 138	6.61 168	21.42 544	14.76 375	2246.7 1020
16 (400)	15.16 385	39 991	39 1/8 994	14.57 370	27.95 710	23.82 605	5.43 138	6.61 168	21.42 544	14.76 375	2918.5 1325
18 (450)	17.17 436	43 1092	43 1/8 1095	16.34 415	30.24 768	29.33 745	7.01 178	7.20 183	23.07 586	14.76 375	4869.8 2120
20 (500)	19.17 487	47 1194	47 2/8 1200	17.91 455	32.36 822	32.0 813	9.06 230	7.48 190	25.28 642	14.76 375	5121.1 2325
24 (600)	23.19 589	55 1397	55 3/8 1407	20.87 530	35.71 907	37.0 940	9.06 230	7.48 190	25.28 642	14.76 375	8259.9 3750

ASME CLASS 900							Working pressure - 2220psig (153.1 barg)				
Size (in.) (mm)	B	A (RF)	C	D	E	F	G	H	I	Weight lbs Valve (kg)	
6 (150)	6 150	24 610	24 1/8 613	8.89 175	14.53 369	14.98 380	4.96 126	2.05 52	15.83 402	11.81 300	572.7 260
8 (200)	8 203	29 737	29 1/8 740	8.86 225	16.18 411	18.50 470	4.96 126	2.05 52	15.83 402	11.81 300	991.2 450
10 (250)	10 254	33 838	33 1/8 841	10.63 270	23.54 598	21.50 546	5.43 138	6.61 168	21.42 544	14.76 375	1652.0 750
12 (300)	12 305	38 965	38 1/8 968	12.60 320	25.31 643	24.02 610	5.43 138	6.61 168	21.42 544	14.76 375	2202.6 1000
14 (350)	14 322	41 1029	40 7/8 1038	13.58 345	26.14 664	25.20 640	5.43 138	6.61 168	21.42 544	14.76 375	2918.5 1325
16 (400)	16 373	44 1130	44 7/8 1140	15.16 385	29.25 743	27.76 705	7.01 178	7.20 183	23.07 586	14.76 375	3546.3 1610

ASME CLASS 1500							Working pressure - 3625psig (250barg)				
Size (in. (mm)	B	A (RF)	C	D	E	F	G	H	I	Weight lbs Valve (kg)	
6 (150)	6 144	27 3/4 705	28 711	7.80 198	16.06 408	15.55 395	4.96 126	2.05 52	15.83 402	11.81 300	881.1 400
8 (200)	8 192	33 832	33 1/8 841	9.84 250	24.41 620	19.09 485	5.43 138	6.61 168	21.42 544	14.76 375	991.2 450
10 (250)	9 239	39 991	39 3/8 1000	11.81 300	25.39 645	23.03 585	5.43 138	6.61 168	21.42 544	14.76 375	2643.2 1200
12 (300)	11 287	44 1130	45 1/8 1146	13.78 350	27.72 704	26.57 675	7.01 178	7.20 183	23.07 586	14.76 375	3017.6 1370

STARD® SERIES T2-C TRUNNION MOUNTED BALL VALVES
TOPWORKS DIMENSIONS



Notes: Please contact STARD for the dimensions and weight of the reduced bore design ball valves, and hereby, we only list the data for full bore ball valves.

STARD® SERIES T2-C TRUNNION MOUNTED BALL VALVES

TOPWORKS DIMENSIONS – ASME CLASS 150 - 600 6 in. (150 mm) THROUGH 24 in. (600 mm)

ASME CLASS 900 6 in. (150 mm) THROUGH 16 in. (400 mm)

ASME CLASS 1500 6 in. (150 mm) THROUGH 12 in. (300 mm)

