

Your Professional Valve Solution



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Full welded ball valve



Tipvalve is specialized in industrial valves' production, research and development, sales and service.

Offer the valve solution in rigorous working condition for customers, especially in atrocious working condition, sea water and other corrosive media.

Tipvalve is widespread recognized relying on rich experiences and technical support.

TIPVALVE INDUSTRIAL GROUP LTD.



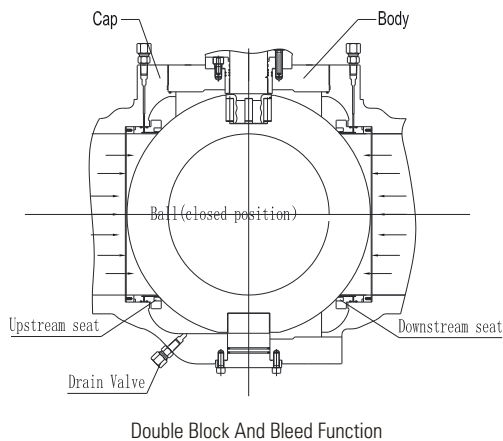
USAGE

The trunnion ball valve is used to cut off or connect the media in various pipelines of Class150~Class2500. The valves made of different materials are suitable for various media such as water, steam, oil, liquefied gas, natural gas, coal gas, nitric acid, oxidizer, urea and etc. The driving modes include manual operation, worm and worm gear transmission, pneumatic operation and electric operation. The connection ends can be flange or butt welding.

DESIGN STRUCTURAL FEATURES

1. Double Block And Bleed(DBB)

When the valve is closed and the middle cavity is emptied through the discharge valve, the upstream and downstream seats will independently block the fluid at the inlet and outlet to realize double block function. Another function of the discharge device is that the valve seat can be checked if there is any leakage during the test. In addition, the deposits inside the body can be washed and discharged through the discharge device to reduce damage to the seat by impurities in the medium.



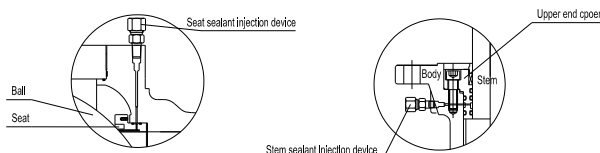
2. Low Operating Torque

The trunnion pipeline ball valve adopts trunnion ball structure and floating valve seat, so as to achieve lower torque under operating pressure. It uses self-lubricating PTFE and metal sliding bearing to reduce the friction coefficient to the lowest in conjunction with the high intensity and high fineness stem.

3. Emergency Sealing Device

The ball valves with the diameter more than or equal to 6"(DN150) are all designed with sealant injection device on stem and seat. When the seat ring or stem O ring is damaged due to accident, the corresponding sealant can be injected by the sealant injection device to avoid medium leakage on seat ring and stem. If necessary, the auxiliary sealing system can be used for washing and lubricating the seat to maintain its cleanliness.

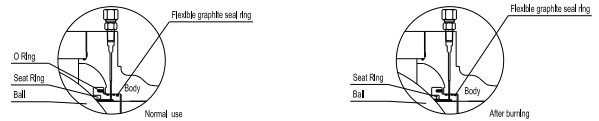
sealant Injection Device



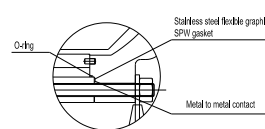
4. Fire-safe design structure

Fire during the use of valve, the seat ring, stem O ring and middle flange O ring made of PTFE, rubber or other non-metal materials will be decomposed or damaged under high temperature. Under pressure of the medium, the ball valve will push the seat retainer rapidly towards the ball to make the metal seal ring contact the ball and form the auxiliary metal to metal sealing structure, which can effectively control valve leakage. The fireproof structure design of trunnion pipeline ball valve conforms to requirements in API 607, API 6FA, BS6755 and other standards.

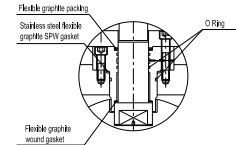
Fire-safe design structure of seat



Fire-safe design structure of middle flange



Fire-safe design structure of stem



5. Anti-static design structure

The ball valve is provided with the anti-static structure and adopts this static electricity discharge device to directly form a static channel between the ball and body or form a static channel between the ball and body through the stem, so as to discharge the static electricity produced due to friction during the opening and closing of ball and seat through the pipeline, avoiding fire or explosion that may be caused by static spark and ensuring system safety.

6. Reliable seat sealing design structure

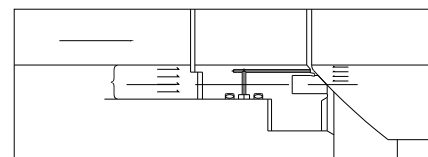
The seat sealing is realized through two floating seat retainers. They can float axially to block the fluid, including ball sealing and body sealing. The low pressure sealing of valve seat is realized by spring pre-tightening. In addition, the piston effect of valve seat is designed reasonably, which realizes high pressure sealing by the pressure of the medium itself. The following two kinds of ball sealing can be realized.

7. Single Sealing

(automatic Pressure Relief In Middle Cavity Of Valve)

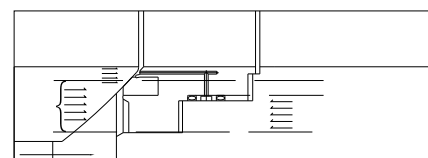
Generally, the single sealing structure is used, that is, there is only the upstream sealing. As the independent spring loaded upstream and downstream sealing seats are used, the over-pressure inside valve cavity can overcome the pre-tightening effect of the spring, so as to make the seat release from the ball and realize automatic pressure relief towards the downstream part.

