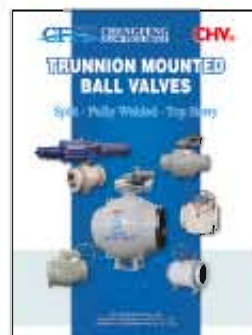


THE MOST COMPREHENSIVE INDUSTRIAL SOLUTION FOR FORGED STEEL AND CAST STEEL  
BALL, GATE, GLOBE, CHECK, PLUG, BUTTERFLY AND PIG VALVES

COMPLETE SOLUTIONS

YOU CAN TRUST



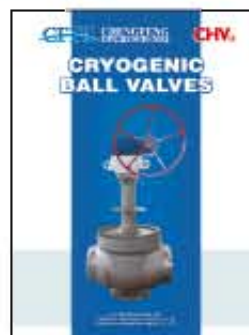
CHV-TB



CHV-FB



CHV-MS



CHV-CB



CHV-DBB



CHV-HO



CHV-PW



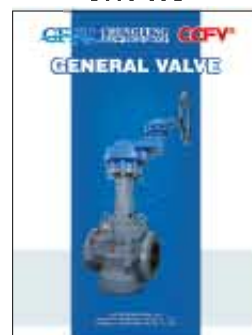
CCFV-SG



CCFV-EG



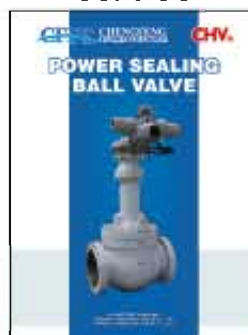
CCFV-GGC



CCFV-GV



CCFV-PL



CHV-PSB



CHV-EB



CCFV-TOB



CHV-JV



CHV-HS



CHV-WB



CHV-PV



CHV-CV

CHENGFENG FLOW-TECH GROUP

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CHV-TB-1601

CHENG FENG FLOW-TECH GROUP

CHV®

# TRUNNION MOUNTED BALL VALVES

Split · Fully Welded · Top Entry



CHV INTERNATIONAL, INC.  
CHENGDU CHENGGAO VALVE CO., LTD.  
CHENGDU CHENG FENG VALVE CO., LTD.



# PROFILE

## CHENGFENG FLOW-TECH GROUP

Chengfeng Flow-Tech Group, headquartered in Chengdu, China, is the leading flow technology company in China. Being a high-tech group specialized in R&D, manufacturing of industrial valves, and being one of the core suppliers to Petro-China, SINOPEC and CNOOC for decades, it has transformed into a multi-dimensional group that is committed to providing the most complete solutions to the oil&gas markets. With industry-leading facilities, innovative technical teams and highly professional engineers, its top-notch services cover various realms in the energy sector – valve manufacturing and maintenance, fluids equipment solutions, flow control solutions and industrial data analytics, etc.

Chengfeng's products have been widely used in the oil&gas pipelines, petrochemical industries, aerospace industry and power stations, etc. Chengfeng's top two brands, CHV and CCFV, have established the nationwide reputation for their quality and service. Now, Chengfeng Flow-Tech Group has begun its new adventure – serving the world market.

## CHENGDU CHENGGAO VALVE CO., LTD. (CHV)

CHV was founded in 1993, and has been specialized in the R&D and manufacturing of mid&high end ball valves ever since. CHV offers complete ball valve product lines. Among all the product lines, the High Pressure Large Diameter Fully Welded Ball Valves have captured more than half the domestic fully welded ball valve market. High Temperature Metal-Seated Oxygen Ball Valve and NACE Ball Valve are also leading the domestic market.

## CHENGDU CHENGFENG VALVE CO., LTD. (CCFV)

CCFV was founded in 1966. Its main product lines include slab gate valves, expanding gate valves, tri-eccentric butterfly valves, check valves, globe valves and plug valves, etc. CCFV is leading the domestic slab gate valve market, taking up 70% of the oil transportation and storage sector.

## CHV INTERNATIONAL, INC.

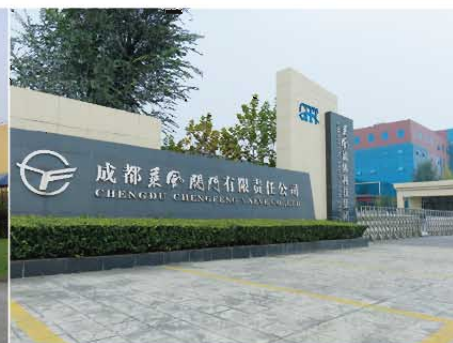
CHV International, Inc. is the newest branch of Chengfeng Flow-Tech Group. Based in Houston, Texas, U.S.A, its mission is to shorten the distance between the Group and the international market by providing faster response and better service to our customers around the globe.

## CERTIFICATION

Chengfeng Flow-Tech Group's quality program is fully compliant with the industry's most stringent standards. The group holds all major certifications, including but not limited to API 6D, ISO 9001, ISO 14001, OHS 18001, CE, API 6FA, API 607 fire safety inspection certificate.

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# PRODUCT RANGE

## RANGE

SERVICE	SIZE ( NPS/DN ) – PRESSURE RANGE			
	ASME CLASS 150-600	ASME CLASS 900	ASME CLASS 1500	ASME CLASS 2500
<b>Forged Split (T10 Series)</b>				
Standard	1-60 25-1500	1-56 25-1400	1-48 25-1200	1-24 25-600
Low Temperature -46°C / -50°F	1-60 25-1500	1-56 25-1400	1-48 25-1200	1-24 25-600
Underground	1-60 25-1500	1-56 25-1400	1-48 25-1200	1-24 25-600
Underground – Low Temperature -46°C / -50°F	1-60 25-1500	1-56 25-1400	1-48 25-1200	1-24 25-600
<b>Cast Split (T11 Series)</b>				
Standard	1-48 25-1200	1-36 25-900	1-24 25-600	1-12 25-300
Low Temperature -46°C / -50°F	1-48 25-1200	1-36 25-900	1-24 25-600	N/A
Underground	1-48 25-1200	1-36 25-900	1-24 25-600	N/A
Underground – Low Temperature -46°C / -50°F	1-48 25-1200	1-36 25-900	1-24 25-600	N/A
<b>Forged Fully Welded (T20 Series)</b>				
Standard	1/2-60 15-1500	1/2-56 15-1400	1/2-48 15-1200	N/A
Low Temperature -46°C / -50°F	1/2-60 15-1500	1/2-56 15-1400	1/2-48 15-1200	N/A
Underground	1/2-60 15-1500	1/2-56 15-1400	1/2-48 15-1200	N/A
Underground – Low Temperature -46°C / -50°F	1/2-60 15-1500	1/2-56 15-1400	1/2-48 15-1200	N/A
<b>Cast Top Entry (T70 Series)</b>				
Standard	2-48 50-1200	2-36 50-900	2-24 50-600	N/A
Low Temperature -46°C / -50°F	2-48 50-1200	2-36 50-900	2-24 50-600	N/A
Underground	2-48 50-1200	2-36 50-900	2-24 50-600	N/A
Underground – Low Temperature -46°C / -50°F	2-48 50-1200	2-36 50-900	2-24 50-600	N/A
<b>Forged Top Entry (T71 Series)</b>				
Standard	2-48 50-1200	2-36 50-900	2-24 50-600	2-6 50-150
Low Temperature -46°C / -50°F	2-48 50-1200	2-36 50-900	2-24 50-600	2-6 50-150
Underground	2-48 50-1200	2-36 50-900	2-24 50-600	2-6 50-150
Underground – Low Temperature -46°C / -50°F	2-48 50-1200	2-36 50-900	2-24 50-600	2-6 50-150

## STANDARD & SPECIFICATIONS

Design Standard	API 6D, ASME B16.34
Test Standard	API 6D, API 598
End Connection	ASME B16.5, ASME B16.47, MS SP-44, ASME B31.8, ASME B16.25, etc.
Face-to-Face	API 6D, ASME B16.10
Fire Test	API 6FA, API 607
Anti-Corrosion, Acid-Resisting*	NACE MR0103, NACE MR0175, ISO 15156

\*Optional, available upon request.



# DESIGN FEATURES

CHV provides high-performance products with its own patented technologies.

## TRUNNION-MOUNTED BALL

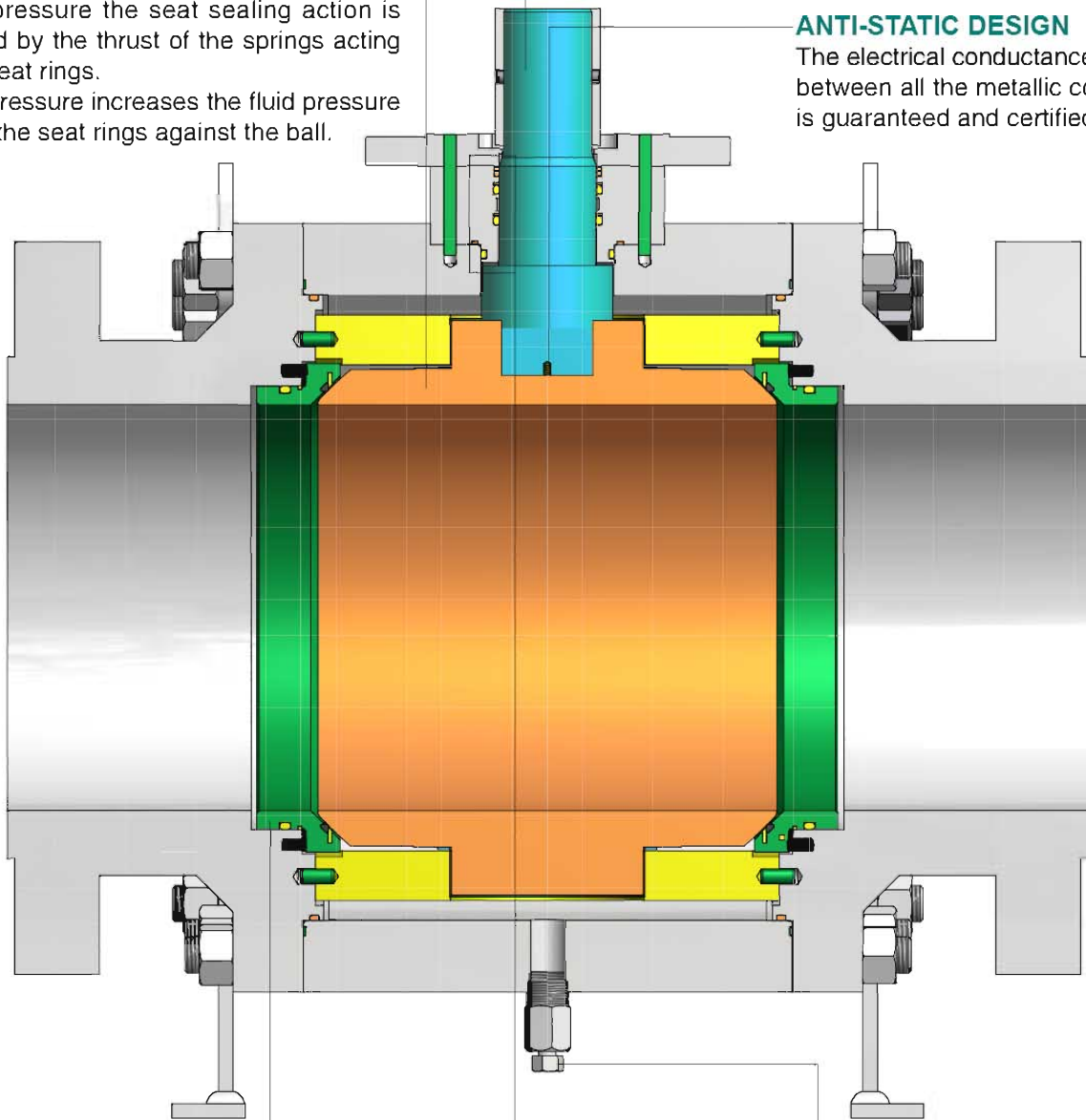
The ball is fixed and the seat rings are floating, free to move along the valve axis. Side load generated by the pressure acting on the ball is absorbed by bearings. At low pressure the seat sealing action is achieved by the thrust of the springs acting on the seat rings. As the pressure increases the fluid pressure pushes the seat rings against the ball.

## INDEPENDENT BALL AND STEM

The ball and stem are independent to minimize the effect of the side thrust generated by the pressure acting on the ball.

## ANTI-STATIC DESIGN

The electrical conductance continuity between all the metallic components is guaranteed and certified.



## FLOATING SEAT RINGS

Two independent floating seat rings assure the bi-directional tightness of the valve. The seats are carefully designed to minimize the torque required to operate the valves without losing sealing power, which is assured from zero differential pressure to the valve's maximum rated pressure.

## LOW EMISSION VALVES

Accurate machining of stem and bonnet sealing surfaces ensures compliance with the most severe pollution control regulations. Special "live" seals are available on request.

## DOUBLE BLOCK & BLEED

The double block and bleed feature, both with the ball in the fully closed or fully open position, is a standard feature.

Self-relieving seats are supplied as a standard feature.

Double piston or combination seats (self-relieving/ upstream, double piston/downstream) can be supplied on request.



# DESIGN FEATURES

FEATURE	SPLIT	FULLY WELDED	TOP ENTRY
Trunnion Mounted	Standard	Standard	Standard
Independent Stem & Ball	Standard	Standard	Standard
Independent Floating Seats	Standard	Standard	Standard
Primary Metal Seat – Secondary Soft Seat	Standard	Standard	Standard
Primary Soft Seat – Secondary Metal Seat	On Request	On Request	On Request
Metal to Metal Seat	On Request	On Request	On Request
Self Relieving Seats	Standard	Standard	Standard
Single Piston Seat Effect	Standard	Standard	Standard
Double Piston Seat Effect	On Request	On Request	On Request
Combination (Self Relieving/Double Piston) Seats	On Request	On Request	On Request
API 6D Design and Construction	Standard	Standard	Standard
Face to Face Dimensions to API 6D and ASME B16.10	Standard	Standard	Standard
Fire Safe Design to API 6FA– API 607	Standard	Standard	Standard
Full, Reduced or Venturi Port	As Required	As Required	As Required
Flanged Ends – Welded Ends – Hub Ends	As Required	As Required	As Required
Transition Pups for Welded Ends Valves	On Request	On Request	On Request
Antistatic	Standard	Standard	Standard
Anti-Blowout Stem	Standard	Standard	Standard
Double Block and Bleed	Standard	Standard	Standard
Possibility to Check Seat Integrity In Line with Ball in Open or Closed Position	Standard	Standard	Standard
Double Body Seals	Standard	N/A	Standard
Triple Stem Seals	Standard	Standard	Standard
Drain Plug	Standard	Standard	Standard
Drain Valve	On Request	On Request	On Request
Vent Valve (on 6" & larger)	Standard	Standard	Standard
Emergency Sealant Injection on Stem and Seats From Valve Chamber(on 4" & Smaller)	Standard	Standard	Standard
Emergency Sealant Injection on Stem (on 6" & larger)	Standard	Standard	Standard
Emergency Sealant Injection on Seats (on 6" & larger)	Standard	Standard	Standard
Seat Pocket Overlay	On Request	On Request	On Request
Seals Area Overlay	On Request	On Request	On Request
Wetted Parts Overlay	On Request	On Request	On Request
Body Internal Lining	On Request	N/A	On Request
Extended Stem for Underground Installation	As Required	As Required	As Required
Extended Bonnet for Low or High Temperature	As Required	N/A	As Required
Locking Device	On Request	On Request	On Request
Lifting Lugs	Standard on 6" and Larger		
Supporting Feet	Standard on 6" and Larger		
Manual or Motorized Operation	As Required	As Required	As Required
In-line Maintenance	N/A	N/A	Yes
On site Maintenance	Yes	N/A	Yes

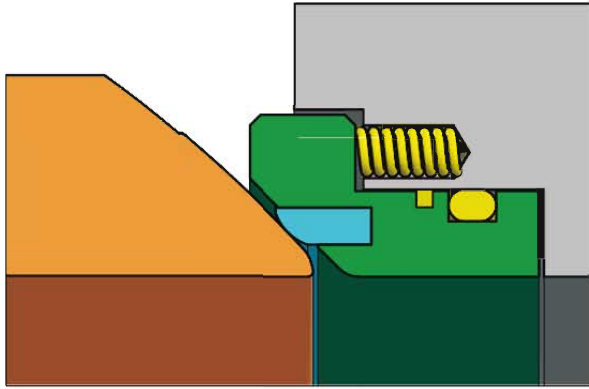
Note: Other features are available on request.



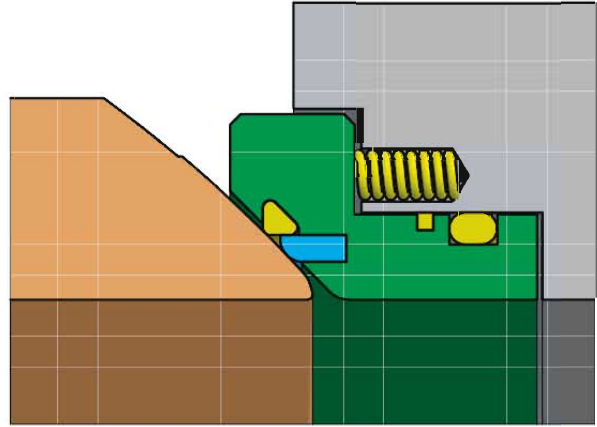
# DESIGN FEATURES

## SOFT-SEATED VALVES

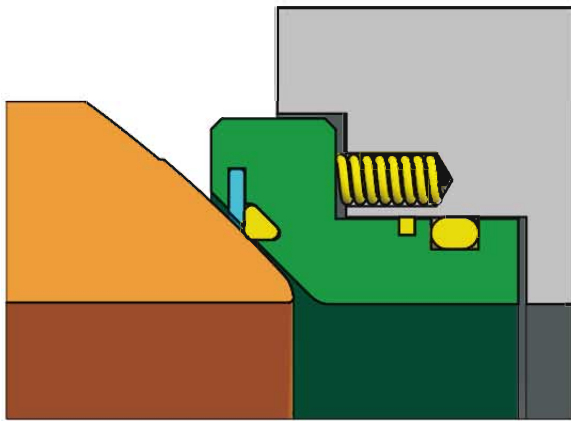
In valves designed for standard service, a resilient material is inserted into the metal seat holder to provide a soft seating action in addition to the metal to metal seating between the ball and the seat rings.



