



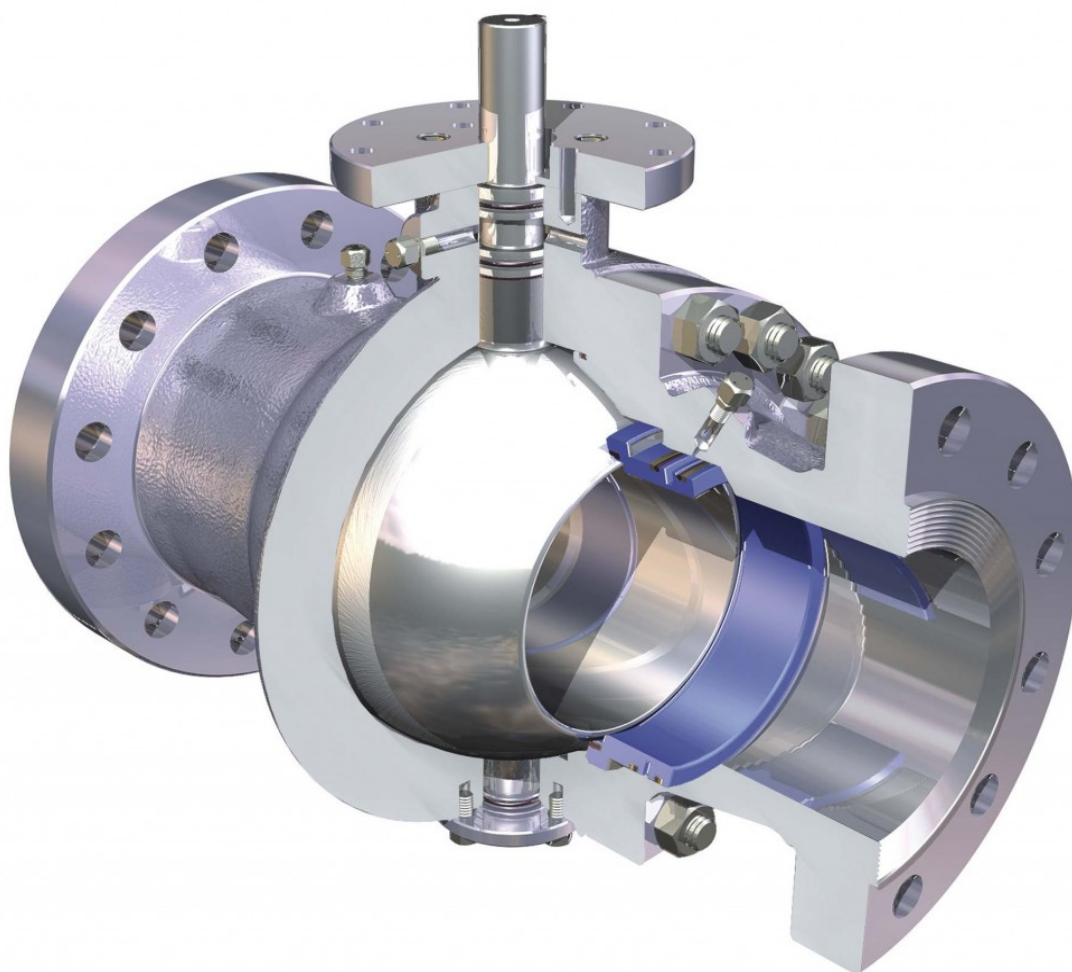
A-T ARMATUREN-TECHNIK GMBH



Absperr-Armaturen, Regelventile, Turbinen-Umleitsysteme für Kraftwerkstechnik, Öl und Gas Pipelines
Isolating, control valves and turbine bypass systems for the electric power industry, oil and gas pipelines



BALL VALVES





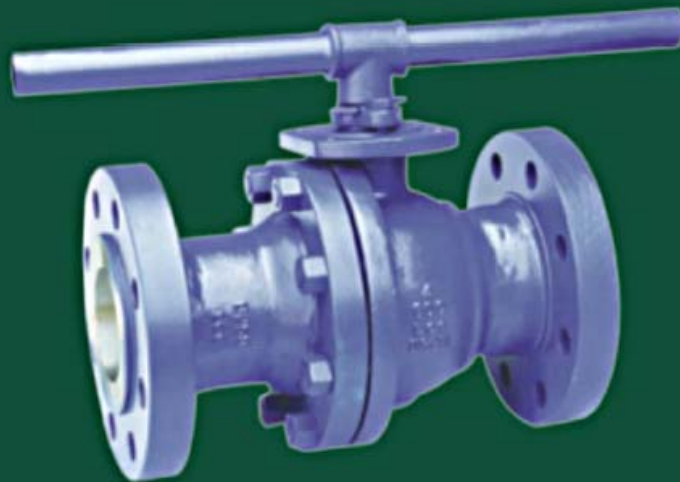
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Isolating, Control Valves and Turbine Bypass Systems for the Electric Power Industry, Steam Plant Utilities and Process Industry