The upstream side: When the seat moves axially along the valve, the pressure P exerted on the upstream part (inlet) produces a reverse force on A1. As A2 is higher than A1, $A2 \cdot A1 = B1$, The force on B1 will push the seat to the ball and realize tight sealing of the upstream part.



$$A2 > A1$$

The downstream side: Once the pressure p_b inside the valve cavity increases, the force exerted on A3 is higher than that on A4. As $A3 \cdot A4 = B2$, The pressure differential on B2 will overcome the spring force to make the seat release from the ball and realize pressure relief of valve cavity to the downstream part. Afterwards, the seat and ball will be sealed again under the spring action.



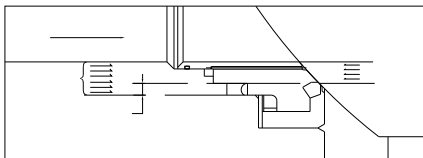
$$A3 > A4$$



8. Double Sealing (double Piston affect)

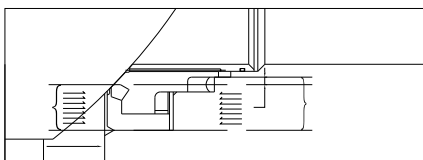
The trunnion pipeline ball valve can be designed with the double sealing structure before and after the ball for some special service conditions and user requirements. It has double piston effect. Under normal condition, the valve generally adopts primary sealing. When the primary seat sealing is damaged and causes leakage, the secondary seat can play the function of sealing and enhance the sealing reliability. The seat adopts the combined structure. The primary seal is metal to metal seal. The secondary seal is fluorine rubber O ring that can ensure the ball valve can reach the bubble level sealing. When the pressure differential is very low, the sealing seat will press the ball through the spring action to realize primary sealing. When the pressure differential rises, the sealing force of seat and body will increase accordingly so as to tightly seal the seat and ball and ensure good sealing performance.

Primary sealing: Upstream. When the pressure differential is lower or there is no pressure differential, the floating seat will move axially along the valve under the spring action and push the seat towards the ball to keep tight sealing. When the pipeline pressure P increases, the force exerted on the area A_2 of valve seat is higher than the force exerted on the area A_1 , $A_2 - A_1 = B_1$. Therefore, the force on B_1 will push the seat towards the ball and realize tight sealing of the upstream part.



$A_2 > A_1$

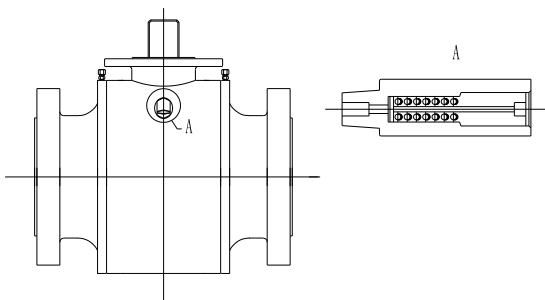
Secondary sealing: Downstream. When the pressure differential is lower or there is no pressure differential, the floating seat will move axially along the valve under the spring action and push the seat towards the ball to keep tight sealing. When the valve cavity pressure P increases, the force exerted on the area A_4 of valve seat is higher than the force exerted on the area A_3 , $A_4 - A_3 = B_1$. Therefore, the force on B_1 will push the seat towards the ball and realize tight sealing of the upstream part.



$A_3 > A_4$

9. Safety Relief Device

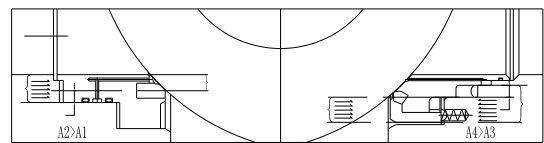
As the ball valve is designed with the advanced primary and secondary sealing that has double piston effect, and the middle cavity cannot realize automatic pressure relief, the safety relief valve must be installed on the body in order to prevent the danger of over-pressure damage inside the valve cavity that may occur due to thermal expansion of medium. The connection of the safety relief valve is generally NPT1/2. Another point to be noted is that the medium of the safety relief valve is directly discharged into the atmosphere. In case direct discharging into the atmosphere is not allowed, we suggest that the ball valve with a special structure of automatic pressure relief towards upper stream should be used. Refer to the following for details. Please indicate it in the order if you do not need the safety relief valve or if you would like to use the ball valve with the special structure of automatic pressure relief towards upper stream.



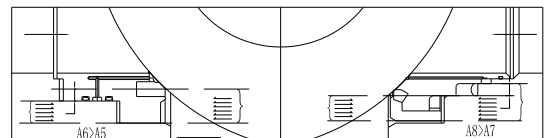
10. Social Structure Of Automatic Pressure Relief Towards Upper Stream

As the ball valve is designed with the advanced primary and secondary sealing that has double piston effect, and the middle cavity cannot realize automatic pressure relief, the ball valve with the special structure is recommended to meet the requirement of automatic pressure relief and ensure no pollution to the environment. In the structure, the upper stream adopts primary sealing and the lower stream adopts primary and secondary sealing. When the ball valve is closed, the pressure in the valve cavity can realize automatic pressure relief to the upper stream, so as to avoid the danger caused by cavity pressure. When the primary seat is damaged and leaks, the secondary seat can also play the function of sealing. But special attention shall be paid to the flow direction of the ball valve. During the installation, note the upstream and downstream directions. Refer to the following drawings for sealing principle of the valve with the special structure.

