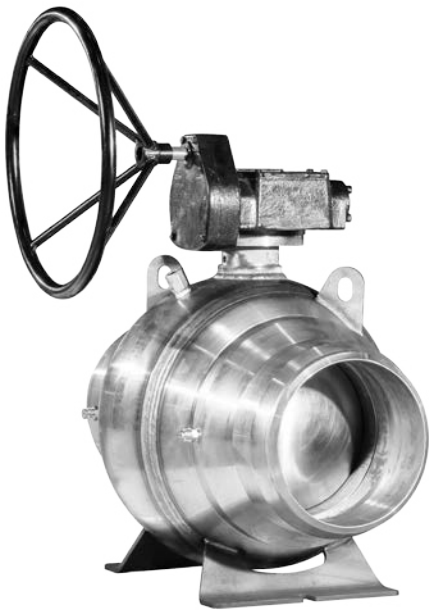
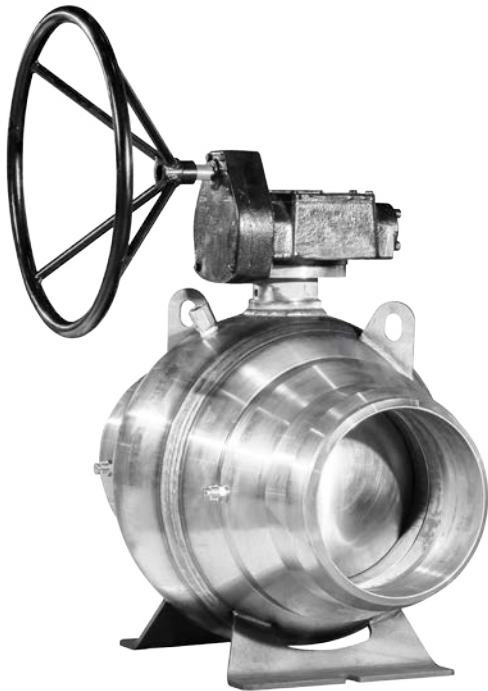




Fully Welded

Trunnion
Ball Valves





Where to use

- On/Off Shore Oil and Gas Production
- Subsea Oil and Gas Production
- Oil and Gas Storage
- Oil and Gas Transportation
- Oil and Gas Gathering Systems
- Gas Re-injection Plants
- Gas Treatment Plants
- LPG and LNG Production
- LPG and LNG Storage
- LPG and LNG Transportation
- Petrochemical Industry
- Metering Systems
- Refining Industry
- City Lines

