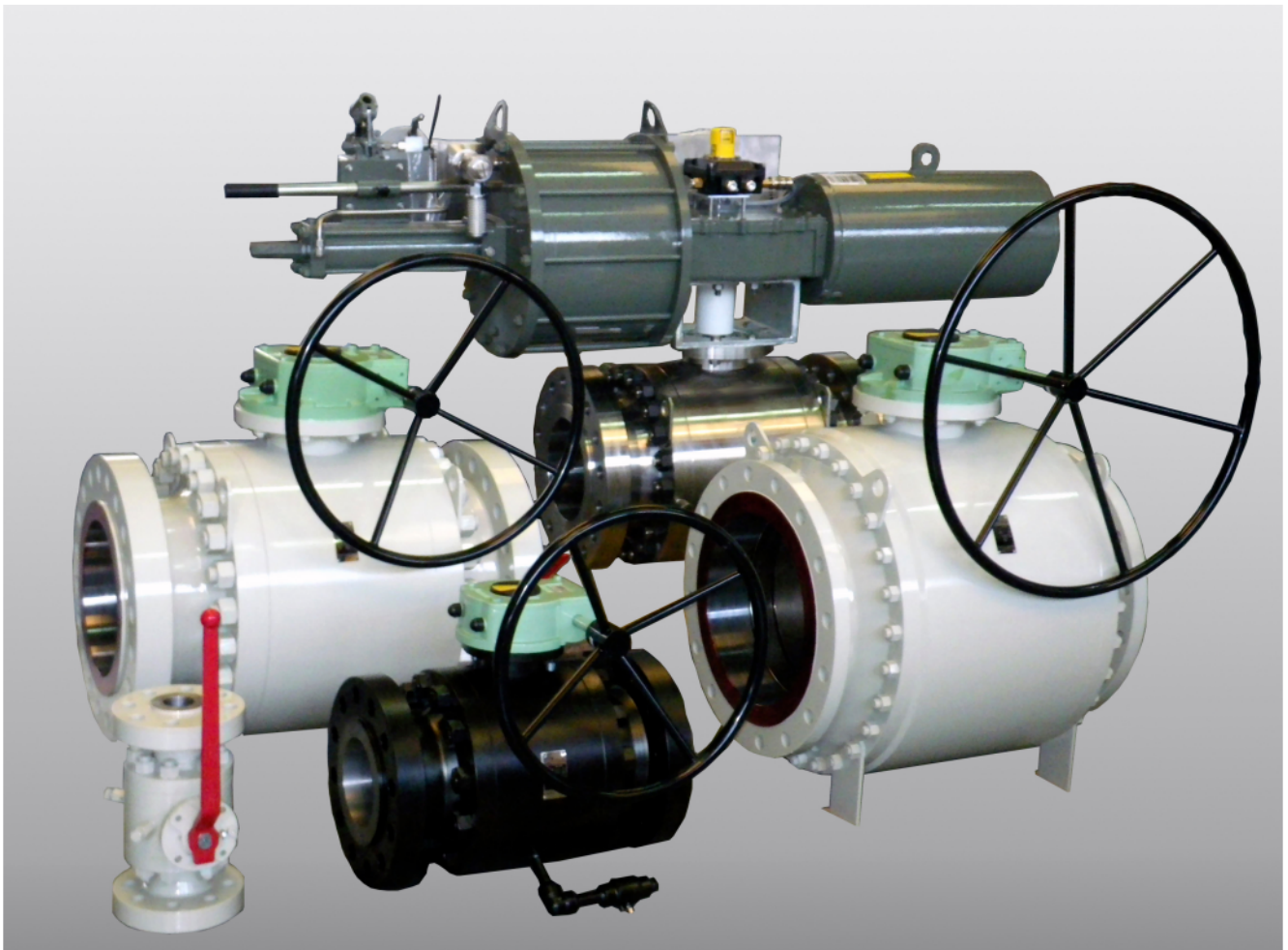


KITZ Trunnion Mounted Ball Valves

Three Pieces Split Body and Cap, Soft Seated, Steel Ball Valves
Successfully Fire-tested



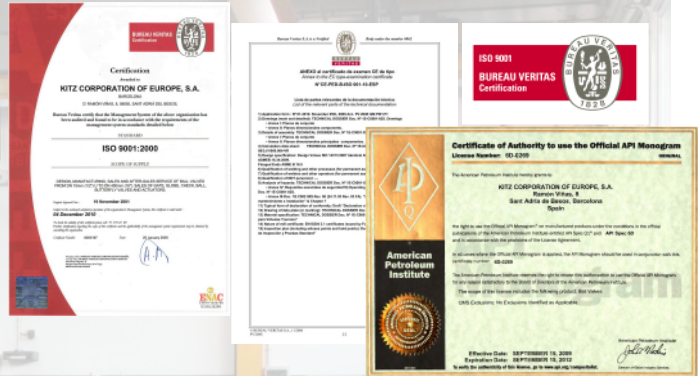
KNOW-HOW

Experience in high performance ball valves for:

- Oil & Gas Terminals
- Oil & Gas Pipelines
- Petrochemical Plants
- Chemical Plants
- Refineries
- Loading Stations

QUALITY SYSTEM

- ISO 9001-2008
- API Q1 Specification
- Pressure equipment directive (PED 97/23/EC)