Principle drawing of ball valve upstream and downstream sealing

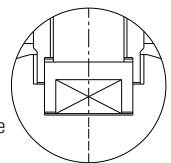


Principle drawing of ball valve cavity pressure relief to the upper stream and of downstream sealing



11. Blow-out Proof Stem

The stem adopts the blow-out proof structure. The stem is designed with the footstep at its bottom so that with the positioning of upper cover and screw, the stem will not be blown out by the medium even in case of abnormal pressure rise in the valve cavity.



Blow-out proof stem

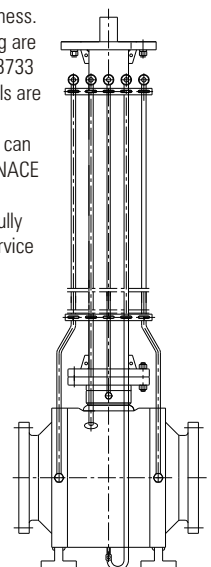
12. Corrosion Resistance and Sulfide Stress Resistance

Certain corrosion allowance is left for the body wall thickness. The carbon steel stem, fixed shaft, ball, seat and seat ring are subjected to chemical nickel plating according to ASTM B733 and B656. In addition, various corrosion resistant materials are available for users to select.

According to customer requirements, the valve materials can be selected according to NACE MR 01 75/ISO 15156 or NACE MR 0103, and strict quality control and quality inspection should be carried out during the manufacturing so as to fully meet the requirements in the standards and meet the service conditions in sulfurization environment.

13. Extended Stem design for underground application

As for the embedded valves, the extension stem can be supplied if ground operation is needed. The extension stem is composed of stem, sealant injection valve, and drainage valve that can be extended to the top for the convenience of operation. Users should indicate the extension stem requirements and length when placing orders. For ball valves driven through electric, pneumatic and pneumatic-hydraulic operations, the extension stem length should be from the centre of pipeline to top flange.



Schematic diagram of extension stem

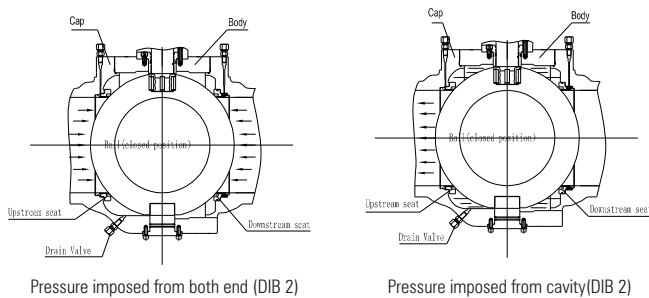


14. Double isolation and bleed valve (DIB design)

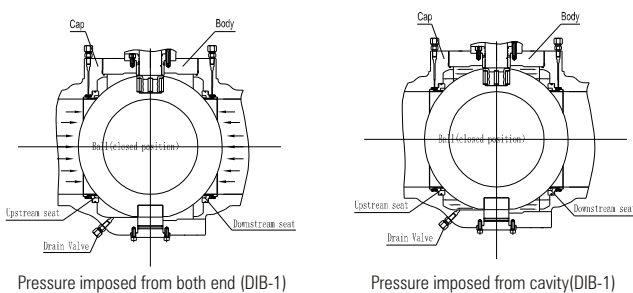
There are two type of DIG design ball valves, one type is double bi-directional seats (DIB-1), and the other type is single bi-direction seat plus unidirectional seat (it have direction mark on the valves, DIB-2). With two sealing surfaces, each sealing faces resist to a source of pressure in the closed position, through bleeder valve chamber between the sealing faces.

For DIB-1: Both seats are Bi-directional sealing. Each seat should be tested Bi-directionally;
For DIB-2: One is unidirectional sealing seat, and the other is Bi-directional sealing seat, so there is a direction marked on the body for this type of ball valve; The Bi-directional sealing seat need be tested Bi-directionally. As to the unidirectional sealing seat. It should be tested unidirectionally (Add pressure to valve chamber and upstream, examine leakage status of downstream valve seat)

DIB-2



DIB-1



DESIGN STRUCTURAL FEATURES

Integral Valve Structure

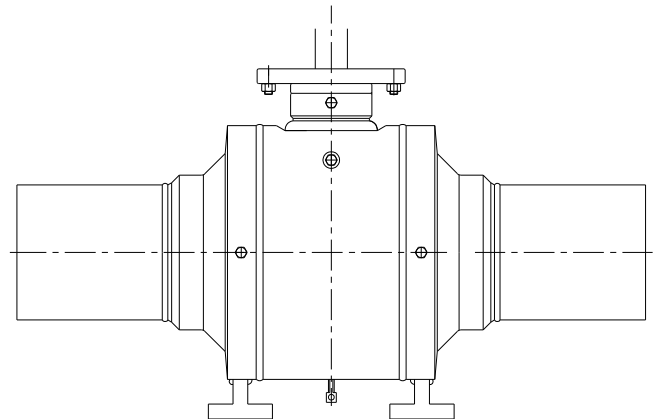
It is welded by forged steel. The forging materials are subjected to ultrasonic examination according to ASME nondestructive flaw detection requirements. The welding slope on the connection face is subjected to liquid penetration examination.