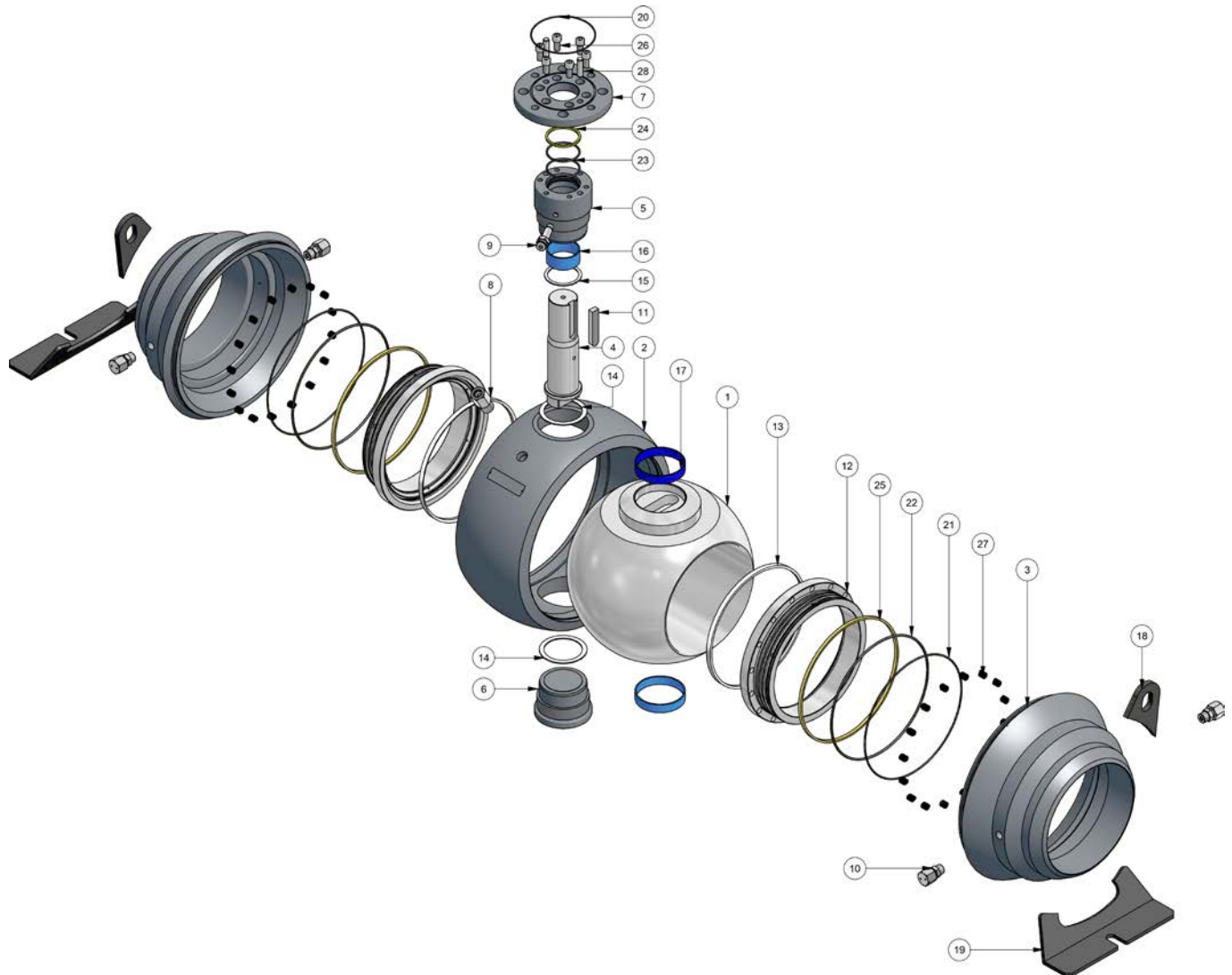
Fully welded ball valves are used at pipelines for their strength and low maintenance purpose and preferred mostly for underground and aboveground applications. Their design allows lightweight structure and leakage resistance at optimum level.



FEATURES	
Valve Sizes :	2" - 56"
Operation :	Lever / Gear / Actuator
Pressure Class :	ANSI 150 / 300 / 600 / 900
End Connections :	BW, RF, RTJ
STANDARDS	
Valves Desing Standart :	ISO 17292 , API 6D, ISO 14313
Face To Face Std :	ANSI B16.10
End Connection :	ANSI B16.5 / ANSI B.16.25 / DIN EN 1092-1
Testing :	API 6D / API 598
Fire safe testing :	API 607 / ISO 10497 / API 6FA
Certificate Acc to :	10204 3.1 - 3.2

* Underground Application

FULLY WELDED CONNECTION TRUNNION BALL VALVES - PART LIST



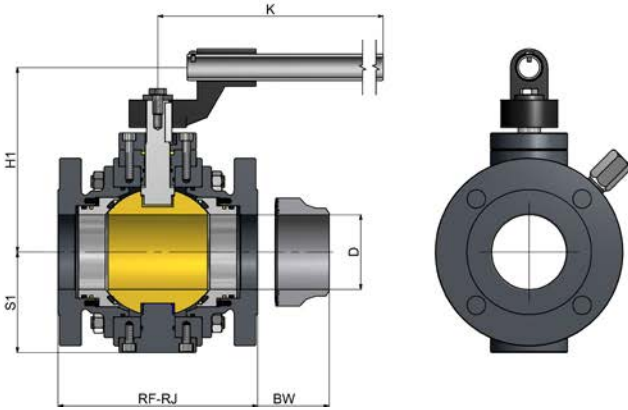
ITEM	PART NAME	QTY	MATERIAL
1	Ball	1	ASTM A105 + ENP
2	Body	1	ASTM A105
3	Bonnet	7	ASTM A216 WCB
4	Stem	1	AISI 4140 + ENP
5	Gland	1	ASTM A105
6	Trunnion	1	ASTM A105
7	Gearbox Flange	1	AISI 1040
8	Drain Plug	1	ASTM A105
9	Stem Lubrication	1	ASTM A105
10	Sealant	4	ASTM A105
11	Key	1	C45
12	Seat	2	ASTM A105 + ENP
13	Seat Seal	2	PTFE
14	Thrust Washer	2	STEEL+C.G.