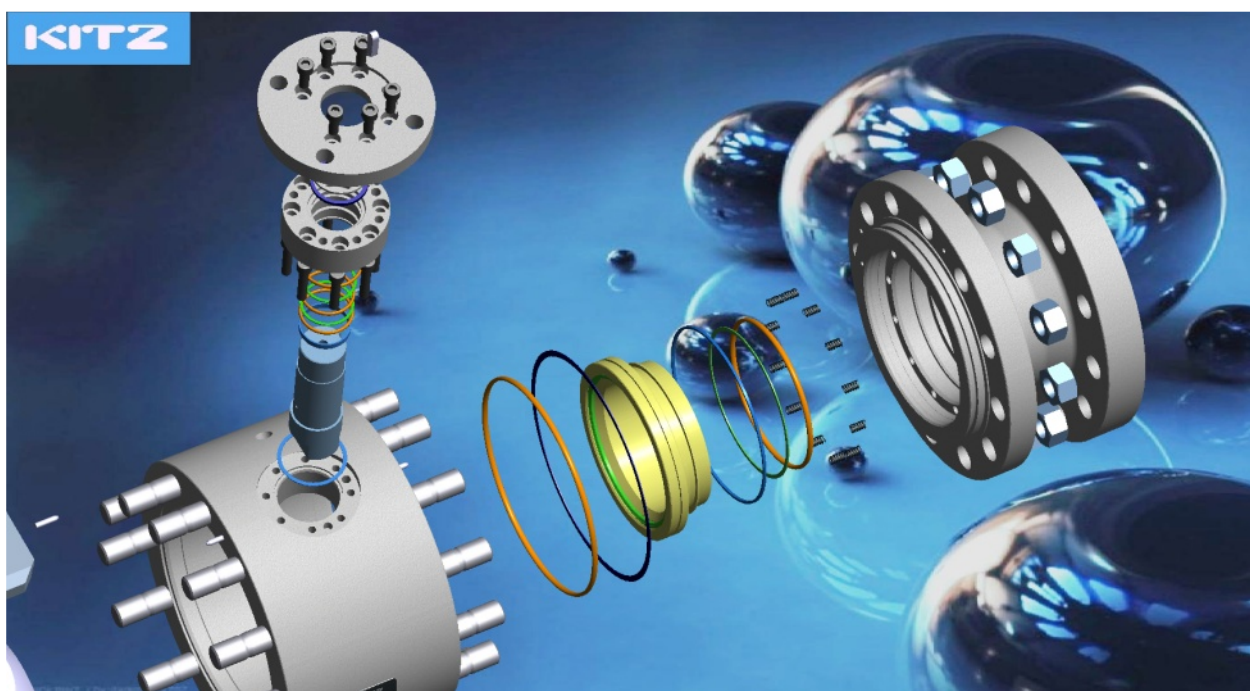
PRODUCTION FACILITIES

- Machining and assembling facility
- High pressure test bench
- Painting cabin

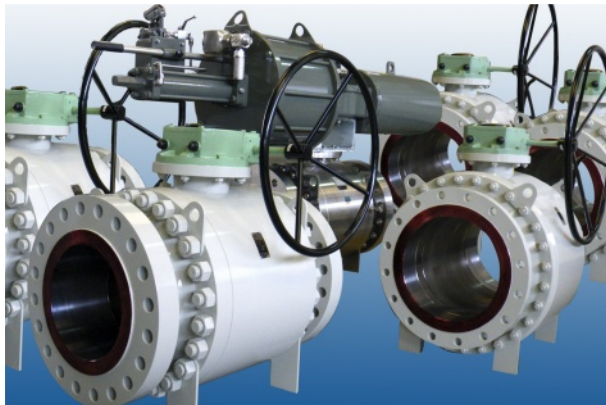


ENGINEERING DEPARTMENT

- Structural and material design
- Product analysis and evaluation
- Functional and safe production test



TRUNNION MOUNTED BALL VALVE SERIES F18TK/T60



Trunnion mounted side entry steel ball valves are designed to meet API 6D / ISO 14313 and other referential international valve design standards, used for petroleum, petrochemical, oil, gas and any industrial.

GENERAL DESIGN STANDARD

- Design : API 6D / ISO 14313
- Face to face : API 6D / ASME B16.10
- End connection : ASME B16.5
- Bore diameter : API 6D / ISO 14313
- Wall thickness : ASME B16.34

DESING FEATURE

- Structure : 3 pieces bolted body and cap
- High shut-off sealing mechanism and low torque operation
- Block and bleed function
- Self cavity pressure relief
- Fire safe design
- Blow out proof stem construction
- Anti static design
- Locking device (for lever handle operation)
- ISO 5211 actuator mounting
- Emergency grease injection (option)
- PN design can be available

PRODUCT RANGE

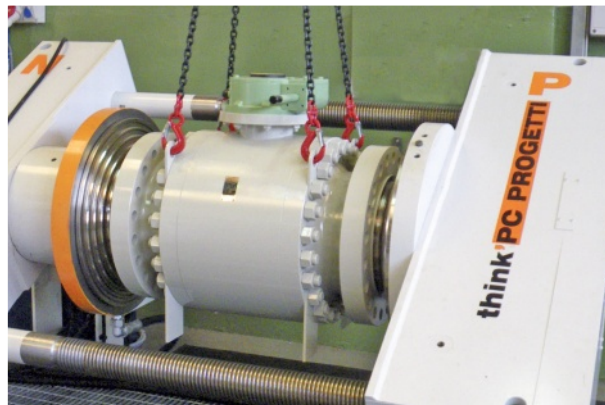
- Nominal pressure : Class 150 to 2500
- Nominal size : NPS 1 to 24
- Shell materials :
Carbon and low alloy steel, Austenite
Stainless steel, Duplex stainless steel,
High alloy steel, Nickel based alloy
- Seat materials:
Reinforced PTFE, Modified PTFE,
Nylon 6, Nylon 12, DEVLON, PCTFE,
PEEK