Corrosion Resistance and Sulfide Stress Resistance

Certain corrosion allowance is left for the body wall thickness. The carbon steel stem, fixed shaft, ball, seat and seat ring are subjected to chemical nickel plating according to ASTM B733 and B656. In addition, various corrosion resistant materials are available for users to select. According to customer requirements, the valve materials can be selected according to NACE MR 01 75/ISO 15156 or NACE MR 0103, and strict quality control and quality inspection should be carried out during the manufacturing so as to fully meet the requirements in the standards and meet the service conditions in sulfurization environment.

Welding Of Transition Pipe

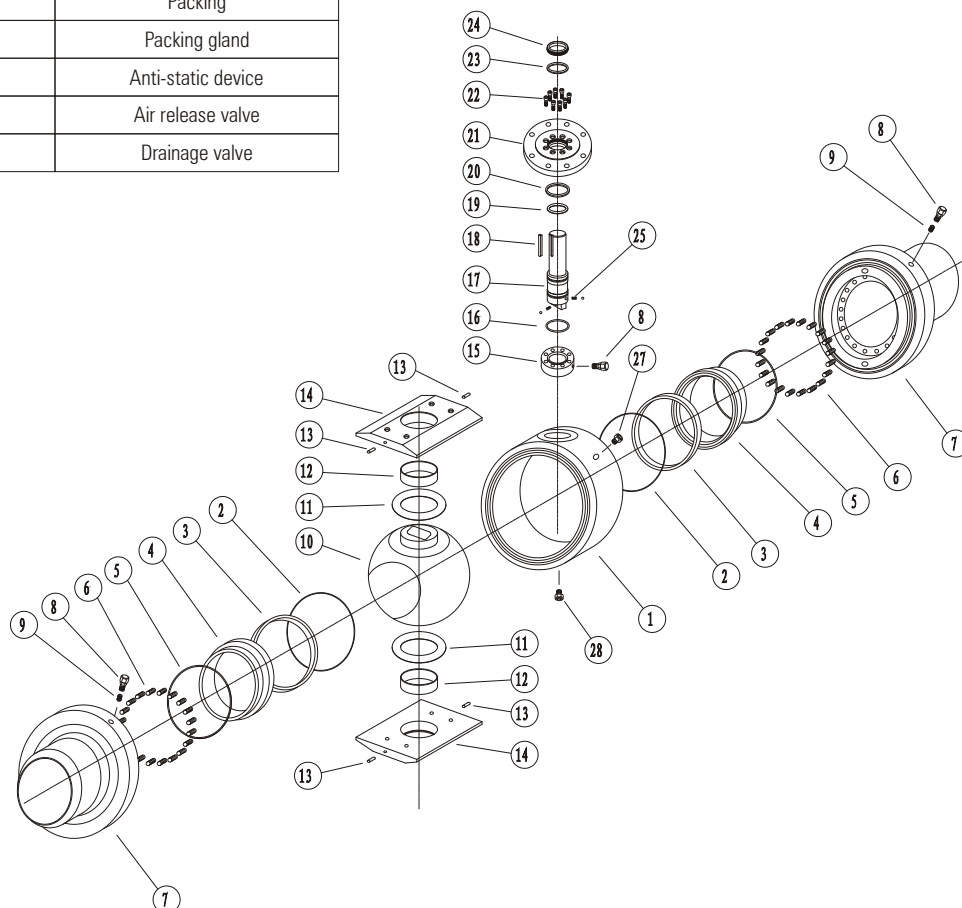
During the manufacturing of the fully welded pipeline ball valve, the transition pipe can be welded for the welding ends valve. The transition pipe can be supplied by users or by company according to user requirements. Please indicate the transition pipe diameter and length A when placing orders.





Main components

1	Body
2	Anti-fire packing
3	Seat
4	Seat ring
5	O Ring
6	Spring
7	Bonnet
8	Sealant injection valve
9	Check valve
10	Ball
11	Thrust gasket
12	Sliding bearing
13	Pin
14	Bearing holder
15	Seal gland
16	Thrust bearing
17	Stem
18	flat key
19	Thrust bearing
20	Anti-fire gasket
21	Connection plate
22	Socket head cap screw
23	Packing
24	Packing gland
25	Anti-static device
26	Air release valve
27	Drainage valve





Part Materials And Main Parameters

Nominal diameter(in)			NPS 6～48				
Nominal pressure(Class)			Class150～Class1500				
Materials of parts	No	Part Name	Material				
			Carbon Steel	Stainless Steel			
	1	Body	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	2	Anti-fire packing	Graphite	Graphite	Graphite	Graphite	Graphite
	3	Seat	PTFE/NYOLN/PEEK/PPL	PTFE/NYOLN/PEEK/PPL	PTFE/NYOLN/PEEK/PPL	PTFE/NYOLN/PEEK/PPL	PTFE/NYOLN/PEEK/PPL
	4	Seat ring	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	5	O Ring	VITON	VITON	VITON	VITON	VITON
	6	Spring	17-7PH	17-7PH	17-7PH	17-7PH	17-7PH
	7	Bonnet	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	8	Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	9	Check valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	10	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	11	Thrust gasket	PTFE	PTFE	PTFE	PTFE	PTFE
	12	Sliding bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
	13	Pin	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035
	14	Bearing holder	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	15	Seal gland	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	16	Thrust bearing	PTFE	PTFE	PTFE	PTFE	PTFE
	17	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	18	flat key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
	19	Thrust bearing	PTFE	PTFE	PTFE	PTFE	PTFE
	20	Anti-fire gasket	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite
	21	Connection plate	ASTM A105	ASTM A182 304	ASTM A182316	ASTM A182 304L	ASTM A182 316L
	22	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	23	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
	24	Packing gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
	25	Anti-static device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	26	Air release valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
27	Drainage valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts	
Applicable service conditions		Applicable media	Water, steam, oil, gas, liquefied gas,natural gas,etc.	Nitric Acid	Nitric Acid	Strong Oxidizer	Urea
		Applicable temperature	≤120℃ (PTFE)、≤80℃ (NYLON)、≤250℃ (PEEK)、≤250℃ (PPL)				
Design and manufacturing			API 608、API 6D				
Face-to-face dimensions			ASME B16.10、API 6D、JIS B2002				
Type of connection			Flange	ASME B16.5/ASME B16.47		Butt welding	ASME B16.25
Pressure test			API 598、API 6D				
Transmission mode			Manual, worm and worm gear transmission, pneumatic, electric				