Ball In. Size mm	ASME Class	K	L	M	N	P	Q	Orientation	S	T
6	150	9.35	2.56	1.02	8.27	1.57	6.50	4 HOLES	0.866	0.39
(150)		237.5	65	26	210	40	165	4 HOLES	22	10
6	300	9.78	2.56	1.02	8.27	1.57	6.50	4 HOLES	0.866	0.39
(150)		248.5	65	26	210	40	165	4 HOLES	22	10
6	600	10.31	3.15	1.10	8.27	1.77	6.50	4 HOLES	0.866	0.39
(150)		262	80	28	210	45	165	4 HOLES	22	10
6	900	10.31	3.15	1.10	11.81	1.77	10.00	8 HOLES	0.709	0.39
(150)		262	80	28	300	45	254	8 HOLES	18	10
8	1500	11.85	3.74	1.57	11.81	2.17	10.00	8 HOLES	0.709	0.47
(150)		301	95	40	300	55	254	8 HOLES	18	12
8	150	10.81	2.56	1.02	8.27	1.57	6.50	4 HOLES	0.866	0.39
(200)		274.5	65	26	210	40	165	4 HOLES	22	10
8	300	11.40	3.15	1.10	8.27	1.77	6.50	4 HOLES	0.866	0.39
(200)		289.5	80	28	210	45	165	4 HOLES	22	10
8	600	11.97	3.15	1.10	11.81	2.28	10.00	8 HOLES	0.709	0.39
(200)		304	80	28	300	58	254	8 HOLES	18	10
8	900	11.97	3.15	1.10	11.81	2.28	10.00	8 HOLES	0.709	0.39
(200)		304	80	28	300	58	254	8 HOLES	18	10
8	1500	14.76	5.31	1.93	11.81	3.07	10.00	8 HOLES	0.709	0.39
(200)		375	135	49	300	78	254	8 HOLES	18	10
10	150	12.48	3.23	1.18	8.27	2.28	6.50	4 HOLES	0.866	0.39
(250)		317	82	30	210	58	165	4 HOLES	22	10
10	300	12.87	3.23	1.18	8.27	2.28	6.50	4 HOLES	0.866	0.39
(250)		327	82	30	210	58	165	4 HOLES	22	10
10	600	13.78	3.23	1.18	11.81	2.68	10.00	8 HOLES	0.709	0.39
(250)		350	82	30	300	68	254	8 HOLES	18	10
10	900	13.90	4.33	1.18	11.81	2.68	10.00	8 HOLES	0.709	0.39
(250)		353	110	30	300	68	254	8 HOLES	18	10
10	1500	15.75	5.31	1.93	11.81	3.35	10.00	8 HOLES	0.709	0.39
(250)		400	135	49	300	85	254	8 HOLES	18	10
12	150	14.49	3.27	1.18	8.27	2.28	6.50	4 HOLES	0.866	0.39
(300)		368	83	30	210	58	165	4 HOLES	22	10
12	300	14.92	3.27	1.18	8.27	2.28	6.50	4 HOLES	0.866	0.39
(300)		379	83	30	210	58	165	4 HOLES	22	10
12	600	15.67	4.33	1.18	11.81	2.68	10.00	8 HOLES	0.709	0.39
(300)		398	110	30	300	68	254	8 HOLES	18	10
12	900	15.67	4.33	1.18	11.81	2.68	10.00	8 HOLES	0.709	0.39
(300)		398	110	30	300	68	254	8 HOLES	18	10
12	1500	17.36	5.31	1.93	11.81	3.35	10.00	8 HOLES	0.709	0.39
(300)		441	135	49	300	85	254	8 HOLES	18	10
14	150	15.61	3.84	1.26	11.81	3.07	10.00	8 HOLES	0.709	0.39
(350)		396.5	97.5	32	300	78	254	8 HOLES	18	10
14	300	15.61	3.84	1.26	11.81	3.07	10.00	8 HOLES	0.709	0.39
(350)		396.5	97.5	32	300	78	254	8 HOLES	18	10
14	600	15.61	4.43	1.26	11.81	3.07	10.00	8 HOLES	0.709	0.39
(350)		396.5	112.5	32	300	78	254	8 HOLES	18	10

STARD® SERIES T2-C TRUNNION MOUNTED BALL VALVES

TOPWORKS DIMENSIONS – ASME CLASS 150 - 600 6 in. (150 mm) THROUGH 24 in. (600 mm)

ASME CLASS 900 6 in. (150 mm) THROUGH 16 in. (400 mm)

ASME CLASS 1500 6 in. (150 mm) THROUGH 12 in. (300 mm)