OPTION

- NACE MR 0175 available
- Pneumatic and electric actuator
- Thru-conduit piggability bore
- Grease injection point for seat and stem
- Stem extension

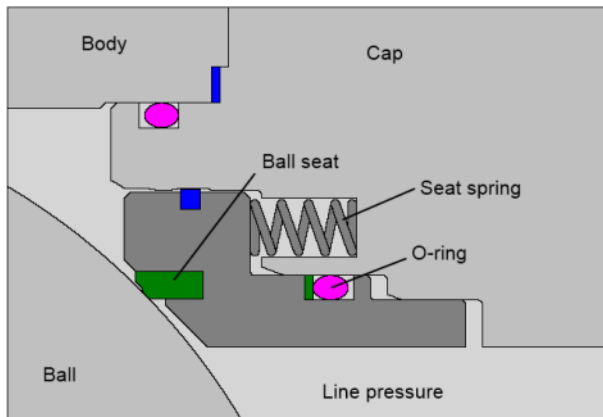
CERTIFICATION

- PED 97/23/EC
- Fire Test : ISO 10497-2010 / API 607 5th
- ATEX 94/9/EC



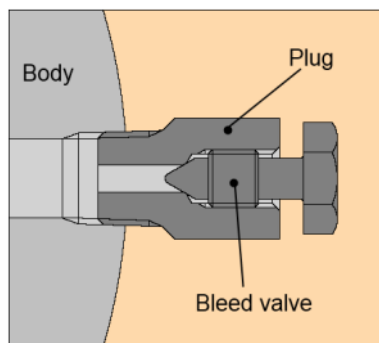
HIGH SHUT-OFF SEALING MECHANISM

A floating seat design is employed so that each of the upstream and downstream seats is adequately maintained in contact with the ball by means of a seat spring. Line pressure helps this contact method. It features excellent sealing performance independently on both side seats at the same time.



BLOCK AND BLEED FUNCTION

Ball seats shut off the line fluid independently on the upstream and downstream side of the ball. The valve bore and the body cavity are isolated from each other when the valve is fully opened or closed so that the residue within the body cavity may be disposed



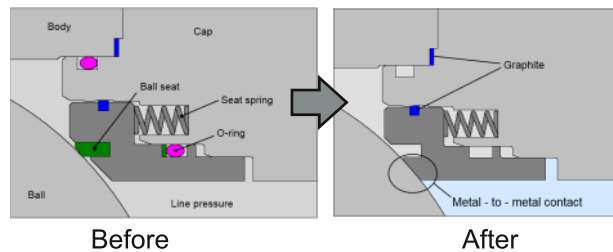
through the drain or vent port provided on the lower and upper of the valve body. The drain and vent plug provide bleed valve to prevent

blow out plug by internal pressure for safety when drain or vent plug is removed under pressurized condition in the cavity mistakenly. The design prevents fluid contamination within the valve interior and easily detects seat leakage from both flow directions, without dismantling the valve from the pipeline.

FIRE SAFE DESIGN

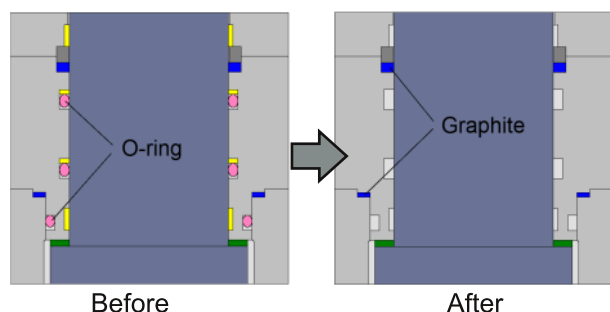
1) Internal leakage prevention

When resilient sealing materials are decomposed or deteriorated by a plant fire, the edge of the metal seat retainer preloaded by the seat spring comes into contact with the ball to shut off the line fluid to minimize internal leakage through the valve bore. The seat retainer also compresses KITZ originally designed flexible graphite retainer packings to prevent fluid leakage from between the valve body and the seat retainer.



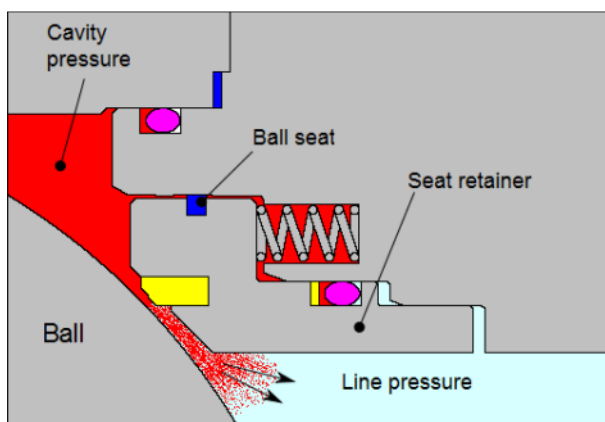
2) External leakage prevention

Leakage from the valve stem area is prevented by double sealing with O-ring and flexible graphite gland packings. Leakage through the valve body joint is also protected by double sealing with O-rings and flexible graphite gaskets. After a fire has deteriorated O-rings, flexible graphite packings and gaskets are the measure that prevents external fluid leakage.