FLOATING BALL VALVE



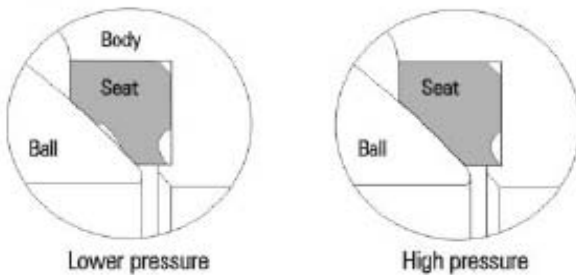
STRUCTURAL FEATURES

1、 Special Seat Design

The floating ball valve adopts the design of flexible seal ring structure. When the medium pressure is lower, the contact area of seal ring and ball is smaller, so higher sealing ratio is formed at the place where the seal ring and ball contact to ensure reliable sealing. When the

medium pressure is higher, the contact area of seal ring and ball becomes bigger along with the elastic deformation of seal ring, so the seal ring can endure higher medium thrust without being damaged.

Elastic Seat

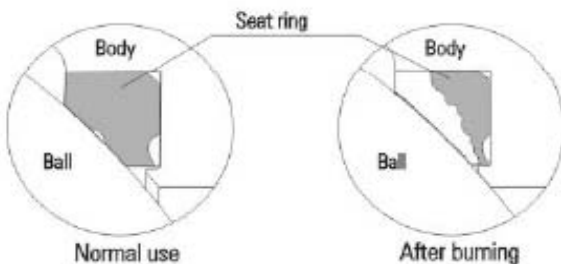


2、 Fireproof Structure Design

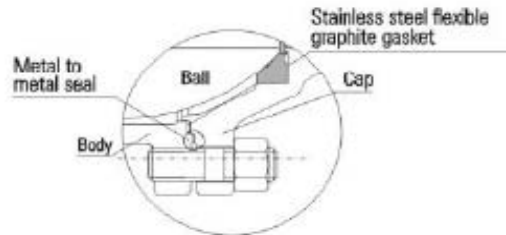
In case of fire during the use of valve, the seat ring made of PTFE or other non-metal materials will be decomposed or damaged under high temperature and cause higher leakage. The fireproof seal ring is set between ball and seat so that after the valve seat is burnt, the medium will push the ball rapidly towards the downstream metal seal ring to form the auxiliary metal to metal sealing structure,

which can effectively control valve leakage. In addition, the middle flange sealing gasket is made of metal wound gasket, which can ensure sealing even under high temperature. The fireproof structure design of floating ball valve conforms to requirements in API 607, API 6FA, BS 6755 and other standards.

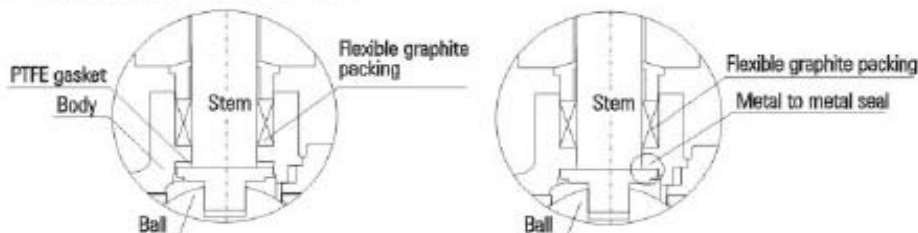
Fireproof Structure Design Of Seat



Fireproof Structure Of Middle Flange



Fireproof Structure Design Of Stem

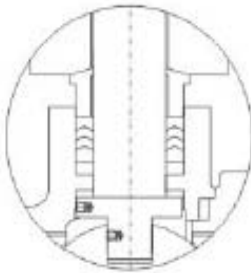


STRUCTURAL FEATURES

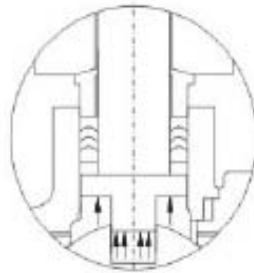
3、Reliable Sealing Of Valve Stem

The stem is provided with the shoulder at its bottom so that it will not be blown out by the medium even under the extreme conditions such as abnormal pressure rise inside the valve cavity, failure of gland plate and etc. In addition, to avoid leakage after the stem packing is burnt in case of fire, the thrust bearing is set at the place where the stem shoulder and body contact to form a