ITEM	PART NAME	QTY	MATERIAL
15	Thrust Washer	1	STEEL+C.G.
16	Bush	1	STEEL+C.G.
17	Bush	2	STEEL+C.G.
18	Lifting Device	2	ST 32
19	Valve Feet	2	ST 32
20	O-Ring	1	NBR
21	O-Ring	2	NBR
22	O-Ring	2	NBR
23	O-Ring	2	NBR
24	Gasket	1	GRAPHITE
25	Gasket	2	GRAPHITE
26	Bolt	6	DIN 8.8
27	Springs	32	INOX
28	Pin	2	DIN 8.8

For sour/ low gas service material options contact us...

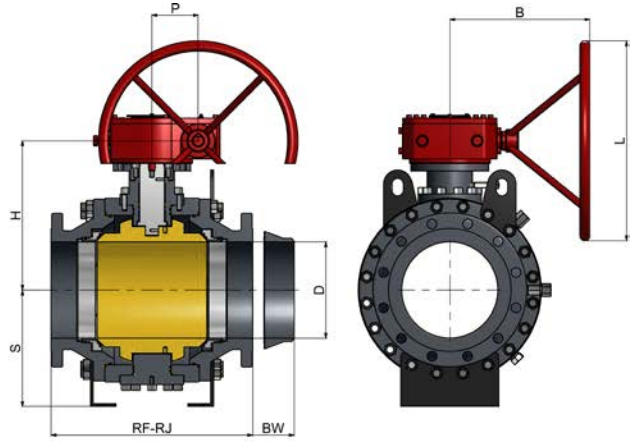
Control Type : LEVER

2" - 4"



Control Type : Gear

6" & Above



CLASS 150

DIMENSIONS TABLE

ANSI150	RF	BW	RJ	D	S	H	P	B	L	S1	H1	K	GBX100B	GBX180B	GBX180E	GBX200B	GBX200E	GBX250B	RF KG	BW KG	
2"	178	216	191	50	-	-	-	-	-	79	150	320	-	-	-	-	-	-	-	18kg	16.5kg
3"	203	283	216	76	-	-	-	-	-	102	188	480	-	-	-	-	-	-	-	33kg	31kg
4"	229	305	241	102	-	-	-	-	-	176	247	480	-	-	-	-	-	-	-	53kg	52kg
6"	394	457	406	152	216	258	90	281,5	427	-	-	-	-	-	-	-	-	-	-	139kg	134kg
8"	457	521	470	203	276	325,5	90	281,5	427	-	-	-	-	-	-	-	-	-	-	257kg	262kg
10"	533	559	546	254	307,5	394	122,4	370,5	527	-	-	-	-	-	-	-	-	-	-	398kg	301kg
12"	610	635	622	305	333,5	415	122,4	370,5	527	-	-	-	-	-	-	-	-	-	-	610kg	485kg
14"	686	762	699	337	382	488	157	480	527	-	-	-	-	-	-	-	-	-	-	900kg	630kg
16"	762	838	775	387	416	591	157	480	527	-	-	-	-	-	-	-	-	-	-	-	1015kg
18"	884	914	876	438	-	-	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	-
20"	914	991	927	489	550	644	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	2243kg
24"	1067	1143	1080	590	695	813	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	-
26"	1143	1245	-	635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28"	1245	1346	-	686	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30"	1295	1397	-	737	735	927	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	5772kg
32"	1372	1524	-	781	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36"	1524	1727	-	876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40"	(C)	(C)	-	(C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CLASS 300