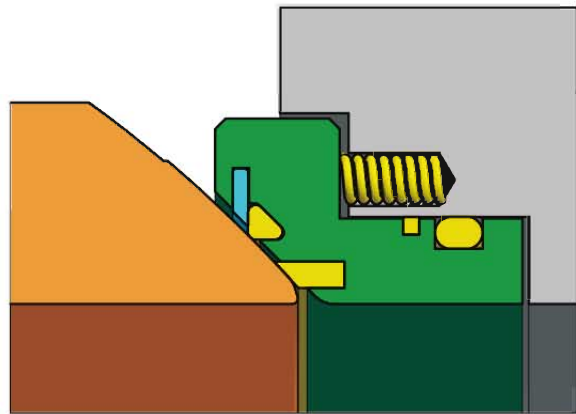
All sizes and pressure class



NPS 4 ASME Class 150-1500



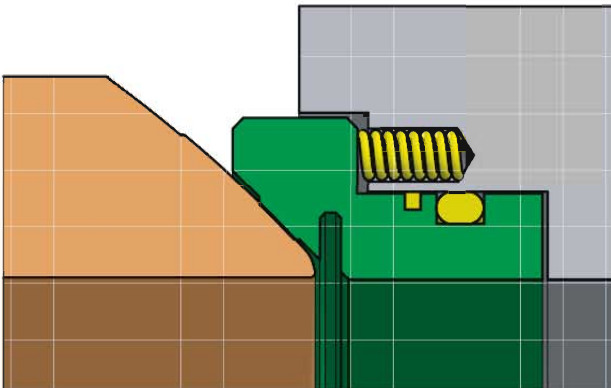
NPS 6-16 ASME Class 150-600



NPS 18 and larger ASME Class 150-600  
NPS 6 and larger ASME Class 900

## METAL-SEATED VALVES

Valves designed for abrasive service or for operation in temperatures that prohibit the use of a resilient material have seating action provided by the metal to metal contact between the ball and the seat rings. Both the seat surface and the ball surface will be hardened by overlay, supersonic spray, and flame spray, etc., according to customer's requirements. The treatment will make a hardness difference between the two surfaces, to protect the ball in switching process.





# DESIGN FEATURES

## VALVE POSITION INDICATOR

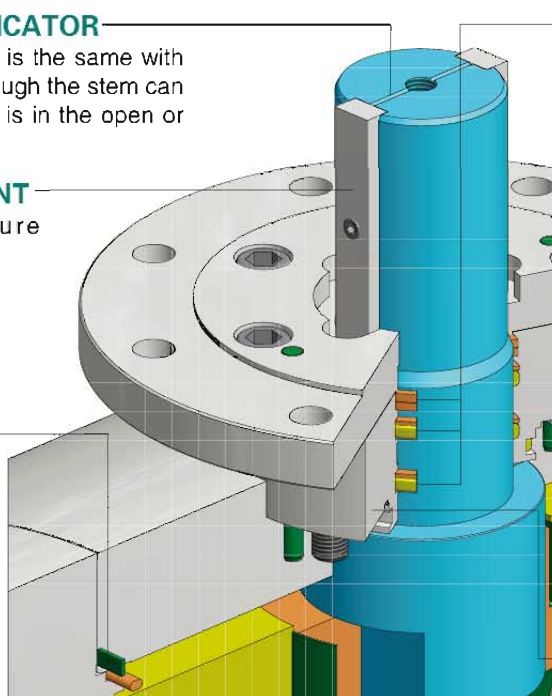
The stem's slotted direction is the same with the ball's bore direction, through the stem can clearly vision the ball which is in the open or closed position.

## BALL SEAT ALIGNMENT

Mechanical stops ensure control over ball rotation.

## BODY SEALING

The double sealing action of O-rings and graphite gaskets in all the static joints of the body components, ensures zero leakage and the fire safe feature.



## STEM SEALING

Two O-rings and one graphite gasket ensure the stem seal. The graphite gasket can be replaced while the valve is under pressure and with the ball in any position, by removing the adaptor plate, after having released any pressure that may exist between the upper O-ring and the graphite gasket, through the grease injection fitting hole.

The O-rings can be replaced with the valve in fully open or fully closed position by removing the stem cover after having released all the pressure in the body cavity.

## GLAND SEALING

The double sealing action of O-rings and graphite gaskets in all the static joints of the body components, ensures zero leakage and the fire safe feature.

## ANTI-BLOWOUT STEM

Stem is retained by the stem cover. Other designs available on request.

## EXTENDED STEM

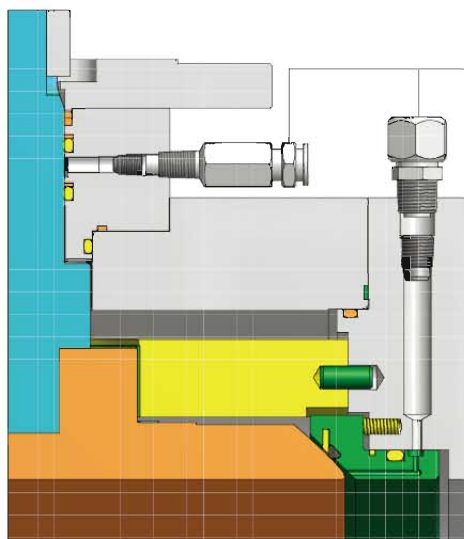
Valves installed underground or in remote locations can be operated with an optional extended stem.

All the drain, vent and emergency sealant connections can be operated using extended connecting pipes firmly attached to the stem protective cover.



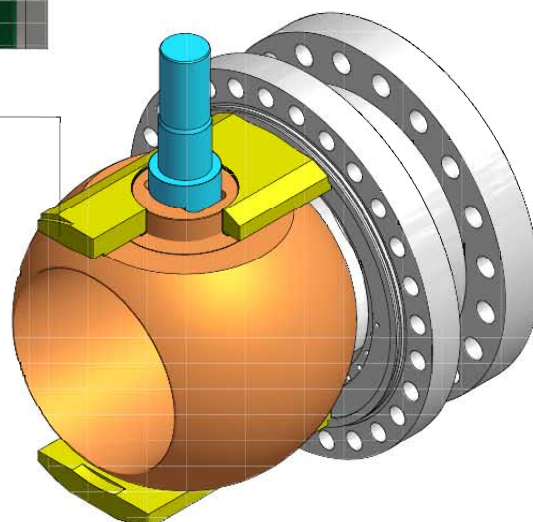
## EMERGENCY SEALANT INJECTION

Each valve is supplied c/w emergency sealant injection feature located between the upper O-rings and the graphite gasket. And each of the injection valve will install with check valve. Emergency sealant injection feature on seats is available on request only, for 6" full port and larger. Emergency grease injection features are not available on low and high temperature valves.



## Trunnion Ball Valve

The balls of 6" and above trunnion mounted ball valves are innovatively mounted to the body by two trunnion plates. The fitting accuracy is greatly improved. Furthermore, the body will bear the axial load from the ball, to realize the pure torque operation of the stem, and hereby avoid the uneven wear on the stem seal.



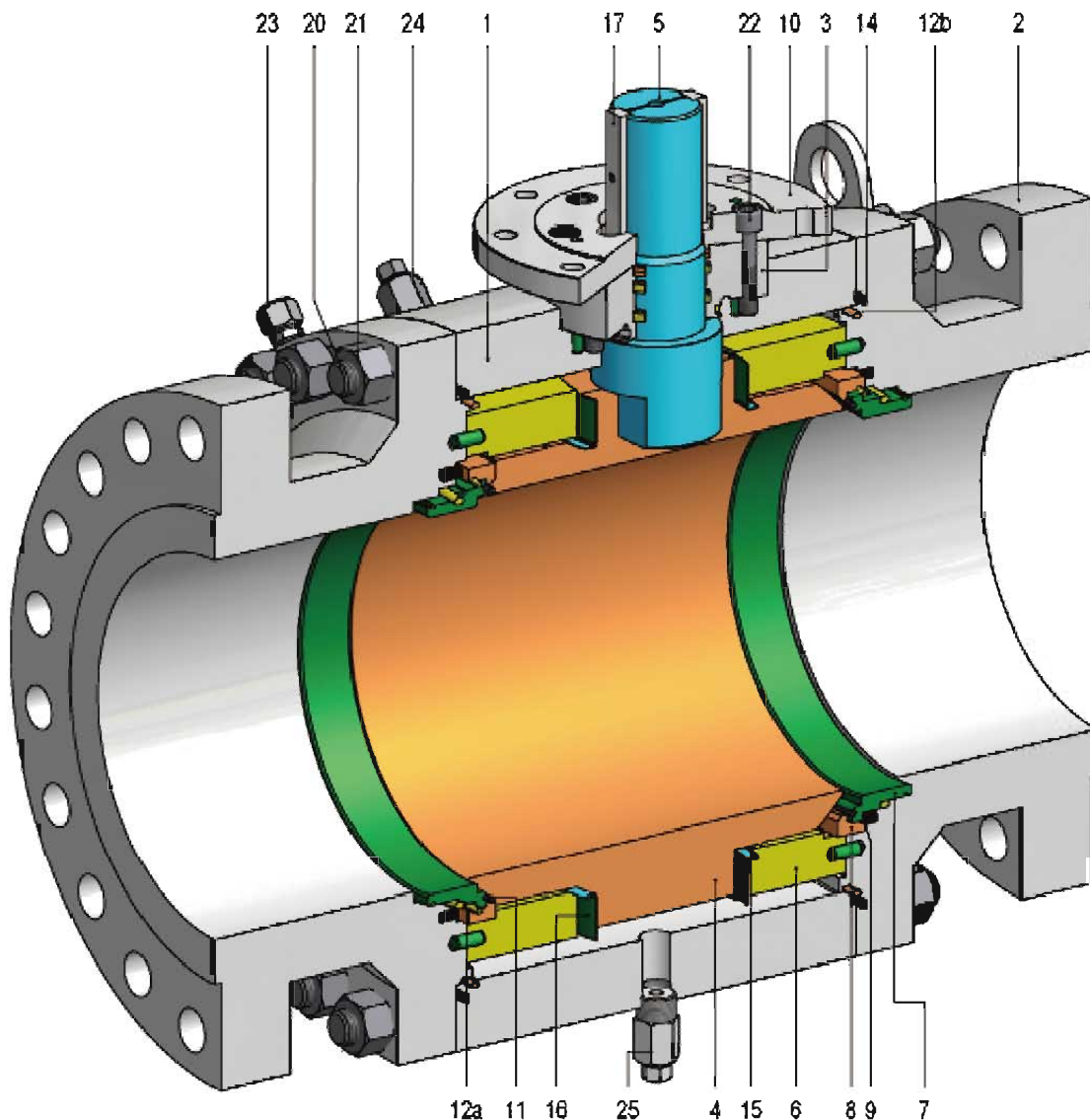
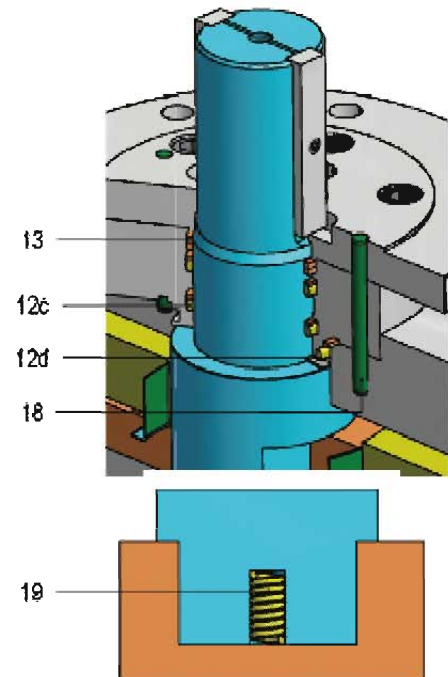


# T10 SERIES PARTS LIST

FORGED STEEL SPLIT-BODY PARTS LIST(6" & LARGER)

1	Body	12d*	O-ring
2	End Cap	13*	Rectangular Packing
3	Gland	14*	Spiral Wound Gasket
4	Ball	15	Thrust Bearing
5	Stem	16	Sliding Bearing
6	Trunnion Plate	17	Key
7	Seat	18	Pin
8	Outer Seat Ring	19	Anti-static Device
9	Seat Lock Ring	20	Stud
10	Adapter Plate	21	Hexagon Nut
11	Seat Insert	22	Head Bolt
12a*	O-ring	23	Grease Injection Valve
12b*	O-ring	24	Vent Valve
12c*	O-ring	25	Drain Valve

\* Recommended spare parts.

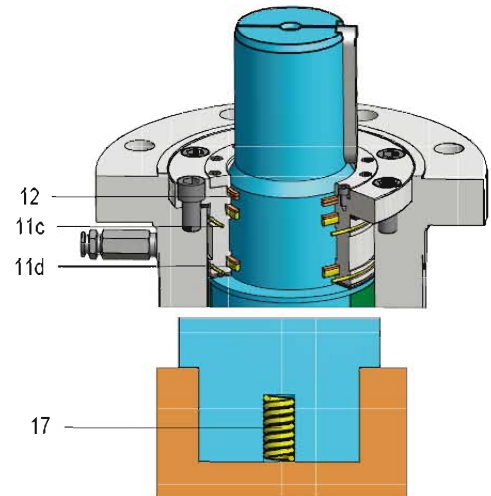




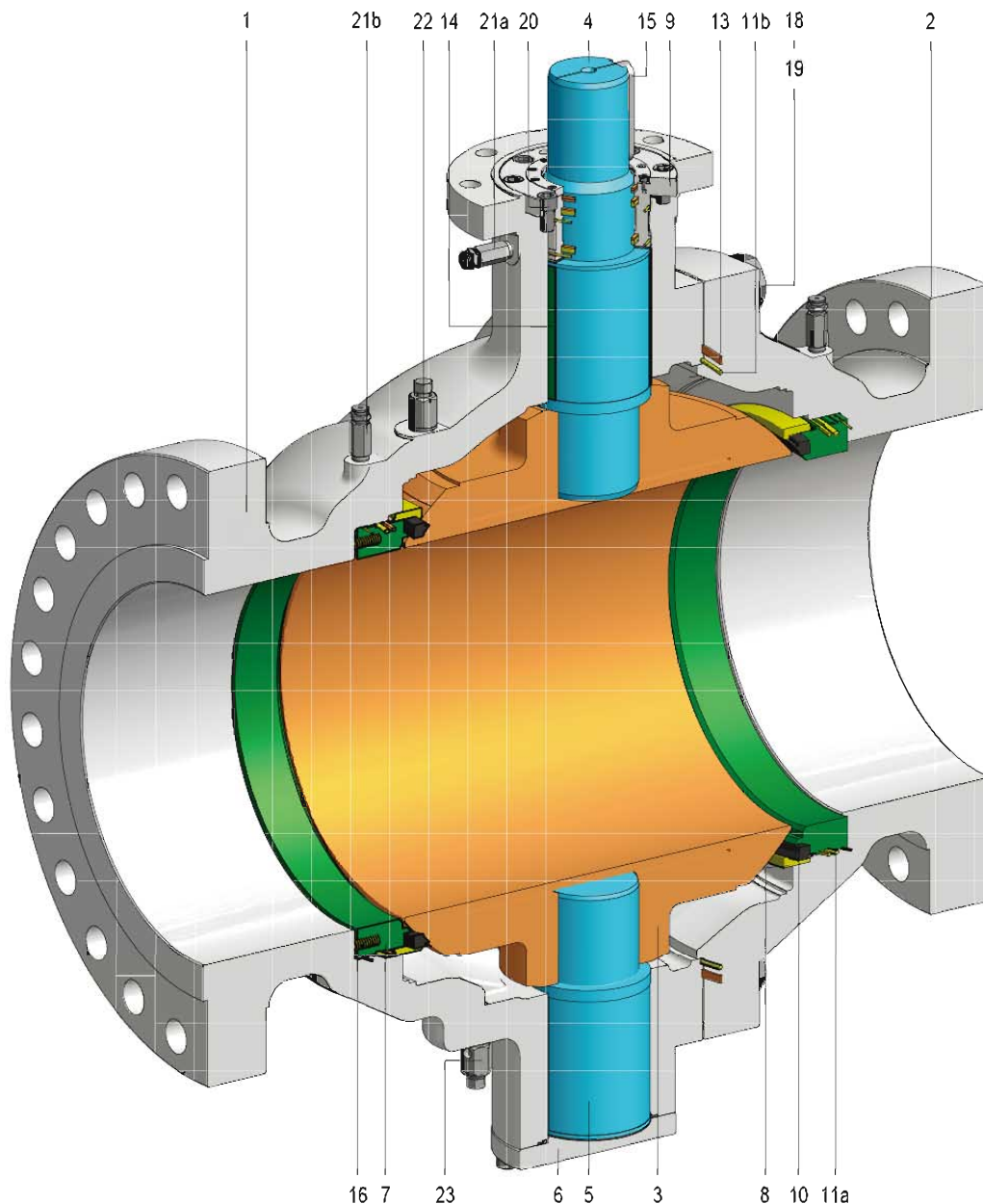
# T11 SERIES PARTS LIST

## CAST SPLIT PARTS LIST

1	Body	12*	Rectangular Packing
2	End Cap	13*	Spiral Wound Gasket
3	Ball	14	Sliding Bearing
4	Stem	15	Key
5	Trunnion	16	Coil Spring
6	Lower Cover	17	Anti-static Device
7	Seat	18	Stud
8	Outer Seat Ring	19	Hexagon Nut
9	Gland	20	Head Bolt
10	Seat Insert	21a	Grease Injection Valve
11a*	O-ring	21b	Grease Injection Valve
11b*	O-ring	22	Vent Valve
11c*	O-ring	23	Drain Valve
11d*	O-ring		



\* Recommended spare parts.