USAGE

full weld ball valve has various kinds of advantages, for example, it is simple in structure, light in weight, high in strength, easy in operation. All the types of ball valves are fire safe in design with no need of maintenance. This type of ball valve has reliable performance, low cost and long lifespan without malfunction. All these make it an ideal choice for pipeline contractor.



Structure

Trunnion ball

With trunnioned ball, the floating seat moves in axial direction. Torque can be effectively lowered when the medium pressure transfers to the Teflon bearing by the valve body. With no pressure or low pressure, the spring shall push the seat, which makes the V seal ring cling to the body, enforcing reliable seal. With the increase of medium pressure, the seat shall, under the thrust force generated from the medium, compact closely with the ball together.

Full welded

The design and manufacturing design is according to ASME B16.34 and ASME BPVC.

Spherical body

The body is of single straight weld body, which makes the structure more compacted, greater strength and rigidity.

Separated ball and stem

Separated ball and stem design makes the pressure of medium to the ball minimize the impact of the stem and minimize the torque of the ball valve.

Stem key limit device

Pinpoint the location of valve status, to ensure the valve for switch position, and fundamental to prevent the misuse.

Anti-static design

Anti-static spring design allows the valve to have good electrical conductivity in any case.

Seat grease injection valve

It is used to repair the seal surface in case of emergency.

Floating seat

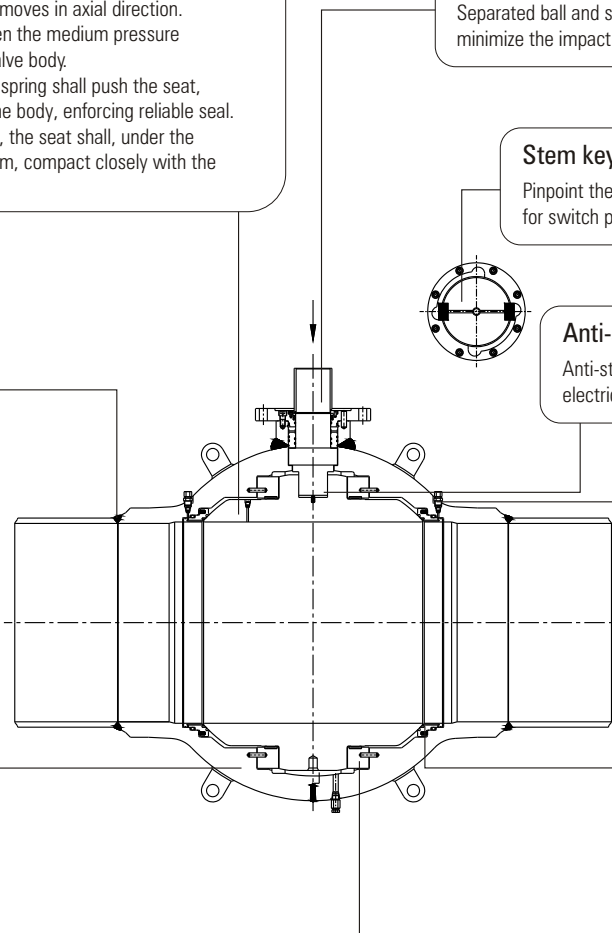
Precise seat design ensures full seal, generating lowest torque under zero and full differential pressure.

Trunnioned plate structure

Upper and lower trunnioned plate structure is used. Pressure of medium to the ball shall pass on left and right ball by trunnion plate. That makes the stem only bear the torque under the open and close condition of ball valve not that of medium to ball. This structure makes ball valve easy in opening, closing and operating.

External multiple seal

Left and right body and stem sleeve are weld connection. This makes it impossible for medium to leak from the body. The stem is double seal in design. The secondary seal is of fire safe material, which makes the stem seal reliable and no leakage in case of fire.





high performance full welded forged steel G type ball valve has its unique features besides the API 6D high performance pipeline ball valve advantages.

Unique body structure

The body of Ball Valve is full welded, selects high quality forged material, and adopts the advanced forged forming technology to form two semi-spheres which are welded into a whole in the middle of the body. This welding technology differentiates the ball valve from others, and makes the valve more spherically, so the valve structure is more compact, lighter and stronger. Besides, the middle direct welding realize highly accurate valve body manufacturing, makes fully and completely sealing between the seat and ball. The full welding instead of bolts completely avoids the outside leakage, so ball valve is the ideal product for under-ground, offshore working platform and under-sea equipments.