DIMENSIONS TABLE

ANSI300	RF	BW	RJ	D	S	H	P	B	L	S1	H1	K	GBX100B	GBX180B	GBX180E	GBX200B	GBX200E	GBX250B	RF KG	BW KG	
2"	216	216	232	50	-	-	-	-	-	79	150	320	-	-	-	-	-	-	-	21kg	16.5kg
3"	283	283	298	76	-	-	-	-	-	96,5	193	480	-	-	-	-	-	-	-	44kg	31kg
4"	305	305	321	102	-	-	-	-	-	127	247	480	-	-	-	-	-	-	-	73kg	52kg
6"	403	457	419	152	232	258	90	281,5	427	-	-	-	-	-	-	-	-	-	-	161kg	134kg
8"	502	521	518	203	289	325,5	90	281,5	427	-	-	-	-	-	-	-	-	-	-	294kg	262kg
10"	568	559	584	254	307,5	394	122,4	422,5	527	-	-	-	-	-	-	-	-	-	-	449kg	301kg
12"	648	635	664	305	333,5	415	122,4	422,5	527	-	-	-	-	-	-	-	-	-	-	668kg	485kg
14"	762	762	778	337	382	488	213,5	534	527	-	-	-	-	-	-	-	-	-	-	1050kg	630kg
16"	838	838	854	387	433	586	213,5	534	527	-	-	-	-	-	-	-	-	-	-	1360kg	1015kg
18"	914	914	930	438	-	-	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	-
20"	991	991	1010	489	550	644	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	2320kg
24"	1143	1143	1165	590	695	813	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	3513kg
26"	1245	1245	-	635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28"	1346	1346	-	686	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30"	1397	1397	-	737	735	927	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	-
32"	1524	1524	-	781	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36"	1727	1727	-	876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40"	(C)	(C)	-	(C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CLASS 600

DIMENSIONS TABLE

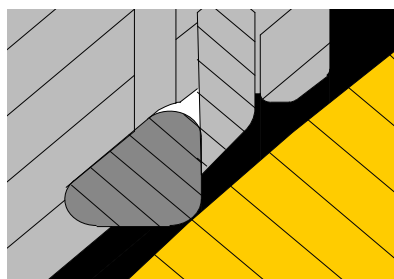
ANSI600	RF	BW	RJ	D	S	H	P	B	L	S1	H1	K	GBX100B	GBX180B	GBX180E	GBX200B	GBX200E	GBX250B	RF KG	BW KG	
2"	292	292	295	50	-	-	-	-	-	79	150	320	-	-	-	-	-	-	-	25kg	19kg
3"	356	356	359	76	-	-	-	-	-	102	188	480	-	-	-	-	-	-	-	50kg	36kg
4"	432	432	435	102	-	-	-	-	-	127	247	480	-	-	-	-	-	-	-	98kg	65kg
6"	559	559	562	152	226	264	90	281,5	427	-	-	-	-	-	-	-	-	-	-	220kg	145kg
8"	660	660	664	203	289	325,5	90	281,5	427	-	-	-	-	-	-	-	-	-	-	375kg	285kg
10"	788	788	791	254	307,5	484	122,4	422,5	527	-	-	-	-	-	-	-	-	-	-	633kg	343kg
12"	838	838	841	305	333,5	505	122,4	422,5	527	-	-	-	-	-	-	-	-	-	-	819kg	534kg
14"	889	889	892	337	382	548	213,5	534	527	-	-	-	-	-	-	-	-	-	-	1203kg	640kg
16"	991	991	994	387	433	591	213,5	534	527	-	-	-	-	-	-	-	-	-	-	1668kg	983kg
18"	1092	1092	1095	438	535	672	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	1857kg
20"	1194	1194	1200	489	550	709	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	2893kg
24"	1397	1397	1407	590	663	813	246,5	559	527	-	-	-	-	-	-	-	-	-	-	133kg	4575kg
26"	1448	1448	1461	635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28"	1549	1549	1562	686	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30"	1651	1651	1664	735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	133kg	-
32"	1778	1778	1794	781	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36"	2083	2083	2098	876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40"	(C)	(C)	(C)	976	1022	1245	(C)	(C)	(C)	-	-	-	-	-	-	-	-	-	-	-	14880kg