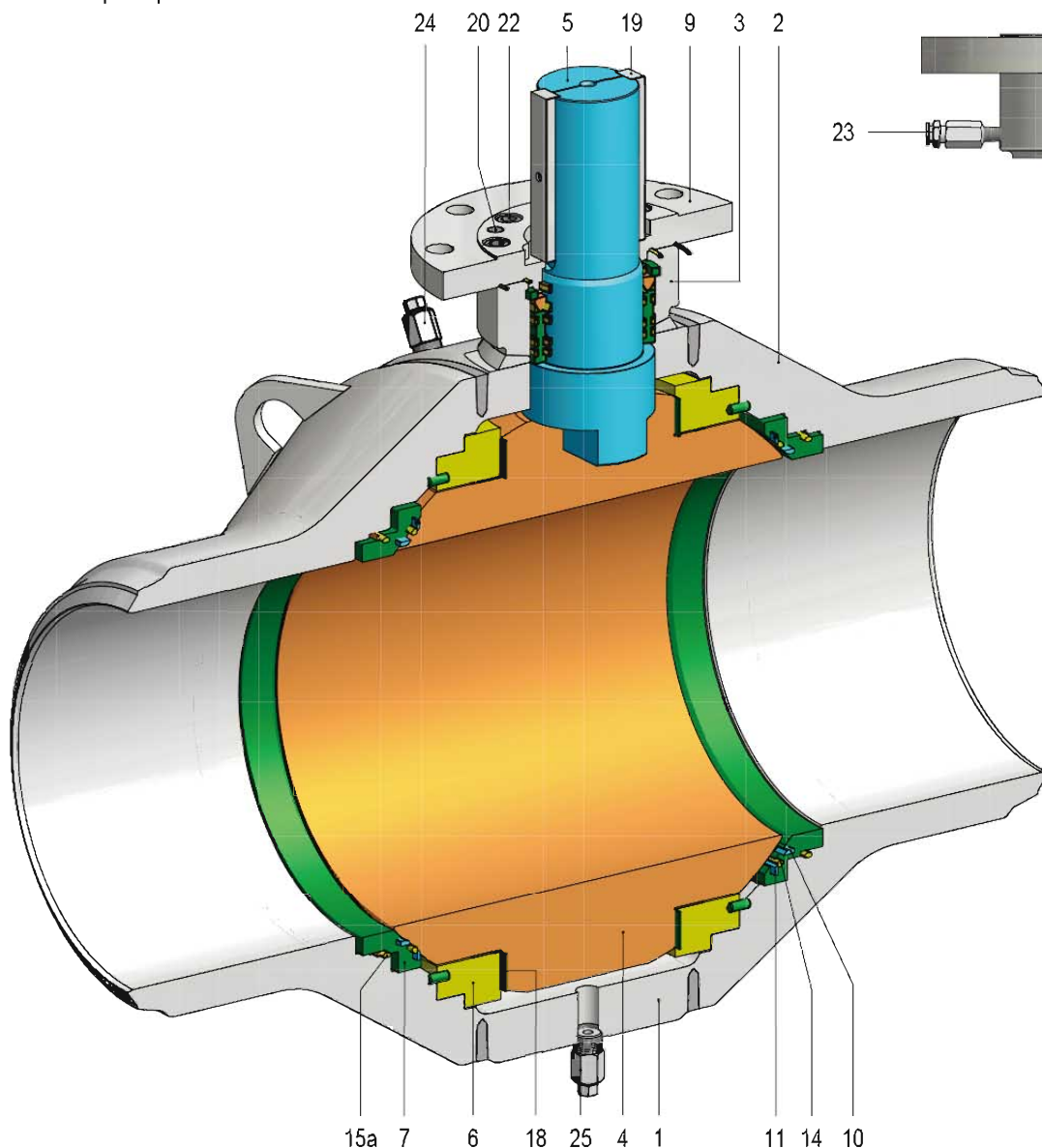
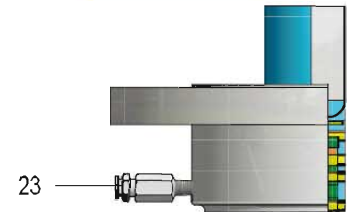
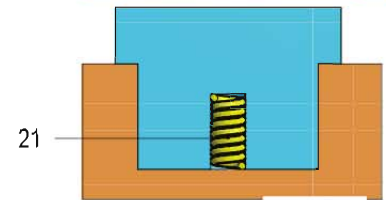
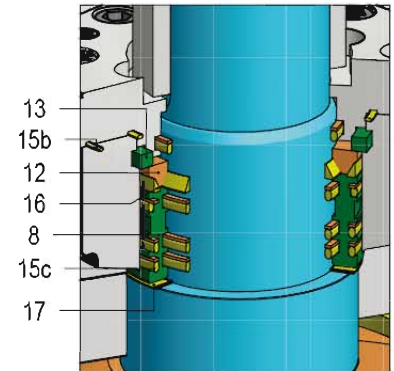




# T20 SERIES PARTS LIST

FORGE DFULLY WELDED PARTS LIST(6" & LARGER)			
1	Body	15a	O-ring
2	End Cap	15b*	O-ring
3	Gland	15c*	O-ring
4	Ball	16*	Triangle Packing
5	Stem	17	Thrust Bearing
6	Trunnion Plate	18	Sliding Bearing
7	Seat	19	Key
8	Sleeve	20	Pin
9	Adapter Plate	21	Anti-static Device
10	Scraper	22	Head Bolt
11	Seat Lock Ring	23	Grease Injection Valve
12	V-Type Packing Ring	24	Vent Valve
13	Four Piece Ring	25	Drain Valve
14	Seat Insert		

\* Recommended spare parts.



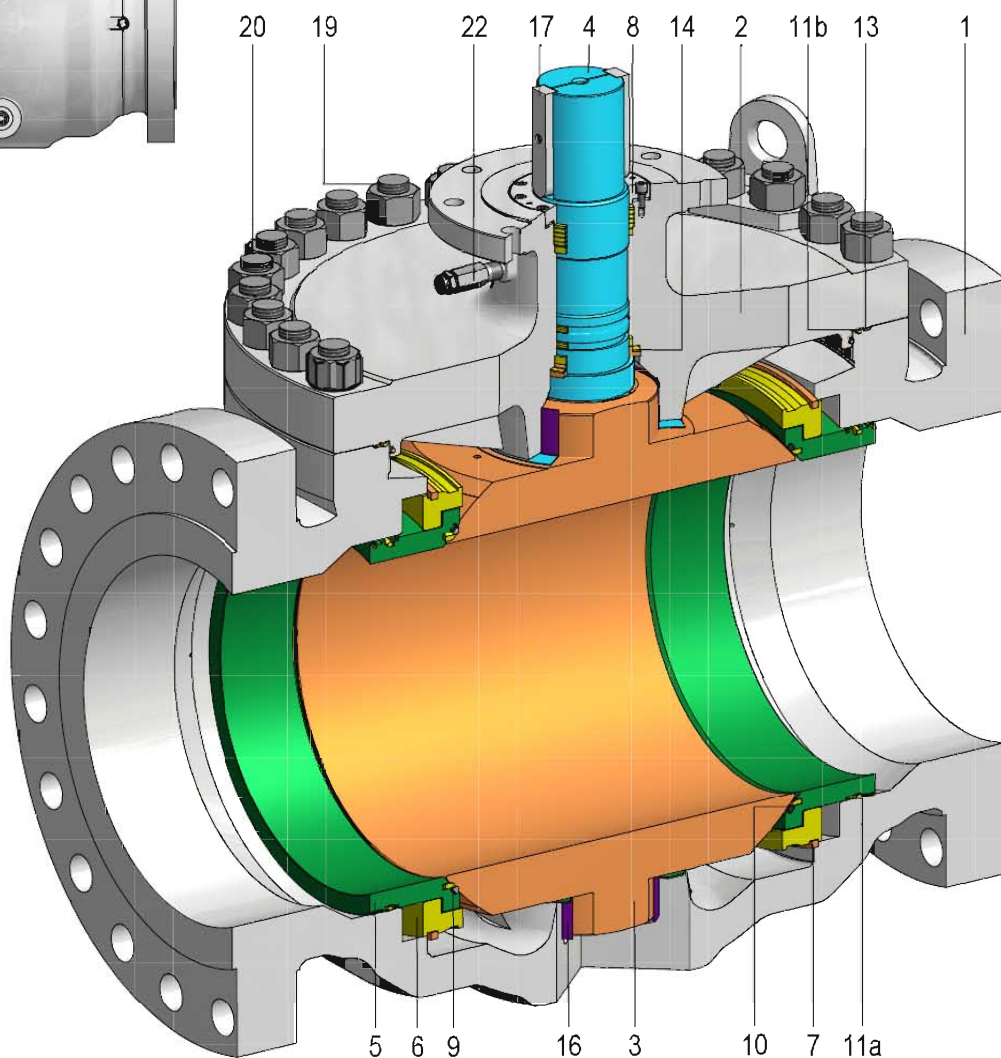
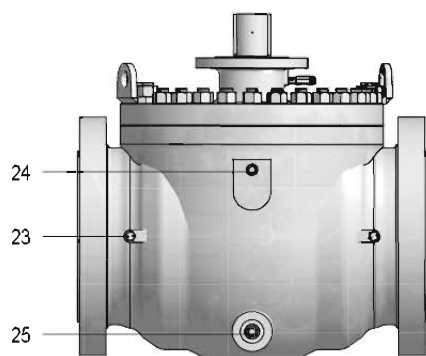
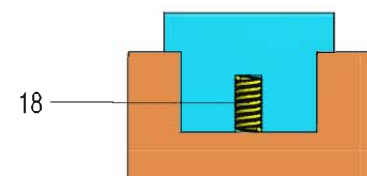
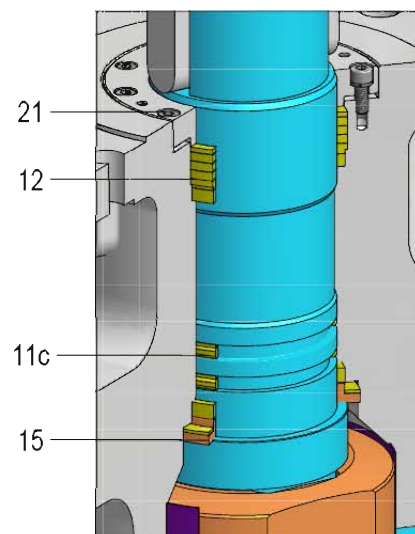


# T70 SERIES PARTS LIST

CAST TOP ENTRY PARTS LIST

1	Body	13*	Spiral Wound Gasket
2	Bonnet	14	Thrust Bearing
3	Ball	15	Thrust Washer
4	Stem	16	Sliding Bearing
5	Seat	17	Key
6	Spring Retainer	18	Anti-static Device
7	Seat Lock Ring	19	Stud
8	Packing Ring	20	Hexagon Nut
9	Scraper	21	Head Bolt
10	Seat Insert	22	Grease Injection Valve
11a*	O-ring	23	Grease Injection Valve
11b*	O-ring	24	Vent Valve
11c*	O-ring	25	Drain Valve
12*	Rectangular Packing		

\* Recommended spare parts.



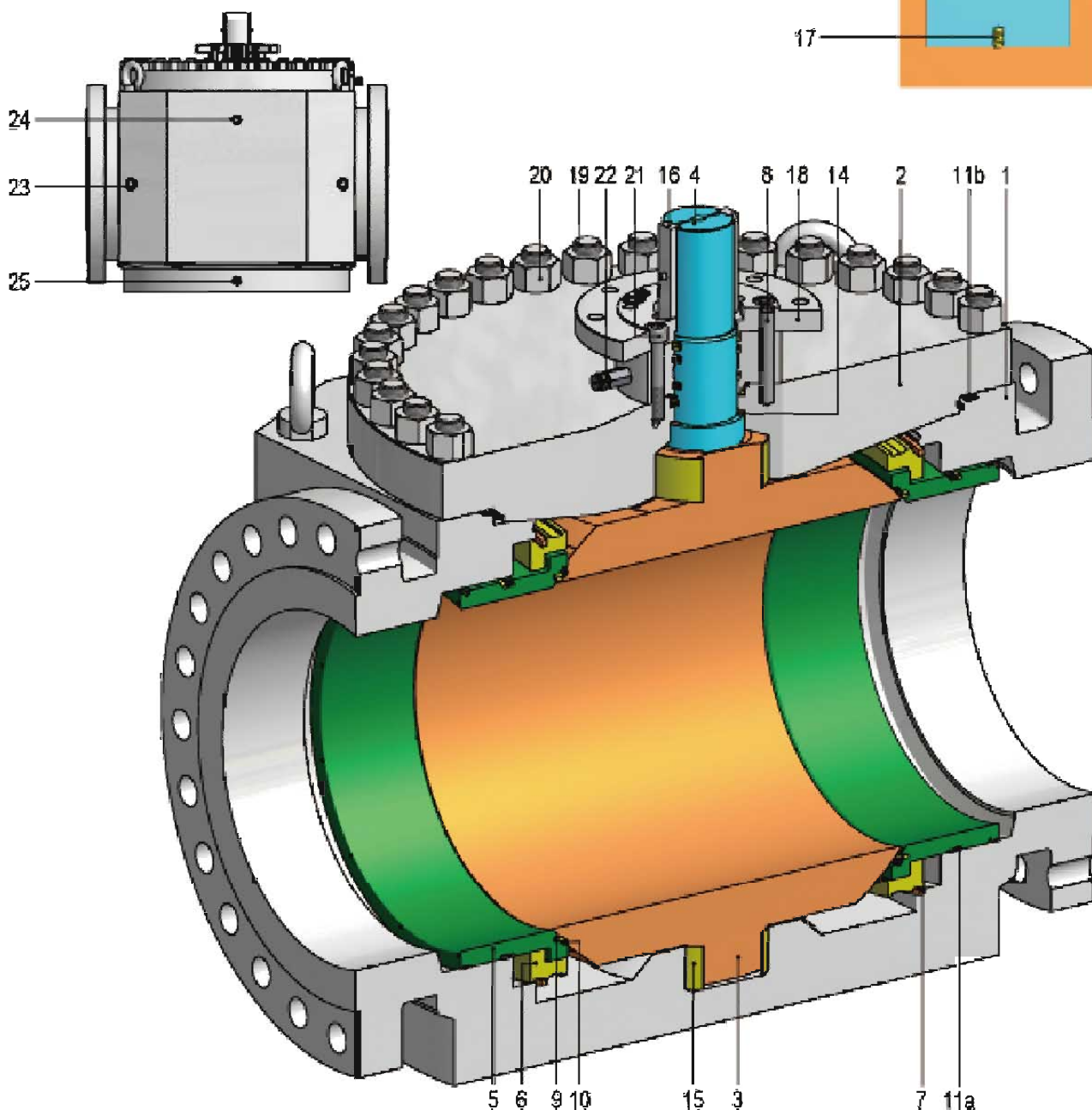
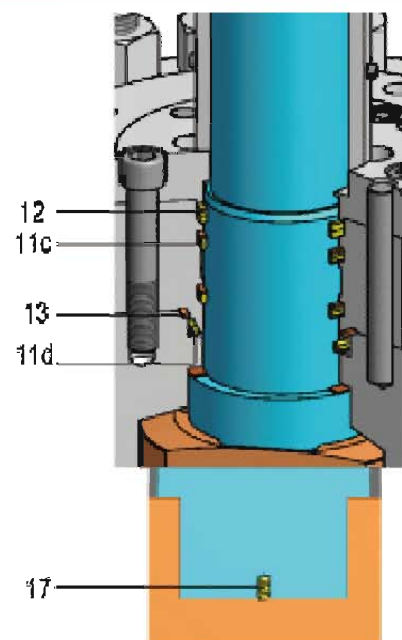


# T71 SERIES PARTS LIST

## FORGED TOP ENTRY PARTS LIST

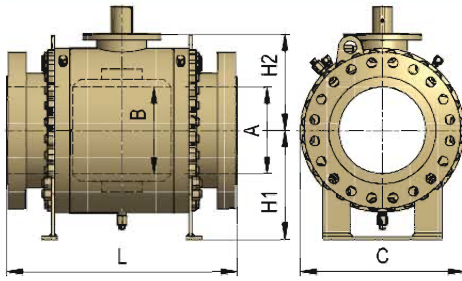
1	Body	12*	Rectangular Packing
2	Bonnet	13*	Spiral Wound Gasket
3	Ball	14	Thrust Bearing
4	Stem	15	Sliding Bearing
5	Seat	16	Key
6	Spring Retainer	17	Anti-static Device
7	Seat Lock Ring	18	Adapter Plate
8	Pin	19	Stud
9	Scraper	20	Hexagon Nut
10	Seat Insert	21	Head Bolt
11a*	O-ring	22	Grease Injection Valve
11b*	O-ring	23	Grease Injection Valve
11c*	O-ring	24	Vent Valve
11d*	O-ring	25	Drain Valve

\* Recommended spare parts.