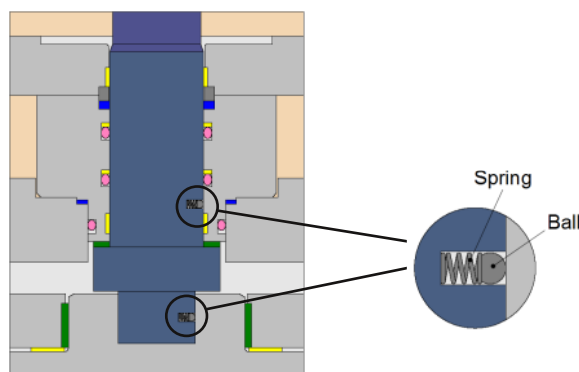
SEFT CAVITY PRESSURE RELIEF

In case of unusually high increase of servicing or ambient temperature, liquefied gas or highly volatile liquid trapped within the body cavity may evaporate, and cause an excessive rise in the cavity pressure. For safety considerations, a provision is made so that when the cavity pressure exceeds the line pressure, the ball seat will move slightly away from the ball surface to relieve the excessive cavity pressure into the valve bore.



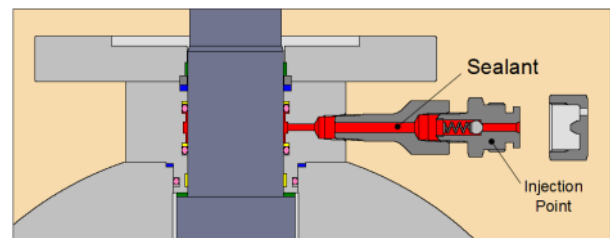
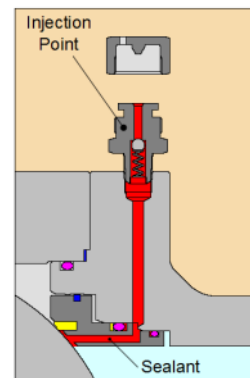
ANTI STATIC DESIGN

A spring between the stem and the ball or between the stem and the bonnet permits electrical continuity between all valve components



EMERGENCY GREASE INJECTION (OP)

For accidental leakage from the ball seat or stem sealing area, a sealant supply mechanism may be provided as an option. Should the sealing material be damaged or decomposed by fire or other accidental causes, leakage can be temporarily prevented by injection of the sealant into this mechanism.



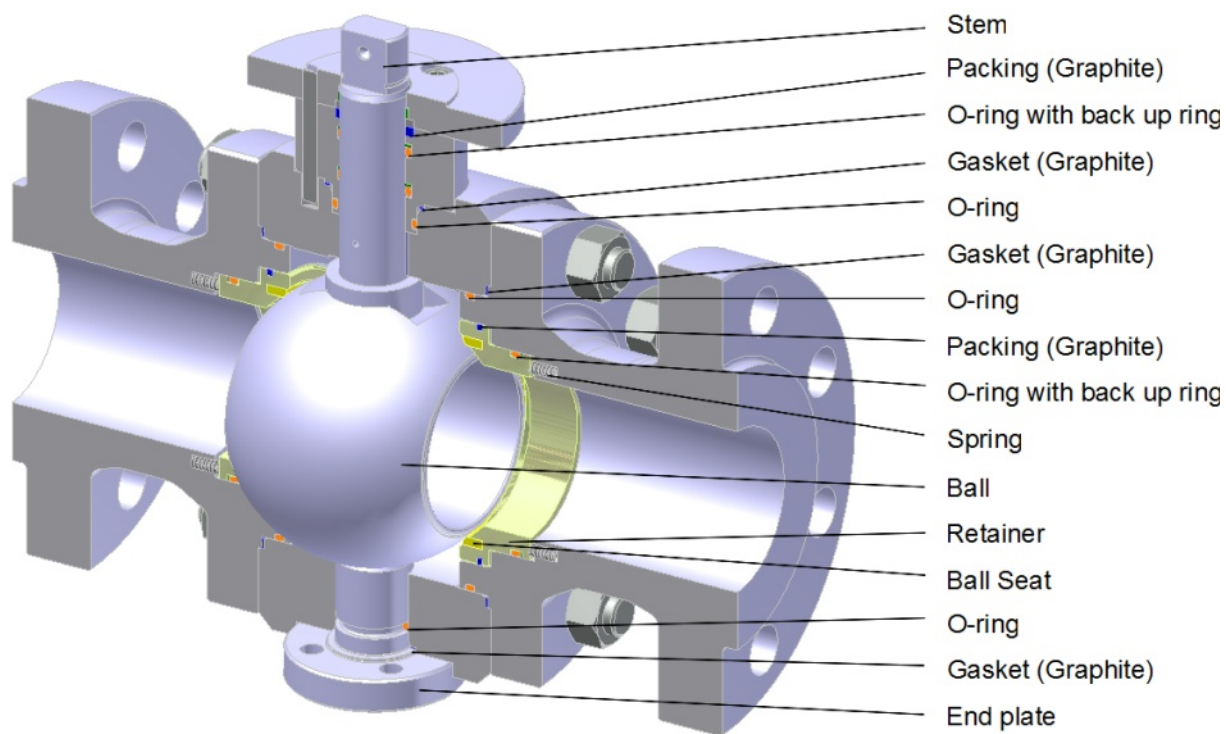
THRU-CONDUIT PIGGABILITY BORE (OP)

Besides the standard full bore, the custom sized thru-conduit bore is optionally available for use of pipeline scrapers or cleaning pigs.