Adopting fixed plates or trunnion to support the ball

The top and bottom of the ball is supported by upper and lower fixed plates or stem and trunnion, and the ball is accurately placed in the center of the ball valve to achieve complete seals and precise movements. When plate adopted, the force exerted by the medium to the ball is distributed via the plate to the left and right bodies, so that the stem does not bear the blending moment from the medium, but only the torque from the ball rotation during the opening/closing of the valve. The low-friction PTFE Teflon composite bearings installed between the ball axis and fixed plate and between the stem and the trunnion can absorb ball moving action caused by the pressure of the medium. This structure brings stable actions and easy operations for the ball valves, and the required operation torque can be reduced, so smaller actuators can be used, and the cost is cut down.

Unique seat sealing structure

ball valve seat is floating structure, means the seat can move along the medium direction, so that the seat can fit against the ball all the time.

(I) Double piston effect structure seat

Seat design is special double pistons effect structure, it can ensure the seal wherever the medium flows into the ball valve.

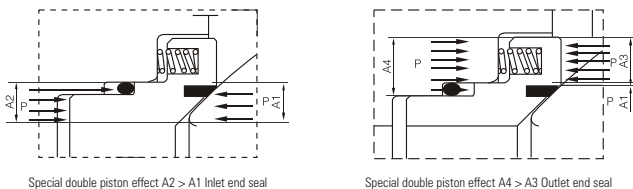
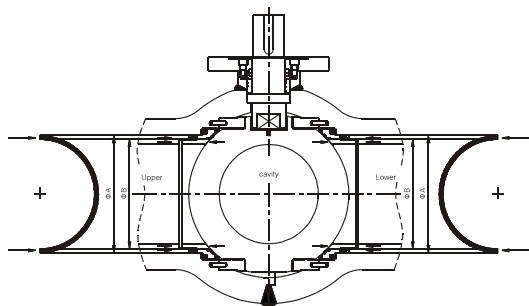
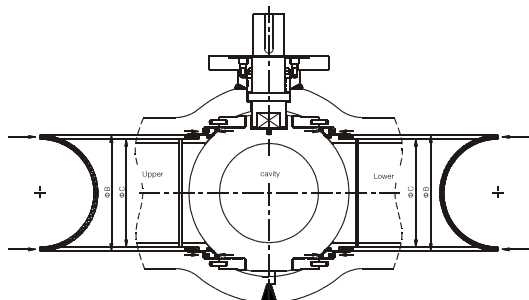


Fig. 12



Medium flowing into the valve from upstream and/or downstream brings piston effect.



Medium in cavity brings piston effect to the seat.

(II) Seat multistage seal structure

As following graphic instruction, on seat bearing ring, set two soft sealing rings (A and B) and metal sealing spherical surface which can seal with the ball. Seat ring A is spring loaded, which seals the surface with the ball tightly to the surface to form an initial seal; When there is pressure generated from medium, the piston force is generated to make seal ring A elastically deformed and seal ring B fit the surface of the ball surface due to the piston effect caused by area difference, thus the second seal forms. When the medium pressure is rising, it will generate huge pressure to seal ring A and seal ring B, so the two seals have a greater elastic deformation, then metal seal ball surface compact with ball surface to form the third level of metal to metal seal.

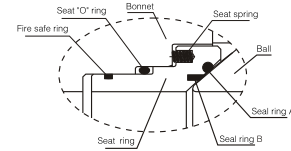


Fig. 13

(III) Secondary seat seal device

As the above graphic instruction, the secondary seal device (seat grease injection valve) can be chosen according to the actual working condition, medium requirement, seal requirement, etc. Seat ring grease injection valve is a one-way valve, installed on the body, which can prevent the leakage and inject grease under the outside force. When secondary seal is required, there is a grease injecting channel and hole on the seat ring. The grease can form a seal between the seat and the ball, and then stop the leakage.

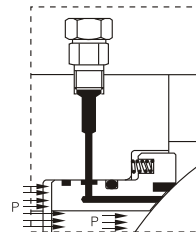


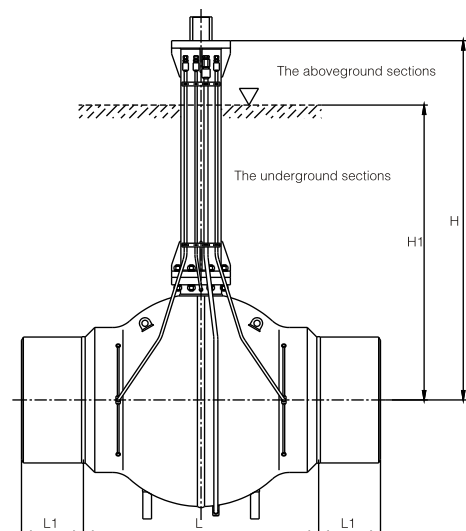
Fig. 14

Extension stem and sleeves design

high performance pipeline ball valve can be of extension stem design to be used underground according to users' requirements. There are no special requirements for the length of extension stem, but the detailed length must be clearly confirmed when ordering, such as H and H1 in the right graphic.

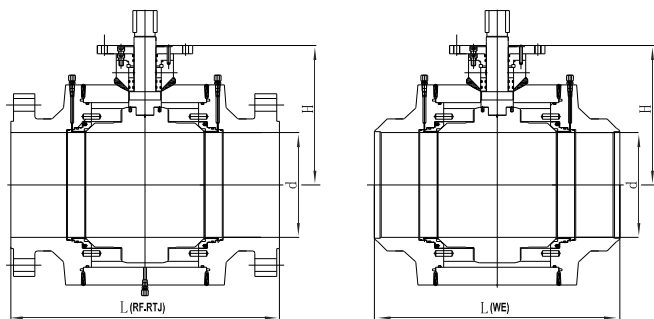
If sleeve is required, can meet clients' requirements, but the details of the sleeve must be clearly confirmed when ordering, such as dimension (L1 in the right graphic), material and sleeve pipe grade, etc.