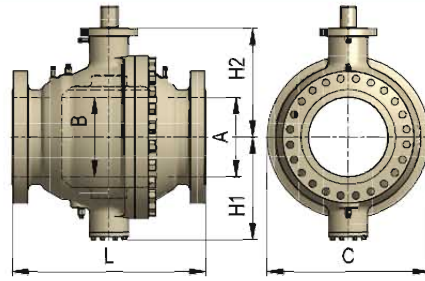




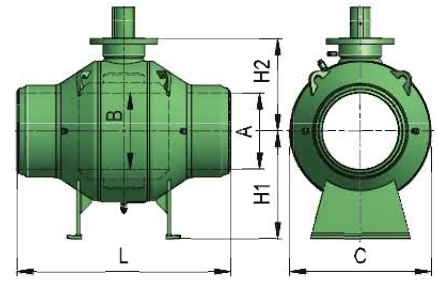
# DIMENSIONS & WEIGHTS



T10 Series



T11 Series



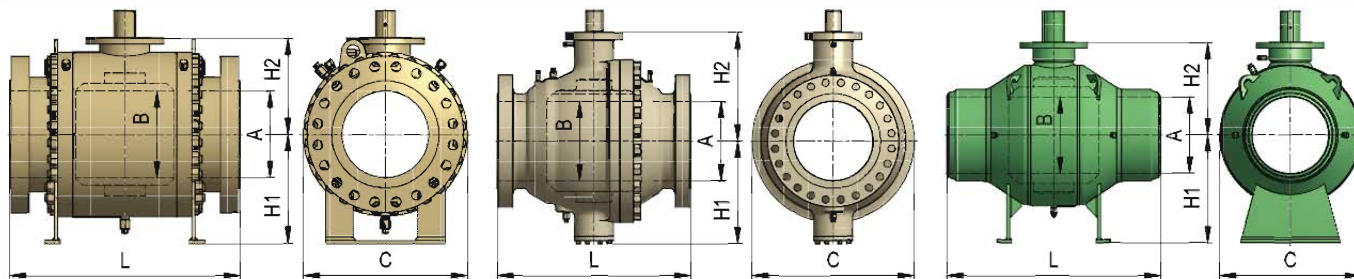
T20 Series

## ASME CLASS 150 FULL BORE

ALL TYPES			T10 Series								T11 Series								T20 Series											
Size NPS/DN	A	B	L-RF	L-BW	H1	H2	C	Weight* lb/kg		L-RF	L-BW	H1	H2	C	Weight* lb/kg		L-RF	L-BW	H1	H2	C	Weight* lb/kg		L-RF	L-BW	H1	H2	C	Weight* lb/kg	
1-1/2	1.5	1.5	6.5	7.48	3.39	2.99	5.63	20		6.5	7.48	2.89	2.99	5.28	20		6.5	7.48	2.40	2.56	4.80	18		6.5	7.48	2.40	2.56	4.80	18	
40	38	38	165	190	86	76	143	9		165	190	73.5	76	134	9		165	190	61	65	122	8		165	190	61	65	122	8	
2	1.94	1.94	7	8.5	3.82	3.31	6.22	26		7	8.5	3.92	3.31	6.30	26		7	8.5	4.06	2.66	6.02	29		7	8.5	4.06	2.66	6.02	29	
50	49	49	178	216	97	84	158	12		178	216	99.5	84	160	12		178	216	103	67.5	153	13		178	216	103	67.5	153	13	
3	2.94	2.94	8	11.13	4.09	4.41	7.83	65		8	11.13	4.09	4.46	7.72	55		8	11.13	3.88	3.43	7.36	56		8	11.13	3.88	3.43	7.36	56	
80	74	74	203	283	104	112	199	30		203	283	104	123.5	196	25		203	283	93.5	87	187	26		203	283	93.5	87	187	26	
4	3.94	3.94	9	12	5.12	5.43	9.37	76		9	12	5.22	5.94	8.86	71		9	12	6.10	5.04	8.43	67		9	12	6.10	5.04	8.43	67	
100	100	100	229	305	130	138	238	34		229	305	132.5	151	225	32		229	305	155	128	214	30		229	305	155	128	214	30	
6	5.94	5.94	15.5	18	10.16	7.95	12.01	315		15.5	18	8.50	8.46	13.46	115		15.5	18	10.00	9.27	12.13	403		15.5	18	10.00	9.27	12.13	403	
150	150	150	394	457	258	202	305	143		394	457	216	215	342	52		394	457	254	235.5	308	183		394	457	254	235.5	308	183	
8	7.94	7.94	18	20.5	12.07	9.82	16.30	579		18	20.5	10.79	10.81	16.30	227		18	20.5	12.26	10.87	14.65	425		18	20.5	12.26	10.87	14.65	425	
200	201	201	457	521	306.5	249.5	414	263		457	521	274	274.5	414	103		457	521	311.5	276	372	193		457	521	311.5	276	372	193	
10	9.94	9.94	21	22	13.76	11.36	18.78	888		21	22	13.09	14.31	20	601		21	22	14.17	12.42	17.80	571		21	22	14.17	12.42	17.80	571	
250	252	252	533	559	349.5	288.5	477	403		533	559	332.5	363.5	508	273		533	559	360	315.5	452	259		533	559	360	315.5	452	259	
12	11.94	11.94	24	25	15.33	13.41	21.85	1305		24	25	14.67	15.89	23.23	897		24	25	16.54	14.31	20.75	886		24	25	16.54	14.31	20.75	886	
300	303	303	610	635	389.5	340.5	555	592		610	635	372.5	403.5	590	407		610	635	420	363.5	527	402		610	635	420	363.5	527	402	
14	13.19	13.19	27	30	18.06	14.23	23.50	2253		27	30	15.87	17.19	25	1129		27	30	18.11	15.20	22.44	1347		27	30	18.11	15.20	22.44	1347	
350	334	334	686	762	408	361.5	597	1022		686	762	403	436.5	635	512		686	762	460	386	570	611		686	762	460	386	570	611	
16	15.19	15.19	30	33	18.03	16.00	27.09	3408		30	33	17.60	18.54	28.94	1664		30	33	18.90	17.01	25.63	2037		30	33	18.90	17.01	25.63	2037	
400	385	385	762	838	458	406.5	688	1545		762	838	447	471	735	755		762	838	480	432	651	924		762	838	480	432	651	924	
18	17.19	17.19	34	36	20.00	17.54	30.04	4090		34	36	20.35	21.10	32.40	2127		34	36	19.61	18.68	28.90	2837		34	36	19.61	18.68	28.90	2837	
450	436	436	864	914	508	445.5	763	1855		864	914	517	536	823	965		864	914	498	474.5	734	1287		864	914	498	474.5	734	1287	
20	19.19	19.19	36	39	21.18	18.92	32.91	4635		36	39	21.97	23.58	35.63	2607		36	39	22.05	20.73	32.01	3568		36	39	22.05	20.73	32.01	3568	
500	487	487	914	991	538	480.5	836	2103		914	991	558	599	905	1182		914	991	560	526.5	813	1618		914	991	560	526.5	813	1618	
22	21.19	21.19	40	43	23.03	20.71	36.14	5144		40	43	25.00	25.67	39.06	3554		40	43	22.05	20.73	32.01	3568		40	43	22.05	20.73	32.01	3568	
550	538	538	1016	1092	585	526	918	2334		1016	1092	635	652	992	1612		1016	1092	585	526	813	1618		1016	1092	585	526	813	1618	
24	23.19	23.19	42	45	24.78	22.72	39.33	7051		42	45	25.43	27.24	40.75	4524		42	45	25.35	24.17	38.19	6057		42	45	25.35	24.17	38.19	6057	
600	589	589	1067	1143	629.5	577	999	3199		1067	1143	646	692	1035	2052		1067	1143	644	614	970	2748		1067	1143	644	614	970	2748	
28	26.94	26.94	49	53	28.54	25.93	45.35	10877		49	53	29.65	31.20	45.47	6247		49	53	30.71	27.48	44.33	8749		49	53	30.71	27.48	44.33	8749	
700	684	684	1245	1346	725	658.5	1152	4934		1245	1346	753	792.5	1155	2834		1245	1346	790	698	1128	3969		1245	1346	790	698	1128	3969	
30	28.94	28.94	51	55	29.57	27.48	48.62	12302		51	55	30.16	31.61	48.62	8611		51	55	31.61	29.65	47.44	10498		51	55	31.61	29.65	47.44	10498	
750	735	735	1295	1397	751	698	1235	5580		1295	1397	766	803	1235	3906		1295	1397	803	753	1205	4762		1295	1397	803	753	1205	4762	
32	30.69	30.69	54	60	30.75	29.19	52.01	16041		54	60	33.70	34.69	52.56	11228		54	60	32.48	30.53	50.28	12265		54	60	32.48	30.53	50.28	12265	
800	779	779	1372	1524	781	741.5	1321	7276		1372	1524	856	881	1335	5093		1372	1524	825	775.5	1277	5584		1372	1524	825	775.5	1277	5584	
36	34.44	34.44	60	68	33.96	31.57	57.48	20759		60	68	34.53	36.30	58.07	14531		60	68	34.89	33.46	55.51	16850		60	68	34.89	33.46	55.51	16850	
900	874	874	1524	1727	860	802	1460	9418		1524	1727	877	922	1475	6591		1524	1727	886	850	1410	7643		1524	1727	886	850	1410	7643	
40	38.44	38.44	68	74	35.96	33.57	60.04	22441		68	74	36.60	38.40	60.71	16111		68	74	36.04	33.63	58.01	18543		68	74	36.04	33.63	58.01	18543	
1000	976	976	1676	1879	940	882	1600	10116		1676	1879	957	1002	1691	7102		1676	1879						1676	1879					
48	45.94	45.94	116	128	55.96	51.12	77.04	25321		116	128	57.96	60.71	77.04	25321		116	128	55.96	51.12	77.04	25321		116	128	55.96	51.12	77.04	25321	
1200	1166	1166	2032	2239	1066	1000	1760	10116		2032	2239	1066	1111	1760	10116		2032	2239						2032	2239					
56	53.56	53.56	136	150	63.56	58.72	86.04	27321		136	150	65.56	68.31	86.04	27321		136	150	63.56	58.72	86.04	27321		136	150	63.56	58.72	86.04	27321	
1400	1360	1360	2332	2569	1166	1100	1960	12116		2332	2569	1166	1211	1960	12116		2332	2569						2332	2569					



# DIMENSIONS & WEIGHTS



T10 Series

T11 Series

T20 Series

## ASME CLASS 300 FULL BORE

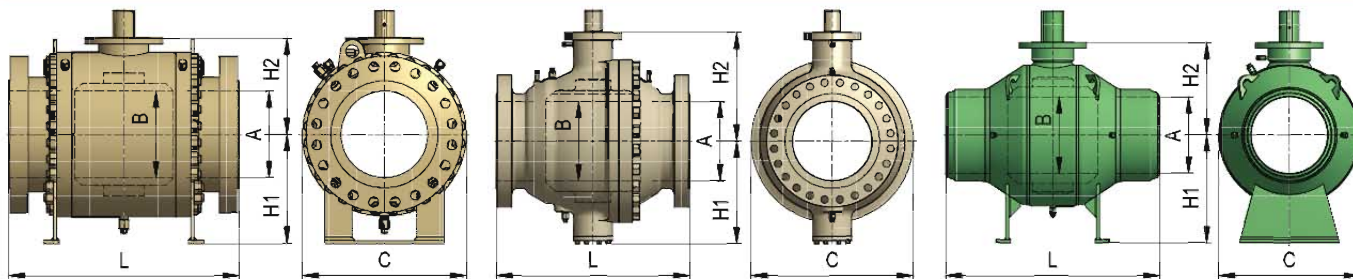
ALL TYPES			T10 Series							T11 Series							T20 Series						
Size NPS/DN	A	B	L-RF	L-BW	H1	H2	C	Weight* lb/kg	L-RF	L-BW	H1	H2	C	Weight* lb/kg	L-RF	L-BW	H1	H2	C	Weight* lb/kg			
1-1/2	1.5	1.5	7.48	7.48	3.39	2.99	5.63	25	7.48	7.48	2.89	2.99	5.28	24	7.48	7.48	2.40	2.56	4.80	20			
40	38	38	190	190	86	76	143	12	190	190	73.5	76	134	11	190	190	61	65	122	9			
2	1.94	1.94	8.5	8.5	3.82	3.31	6.22	27	8.5	8.5	3.92	3.31	6.30	24	8.5	8.5	3.01	2.66	6.02	34			
50	49	49	216	216	97	84	158	12	216	216	99.5	84	160	11	216	216	76.5	67.5	153	15			
3	2.94	2.94	11.13	11.13	4.09	4.41	7.83	65	11.13	11.13	4.39	4.07	7.72	55	11.13	11.13	3.68	3.43	7.36	69			
80	74	74	283	283	104	112	199	30	283	283	111.5	103.5	196	25	283	283	93.5	87	187	32			
4	3.94	3.94	12	12	5.12	5.43	9.37	144	12	12	5.22	5.94	8.86	115	12	12	6.10	5.04	8.43	153			
100	100	100	305	305	130	139	238	65	305	305	132.5	151	225	52	305	305	155	128	214	69			
6	5.94	5.94	15.88	15.88	10.16	7.95	12.01	309	15.88	15.88	8.50	8.46	13.46	209	15.88	15.88	10.00	9.27	12.13	428			
150	150	150	403	403	258	202	305	140	403	403	216	215	342	95	403	403	254	235.5	308	194			
8	7.94	7.94	19.75	19.75	11.89	9.82	16.30	822	19.75	19.75	10.79	10.81	18.54	337	19.75	19.75	12.26	10.87	14.65	449			
200	201	201	502	502	302	249.5	414	373	502	502	274	274.5	420	153	502	502	311.5	276	372	204			
10	9.94	9.94	22.38	22.38	13.76	11.38	18.98	954	22.38	22.38	13.09	14.31	20.00	745	22.38	22.38	14.17	12.42	17.80	619			
250	252	252	568	559	349.5	288.5	482	433	568	559	332.5	363.5	508	338	568	559	360	315.5	452	281			
12	11.94	11.94	25.5	25.5	15.33	13.41	21.85	1459	25.5	25.5	14.67	15.89	23.23	1096	25.5	25.5	16.54	14.31	20.75	935			
300	303	303	648	635	389.5	340.5	555	662	648	635	372.5	403.5	590	497	648	635	420	363.5	527	424			
14	13.19	13.19	30	30	16.06	14.23	23.50	2474	30	30	15.87	17.19	25.00	1548	30	30	18.11	15.20	22.44	1420			
350	334	334	762	762	408	361.5	597	1122	762	762	403	436.5	635	702	762	762	460	386	570	644			
16	15.19	15.19	33	33	18.03	16.00	27.09	3406	33	33	17.60	18.54	28.94	2149	33	33	18.90	17.01	25.63	2158			
400	385	385	838	838	458	406.5	688	1545	838	838	447	471	735	975	838	838	480	432	651	979			
18	17.19	17.19	36	36	20.00	17.54	30.04	5213	36	36	20.35	21.10	32.40	2700	36	36	19.61	18.68	28.90	2982			
450	436	436	914	914	508	445.5	763	2365	914	914	517	536	823	1225	914	914	498	474.5	734	1353			
20	19.19	19.19	39	39	21.18	18.92	33.35	5539	39	39	21.97	23.58	35.63	3180	39	39	22.05	20.73	32.01	3762			
500	487	487	991	991	538	480.5	847	2512	991	991	558	599	905	1442	991	991	560	526.5	813	1706			
22	21.19	21.19	43	43	23.03	20.71	36.14	5729	43	43	25.00	31.50	39.06	4193	43	43							
550	538	538	1092	1092	585	526	918	2599	1092	1092	635	800	992	1902	1092	1092							
24	23.19	23.19	45	45	24.78	22.72	39.33	10752	45	45	25.43	27.24	40.75	5406	45	45	25.35	24.17	38.19	6294			
600	589	589	1143	1143	629.5	577	999	4877	1143	1143	646	692	1035	2452	1143	1143	644	614	970	2855			
26	26.94	26.94	53	53	26.54	25.93	45.83	10810	53	53	29.65	31.20	45.47	8010	53	53	30.71	27.48	44.33	9234			
700	684	684	1346	1346	725	658.5	1164	4904	1346	1346	753	792.5	1155	3634	1346	1346	780	698	1126	4189			
30	28.94	28.94	55	55	29.57	27.48	48.62	15399	55	55	30.16	31.61	48.62	10781	55	55	31.61	29.65	47.44	11083			
750	735	735	1397	1397	751	698	1235	6985	1397	1397	766	803	1235	4890	1397	1397	803	753	1205	5027			
32	30.69	30.69	60	60	32.68	29.19	52.01	18711	60	60	33.70	34.69	52.56	13098	60	60	32.48	30.53	50.28	12920			
800	779	779	1524	1524	830	741.5	1321	6487	1524	1524	856	881	1335	5941	1524	1524	825	775.5	1277	5861			
36	34.44	34.44	68	68	33.86	31.57	57.48	23810	68	68	34.53	36.30	58.07	16667	68	68	34.88	33.46	56.51	17771			
900	874	874	1727	1727	860	802	1460	10800	1727	1727	877	922	1475	7560	1727	1727	886	850	1410	8061			
40	38.44	38.44	Ⓣ	Ⓣ	37.80	35.89	64.37	32494	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	70.59	36.10	36.57	61.50	24707			
1000	976	976	Ⓣ	Ⓣ	960	911.5	1635	14739	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	1793	917	929	1562	11207			
48	45.94	45.94	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ			
1200	1166	1166	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ			
56	53.56	53.56	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ			
1400	1360	1360	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ			