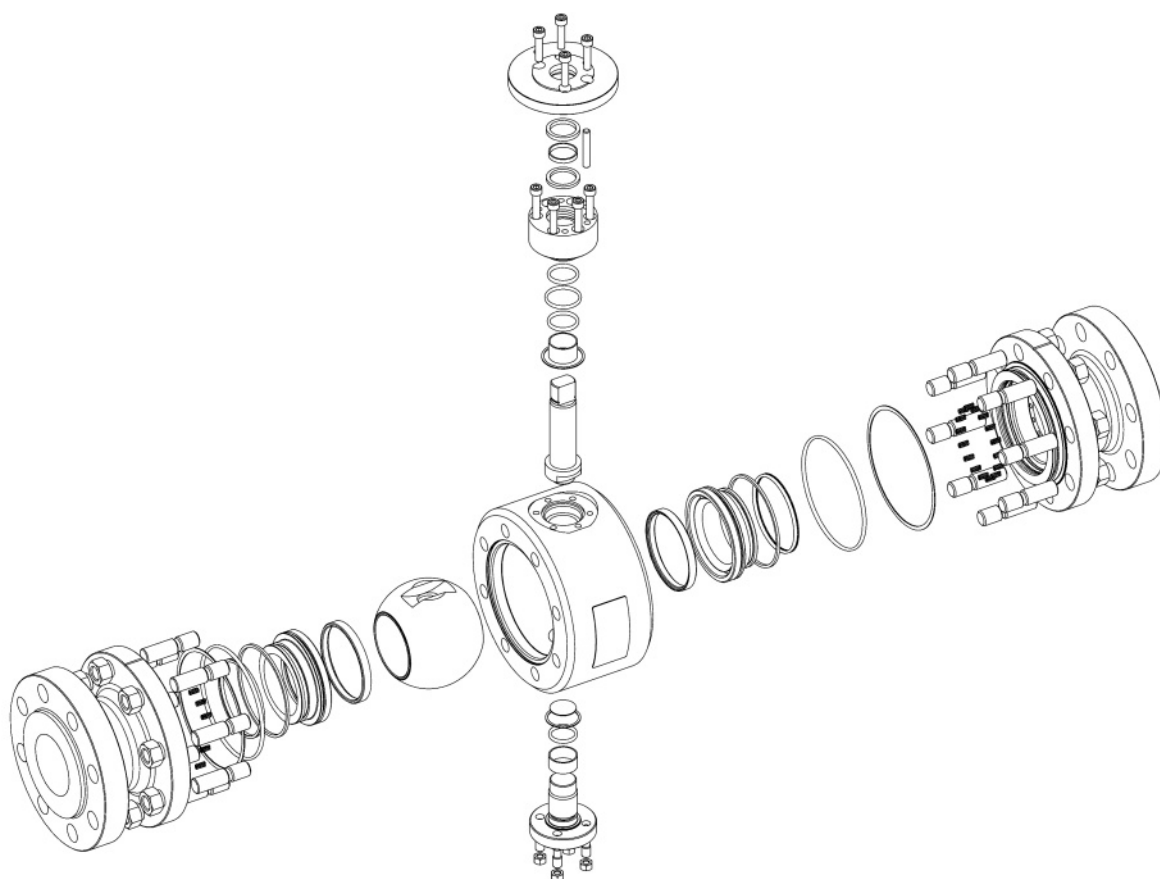
STEM EXTENSION (OP)