Can supply ball valve accessories according to clients' requirements, such as: discharge tube, auxiliary sealing grease injection tubes, etc., but it must be clarified when ordering.





DIMENSIONS AND WEIGHTS



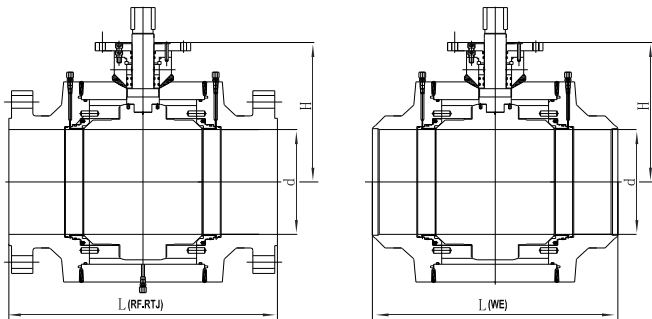
Pressure rating	Nominal Diameter		d	Flanged		Butt welding	H	Weight(kg)	
Class	NPS	DN		L(RF)	L(RTJ)	L(BW)		WE	RF
150	6"	150	150	394	406	457	225	185	220
	8"	200	201	457	470	521	258	250	290
	10"	250	252	533	546	559	310	400	430
	12"	300	303	610	622	635	350	550	620
	14"	350	334	686	699	762	382	820	900
	16"	400	385	762	775	838	421	1100	1220
	18"	450	436	864	876	914	468	1400	1550
	20"	500	487	914	927	991	510	1750	1950
	24"	600	589	1067	1080	1143	592	2800	3050
	26"	650	633	1143	-	1245	635	2900	3250
	28"	700	684	1245	-	1346	675	3400	3700
	30"	750	735	1295	-	1397	723	4800	5300
	32"	800	779	1372	-	1524	751	5500	6000
	36"	900	874	1524	-	1727	858	7550	8370
	40"	1000	976	1753	-	1956	930	10290	11320
300	6"	150	150	403	419	457	225	185	230
	8"	200	201	502	518	521	258	250	300
	10"	250	252	568	584	559	310	400	460
	12"	300	303	648	664	635	350	550	670
	14"	350	334	762	778	762	382	820	1000
	16"	400	385	838	854	838	421	1100	1320
	18"	450	436	914	930	914	468	1400	1650
	20"	500	487	991	1010	991	510	1750	2000
	24"	600	589	1143	1165	1143	592	2800	2550
	26"	650	633	1245	-	1245	635	2900	3300
	28"	700	684	1346	-	1346	675	3400	3750
	30"	750	735	1397	-	1397	723	4800	5500
	32"	800	779	1524	-	1524	751	5500	6500
	36"	900	874	1727	-	1727	858	7980	8800
	40"	1000	976	1956	-	1956		10290	11900

△ Please consult the factory:

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DIMENSIONS AND WEIGHTS



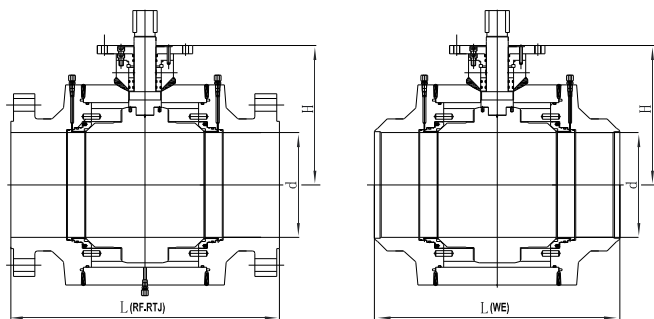
Pressure rating	Nominal Diameter		d	D1	Flanged		Butt welding	H	Weight(kg)	
Class	NPS	DN			L(RF)	L(RTJ)	L(BW)		WE	RF
150	8" X 6"	200	150	201	457	470	521	225	△	△
	10" X 8"	250	201	252	533	546	559	258	△	△
	12" X 10"	300	252	303	610	622	635	310	△	△
	14" X 10"	350	252	334	686	699	762	310	△	△
	14" X 12"	350	303	334	686	699	762	350	△	△
	16" X 12"	400	303	385	762	775	838	350	△	△
	16" X 14"	400	334	385	762	775	838	382	△	△
	18" X 16"	450	385	436	864	876	914	421	△	△
	20" X 16"	500	385	487	914	927	991	421	△	△
	20" x 18"	500	436	487	914	927	991	468	△	△
	24" X 20"	600	487	589	1067	1080	1143	510	△	△
	30" X 24"	750	589	735	1295	-	1397	592	△	△
	36" X 30"	900	735	874	1524	-	1727	723	△	△
300	8" X 6"	200	150	201	502	518	521	225	△	△
	10" X 8"	250	201	252	568	584	559	258	△	△
	12" X 10"	300	252	303	648	664	635	310	△	△
	14" X 10"	350	252	334	762	778	762	310	△	△
	14" X 12"	350	303	334	762	778	762	350	△	△
	16" X 12"	400	303	385	838	854	838	350	△	△
	16" X 14"	400	334	385	838	854	838	382	△	△
	18" X 16"	450	385	436	914	930	914	421	△	△
	20" X 16"	500	385	487	991	1010	991	421	△	△
	20" x 18"	500	436	487	991	1010	991	468	△	△
	24" X 20"	600	487	589	1143	1165	1143	510	△	△
	30" X 24"	750	589	735	1397	1422	1397	592	△	△
	36" X 30"	900	735	874	1727	1756	1727	723	△	△