Ball In. Size mm	ASME Class	K	L	M	N	P	Q	Orientation	S	T
16	150	17.13	3.84	1.50	11.81	3.35	10.00	8 HOLES	0.709	0.39
(400)		435	97.5	38	300	85	254	8 HOLES	18	10
16	300	17.13	3.84	1.50	11.81	3.35	10.00	8 HOLES	0.709	0.39
(400)		435	97.5	38	300	85	254	8 HOLES	18	10
16	600	18.31	4.43	1.50	11.81	3.35	10.00	8 HOLES	0.709	0.47
(400)		465	112.5	38	300	85	254	8 HOLES	18	12
16	900	18.90	5.41	1.50	13.78	3.35	11.73	8 HOLES	0.866	0.47
(400)		480	137.5	38	350	85	298	8 HOLES	22	12
18	150	18.70	5.41	1.50	11.81	3.35	10.00	8 HOLES	0.709	0.47
(450)		475	137.5	38	300	85	254	8 HOLES	18	12
18	300	18.70	5.41	1.50	11.81	3.35	10.00	8 HOLES	0.709	0.47
(450)		475	137.5	38	300	85	254	8 HOLES	18	12
18	600	19.88	5.41	1.50	13.78	3.86	11.73	8 HOLES	0.866	0.47
(450)		505	137.5	38	350	98	298	8 HOLES	22	12
20	150	20.47	5.53	1.50	11.81	3.86	10.00	8 HOLES	0.709	0.47
(500)		520	140.5	38	300	98	254	8 HOLES	18	12
20	300	20.47	5.53	1.50	11.81	3.86	10.00	8 HOLES	0.709	0.47
(500)		520	140.5	38	300	98	254	8 HOLES	18	12
20	600	21.46	5.53	1.50	13.78	3.86	11.73	8 HOLES	0.866	0.47
(500)		545	140.5	38	350	98	298	8 HOLES	22	12
24	150	23.31	5.61	1.50	13.78	4.25	11.73	8 HOLES	0.866	0.63
(600)		592	142.5	38	350	108	298	8 HOLES	22	16
24	300	23.31	5.61	1.50	13.78	4.25	11.73	8 HOLES	0.866	0.63
(600)		592	142.5	38	350	108	298	8 HOLES	22	16
24	600	24.80	5.61	1.69	18.70	4.72	15.98	8 HOLES	1.535	0.63
(600)		630	142.5	43	475	120	406	8 HOLES	39	16

Notes: Please contact STARD for the dimensions and weight of the reduced bore design ball valves, and hereby, we only list the data for full bore ball valves.

STARD® SERIES T2 TRUNNION MOUNTED BALL VALVES**FLOW COEFFICIENTS AND TORQUE VALUES****FLOW EQUATIONS****Liquid Flow**

QL = Flow Rate of liquid (gallons/Minute)

DP = Differential pressure across the valve (psig)

G= Specific gravity of liquid

$$QL = C_v \sqrt{DP + G}$$

Information provided for general information only; consult factory for certified data.

SERIES T2-VALVE C_v

Size(in.)	2 FP	3 FP	4 FP	6 FP	8 FP	10 FP	12 FP	14 FP	16 FP	18 FP	20 FP	24 FP	30 FP
Class150	420	1050	2175	5075	10100	17037	26185	32600	44700	58500	76000	113500	145000
Class300	420	1050	2065	5075	10100	17037	26185	30900	42600	56450	72700	109450	144000
Class600	360	925	1775	4575	8950	14324	22730	28600	39250	52000	70500	99000	144000
Class900	325	892	1720	4380	8475	13884	21186	26600	36600	-	-	-	-
Class1500	325	816	1696	4080	7980	13020	19600	-	-	-	-	-	-

The flow coefficient C_v of a valve is the flow rate of water (gallons/minute at 60° F) through a fully opened valve, with a pressure drop of 1 psi across the valve. To find the flow of a liquid or gas through a valve from the C_v, use the above formulas.

VALVE TORQUES AT MAX RATED PRESSURE at 100°F (inch pounds)

Size(in.)	2 FP	3 FP	4 FP	6 FP	8 FP	10 FP	12 FP	14 FP	16 FP	18 FP	20 FP	24 FP
Class150	646	1425	2317	3850	6417	10311	12834	16813	22017	34964	48962	88356
Class300	876	1936	3009	5310	10821	14736	18472	31013	40582	65542	94823	134429
Class600	1195	3505	5498	8585	17940	28172	40005	57468	73231	118668	166660	273045
Class900	1487	4425	7001	11860	21481	37173	60079	78108	118708	-	-	-
Class1500	1903	5930	10125	23508	37713	59574	94774	-	-	-	-	-