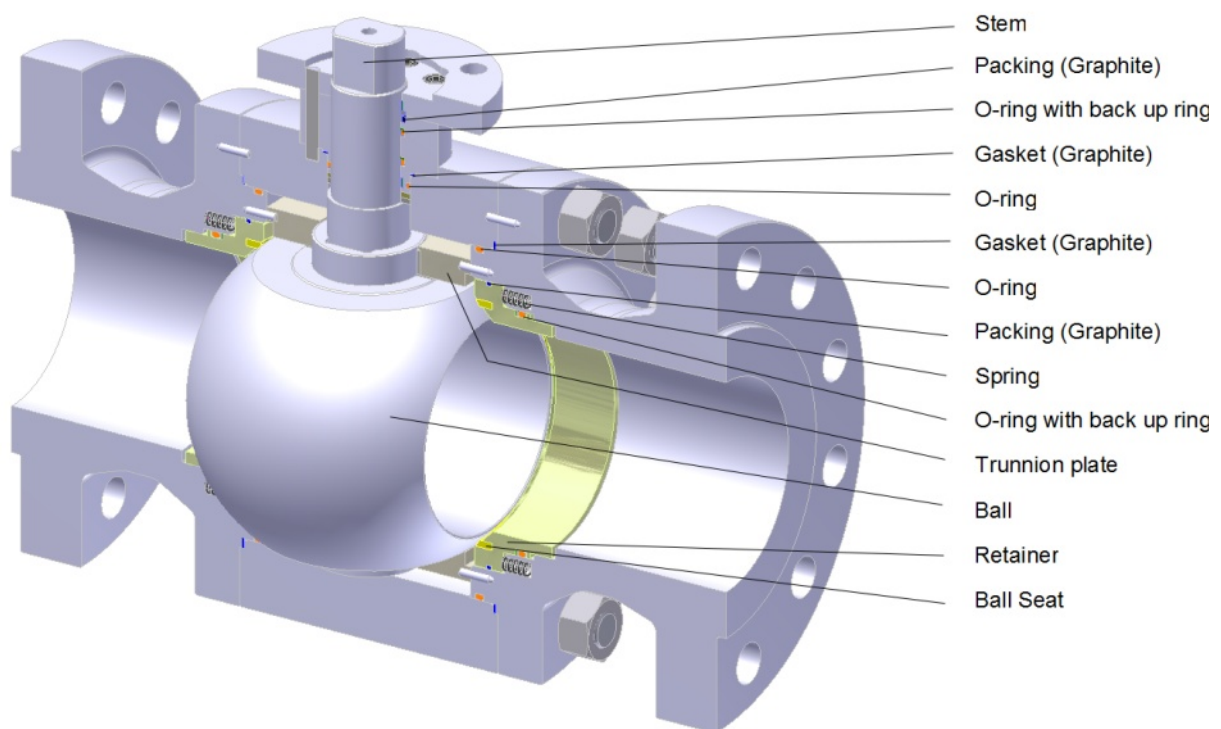
An optional stem extension design is available for underground or remote valve operation. Specify the dimension between the center of the valve bore and the center of the valve operator. Valve operating medium such as electric and pneumatic actuators are also optionally available.