***(C) Please consult the factory.

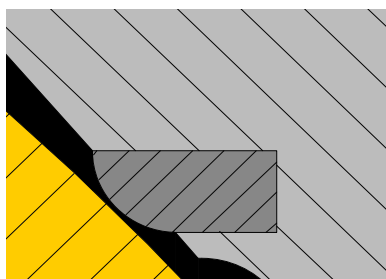
TORQUE TABLE (FULL BORE) (Nm)

CLASS	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
150	70	150	210	650	1000	1350	1670	2700	3810	5000	6500	8050
300	110	200	485	1000	1560	2000	2460	4000	5550	8300	11000	20300
600	145	410	710	1600	2490	3350	4700	6900	8700	13200	17900	27000

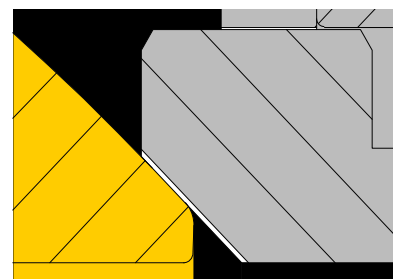
SEAT APPLICATIONS



- Seat
- Ball
- Seat Material (H-NBR)



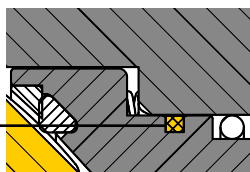
- Seat
- Ball
- Seat Material (PTFE)



- Seat
- Ball surface plating with 150 micron TCC.

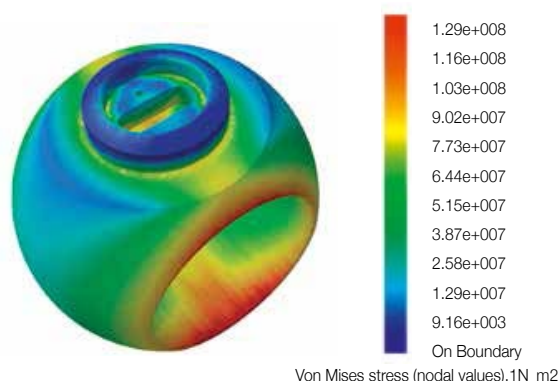
* For further material application options, please consult us directly

FIRE SAFE SEAT DESIGN



ANALYSIS

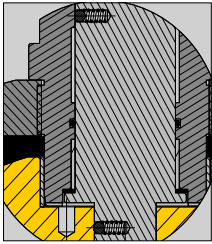
All valve designs, have been asset stress analysis to ensure pressure contained parts performance before manufacturing process.



API 6D - Leak Test Table

	HYDROSTATIC SEMI OPEN BODY TEST (Working pressure x 1,5)		HYDROSTATIC SEAT TEST (Working pressure x 1,1)		PNEUMATIC SEAT TEST	
	pressure	time	pressure	time	pressure	time
ANSI 150 Working pressure 20 Bar	30 Bar	Depends on nominal diameter	22 Bar	Depends on nominal diameter	6 Bar	Depends on nominal diameter
ANSI 300 Working pressure 51 Bar	76 Bar		57 Bar		6 Bar	
ANSI 600 Working pressure 102 Bar	153 Bar		113 Bar		6 Bar	
DN 15 - 100 (1/2 - 4)	30-76-153 Bar	2 min	22-57-113 Bar	2 min	6 Bar	2 min
DN 150 - 250 (6 - 10)	30-76-153 Bar	5 min	22-57-113 Bar	5 min	6 Bar	5 min
DN 300 - 450 (12 - 18)	30-76-153 Bar	15 min				
DN 500 and bigger	30-76-153 Bar	30 min				

DESIGN FEATURES



ANTISTATIC DEVICE

Spring plus graphite type antistatic device are applied between the ball, stem, gland flange and body, to keep the electrical continuity between all the metallic components, and ensure the resistance lower than the most severe service requirement.