## ASME CLASS 300 REDUCED BORE

ALL TYPES			T10 Series							T11 Series							T20 Series						
Size NPS/DN	A	B	L-RF	L-BW	H1	H2	C	Weight* lb/kg	L-RF	L-BW	H1	H2	C	Weight* lb/kg	L-RF	L-BW	H1	H2	C	Weight* lb/kg			
2 x 1-1/2	1.94	1.5	8.5	8.5	3.39	2.99	5.63	30	8.5	8.5	2.89	2.99	5.28	24	8.5	8.5	2.40	2.56	4.80	25			
50 x 40	49	38	216	216	86	76	143	14	216	216	73.5	76	134	11	216	216	61	65	122	12			
3 x 2	2.94	1.94	11.13	11.13	3.82	3.31	6.22	67	11.13	11.13	3.92	3.31	6.30	48	11.13	11.13	3.01	2.66	6.02	45			
80 x 50	74	49	283	283	97	84	158	30	283	283	99.5	84	160	21	k	283	76.5	67.5	153	20			
4 x 3	3.94	2.94	12	12	4.09	4.41	7.83	105	12	12	4.39	4.07	7.72	79	12	12	3.68	3.43	7.36	98			
100 x 80	100	74	305	305	104	112	199	48	305	305	111.5	103.5	196	36	305	305	93.5	87	187	45			
6 x 4	5.94	3.94	15.88	18	5.12	5.43	9.37	219	15.88	18	5.22	5.94	8.86	154	15.88	18	6.10	5.04	8.43	201			
150 x 100	150	100	403	457	130	138	238	99	403	457	132.5	151	225	70	403	457	155	128	214	91			
8 x 6	7.94	5.94	19.75	20.5	10.16	7.95	12.01	595	19.75	20.5	8.50	8.46	13.46	287	19.75	20.5	10.00	9.27	12.13	443			
200 x 150	201	150	502	521	258	202	305	270	502	521	216	215	342	130	502	521	254	235.5	308	201			
10 x 8	9.94	7.94	22.38	22	11.89	9.82	16.30	800	22.38	22	10.79	10.81	16.54	568	22.38	22	12.26	10.87	14.65	500			
250 x 200	252	201	568	559	302	249.5	414	363	568	559	274	274.5	420	258	568	559	311.5	276	372	227			
12 x 10	11.94	9.94	25.5	25	13.76	11.36	18.98	1527	25.5	25	13.09	14.31	20.00	778	25.5	25	14.17	12.42	17.80	720			
300 x 250	303	252	648	635	349.5	288.5	482	693	648	635	332.5	363.5	508	353	648	635	360	315.5	452	327			
14 x 12	13.19	11.94	30	30	15.33	13.41	21.85	1911	30	30	14.67	15.89	23.23	1195	30	30	16.54	14.31	20.75	1080			
350 x 300	334	303	762	762	389.5	340.5	555	867	762	762	372.5	403.5	590	542	762	762	420	363.5	527	490			
16 x 14	15.19	13.19	33	33	16.06	14.23	23.50	2892	33	33	15.87	17.19	25.00	1636	33	33	18.11	15.20	22.44	1653			
400 x 350	385	334	838	838	408	361.5	597	1312	838	838	403	436.5	635	742	838	838	460	386	570	750			
20 x 16	19.19	15.19	36	36	18.03	16.00	27.09	4310	36	36	17.60	18.54	28.94	2802	36	36	18.90	17.01	25.63	2667			
500 x 400	487	385	914	914	458	406.5	688	1955	914	914	447	471	735	1271	914	914	480	432	651	1210			
20 x 18	19.19	17.19	39	39	20.00	17.54	30.04	5611	39	39	20.35	21.10	32.40	2877	39	39	19.61	18.68	28.90	3245			
500 x 450	487	436	991	991	508	445.5	763	2500	991	991	517	536	823	1305	991	991	498	474.5	734	1472			
24 x 20	23.19	19.19	45	45	21.18	18.92	33.35	6288	45	45	21.97	23.58	35.63	4084	45	45	22.05	20.73	32.01	4566			
600 x 500	589	487	1143	1143	538	480.5	847	2852	1143	1143	558	599	905	1852	1143	1143	560	526.5	813	2066			
28 x 24	26.94	23.19	53	53	24.78	22.72	39.33	9176	53	53	25.43	27.24	40.75	6508	53	53	25.35	24.17	38.19	7255			
700 x 600	684	589	1346	1346	629.5	577	999	4162	1346	1346	646	692	1035	2952	1346	1346	644	614	970	3291			
32 x 28	30.69	26.94	60	60	28.54	25.93	45.83	12562	60	60	29.65	31.20	45.47	8166	60	60	30.71	27.48	44.33	12181			
800 x 700	779	684	1524	1524	725	658.5	1164	5698	1524	1524	753	792.5	1155	3704	1524	1524	780	698	1126	5525			
36 x 30	34.44	28.94	68	68	29.57	27.48	48.62	16336	68	68	30.16	31.61	48.62	11435	68	68	31.61	29.65	47.44	14617			
900 x 750	874	735	1727	1727	751	698	1235	7410	1727	1727	766	803	1235	5187	1727	1727	803	753	1205	6630			
36 x 32	34.44	30.69	68	68	32.68	29.19	52.01	18093	68	68	33.70	34.69	52.56	12663	68	68	32.48	30.53	50.28	16702			
900 x 800	874	779	1727	1727	830	741.5	1321	8207	1727	1727	856	881	1335	5744	1727	1727	825	775.5	1277	7576			
40 x 36	38.44	34.44	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ			
1000 x 900	976	874	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ	Ⓣ			



# DIMENSIONS & WEIGHTS



T10 Series

T11 Series

T20 Series

## ASME CLASS 600 FULL BORE

ALL TYPES			T10 Series								T11 Series								T20 Series							
Size NPS/DN	A	B	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg			
1-1/2	1.5	1.5	9.49	9.49	9.49	3.41	3.98	6.14	40	9.49	9.49	9.49	3.41	3.98	5.31	29	9.49	9.49	9.49	3.27	2.42	5.51	24			
40	38	38	241	241	241	86.5	101	156	18	241	241	241	86.5	101	135	13	241	241	241	83	61.5	140	11			
2	1.94	1.94	11.5	11.5	11.63	3.78	3.72	6.30	69	11.5	11.5	11.63	4.15	4.72	5.98	43	11.5	11.5	11.63	3.23	4.29	5.04	39			
50	49	49	292	292	295	96	94.5	160	32	292	292	295	105.5	120	152	20	292	292	295	82	109	128	18			
3	2.94	2.94	14	14	14.13	4.88	4.82	7.87	85	14	14	14.13	5.59	6.48	8.86	95	14	14	14.13	4.45	6.08	6.89	108			
80	74	74	358	356	359	124	122.5	200	39	356	356	359	142	164	225	43	356	356	359	113	154.5	175	48			
4	3.94	3.94	17	17	17.13	7.28	6.87	9.78	298	17	17	17.13	7.09	7.42	10.63	143	17	17	17.13	7.09	7.17	9.41	198			
100	100	100	432	432	435	185	174.5	248	135	432	432	435	180	188.5	270	65	432	432	435	180	182	239	90			
6	5.94	5.94	22	22	22.13	10.43	8.35	12.95	558	22	22	22.13	9.80	10.35	14.65	425	22	22	22.13	10.16	9.70	12.58	522			
150	150	150	559	559	562	265	212	329	253	559	559	562	249	263	372	193	559	559	562	258	246.5	319	237			
8	7.94	7.94	26	26	26.13	12.40	10.39	16.06	1337	26	26	26.13	12.46	12.76	18.50	688	26	26	26.13	12.54	11.73	15.75	547			
200	201	201	660	660	664	315	264	408	607	660	660	664	316.5	324	470	312	660	660	664	318.5	298	400	248			
10	9.94	9.94	31	31	31.13	13.98	12.01	19.37	1425	31	31	31.13	14.65	14.74	20.67	1239	31	31	31.13	14.88	13.90	19.61	741			
250	252	252	787	787	791	355	305	492	847	787	787	791	372	374.5	525	582	787	787	791	378	353	498	338			
12	11.94	11.94	33	33	33.13	15.75	13.70	22.68	2083	33	33	33.13	15.49	16.87	24.02	1688	33	33	33.13	16.54	14.80	21.28	1139			
300	303	303	838	838	841	400	348	576	945	838	838	841	393.5	423.5	610	765	838	838	841	420	376	540	517			
14	13.19	13.19	35	35	35.13	16.54	14.63	24.92	3185	35	35	35.13	17.52	18.07	25.67	2370	35	35	35.13	17.32	16.06	24.09	1746			
350	334	334	889	889	892	420	371.5	633	1445	889	889	892	445	459	652	1075	889	889	892	440	408	612	792			
16	15.19	15.19	39	39	39.13	19.09	16.38	28.27	4194	39	39	39.13	19.33	20.39	29.33	3202	39	39	39.13	18.90	18.13	27.05	2466			
400	385	385	991	991	994	485	416	718	1903	991	991	994	491	518	745	1452	991	991	994	480	460.5	687	1118			
18	17.19	17.19	43	43	43.13	20.87	18.74	32.09	6214	43	43	43.13	22.62	23.88	33.82	4406	43	43	43.13	19.49	20.12	30.08	3608			
450	436	436	1092	1092	1095	530	476	815	2819	1092	1092	1095	534.5	606.5	859	1999	1092	1092	1095	495	511	764	1637			
20	19.19	19.19	47	47	47.25	22.64	20.43	35.28	8608	47	47	47.25	23.92	25.22	36.22	8220	47	47	47.25	21.89	21.85	33.46	4675			
500	487	487	1194	1194	1200	575	519	896	2952	1194	1194	1200	607.5	640.5	920	3729	1194	1194	1200	556	555	850	2121			
22	21.19	21.19	50.98	50.98	51.38	24.11	21.95	38.66	8338	50.98	50.98	51.38	24.84	26.77	39.06	5836	50.98	50.98	51.38	22.95	22.87	35.55	6173			
550	536	536	1295	1295	1305	612.5	557.5	982	3782	1295	1295	1305	631	680	992	2647	1295	1295	1305	583	581	903	2800			
24	23.19	23.19	55	55	55.38	25.89	23.96	42.17	9333	55	55	55.38	28.80	30.49	42.52	4483	55	55	55.38	27.17	25.35	39.96	7585			
600	589	589	1397	1397	1407	657.5	608.5	1071	4234	1397	1397	1407	731.5	774.5	1080	2034	1397	1397	1407	690	644	1015	3441			
26	26.94	26.94	61	61	61.5	28.86	26.99	48.43	13687	61	61	61.5	33.86	35.43	53.15	11758	61	61	61.5	30.71	28.70	46.93	11538			
700	684	684	1549	1549	1562	733	685.5	1230	8014	1549	1549	1562	860	900	1350	5334	1549	1549	1562	780	729	1192	5234			
30	28.94	28.94	65	65	65.5	30.91	28.74	51.18	19760	65	65	65.5	36.14	36.77	55.79	13832	65	65	65.5	31.89	30.47	49.88	13816			
750	735	735	1651	1651	1664	785	730	1300	8983	1651	1651	1664	918	934	1417	6274	1651	1651	1664	810	774	1267	6176			
32	30.69	30.69	70	70	70.63	37.01	31.00	56.10	23614	70	70	70.63	39.43	40.57	59.89	18499	70	70	70.63	33.86	32.03	52.52	15783			
800	779	779	1778	1778	1794	940	787.5	1425	10711	1778	1778	1794	1001.5	1030.5	1516	8391	1778	1778	1794	860	813.5	1334	7159			
36	34.44	34.44	82	82	82.63	39.37	35.20	61.97	31367	82	82	82.63	40.55	42.24	66.30	21958	82	82	82.63	36.22	35.28	58.19	21164			
90	87.44	87.4	2083	2083	2099	1000	894	1574	14228	2083	2083	2099	1030	1073	1684	9960	2083	2083	2099	920	896	1478	9600			
40	38.44	38.44	82.68	82.68	①	41.73	38.27	68.19	44463	①	①	①	①	①	①	①	70.59	①	①	37.80	38.50	64.65	29749			
1000	976	976	2100	2100	①	1060	927	1732	20168	①	①	①	①	①	①	①	1793	①	①	960	978	1642	13494			
48	45.94	45.94	94.49	94.49	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	46.46	44.41	75.91	49053			
1200	1166	1166	2400	2400	①	①	①	①	①	①	①	①	①	①	①	①	2100	①	①	1180	1128	1928	22250			
56	53.56	53.56	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①			
1400	1360	1360	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①			



## T20 Series

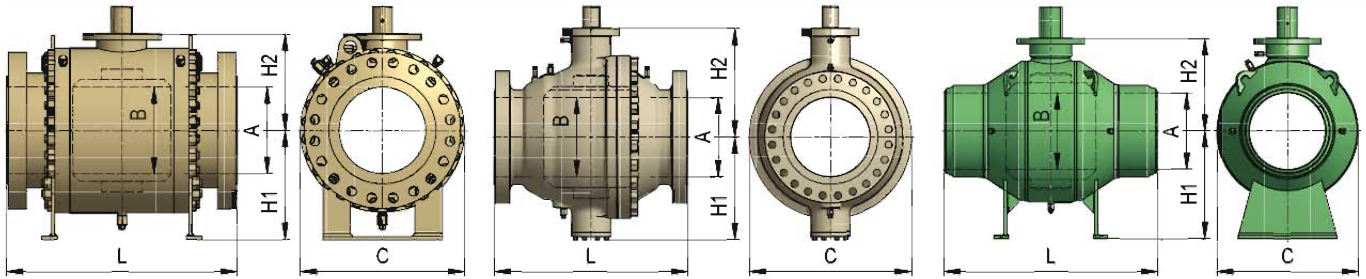
ALL TYPES			T10 Series							T11 Series							T20 Series						
Size NPS/DN	A	B	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg
1-1/2	1.5	1.5	12	12	12	4.17	3.90	5.91	79	12	12	12	5.47	8.27	5.20	57	12	12	12	2.76	4.80	5.51	36
40	38	38	305	305	305	106	99	150	36	305	305	305	139	210	132	26	305	305	305	70	122	140	17
2	1.94	1.94	14.5	14.5	14.63	5.08	5.22	8.31	112	14.5	14.5	14.63	4.29	5.47	8.50	79	14.5	14.5	14.63	3.25	5.75	6.50	85
50	49	49	368	368	371	129	132.5	211	51	368	368	371	109	139	165	36	368	368	371	82.5	146	165	39
3	2.94	2.94	15	15	15.13	4.92	5.96	8.46	146	15	15	15.13	6.34	6.91	10.04	104	15	15	15.13	4.45	6.08	7.56	135
80	74	74	381	381	384	125	151.5	215	66	381	381	384	161	175.5	255	47	381	381	384	113	154.5	192	61
4	3.94	3.94	18	18	18.13	7.87	7.38	10.83	381	18	18	18.13	7.28	8.82	11.22	267	18	18	18.13	7.09	8.25	9.88	227
100	100	100	457	457	460	200	187.5	275	173	457	457	460	185	224	285	121	457	457	460	180	209.5	251	103
6	5.94	5.94	24	24	24.13	11.02	8.82	13.58	597	24	24	24.13	10.10	10.91	14.29	419	24	24	24.13	10.16	9.70	12.58	643
150	150	150	810	810	813	280	224	345	271	810	810	813	258.5	277	363	190	810	810	813	258	246.5	319	292
8	7.94	7.94	29	29	29.13	13.98	11.30	17.32	1239	29	29	29.13	12.68	13.19	19.29	886	29	29	29.13	12.40	11.73	18.08	681
200	201	201	737	737	740	355	287	440	562	737	737	740	322	335	490	393	737	737	740	315	298	408	309
10	9.94	9.94	33	33	33.13	15.55	12.93	20.55	2083	33	33	33.13	15.47	16.34	21.26	1459	33	33	33.13	14.96	13.68	19.53	913
250	252	252	838	838	841	395	328.5	522	945	838	838	841	393	415	540	662	838	838	841	380	347.5	496	414
12	11.94	11.94	38	38	38.13	17.72	15.04	24.49	3092	38	38	38.13	13.07	15.22	24.61	2165	38	38	38.13	16.73	15.94	22.64	1404
300	303	303	965	965	968	450	382	622	1403	965	965	968	332	386.5	625	962	965	965	968	425	405	575	637
14	12.69	12.69	40.5	40.5	40.88	18.90	18.14	26.85	3882	40.5	40.5	40.88	18.03	19.47	28.38	2703	40.5	40.5	40.88	18.11	18.87	24.49	2138
350	322	322	1029	1029	1038	480	410	682	1752	1029	1029	1038	458	494.5	670	1226	1029	1029	1038	460	428.5	622	970
16	14.69	14.69	44.5	44.5	44.88	20.47	17.91	30.12	5071	44.5	44.5	44.88	21.18	22.60	30.51	3549	4						