△ Please consult the factory:

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DIMENSIONS AND WEIGHTS



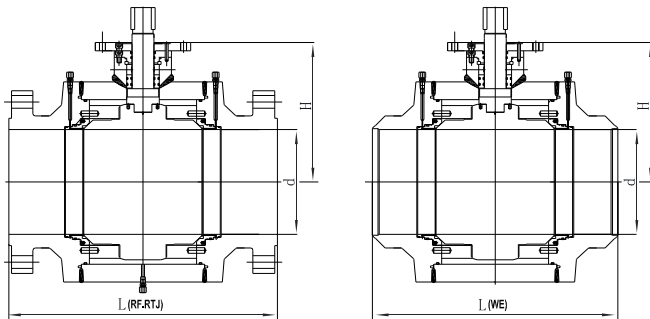
Pressure rating	Nominal Diameter		d	Flanged		Butt welding	H	Weight(kg)	
Class	NPS	DN		L(RF)	L(RTJ)	L(BW)		WE	RF
600	6"	150	150	559	562	559	255	250	330
	8"	200	201	660	664	660	290	340	450
	10"	250	252	787	791	787	320	570	710
	12"	300	303	838	841	838	380	850	1000
	14"	350	334	889	892	889	410	1100	1370
	16"	400	385	991	994	991	435	1350	1650
	18"	450	436	1092	1095	1092	495	2100	2400
	20"	500	487	1194	1200	1194	535	2600	3000
	24"	600	589	1397	1407	1397	642	3700	4300
	26"	650	633	1448	-	1448	665	3900	4500
	28"	700	684	1549	-	1549	704	4200	4900
	30"	750	735	1651	-	1651	745	6000	6900
	32"	800	779	1778	-	1778	785	6800	8000
	36"	900	874	2083	-	2083	875	9570	10850
900	6"	150	150	610	613	610	255	330	430
	8"	200	201	737	740	737	290	400	520
	10"	250	252	838	841	838	320	640	820
	12"	300	303	965	968	965	380	900	1050
	14"	350	322	1029	1038	1029	410	1020	1400
	16"	400	373	1130	1140	1130	435	1350	2050
	18"	450	423	1219	1232	1219	495	2600	3400
	20"	500	471	1321	1334	1321	535	3700	4200
	24"	600	570	1549	1568	1549	642	4400	5400
1500	6"	150	144	705	711	705	255	375	565
	8"	200	192	832	841	832	290	415	505
	10"	250	239	991	1000	991	320	525	640
	12"	300	287	1130	1146	1130	380	780	950
	14"	350	315	1257	1276	1257	410	1145	1380

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DIMENSIONS AND WEIGHTS



Pressure rating	Nominal Diameter		d	D1	Flanged		Butt welding	H	Weight(kg)	
Class	NPS	DN			L(RF)	L(RTJ)	L(BW)		WE	RF
600	8" X 6"	200	150	201	660	664	660	255	△	△
	10" X 8"	250	201	252	787	791	787	290	△	△
	12" X 10"	300	252	303	838	841	838	320	△	△
	14" X 10"	350	252	334	889	892	889	380	△	△
	14" X 12"	350	303	334	889	892	889	380	△	△
	16" X 12"	400	303	385	991	994	991	380	△	△
	16" X 14"	400	334	385	991	994	991	410	△	△
	18" X 16"	450	385	436	1092	1095	1092	435	△	△
	20" X 16"	500	385	487	1194	1200	1194	435	△	△
	20" x 18"	500	436	487	1194	1200	1194	495	△	△
	24" X 20"	600	487	589	1397	1407	1397	535	△	△
	30" X 24"	750	589	735	1651	-	1651	642	△	△
	36" X 30"	900	735	874	2083	-	2083	745	△	△
900	8" X 6"	200	150	201	737	740	737	255	△	△
	10" X 8"	250	201	252	838	841	838	290	△	△
	12" X 10"	300	252	303	965	968	965	320	△	△
	14" X 10"	350	252	322	1029	1038	1029	320	△	△
	14" X 12"	350	303	322	1029	1038	1029	380	△	△
	16" X 12"	400	303	373	1130	1140	1130	380	△	△
	16" X 14"	400	322	373	1130	1140	1130	410	△	△
	18" X 16"	450	373	423	1219	1232	1219	435	△	△
	20" X 16"	500	373	471	1321	1334	1321	435	△	△
	20" x 18"	500	423	471	1321	1334	1321	495	△	△
	24" X 20"	600	471	570	1549	1568	1549	535	△	△
1500	8" X 6"	200	144	192	832	841	832	255	△	△
	10" X 8"	250	192	239	991	1000	991	290	△	△
	12" X 10"	300	239	287	1130	1146	1130	320	△	△
	14" X 10"	350	239	315	1257	1276	1257	320	△	△
	14" X 12"	350	287	315	1257	1276	1257	380	△	△
	16" X 12"	400	287	360	1384	1407	1384	380	△	△

△ Please consult the factory:

Note: The weight valve is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to size H, and weight will not be notified otherwise.