VALVE TORQUES AT MAX RATED PRESSURE at 36.8°C (N*M)

Size(in.)	2 FP	3 FP	4 FP	6 FP	8 FP	10 FP	12 FP	14 FP	16 FP	18 FP	20 FP	24 FP
Class150	73	161	238	435	725	1165	1450	1900	2488	3950	5532	7723
Class300	99	219	340	600	1200	1685	2200	3604	4585.2	7405.2	10714	15188
Class600	136	398	621	970	2027	2957	4520	6493	8274	13410	18830	30850
Class900	166	500	791	1340	2427	4200	6788	8825	13525	-	-	-
Class1500	215	670	1144	2656	4281	6731	10708	-	-	-	-	-

Information provided for general information only; consult factory for certified data.

STARD® SERIES T2 TRUNNION MOUNTED BALL VALVES**HOW TO ORDER**

Our T2 valve code consists of 19-20 digits, and see the example as following:

2	T2	800	RFxRF	24	N	R	F	24	BS
Size	Valve	Pressure	End	Body	Seat	Seal	Fire	Internal	Actuation
Inches	Model	Class	Connections	Group	Group	Group	Tested	Group	

This code means : 2"/600LBS T2 BALL VALVE, RF ends, Body in LCB/LCC LF2/LF2+3MIL trim, HNBR O ring, Nylon seat Insert, fire-safe, bare-shaft

End Connection:	RFxRF , RTJxRTJ, LFxLF	Fire tested	F
Body Group:	WCB/WCC 23 LCB/LCC 24 CF8M 25 CF8 26 CF3M 27 CF3 28	CN7M 29 CK3MCuN 30 4A 31 5A 32 6A 33 M35-1 34	Actuation Bare shaft BS Wrench W Gear operated G Pressure Class 150 900 300 1500 800
Seat Group	Devlon D PTFE T Peek P Nylon N PCTFE K	Seal Group	Viton AED V HNBR R EPDM E Buna N B Atlas A Lip-seal L
Internal Group (Soft seal)	A105+3mil ENP 23 LF2+3mil ENP 24 F8A/CA15 25 CF8M/F316 26 F51/4A 27 F53/5A 28	F55 29 17-4PH 30 Inconel 825 31 M35-1 32 ALLOY 20/CN7M 33	Internal Group F6A+TCC M1 Inconel 825+TCC M8 M-M seal F316+TCC M2 TCC coating M F51+TCC M3 CCC coating C F53+TCC M4 Stellite coating S F55+TCC M5 17-4PH+TCC M6

The trim charts provide more specific application details including availability of Fire Tested Materials.

Please contact factory personnel for information concerning availability of trims other than those listed or for any additional information concerning the choice or guidance for application of the trims listed.

NACE MR0175/ISO 15156 Compliance – Materials of construction shall be in compliance with the pre-qualified material requirements specified by NACE MR0175/ISO 15156. According to NACE MR0175/ISO 15156, it is the manufacturer's responsibility for meeting metallurgical requirements and the customer/user responsibility to ensure that a material will be satisfactory in the intended environment. When given the application requirements (environment) by the customer/user, STARD can make technical recommendations in accordance with NACE MR0175/ISO 15156 but in no way certifies or warrants the product or materials for the application.

STARD® SERIES T2 TRUNNION MOUNTED BALL VALVES
SPECIFICATIONS AND CONFORMANCE

STARD TRUNNION Valves are designed, manufactured and tested in accordance with the following industry standards. Additional end user or industry standards may be produced upon request.

ASME/ANSI - American Society of Mechanical Engineers/American National Standard Institute

- B16.5 Pipe Flanges and Flanged Fittings
- B16.10 Face-to-Face and End-to End dimensions of ferrous valve
- B16.25 Butt Welding Ends
- B16.34 Valves — Flanged, Threaded, and Welding End

NACE - National Association of Corrosion Engineers

- MR0175 Sulfide stress cracking resistant metallic materials for oil field equipment.

API - American Petroleum Institute

- Spec. 6D Specification for pipeline valves. Spec. 607
- Specification for fire testing of valves. Spec. Q1 Quality program.

MSS - Manufacturers Standardization Society

- SP - 6 Standard Finishes for contact faces of pipe flanges and connecting end flanges of valves and fittings.
- SP - 25 Standard marking system for valves, fittings, flanges and unions.