ALL TYPES			T10 Series								T11 Series								T20 Series							
Size NPS/DN	A	B	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg			
2 x 1-1/2	1.94	1.5	14.5	14.5	14.63	4.17	3.90	5.91	97	14.5	14.5	14.63	4.17	8.27	5.20	68	14.5	14.5	14.63	7.70	4.80	5.51	126			
50 x 40	49	38	368	368	371	108	99	150	44	368	368	371	139	210	132	31	368	368	371	20	122	140	57			
3 x 2	2.94	1.94	15	15	15.13	5.08	5.22	8.31	123	15	15	15.13	4.29	5.47	6.50	88	15	15	15.13	3.25	5.75	6.50	148			
80 x 50	74	49	381	381	384	129	132.5	211	58	381	381	384	109	139	165	40	381	381	384	82.5	146	165	67			
4 x 3	3.94	2.94	18	18	18.13	4.92	5.96	8.46	223	18	18	18.13	6.34	6.91	10.04	157	18	18	18.13	4.45	6.08	7.56	174			
100 x 80	100	74	457	457	460	126	151.5	215	101	457	457	460	161	175.5	255	71	457	457	460	113	154.5	192	79			
6 x 4	5.94	3.94	24	24	24.13	7.87	7.38	10.83	483	24	24	24.13	7.88	8.82	11.22	337	24	24	24.13	7.09	8.25	9.88	335			
150 x 100	150	100	610	610	613	200	187.5	275	219	610	610	613	185	224	285	153	610	610	613	180	209.5	251	152			
8 x 6	7.94	5.94	29	29	29.13	11.02	8.82	13.58	1036	29	29	29.13	10.10	10.91	14.29	725	29	29	29.13	10.16	9.70	12.56	661			
200 x 150	201	150	737	737	740	280	224	345	470	737	737	740	256.5	277	363	329	737	737	740	258	246.5	319	300			
10 x 8	9.94	7.94	33	33	33.13	13.98	11.30	17.32	1627	33	33	33.13	12.68	13.19	19.29	1140	33	33	33.13	12.40	11.73	16.06	692			
250 x 200	252	201	838	838	841	355	287	440	738	838	838	841	322	335	490	517	838	838	841	315	298	408	314			
12 x 10	11.94	9.94	38	38	38.13	15.55	12.93	20.55	2725	38	38	38.13	15.47	16.34	21.26	1907	38	38	38.13	14.96	13.68	19.53	1071			
300 x 250	303	252	965	965	968	395	328.5	522	1236	965	965	968	393	415	540	865	965	965	968	380	347.5	496	486			
14 x 12	12.69	11.94	40.5	40.5	40.88	17.72	15.04	24.49	3795	40.5	40.5	40.88	13.07	15.22	24.61	2650	40.5	40.5	40.88	16.73	15.94	22.64	1620			
350 x 300	322	303	1029	1029	1038	450	382	622	1717	1029	1029	1038	332	386.5	625	1202	1029	1029	1038	425	405	575	735			
16 x 14	14.69	12.69	44.5	44.5	44.88	18.90	16.14	26.85	4010	44.5	44.5	44.88	18.03	19.47	26.38	2806	44.5	44.5	44.88	18.11	16.87	24.49	2482			
400 x 350	373	322	1130	1130	1140	480	410	682	1819	1130	1130	1140	458	494.5	670	1273	1130	1130	1140	460	428.5	622	1126			
20 x 16	16.69	14.69	48	48	4																					

\* Weight figures are relevant to flanged end valves. ①Please consult the factory.  
Note: For dimensions & weights in larger sizes consult the factory.  
Dimensions and weights are subject to change without notice.  
Face to face dimensions not listed in industry standards are subject to change without notice.



# DIMENSIONS & WEIGHTS



T10 Series

T11 Series

T20 Series

## ASME CLASS 1500 FULL BORE

ALL TYPES			T10 Series								T11 Series								T20 Series							
Size NPS/DN	A	B	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg			
1-1/2 40	1.5 38	1.5 38	①	①	①	4.17 106	3.90 99	5.91 150	①	10.04 255	10.04 255	10.04 255	5.18 131.5	5.41 137.5	7.87 200	79 36	①	①	①	①	①	①	①			
2	1.94 50	1.94 49	14.5 368	14.5 368	14.63 371	5.08 129	5.22 132.5	8.31 211	117 53	14.5 388	14.5 368	14.63 371	4.33 110	5.47 139	6.50 165	88 40	14.5 388	14.5 368	14.63 371	3.60 91.5	5.75 146	6.50 165	73 33			
3	2.94 80	2.94 74	18.5 470	18.5 470	18.63 473	5.63 143	6.42 163	9.13 232	229 104	18.5 470	18.5 470	18.63 473	7.26 184.5	8.88 225.5	10.83 275	161 73	18.5 470	18.5 470	18.63 473	3.86 98	6.50 165	8.15 207	143 65			
4	3.94 100	3.94 100	21.5 546	21.5 546	21.63 549	6.68 220	8.03 204	11.81 295	467 212	21.5 546	21.5 546	21.63 549	8.50 216	9.80 249	12.99 330	326 148	21.5 546	21.5 546	21.63 549	7.09 180	8.50 216	10.67 271	293 133			
6	5.69 150	5.69 144	27.75 705	27.75 705	28 711	10.24 260	10.51 267	15.75 400	1133 514	27.75 705	27.75 705	28 711	11.22 285	11.46 291	15.75 400	794 360	27.75 705	27.75 705	28 711	10.16 258	10.39 264	13.54 344	708 321			
8	7.56 200	7.56 192	32.75 832	32.75 832	33.13 841	11.42 290	12.09 307	18.50 470	1845 837	32.75 832	32.75 832	33.13 841	13.58 345	13.93 388.5	19.29 490	1292 586	32.75 832	32.75 832	33.13 841	12.40 315	12.99 330	17.32 440	1025 465			
10	9.44 250	9.44 239	39 991	39 991	39.38 1000	15.91 404	15.43 392	23.74 603	3538 1605	39 991	39 991	39.38 1000	17.01 432	17.83 453	24.80 630	2478 1124	39 991	39 991	39.38 1000	14.96 360	15.83 402	21.10 536	1962 890			
12	11.31 300	11.31 287	44.5 1130	44.5 1130	45.13 1146	19.76 502	17.36 441	28.15 715	5357 2430	44.5 1130	44.5 1130	45.13 1146	45.13 432.5	45.13 453	45.13 630	3750 1701	44.5 1130	44.5 1130	45.13 1146	16.73 425	18.35 466	24.45 621	3150 1429			
14	12.44 350	12.44 315	49.5 1257	49.5 1257	50.25 1276	510 510	20.08 467	18.39 788	31.02 3050	49.5 1257	49.5 1257	50.25 1276	45.13 493	45.13 529	45.13 741	4707 2135	49.5 1257	49.5 1257	50.25 1276	①	①	①	①			
16	14.19 400	14.19 360	54.5 1384	54.5 1384	55.38 1407	22.32 567	20.08 510	34.06 865	9601 4355	54.5 1384	54.5 1384	55.38 1407	45.13 592	45.13 622	45.13 856	6722 3049	54.5 1384	54.5 1384	55.38 1407	①	①	①	①			
18	16 450	16 406	60.5 1537	①	61.38 1559	25.63 651	23.70 602	37.40 950	14614 6629	60.5 1537	①	61.38 1559	45.13 704	45.13 734	45.13 1000	10229 4640	①	①	①	①	①	①	①			
20	17.88 500	17.88 454	65.5 1664	①	66.38 1686	29.21 742	26.69 678	40.75 1035	21407 9710	65.5 1664	①	66.38 1686	45.13 757	45.13 827	45.13 1056	14985 6797	①	①	①	①	①	①	①			
24	21.5 600	21.5 546	①	①	77.63 1972	32.48 825	29.13 740	49.21 1250	33684 15279	①	①	77.63 1972	45.13 842	45.13 903	45.13 1263	23578 10695	①	①	①	①	①	①	①			

## ASME CLASS 1500 REDUCED BORE

ALL TYPES			T10 Series										T11 Series										T20 Series									
Size NPS/DN	A	B	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg	L-RF	L-BW	L-RJ	H1	H2	C	Weight* lb/kg		
2 x 1-1/2	1.94	1.5	①	①	①	4.17	3.90	5.91	97	14.5	14.5	14.63	5.18	5.41	7.87	84	①	①	①	①	①	①	①	①	①	①	①	①	①	①		
50 x 40	49	38				108	99	150	44	368	368	373	131.5	137.5	200	38				3.80	5.75	6.50	101				3.80	5.75	6.50	101		
3 x 2	2.94	1.94	18.5	18.5	18.63	5.08	5.22	8.31	161	18.5	18.5	18.63	4.33	5.47	6.50	112	18.5	18.5	18.63	3.80	5.75	6.50	101				3.80	5.75	6.50	101		
80 x 50	74	49	470	470	473	129	132.5	211	73	470	470	473	110	139	165	51	470	470	473	91.5	148	165	46				91.5	148	165	46		
4 x 3	3.94	2.94	21.5	21.5	21.63	5.83	6.42	9.13	289	21.5	21.5	21.63	7.26	8.88	10.83	203	21.5	21.5	21.63	3.86	6.50	8.15	181				3.86	6.50	8.15	181		
100 x 80	100	74	546	546	549	143	163	232	131	546	546	549	184.5	225.5	275	92	546	546	549	98	165	207	82				98	165	207	82		
6 x 4	5.69	3.94	27.75	27.75	28	8.66	8.03	11.81	672	27.75	27.75	28	8.50	9.80	12.99	472	27.75	27.75	28	7.09	8.50	10.67	421				7.09	8.50	10.67	421		
150 x 100	144	100	705	705	711	220	204	295	305	705	705	711	216	249	330	214	705	705	711	180	216	271	191				180	216	271	191		
8 x 6	7.58	5.69	32.75	32.75	33.13	10.24	10.51	15.75	1338	32.75	32.75	33.13	11.22	11.46	15.75	935	32.75	32.75	33.13	10.16	10.39	13.54	838				10.16	10.39	13.54	838		
200 x 150	192	144	832	832	841	260	267	400	606	832	832	841	285	291	400	424	832	832	841	258	264	344	379				258	264	344	379		
10 x 8	9.44	7.56	39	39	39.38	11.42	12.09	18.50	2412	39	39	39.38	13.58	13.33	19.29	1689	39	39	39.38	12.40	12.99	17.32	1508				12.40	12.99	17.32	1508		
250 x 200	239	192	991	991	1000	290	307	470	1094	991	991	1000	345	338.5	490	766	991	991	1000	315	330	440	684				315	330	440	684		
12 x 10	11.31	9.44	44.5	44.5	45.13	15.91	15.43	23.74	4151	44.5	44.5	45.13	17.01	17.83	24.80	2906	44.5	44.5	45.13	14.96	15.83	21.10	2593				14.96	15.83	21.10	2593		
300 x 250	287	239	1130	1130	1146	404	392	603	1883	1130	1130	1146	432	453	630	1318	1130	1130	1146	380	402	536	1176				380	402	536	1176		
14 x 12	12.44	11.31	49.5	49.5	50.25	19.76	17.36	28.15	5897	49.5	49.5	50.25	45.13	45.13	630	1419	49.5	49.5	50.25	16.73	18.35	24.45	3686				16.73	18.35	24.45	3686		
350 x 300	315	287	1257	1257	1276	502	441	715	2675	1257	1257	1276	432.5	453	630	1873	1257	1257	1276	425	466	621	1672				425	466	621	1672		
16 x 14	14.19	12.44	54.5	54.5	55.38	20.08	18.39	31.02	7654	54.5	54.5	55.38	45.13	45.13	630	1587	54.5	54.5	55.38													
400 x 350	360	315	1384	1384	1407	510	467	788	3472	1384	1384	1407	493	529	741	2430	1384	1384	1407	①	①	①	①				①	①	①	①		
20 x 16	17.88	14.19	65.5	65.5	66.38	22.32	20.08	34.06	12112	65.5	65.5	66.38	45.13	45.13	630	1879	65.5	65.5	66.38	①	①	①	①				①	①	①	①		
500 x 400	454	360	1684	1684	1686	567	510	865	5494	1684	1684	1686	592	622	856	3846	1684	1684	1686	①	①	①	①				①	①	①	①		
20 x 18	17.88	16	65.5	65.5	66.38	25.63	23.70	37.40	17629	65.5	65.5	66.38	45.13	45.13	630	12386	65.5	65.5	66.38	①	①	①	①				①	①	①	①		
500 x 450	454	406	1684	1684	1686	651	602	950	8095	1684	1684	1686	704	734	1000	5618	1684	1684	1686	①	①	①	①				①	①	①	①		
24 x 20	21.5	17.88	①	①	①	77.63	29.21	26.69	40.75	25653	①	①	77.63	45.13	45.13	17957	①	①	①	①	①	①	①				①	①	①	①		
600 x 500	546	454	①	①	①	1972	742	788	1035	11636	①	①	1972	757	827	1056	8145	①	①	①	①	①	①				①	①	①	①		



Technical drawings of the 1000 series ball valve in closed position, showing front and side views with dimensions A, B, C, H1, and H2.

## T71 Series

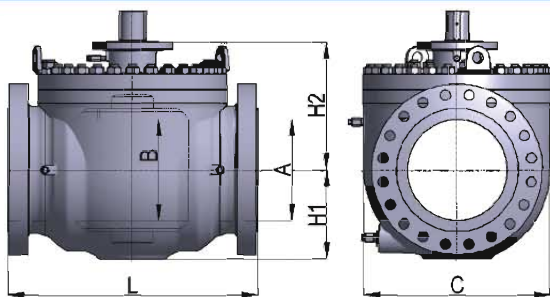
ALL TYPES					ASME CLASS 150									ASME CLASS 300									ASME CLASS 600								
					T70 Series			T71 Series			T70 Series			T71 Series			T70 Series			T71 Series											
Size	A	B	L-RF	L-BW	H1	H2	C	Weight* lb/kg	H1	H2	C	Weight* lb/kg	H1	H2	C	Weight* lb/kg	H1	H2	C	Weight* lb/kg	H1	H2	C	Weight* lb/kg	H1	H2	C	Weight* lb/kg			
NPS/DN																															
2	1.94	1.94	11.5	11.5	4.37	4.74	5	71	4.37	4.74	6	90	4.37	4.74	5	84	4.37	4.74	6	107	4.84	4.96	5	95	4.84	4.96	7	121			
50	49	49	292	292	111	120.5	119	32	111	120.5	150	41	111	120.5	119	38	111	120.5	150	49	123	128	130	43	123	128	168	55			
3	2.94	2.94	14	14	5.18	5.71	6	132	5.18	5.71	8	171	5.18	5.71	6	148	5.18	5.71	8	191	5.81	6.14	7	157	5.81	6.14	8	202			
80	74	74	356	356	131.5	145	159	60	131.5	145	195	77	131.5	145	159	87	131.5	145	195	86	147.5	156	173	71	147.5	156	210	92			
4	3.94	3.94	17	17	6.08	6.57	8	234	6.08	6.57	9	299	6.08	6.57	8	247	6.08	6.57	9	318	6.99	7.56	8	258	6.99	7.56	10	330			
100	100	100	432	432	154.5	167	199	106	154.5	167	205	136	154.5	167	199	112	154.5	167	235	143	177.5	192	210	117	177.5	192	255	150			
6	5.94	5.94	22	22	7.85	8.54	11	503	7.85	8.54	12	653	7.85	8.54	11	516	7.85	8.54	12	671	9.53	10.67	11	529	9.53	10.67	14	688			
150	150	150	559	559	199.5	217	280	228	199.5	217	312	296	199.5	217	280	224	199.5	217	312	304	242	271	292	240	242	271	350	312			
8	7.94	7.94	26	26	10.06	10.98	14	950	10.06	10.98	16	1216	10.06	10.98	14	963	10.06	10.98	16	1233	12.20	12.76	15	974	12.20	12.76	17	1247			
200	201	201	660	660	255.5	279	361	431	255.5	279	410	552	255.5	279	361	437	255.5	279	410	559	310	324	378	442	310	324	435	566			
10	9.94	9.94	31	31	12.50	13.31	17	1310	12.50	13.31	19	1689	12.50	13.31	17	1323	12.50	13.31	19	1706	14.29	15.12	18	1332	14.29	15.12	21	1718			
250	252	252	787	787	317.5	338	440	594	317.5	338	485	766	317.5	338	440	600	317.5	338	485	746	363	384	462	604	363	384	522	779			
12	11.94	11.94	33	33	13.01	14.69	20	1660	10.61	14.69	22	2158	10.61	14.69	20	1671	10.61	14.69	22	2172	12.09	16.73	23	1682	12.09	16.73	24	2187			
300	303	303	838	838	269.5	373	508	753	269.5	373	558	979	269.5	373	508	758	269.5	373	558	985	307	425	594	763	307	425	605	992			
14	13.19	13.19	35	35	13.07	16.67	24	1777	13.07	16.67	25	2292	13.07	16.67	24	1790	13.07	16.67	25	2309	13.07	16.67</									