reverse sealing seat. The sealing force of the reverse seal will increase according to the increase of medium pressure, so as to ensure reliable stem sealing under various pressure, prevent leakage and avoid accident spreading.



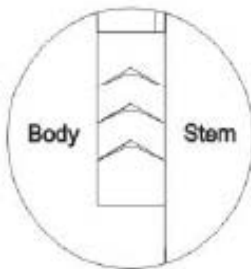
The bottom-mounted stem will not be blown out by medium pressure.



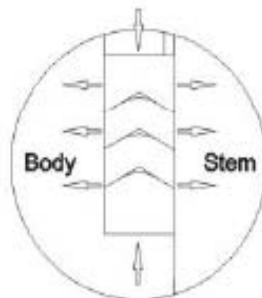
The top-mounted stem may be blown out by medium pressure.

The stem adopts V type packing sealing structure. The V type packing can effectively change the pressing force and medium force of the gland into the sealing force of the stem.

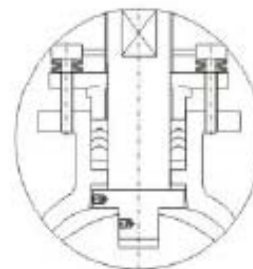
According to user requirements, the disc spring loaded packing pressing mechanism can be adopted to make the sealing of stem packing more reliable.



Before the packing is pressed



After the packing is pressed



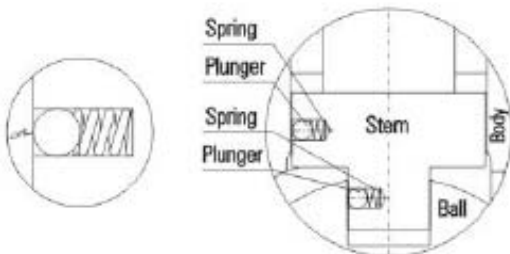
The disc spring loaded packing pressing mechanism is adopted.

STRUCTURAL FEATURES

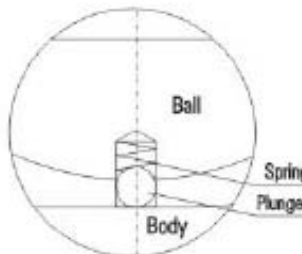
4、 Anti-static Structure

The ball valve is provided with the anti-static structure and adopts the 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.



Anti-static structure design of ball valve with $Dn \geq 32$



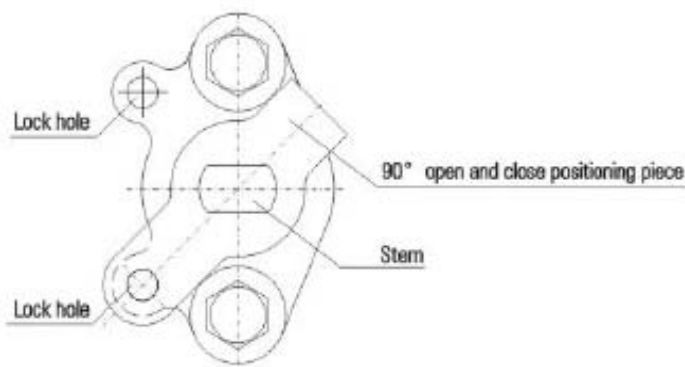
Anti-static structure design of ball valve with $Dn \leq 25$

5、 Lock And Misoperation Prevention

The manual ball valve can be locked by a lock when it is at the full open or full close position. The 90° open and close positioning piece with lock hole is designed to avoid valve misoperation caused due to handle operation by non-operators, and it can also prevent valve opening or closing, or other accidents caused by pipeline vibration or unpredictable factors. It is very effective especially for inflammable and explosive oil, chemical and medical

working pipelines or field tubing. The part on the head of the stem that is installed with the handle adopts flat design. When the valve is opened, the handle is parallel to the pipeline, and when the valve is closed, the handle is vertical to the pipeline, so that the opening and closing indications of the valve are guaranteed to have no error.