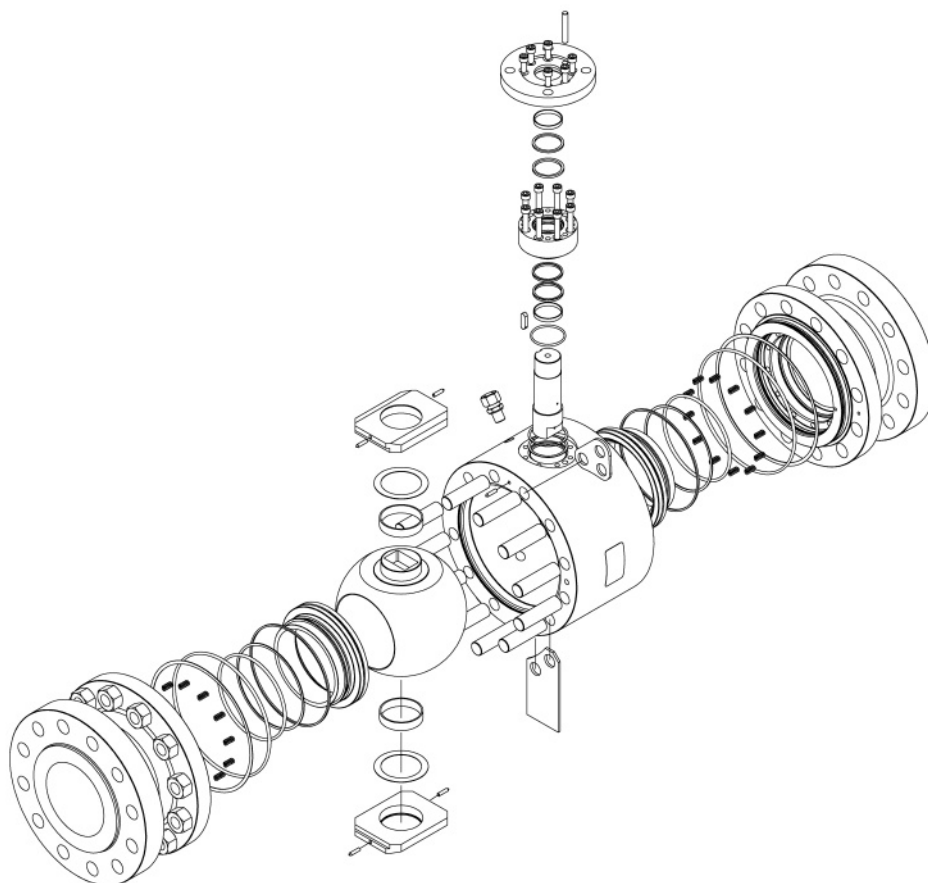


This illustration shows typical construction for size up to NPS 4





This illustration shows typical construction for size NPS 6 and larger



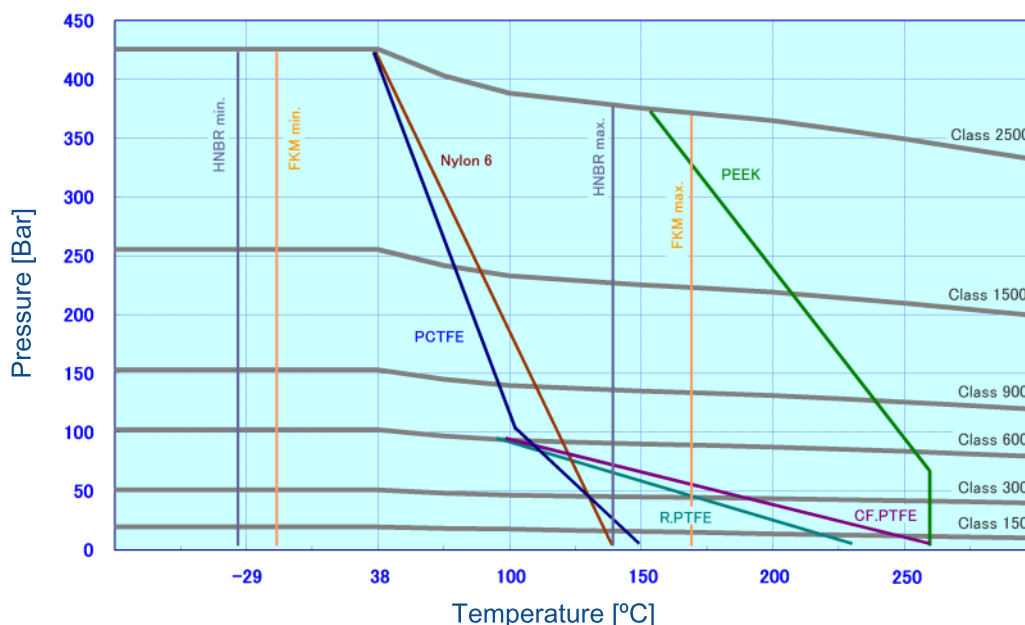
Item	Un-corrosive	Low temp.	Corrosive	Sour service	
Body	A105	LF2	F316 or 316	F51 or S31803	F55 or S32760
Cap	A105	LF2	F316 or 316	F51 or S31803	F55 or S32760
Ball	13Cr or A105+ENP	316 or LF2+ENP	F316 or 316	F51 or S31803	F55 or S32760
Stem	13Cr or 630	316 or 630	316 or S31803	S31803	S32760
Bottom stem	A105	LF2	316	S31803	S32760
Retainer	A105+ENP	LF2+ENP	316	S31803	S32760
Trunnion	A105 or WCB	LF2 or LCB	316 or CF8M	S31803 or CD3MN	S32760 or CD3MWCuN
Bonnet	A105	LF2	316	S31803	S32760
Gland plate	A105	LF2	316	316	316
Spring	AISI 301	AISI 301	Inconel X750	Inconel X750	Inconel X750
Bearing	CS+PTFE	CS+PTFE	316SS+PTFE	N06625 +PTFE	N06625 +PTFE
Bolt / Nut	B7 / 2H	L7 / 4	B8 / 8	B8 / 8	B8 / 8
O-ring	HNBR	L-NBR	FKM	FKM	FKM
Seat	R-PTFE (class up to 600)				
	Nylon 6 (class 900 and over)				

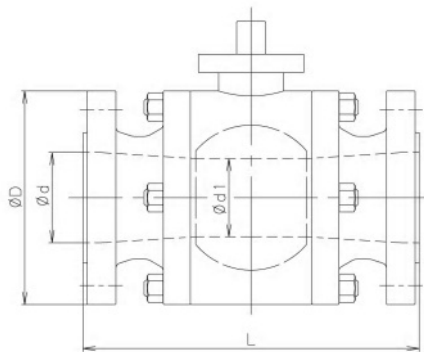
unit [mm]

PRESSURE - TEMPERATURE RATING

The pressure-temperature rating of soft seated ball valve are determined, not only by the valve shell materials, but also by the sealing materials used for ball seat, gland packings, O-rings, flange gaskets and bearings. Sealing materials may be high molecule, or rubber, but the choice is limited by characteristics of the service fluid, working pressures, fluid velocity, and operational frequency of the valve.

As it is very difficult to predetermine the exact pressure-temperature ratings for all kinds of fluid under all imaginable conditions, general rating charts have been provided for non-shock fluid service below, based on KITZ past experiences both in the field and in KITZ laboratory. Frequent need of maintenance is another factor to be kept in mind, if very high temperature operation is planned or expected.





Class 150

SIZE	d	d1	D	L		
				RF	WE	RJ
2	49	49	150	178	216	191
3 x 2	74	49	190	203	283	216
3	74	74	190	203	283	216
4 x 3	100	74	230	229	305	241
4	100	100	230	229	305	241
6 x 4	150	100	280	394	457	406
6	150	150	280	394	457	406
8 x 6	201	150	345	457	521	470
8	201	201	345	457	521	470
10 x 8	252	201	405	533	559	546
10	252	252	405	533	559	546
12 x 10	303	252	485	610	635	622
12	303	303	485	610	635	622
14 x 10	334	252	535	686	762	699
14 x 12	334	303	535	686	762	699
14	334	334	535	686	762	699
16 x 12	385	303	595	762	838	775
16 x 14	385	334	595	762	838	775
16	385	385	595	762	838	775
18 x 14	436	334	635	864	914	876
18 x 16	436	385	635	864	914	876
18	436	436	635	864	914	876
20 x 16	487	385	700	914	991	927
20 x 18	487	436	700	914	991	927
20	487	487	700	914	991	927
22 x 20	538	487	750	1016	1092	1029
22	538	538	750	1016	1092	1029
24 x 20	589	487	815	1067	1143	1080
24	589	589	815	1067	1143	1080