ALL TYPES					ASME CLASS 150							ASME CLASS 300							ASME CLASS 600									
					T70 Series				T71 Series			T70 Series			T71 Series				T70 Series			T71 Series						
Size	A	B	L-RF	L-BW	H1	H2	C	Weight*	H1	H2	C	Weight*	H1	H2	C	Weight*	H1	H2	C	Weight*	H1	H2	C	Weight*	H1	H2	C	Weight*
NPS/DN								lb/kg				lb/kg				lb/kg				lb/kg				lb/kg				lb/kg
3 × 2	2.94	1.94	14	14	4.37	4.74	5	79	4.37	4.74	6	102	4.37	4.74	5	99	4.37	4.74	6	127	4.84	4.96	5	108	4.84	4.96	7	136
80 × 50	74	49	356	356	111	120.5	119	36	111	120.5	150	46	111	120.5	119	45	111	120.5	150	58	123	126	130	49	123	126	168	63
4 × 3	2.94	1.94	17	17	5.18	5.71	6	163	5.18	5.71	8	210	5.18	5.71	6	192	5.18	5.71	8	247	5.81	6.14	7	220	5.81	6.14	8	284
100 × 80	100	74	432	432	131.15	145	159	74	131.15	145	195	95	131.15	145	159	87	131.15	145	195	112	147.5	156	173	100	147.5	156	210	129
6 × 4	5.94	3.94	22	22	6.08	6.57	8	304	6.08	6.57	9	389	6.08	6.57	8	377	6.08	6.57	9	483	6.99	7.56	8	357	6.99	7.56	10	457
150 × 100	150	100	559	559	154.5	167	199	138	154.5	167	235	177	154.5	167	199	171	154.5	167	235	219	177.5	192	210	162	177.5	192	255	207
8 × 6	7.94	5.94	26	26	7.85	8.54	11	584	7.85	8.54	12	759	7.85	8.54	11	666	7.85	8.54	12	866	9.53	10.67	11	743	9.53	10.67	14	966
200 × 150	201	150	660	660	199.5	217	280	265	199.5	217	312	345	199.5	217	280	302	199.5	217	312	393	242	271	292	337	242	271	350	438
10 × 8	9.94	7.94	31	31	10.06	10.98	14	1063	10.06	10.98	16	1360	10.06	10.98	14	1252	10.06	10.98	16	1603	12.20	12.76	15	1402	12.20	12.76	17	1795
250 × 200	252	201	787	787	255.5	279	361	482	255.5	279	410	617	255.5	279	361	566	255.5	279	410	727	310	324	378	638	310	324	435	814
12 × 10	11.94	9.94	33	33	12.30	13.31	17	1263	12.30	13.31	19	1630	12.30	13.31	17	1336	12.30	13.31	19	1710	14.29	15.12	18	1497	14.29	15.12	21	1916
300 × 250	303	252	838	838	317.5	338	440	573	317.5	338	485	739	317.5	338	440	606	317.5	338	485	776	363	384	462	679	363	384	522	869
14 × 12	13.19	11.94	35	35	13.61	14.69	20	1561	13.61	14.69	22	2029	13.61	14.69	20	2141	13.61	14.69	22	2761	12.09	16.73	23	2399	12.09	16.73	24	3070
350 × 300	334	303	889	889	269.5	273	508	700	269.5	273	558	920	269.5	273	508	971	269.5	273	558	1253	307	425	594	1088	307	425	605	1393
16 × 14	15.19	13.19	39	39	13.07	16.67	24	2121	13.07	16.67	25	2736	13.07	16.67	24	2560												

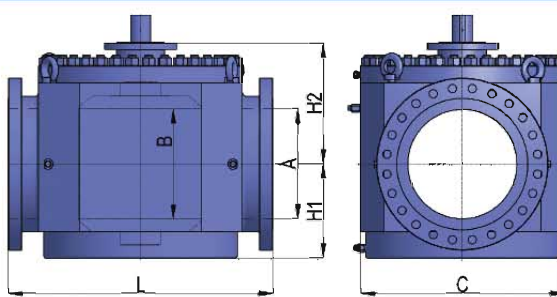
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# DIMENSIONS & WEIGHTS



T70 Series



T71 Series

## ASME CLASS 900 FULL BORE

Size NPS/DN	ALL TYPES					T70 Series			T71 Series		
	A	B	L-RF	L-BW	L-RJ	H1	H2	C	H1	H2	C
2	1.94	1.94	14.5	14.5	14.63	6.42	6.71	6	6.42	6.71	7.68
50	49	49	368	368	371	163	170.5	152	163	170.5	195
80	74	74	381	381	384	164	209	188	184	209	224
4	3.94	3.94	18	18	18.13	7.91	8.94	9	7.91	8.94	10.43
100	100	100	457	457	460	201	227	228	201	227	265
6	5.94	5.94	24	24	24.13	11.81	11.77	12	11.81	11.77	13.70
150	150	150	610	610	613	300	299	304	300	299	348
8	7.94	7.94	29	29	29.13	12.20	13.07	16	12.20	13.07	17.72
200	201	201	737	737	740	310	332	400	310	332	450
10	9.94	9.94	33	33	33.13	12	16	19	12	16	20.75
250	252	252	838	838	841	312	406	487	312	406	527
12	11.94	11.94	38	38	38.13	13	18	21	13	18	23.74
300	303	303	965	965	968	322	446	535	322	446	603
14	12.69	12.69	40.5	40.5	40.88	12.91	17.72	24	12.91	17.72	27.48
350	322	322	1029	1029	1038	328	450	606	328	450	698
16	14.69	14.69	44.5	44.5	44.88	14.27	19.69	27	14.27	19.69	30.12
400	373	373	1130	1130	1140	362.5	500	696	362.5	500	765
18	16.69	16.69	48	48	48.5	15.81	21.10	31	15.81	21.10	33.07
450	423	423	1219	1219	1232	401.5	536	778	401.5	536	840
20	18.56	18.56	52	52	52.5	18	24	34	18	24	34
500	471	471	1321	1321	1334	450	622	872	429.5	527.5	900
22	22.44	22.44	61	61	61.75	22	28	43	22	28	44.21
550	522	522	1549	1549	1568	562	718	1091	562	718	1123
24	22.44	22.44	61	61	61.75	22	28	43	22	28	44.21
600	570	570	1549	1549	1568	562	718	1091	562	718	1123
26	26.19	26.19	66.5	66.5	66.5	26	32	47	26	32	47
700	665	665	1619	1619	1638	619	791	1183	619	791	1275
32	29.94	29.94	70	70	70.13	29	36	53	29	36	53
800	760	760	1679	1679	1698	679	861	1271	679	861	1363
36	33.69	33.69	90	90	91.13	36	45	68	36	45	68
900	855	855	1786	1786	1805	855	1087	1611	855	1087	1703

## ASME CLASS 1500 FULL BORE

Size NPS/DN	ALL TYPES					T70 Series			T71 Series		
	A	B	L-RF	L-BW	L-RJ	H1	H2	C	H1	H2	C
2	1.94	1.94	14.5	14.5	14.63	6.42	6.71	6	6.42	6.71	7.68
50	49	49	368	368	371	163	170.5	152	163	170.5	195
80	74	74	470	470	473	200	229.5	202	164	120	156
4	3.94	3.94	21.5	21.5	21.63	9.67	10.35	10	9.67	10.35	12
100	100	100	546	546	549	245.5	263	248	297	245.5	263
6	5.69	5.69	27.75	27.75	28	12.95	12.95	13	1415	12.95	15
150	144	144	705	705	711	329	329	338	642	329	338
8	7.56	7.56	32.75	32.75	33.13	14	15	17	2595	14	15
200	192	192	832	832	841	350	382	420	1177	350	382
10	9.44	9.44	39	39	39.38	15	17	20	3393	15	17
250	239	239	991	991	1000	392	424	509	1539	392	424
12	11.31	11.31	44.5	44.5	45.13	16	18	24	4758	16	18
300	287	287	1130	1130	1146	404	466	606	2158	404	466
14	12.44	12.44	49.5	49.5	50.25	15	20	26	6162	15	20
350	315	315	1257	1257	1276	385	503	654	2795	385	503
16	14.19	14.19	54.5	54.5	55.38	16	22	29	9178	16	22
400	360	360	1384	1384	1407	403	558	725	4163	403	558
18	16	16	60.5	60.5	61.38	17	24	33	12031	17	24
450	406	406	1537	1537	1559	441	616	838	5457	441	616
20	17.88	17.88	65.5	65.5	66.38	19	26	35	15752	19	26
500	454	454	1684	1684	1707	475	659	883	7145	475	659
24	21.5	21.5	77.63	77.63	78.46	23	32	45	27600	23	32
600	546	546	1786	1786	1805	546	741	981	546	741	981

## ASME CLASS 900 REDUCED BORE

Size NPS/DN	ALL TYPES					T70 Series			T71 Series		
	A	B	L-RF	L-BW	L-RJ	H1	H2	C	H1	H2	C
3 x 2	2.94	1.94	15	15	15.13	6.42	6.71	6	6.42	6.71	7.68
80 x 50	74	49	381	381	384	163	170.5	152	163	170.5	195
4 x 3	3.94	2.94	18	18	18.13	7	8	9	7	8	8.82
100 x 80	100	74	457	457	460	201	227	228	201	227	265
6 x 4	5.94	3.94	24	24	24.13	7.91	8.94	9	7.91	8.94	10.43
150 x 100	150	100	610	610	613	300	299	304	300	299	348
8 x 6	7.94	5.94	29	29	29.13	11.81	11.77	12	11.81	11.77	13.70
200 x 150	201	150	737	737	740	310	332	400	310	332	450
10 x 8	9.94	7.94	33	33	33.13	12.20	13.07	16	12.20	13.07	17.72
250 x 200	252	201	838	838	841	312	406	487	312	406	527
12 x 10	11.94	9.94	38	38	38.13	12	16	19	12	16	20.75
300 x 250	303	252	965	965	968	322	446	535	322	446	603
14 x 12	12.69	11.94	40.5	40.5	40.88	12.91	17.72	24	12.91	17.72	27.48
350 x 300	322	303	1029	1029	1038	328	450	606	328	450	698
16 x 14	14.69	12.69	44.5	44.5	44.88	14.27	19.69	27	14.27	19.69	30.12
400 x 350	373	322	1130	1130	1140	362.5	500	696	362.5	500	765
20 x 16	16.69	14.69	48	48	48.5	15.81	21.10	31	15.81	21.10	33.07
500 x 400	423	373	1219	1219	1232	401.5	536	778	401.5	536	840
24 x 20	22.44	18.56	61	61	61.75	22	28	43	22	28	44.21
600 x 500	570	471	1549	1549	1568	562	718	1091	562	718	1123
24 x 22	22.44	20.56	61	61	61.75	22	28	43	22	28	44.21
600 x 550	570	522	1549	1549	1568	562	718	1091	562	718	1123
28 x 24	26.19	22.44	66.5	66.5	66.5	26	32	47	26	32	47
700 x 600	665	570	1619	1619	1638	619	791	1183	619	791	1275
32 x 28	29.94	26.19	70	70	70.13	29	36	53	29	36	53
800 x 700	760	665	1679	1679	1698	679	861	1271	679	861	1363
36 x 32	33.69	29.94	90	90	91.13	36	45	68	36	45	68
900 x 800	855	760	1786	1786	1805	855	1087	1611	855	1087	1703
40 x 36	37.69	33.69	96	96	96.13	40	50	74	40	50	74
1000 x 900	914	819	1854	1854	1873	914	1165	1611	914	1165	1703

## ASME CLASS 1500 REDUCED BORE

ALL TYPES						T70 Series				T71 Series			
Size	A	B	L-RF	L-BW	L-RJ	H1	H2	C	Weight <sup>1</sup>	H1	H2	C	Weight <sup>1</sup>
NPS/DN									lb/kg				lb/kg
3 × 2	2.94	1.94	18.5	18.5	18.63	6.42	6.71	6	231	6.42	6.71	7.68	300
80 × 50	74	49	470	470	473	163	170.5	152	105	163	170.5	195	136
4 × 3	3.94	2.94	21.5	21.5	21.63	7.87	9.04	8	478	5	6	11	620
100 × 80	100	74	546	546	549	200	229.5	202	217	120	156	266	281
6 × 4	5.69	3.94	27.75	27.75	28	9.67	10.35	10	886	9.67	10.35	12	1148
150 × 100	144	100	705	705	711	245.5	263	248	402	245.5	263	298	521
8 × 6	7.56	5.69	32.75	32.75	33.13	12.95	12.95	13	1658	12.95	12.95	15	2147
200 × 150	192	144	832	832	841	329	329	338	752	329	329	385	974
10 × 8	9.44	7.56	39	39	39.38	14	15	17	3003	14	15	17	3304
250 × 200	239	192	991	991	1000	350	382	420	1362	350	382	431	1771
12 × 10	11.31	9.44	44.5	44.5	45.13	15	17	20	3620	15	17	21	4706
300 × 250	287	239	1130	1130	1146	392	424	509	1642	392	424	540	2135
14 × 12	12.44	11.31	49.5	49.5	50.25	16	18	24	6365	16	18	25.28	8274
350 × 300	315	287	1257	1257	1276	404	466	606	2887	404	466	642	3753
16 × 14	14.19	12.44	54.5	54.5	55.38	15	20	26	7313	15	20	28.54	9543
400 × 350	360	315	1384	1384	1407	385	503	654	3317	385	503	725	4329
20 × 16	17.88	14.19	65.5	①	66.38	16	22	29	10615	16	22	31.18	13906
500 × 400	454	360	1664		1686	403	558	725	4815	403	558	792	6308
20 × 18	17.88	16	65.5	①	66.38	17	24	33	13918	17	24	34.69	18232
500 × 450	454	406	1664		1686	441	616	838	6313	441	616	881	8270
24 × 20	21.5	17.88	①	①	77.63	19	26	35	21702	19	26	36.42	28320
600 × 500	546	454			1972	475	659	883	9844	475	659	925	12845



# ENGINEERING DATA

## BODY & TRIM MATERIAL

CARBON	AUSTENITIC STAINLESS STEEL	NICKEL ALLOYS
A105N A216 WCB A216 WCC	A182 F304 A182 F316	Incoloy 825 ( UNS N08825 )
<b>LOW TEMPERATURE STEEL</b>	A182 F304L A182 F316L	Incoloy 925 ( UNS N09925 )
A350 LF2 A352 LCB A352 LCC	A182 F347 A182 FXM-19(Nitronic 50)	Inconel 625 ( UNS N06625 )
<b>LOW ALLOY STEEL</b>	A351 CF8M A351 CF3 A351 CF3M	Inconel 718 ( UNS N07718 )
AISI 4140 A694 F65 A694 F52	<b>PRECIPITATION HARDENING STAINLESS STEEL</b>	Inconel 750 ( UNS N07750 )
A694 F60 A350 LF3	A564 Gr.630 (UNS S17400)	Monel 400
<b>MARTENSITIC STAINLESS STEEL</b>	<b>DUPLEX STAINLESS</b>	Monel K500
A182 F6A A182 F6NM	A182 F51(UNS S31803) A182 F53 ( UNS S31750 )	
A217 CA15 A487 CA6NM	A182 F55(UNS S31760) A995 4A ( UNS J92205 )	
	A995 5A(UNS J93404)	

## VALVE TESTING

All valves manufactured by CHV are tested in compliance of API 6D requirements prior to shipping.

### LEAKAGE RATES

Standard	Soft Seated	Metal-Seated	Cryogenic
API 6D	ISO 5208 Rate A	ISO 5208 Rate D	(1)

(1) Please consult the factory.

### STANDARD PERFORMANCE TESTS

- Visual & dimensional check.
- High pressure hydrostatic shell test.
- High pressure hydrostatic seats test.
- Low pressure air seats test.
- Stem torque check.

## RATING & TEST PRESSURES AT AMBIENT TEMPERATURE (ASME B16.34 GROUP 1.1 MATERIALS)

ASME CLASS	RATING(1)			BODY TEST			H.P. SEAT TEST			AIR SEAT TEST		
	psi	bar	kgf/cm <sup>2</sup>	psi	bar	kgf/cm <sup>2</sup>	psi	bar	kgf/cm <sup>2</sup>	psi	bar	kgf/cm <sup>2</sup>
150	285	19.6	20	428	29.4	30	314	21.6	22	100	6.9	7
300	740	51.1	52	1110	76.7	78	814	56.2	57	100	6.9	7
600	1480	102.1	104	2220	153.2	156	1628	112.3	115	100	6.9	7
900	2220	153.2	156	3330	229.8	234	2442	168.5	172	100	6.9	7
1500	3705	255.3	261	5558	383.0	391	4076	280.8	287	100	6.9	7
2500	6170	425.5	434	9255	638.3	651	6787	468.1	477	100	6.9	7

(1) Typical only – Rating pressure may change for different materials.