BLOW-OUT PROOF STEM

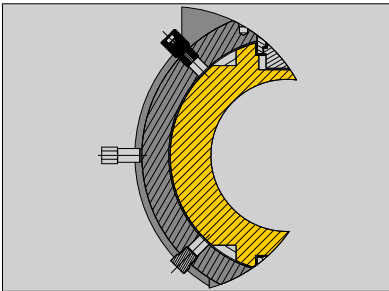
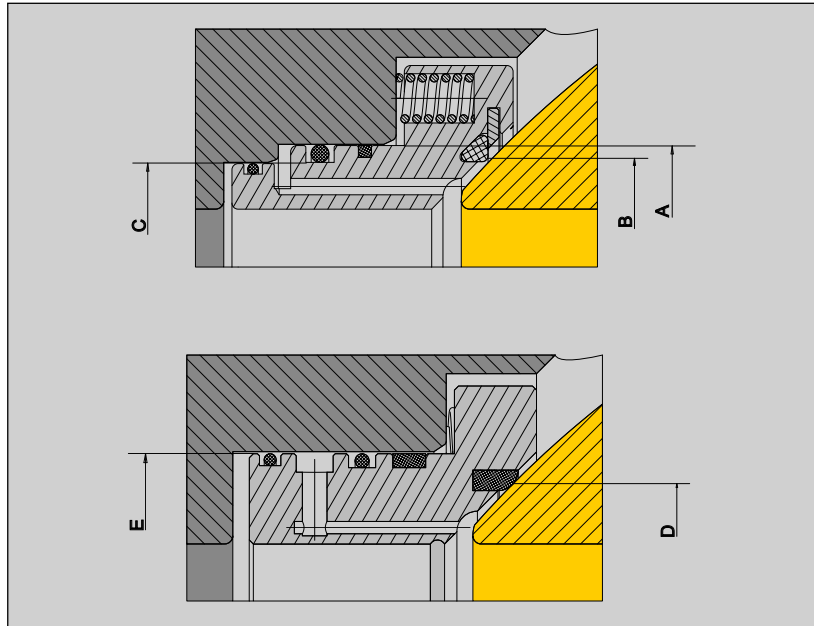
This design ensures the valve stem cannot be blown out of the body in the event of the gland being removed while the valve is under pressure. To prevent stem blow out from body, the stem has a shoulder in the lower part and so constructs that it may not blow out upwards.

SINGLE PISTON EFFECT

This type of seat design can ensure a tight contact with the ball in only single direction. In fact, when the line (so the valve) is under pressure (upstream), the seat is pushed toward the ball normally. It is called single piston effect due to one side seat ring pushed toward the ball.

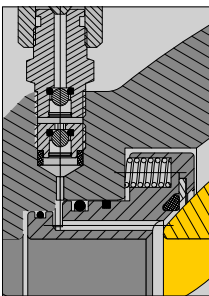
DOUBLE PISTON EFFECT

As the name of it indicates, this type of seat design provides a tight contact with the ball in the normal direction, and also in the reverse direction. So, both sides upstream and downstream can be sealed for better leakage proof. Its design allows to use body cavity pressure to push downstream side ring toward the ball also. It is called double piston effect due to both side seat ring pushed toward the ball.



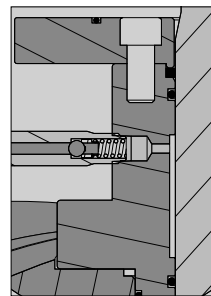
DOUBLE BLOCK and BLEED

When the ball is in the closed position, each seat seals off the process medium independently at the same time between the up/down stream and body cavity; it allows bleeding of the trapped cavity pressure (DBB) through drain or vent valve. The double block and bleed function makes it possible to flush the valve under pressure and verify that the seats are sealing properly.



EMERGENCY SEAT SEAL

In the event of damage to the valve seat, sealant can be injected to temporarily seal the valve until maintenance can be performed. It provides high integrity shutoff. On request, secondary seat sealant injection fittings are installed.



STEM SEAL

For high pressure or large size valves, double o-rings located in the upper stem area are used to ensure positive sealing. And upon request, additional stem seal injection fittings are provided to be utilized in the case of emergencies, o-ring damage, or if stem leakage occurs.