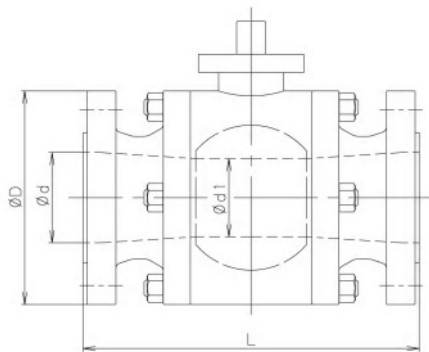
unit [mm]

Class 300

SIZE	d	d1	D	L		
				RF	WE	RJ
2	49	49	165	216	216	232
3 x 2	74	49	210	283	283	298
3	74	74	210	283	283	298
4 x 3	100	74	255	305	305	321
4	100	100	255	305	305	321
6 x 4	150	100	320	457	457	419
6	150	150	320	457	457	419
8 x 6	201	150	380	502	521	518
8	201	201	380	502	521	518
10 x 8	252	201	445	568	559	584
10	252	252	445	568	559	584
12 x 10	303	252	520	648	635	664
12	303	303	520	648	635	664
14 x 10	334	252	585	762	762	778
14 x 12	334	303	585	762	762	778
14	334	334	585	762	762	778
16 x 12	385	303	650	838	838	854
16 x 14	385	334	650	838	838	854
16	385	385	650	838	838	854
18 x 14	436	334	710	914	914	930
18 x 16	436	385	710	914	914	930
18	436	436	710	914	914	930
20 x 16	487	385	775	991	991	1010
20 x 18	487	436	775	991	991	1010
20	487	487	775	991	991	1010
22 x 20	538	487	840	1092	1092	1114
22	538	538	840	1092	1092	1114
24 x 20	589	487	915	1143	1143	1165
24	589	589	915	1143	1143	1165

unit [mm]

PN designed valves can be available. Ask product range and dimensions.


Class 600

SIZE	d	d1	D	L		
				RF	WE	RJ
2	49	49	165	292	292	295
3 x 2	74	49	210	356	356	359
3	74	74	210	356	356	359
4 x 3	100	74	275	432	432	435
4	100	100	275	432	432	435
6 x 4	150	100	355	559	559	562
6	150	150	355	559	559	562
8 x 6	201	150	420	660	660	664
8	201	201	420	660	660	664
10 x 8	252	201	510	787	787	791
10	252	252	510	787	787	791
12 x 10	303	252	560	838	838	841
12	303	303	560	838	838	841
14 x 10	334	252	605	889	889	892
14 x 12	334	303	605	889	889	892
14	334	334	605	889	889	892
16 x 12	385	303	685	991	991	994
16 x 14	385	334	685	991	991	994
16	385	385	685	991	991	994

unit [mm]

Class 2500

SIZE	d	d1	D	L		
				RF	WE	RJ
1	25	25	160	308	308	308
1 1/2 x 1	38	25	205	384	384	387
1 1/2	38	38	205	384	384	387
2 x 1 1/2	42	38	235	451	451	454
2	42	42	235	451	451	454
3 x 2	62	42	305	578	578	584
3	62	62	305	578	578	584
4 x 3	87	62	355	673	673	683
4	87	87	355	673	673	683

unit [mm]

Class 900

SIZE	d	d1	D	L		
				RF	WE	RJ
2	49	49	215	368	368	371
3 x 2	74	49	240	381	381	384
3	74	74	240	381	381	384
4 x 3	100	74	290	457	457	460
4	100	100	290	457	457	460
6 x 4	150	100	380	610	610	613
6	150	150	380	610	610	613
8 x 6	201	150	470	737	737	740
8	201	201	470	737	737	740
10 x 8	252	201	545	838	838	841
10	252	252	545	838	838	841
12 x 10	303	252	610	965	965	968
12	303	303	610	965	965	968

unit [mm]

Class 1500

SIZE	d	d1	D	L		
				RF	WE	RJ
1	25	25	150	254	254	254
1 1/2 x 1	38	25	180	305	305	305
1 1/2	38	38	180	305	305	305
2 x 1 1/2	49	38	215	368	368	371
2	49	49	215	368	368	371
3 x 2	74	49	265	470	470	473
3	74	74	265	470	470	473
4 x 3	100	74	310	546	546	549
4	100	100	310	546	546	549
6 x 4	144	100	395	705	705	711
6	144	144	395	705	705	711
8 x 6	192	144	485	832	832	841
8	192	192	485	832	832	841
10 x 8	239	192	585	991	991	1000
10	239	239	585	991	991	1000

unit [mm]

PN designed valves can be available. Ask product range and dimensions.

11



CAUTION

Pressure-temperature ratings and other performance data published in this catalog have been developed from our design calculation, in-house testing, field reports provided by our customers and/or published official standards or specifications. They are good only to cover typical applications as a general guideline to users of KITZ products introduced in this catalog.

For any specific application, users are kindly requested to contact KITZ Corporation for technical advice, or to carry out their own study and evaluation for proving suitability of these products to such an application. Failure to follow this request could result in property damage and/or personal injury, for which we shall not be liable.

While this catalog has been compiled with the utmost care, we assume no responsibility for errors, impropriety or inadequacy. Any information provided in this catalog is subject to from time-to-time change without notice for error rectification, product discontinuation, design modification, new product introduction or any other cause that KITZ Corporation considers necessary. This edition cancels all previous issues.



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