Conversion Factors 1 bar = 14.50 psi 1 kgf/cm<sup>2</sup> = 0.981 bar 1 bar = 100 kpa 1 kgf/cm<sup>2</sup> = 14.22 psi

1 °F = (1.8 × °C) + 32 1 °C = (°F - 32) / 1.8

## SEAT SEAL & O-RING TEMPERATURE-PRESSURE RATINGS

### Seat Seal

- S-1: PEEK
- S-2: Carbon Fiber+PTFE
- S-3: (1)Glass Fiber+PTFE  
(2)Glass Fiber+PTFE+MoS2
- S-4: Virgin PTFE
- S-5: Nylon+MoS2
- S-6: PPL

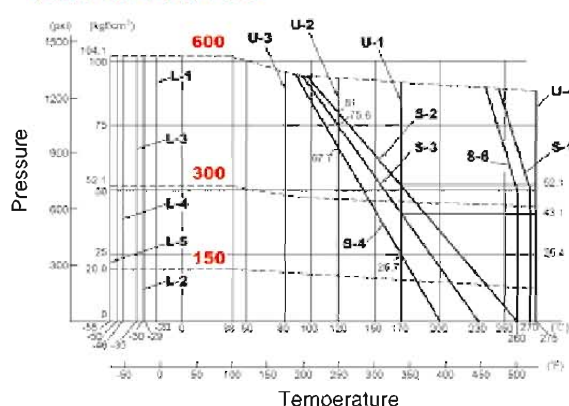
### O-Ring Upper Temperature Limit

- U-1: (1)FPM  
(2)FPM-LT
- U-2: (1)EPDM (2)ECO
- U-3: (1)NBR (2)NBR-LT
- U-4: Kalrez-6375

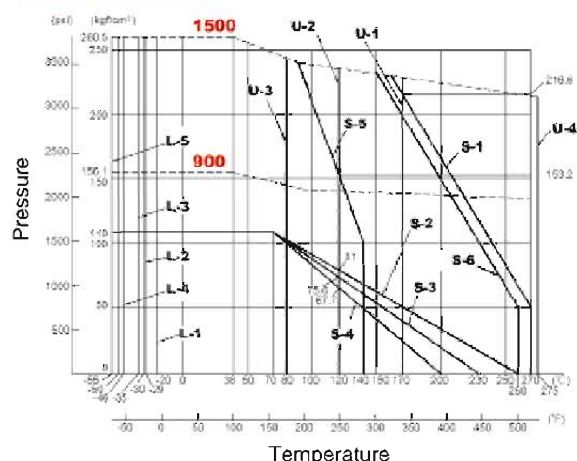
### O-Ring Lower Temperature Limit

- L-1: FPM
- L-2: (1)EPDM (2)NBR
- L-3: FPM-LT
- L-4: ECO
- L-5: NBR-LT

### Class 150 / 300 / 600



### Class 900 / 1500





# PRODUCT PHOTOS



32", 40" Class 600 Forged Split-body



48" Class 600 Forged Fully Welded for Underground Service



12" Class 600 Cast Top-entry for Underground Service



20" Class 600 Cast Top-entry



36x30" Class 300 Cast Split-body



6" Class 2500 Forged Split-body



24" Class 600 Forged Top-entry with Pipe Pups





# HOW TO ORDER

## PLEASE PROVIDE FOLLOWING INFORMATION :

1. Max./Min. Operating Pressure, Max. /Min. Service Temp, Special Flow/Service Environment Requirements.
2. Design Standard (API6D, ASME B16.34, API 608 or Other).
3. Test Requirements (Standard Package, UT, PT, MT, RT, High Pressure (N2/Air), Low Emission, Low Temp. or other).
4. Other Requirements (Mating Flange, PUP, Third-party Inspection or other).

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
MODEL	SIZE	PRESSURE RATING	CONNECTION	ACTUATION	BODY MATERIAL	SEALS	TRIM MATERIAL	TRIM COATING	BOLTS& NUTS	SPECIAL REQUIREMENTS
T10	20×16	150	RF	G	C5	VV	002	1	B2	D

## EXAMPLE: T10-20 × 16-150RF-G-C5VV0021B2-D

Forged steel split body trunnion ball valve, 20×16" reduced port, ASME 150, Flanged RF, Gear actuator, A105N body, VITON/VITON seals, A105N trim, ENP trim coating, B7/2H bolts&nuts, Double piston effect of seat.

A	MODEL		
CODE	TYPE	CODE	TYPE
T10	Forged Steel Split-Body Trunnion Ball Valve	T23	Forged Steel Direct-Buried Trunnion Ball Valve*
T11	Cast Steel Split-Body Trunnion Ball Valve	T70	Cast Steel Top-EntryTrunnion Ball Valve
T12	Forged Steel Split-Body Direct-Buried Trunnion Ball Valve*	T71	Forged Steel Top-Entry Trunnion Ball Valve
T13	Cast Steel Split-Body Direct-Buried Trunnion Ball Valve*	T72	Cast Steel Top-Entry Direct-Buried Trunnion Ball Valve*
T20	Forged Steel Fully Welded Trunnion Ball Valve	T73	Forged Steel Top-Entry Direct-Buried Trunnion Ball Valve*

\*Need to provide extended stem height.

B	SIZE								
FULL BORE				REDUCED BORE					
CODE	NPS (DN)	CODE	NPS (DN)	CODE	NPS (DN)	CODE	NPS (DN)	CODE	NPS (DN)
1	1(25)	20	20(500)	1-1/2 × 1	1-1/2 × 1(40 × 25)	18 × 14	18 × 14(450 × 350)	32 × 30	32 × 30(800 × 750)
1-1/2	1-1/2(40)	22	22(550)	2 × 1-1/2	2 × 1-1/2(50 × 40)	18 × 16	18 × 16(450 × 400)	36 × 30	36 × 30(900 × 750)
2	2(50)	24	24(600)	3 × 2	3 × 2(80 × 50)	20 × 16	20 × 16(500 × 400)	36 × 32	36 × 32(900 × 800)
3	3(80)	28	28(700)	4 × 3	4 × 3(100 × 80)	20 × 18	20 × 18(500 × 450)	40 × 36	40 × 36(1000 × 900)
4	4(100)	30	30(750)	6 × 4	6 × 4(150 × 100)	22 × 18	22 × 18(550 × 450)	42 × 36	42 × 36(1050 × 900)
6	6(150)	32	32(800)	8 × 6	8 × 6(200 × 150)	22 × 20	22 × 20(550 × 500)	42 × 40	42 × 40(1050 × 1000)
8	8(200)	36	36(900)	10 × 8	10 × 8(250 × 200)	24 × 20	24 × 20(600 × 500)	48 × 40	48 × 40(1200 × 1000)
10	10(250)	40	40(1000)	12 × 10	12 × 10(300 × 250)	24 × 22	24 × 22(600 × 550)	56 × 48	56 × 48(1400 × 1200)
12	12(300)	48	48(1200)	14 × 10	14 × 10(350 × 250)	28 × 24	28 × 24(700 × 600)	60 × 56	60 × 56(1500 × 1400)
14	14(350)	56	56(1400)	14 × 12	14 × 12(350 × 300)	30 × 24	30 × 24(750 × 600)		
16	16(400)	60	60(1500)	16 × 12	16 × 12(400 × 300)	30 × 28	30 × 28(750 × 700)		
18	18(450)			16 × 14	16 × 14(400 × 350)	32 × 28	32 × 28(800 × 700)		

C	PRESSURE RATING	D	CONNECTION
CODE	TYPE	CODE	TYPE
150	ASME 150	1.6P	PN 16
300	ASME 300	3.2P	PN 32
400	ASME 400	6.4P	PN 64
600	ASME 600	8P	PN 80
900	ASME 900	10P	PN 100
1500	ASME 1500	16P	PN 160
2500	ASME 2500	25P	PN 250
		32P	PN 320
CODE	TYPE	CODE	TYPE
RF	Flanged RF-B16.5(NPS 1/2~NPS 24)	RFB	Flanged RF-B16.47(NPS 26~NPS 60) Series B
	Flanged RF-MSS SP 44(NPS 22)	RJB	Flanged RJ-B16.47(NPS 26~NPS 60) Series B
	Flanged RF-B16.47(NPS 26~NPS 60) Series A	SW	Socket Weld-ASME B16.11
RJ	Flanged RJ-B16.5(NPS 1/2~NPS 24)	ET	External Thread-ASME B1.20.1
	Flanged RJ-MSS SP 44(NPS 22)	BW	Butt Weld-ASME B31.8*
	Flanged RJ-B16.47(NPS 26~NPS 60) Series A	XX	Others

\*For weld end valves, specify ID or OD, wall thickness and grade of pipe.

E	ACTUATION			Type operator desired (electric, hydraulic, pneumatic), provide following information: 1. Speed of opening and closing, probable frequency of operation. 2. Accessories and controls (limit switches, valving, instrumentation, tanks, pumps, etc). 3. Information on operating medium. (If electric: voltage, frequency, single-or three-phase, open-or explosion-proof motor, If hydraulic or pneumatic: operating medium and pressure. etc.)
CODE	TYPE	CODE	TYPE	
B	Bare Stem	S	Pneumatic-Spring Return	
W	Wrench	D	Pneumatic-Double Acting	
G	Worm Gear	M	Gas-Hydraulic	
E	Electric	N	Electro-Hydraulic	
H	Hydraulic	X	Others	

Type operator desired (electric, hydraulic, pneumatic), provide following information:  
 1. Speed of opening and closing, probable frequency of operation.  
 2. Accessories and controls (limit switches, valving, instrumentation, tanks, pumps, etc).  
 3. Information on operating medium. (If electric: voltage, frequency, single-or three-phase, open-or explosion-proof motor, If hydraulic or pneumatic: operating medium and pressure. etc.)



F BODY MATERIAL								
CODE	BODY	CLOSURES(SPLIT-BODY) BONNET(TOP ENTRY) END CONNECTION(FOR BW)	CODE	BODY	CLOSURES(SPLIT-BODY) BONNET(TOP ENTRY) END CONNECTION(FOR BW)	CODE	BODY	CLOSURES(SPLIT-BODY) BONNET(TOP ENTRY) END CONNECTION(FOR BW)
C1	A216 WCB	A216 WCB	S8	A182 F316L	A182 F316L	AA	A350 LF2	A350 LF6 CL1
C2	A216 WCC	A216 WCC	D0	A995 4A(UNS J92205)	A995 4A(UNS J92205)	AB	A350 LF2	A350 LF6 CL2
C5	A105N	A105N	D1	A995 5A(UNS J93404)	A995 5A(UNS J93404)	AC	A105N	A216 WCB
L1	A352 LCB	A352 LCB	D5	A182 F51(UNS S31803)	A182 F51(UNS S31803)	AD	A105N	A350 LF2
L2	A352 LCC	A352 LCC	D6	A182 F53(UNS S32750)	A182 F53(UNS S32750)	AE	A350 LF2	A352 LCB
L5	A350 LF2	A350 LF2	D7	A182 F55(UNS S32760)	A182 F55(UNS S32760)	AF	A350 LF2	A694 F60
S0	A351 CF8	A351 CF8	D8	A182 F60(UNS S32205)	A182 F60(UNS S32205)	AH	A105N	A350 LF6 CL2
S1	A351 CF3	A351 CF3	I5	INCONEL 600(UNS N06600)	INCONEL 600(UNS N06600)	AL	A105N	A350 LF6 CL1
S2	A351 CF8M	A351 CF8M	I6	INCONEL 625(UNS N06625)	INCONEL 625(UNS N06625)	AM	A216 WCB	A105N
S3	A351 CF3M	A351 CF3M	I7	CW6MC(UNS N26625)	CW6MC(UNS N26625)	XX	Others	Others
S5	A182 F304	A182 F304	I8	INCOLOY 825(UNS N08825)	INCOLOY 825(UNS N08825)			
S6	A182 F316	A182 F316	M6	MONEL K500(UNS N05500)	MONEL K500(UNS N05500)			
S7	A182 F304L	A182 F304L	H5	HASTELLOY C-276 (UNS N10276)	HASTELLOY C-276 (UNS N10276)			

G SEALS(1)								
CODE	SEAT INSERT	O-Ring	CODE	SEAT INSERT	O-Ring	CODE	SEAT INSERT	O-Ring
VV	VITON-B(2)	VITON-B	DH	DEVLON	HNBR	KT	PEEK	VITON-GLT
VH	VITON-B(2)	HNBR	DG	DEVLON	VITON-GF	KQ	PEEK	PTFE-Elgiloy Spring
VT	VITON-B(2)	VITON-GLT	DT	DEVLON	VITON-GLT	YV	N/A(3)	VITON-B
GG	VITON-GF(2)	VITON-GF	DQ	DEVLON	PTFE-Elgiloy Spring	YH	N/A(3)	HNBR
TT	VITON-GLT(2)	VITON-GLT	NV	NYLON	VITON-B	YG	N/A(3)	VITON-GF
HH	HNBR(2)	HNBR	NH	NYLON	HNBR	YT	N/A(3)	VITON-GLT
FV	RPTFE	VITON-B	NG	NYLON	VITON-GF	YQ	N/A(3)	PTFE-Elgiloy Spring
FH	RPTFE	HNBR	NT	NYLON	VITON-GLT	PQ	PCTFE	PTFE-Elgiloy Spring
FG	RPTFE	VITON-GF	NQ	NYLON	PTFE-Elgiloy Spring	XX	Others	Others
FT	RPTFE	VITON-GLT	KV	PEEK	VITON-B	(1) All seals on gaskets are Graphite. (2) Delta Ring. (3) Metal-to-Metal.		
FQ	RPTFE	PTFE-Elgiloy Spring	KH	PEEK	HNBR			
DV	DEVLON	VITON-B	KG	PEEK	VITON-GF			

H TRIM MATERIAL							
CODE	BALL	SEAT RINGS	STEM	CODE	BALL	SEAT RINGS	STEM
002	A105N	A105N	AISI 4140	411	A182 F316	A182 F316	A182 FXM-19(UNSS20910)
004	A105N	A182 F304	AISI 4140	502	A182 F304L	A182 F304L	A182 F51(UNS S31803)
012	A105N	A182 F6A	AISI 4140	603	A182 F316L	A182 F316L	A182 F51(UNS S31803)
020	A105N	A105N	A182 F6A	650	A182 FXM-19(UNS S20910)	A182 FXM-19(UNS S20910)	A182 FXM-19(UNS S20910)
081	A694 F60	A105N	A694 F60	680	A564 GR.630(UNS S17400)	A564 GR.630(UNS S17400)	A564 GR.630(UNS S17400)
101	A350 LF2	A350 LF2	A350 LF2	701	A182 F51(UNS S31803)	A182 F51(UNS S31803)	A182 F51(UNS S31803)
102	A350 LF2	A350 LF2	AISI 4140	702	A182 F51(UNS S31803)	A182 F51(UNS S31803)	INCONEL 718(UNS N07718)
104	A350 LF2	A182 F304	AISI 4140	751	A182 F53(UNS S32750)	A182 F53(UNS S32750)	A182 F53(UNS S32750)
109	A350 LF2	A350 LF2	A564 GR.630(UNS S17400)	752	A182 F53(UNS S32750)	A182 F53(UNS S32750)	INCONEL 718(UNS N07718)
122	A350 LF2	A350 LF2	A182 F6A	761	A182 F55(UNS S32760)	A182 F55(UNS S32760)	A182 F55(UNS S32760)
278	A182 F6A	A182 F6A	A182 F6A	801	INCONEL 600(UNS N06600)	INCONEL 600(UNS N06600)	INCONEL 600(UNS N06600)
279	A182 F6A	A182 F304	A564 GR.630(UNS S17400)	802	INCONEL 600(UNS N06600)	INCONEL 600(UNS N06600)	INCONEL 718(UNS N07718)
280	A182 F6A	A182 F304	A182 F6A	805	INCONEL 625(UNS N06625)	INCONEL 625(UNS N06625)	INCONEL 625(UNS N06625)
301	A182 F304	A182 F304	A182 F304	809	INCONEL 718(UNS N07718)	INCONEL 718(UNS N07718)	INCONEL 718(UNS N07718)
303	A182 F304	A182 F304	A564 GR.630(UNS S17400)	821	INCOLOY 825(UNS N08825)	INCOLOY 825(UNS N08825)	INCONEL 718(UNS N07718)
311	A182 F304	A182 F304	A182 F51(UNS S31803)	826	INCOLOY 925(UNS N09925)	INCOLOY 925(UNS N09925)	INCOLOY 925(UNS N09925)
401	A182 F316	A182 F316	A182 F316	831	HASTELLOY C-276 (UNS N10276)	HASTELLOY C-276 (UNS N10276)	HASTELLOY C-276 (UNS N10276)
403	A182 F316	A182 F316	A564 GR.630(UNS S17400)	841	MONEL K500(UNS N05500)	MONEL K500(UNS N05500)	MONEL K500(UNS N05500)
405	A182 F316	A182 F316	A182 F51(UNS S31803)	XXX	Others	Others	Others

I TRIM COATING				J BOLTS & NUTS			
CODE	BALL	SEAT RINGS	STEM/TRUNNION	CODE	BOLT	NUT	
0	N/A	N/A	N/A	B1	A193 B7M	A194 2HM	N5 A320 B8M CL.2
1	ENP	ENP	ENP	B2	A193 B7	A194 2H	N6 A320 B8M CL.1
B	Stellite*	Stellite*	ENP	B3	A320 L7M	A194 7M	XX Others
L	Chrome Carbide*	Chrome Carbide*	ENP	B4	A320 L7	A194 Gr.7	
M	Tungsten Carbide*	Tungsten Carbide*	ENP	B5	A193 B8M	A194 Gr.8M	
P	NiCrMoCu*	NiCrMoCu*	ENP	B6	A193 B8	A194 Gr.8	
X	Others	Others	Others	B7	A193 B16	A194 Gr.7	
				B8	A320 L7	A194 Gr.4	

\*Ball and seat rings sealing surface.

K SPECIAL REQUIREMENTS, Misc (Multiple Choice)		SPECIAL NOTES	
CODE			
E-	Specify distance from valve centerline to top of power operator mounting flange for direct-buried ball valve. Example, E2500 means the specify distance is 2500mm.		
K	Anti-corrosion, acid-resisting regs are in compliance with NACE MR0103, NACE MR0175, ISO 15156. Please provide detailed medium composition.		
D	Double piston effect (Single piston effect (self-release) seats are supplied as a standard feature).		
SD	Single piston for upstream and double piston for downstream (self-release).		
B-	Bolts&nuts coating, BE: ENP, BZ: Zinc Plating, BT: PTFE, BC: Cadmium+PTFE.		
X	Others special requirements.		

Notes: If you are uncertain about some categories, we will make suggestions based on your working conditions or your special requirement.  
The item marked with default will be used if no item is selected in that category unless it doesn't meet the working requirements.