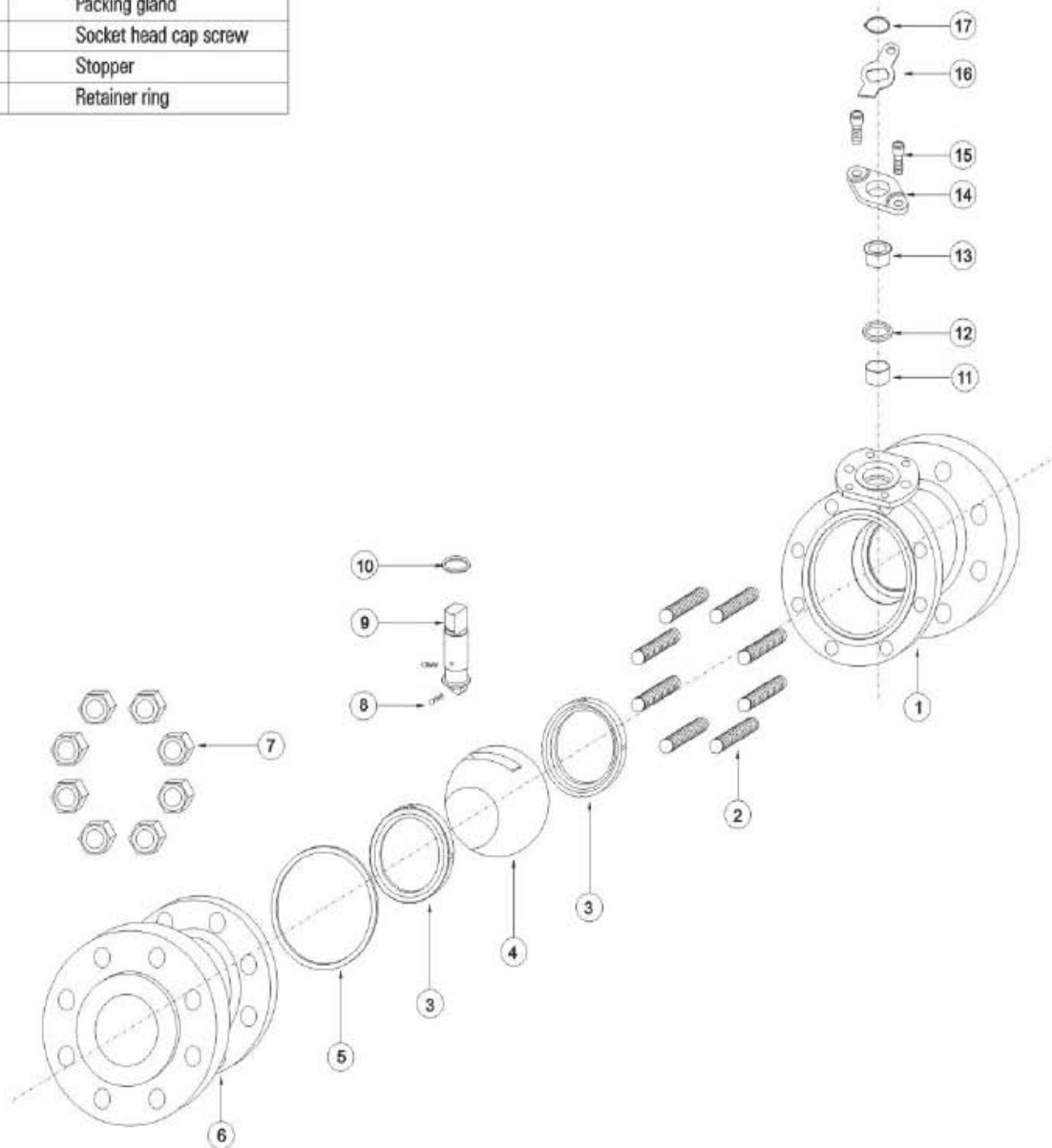
Lock And Misoperation Prevention Structure



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CAST STEEL FLOATING BALL VALVE

1	Body
2	Stud
3	Seat
4	Ball
5	Anti-fire gasket
6	Bonnet
7	Hexagon nut
8	Anti-static device
9	Stem
10	Thrust bearing
11	Sliding bearing
12	Packing
13	Packing bushing
14	Packing gland
15	Socket head cap screw
16	Stopper
17	Retainer ring





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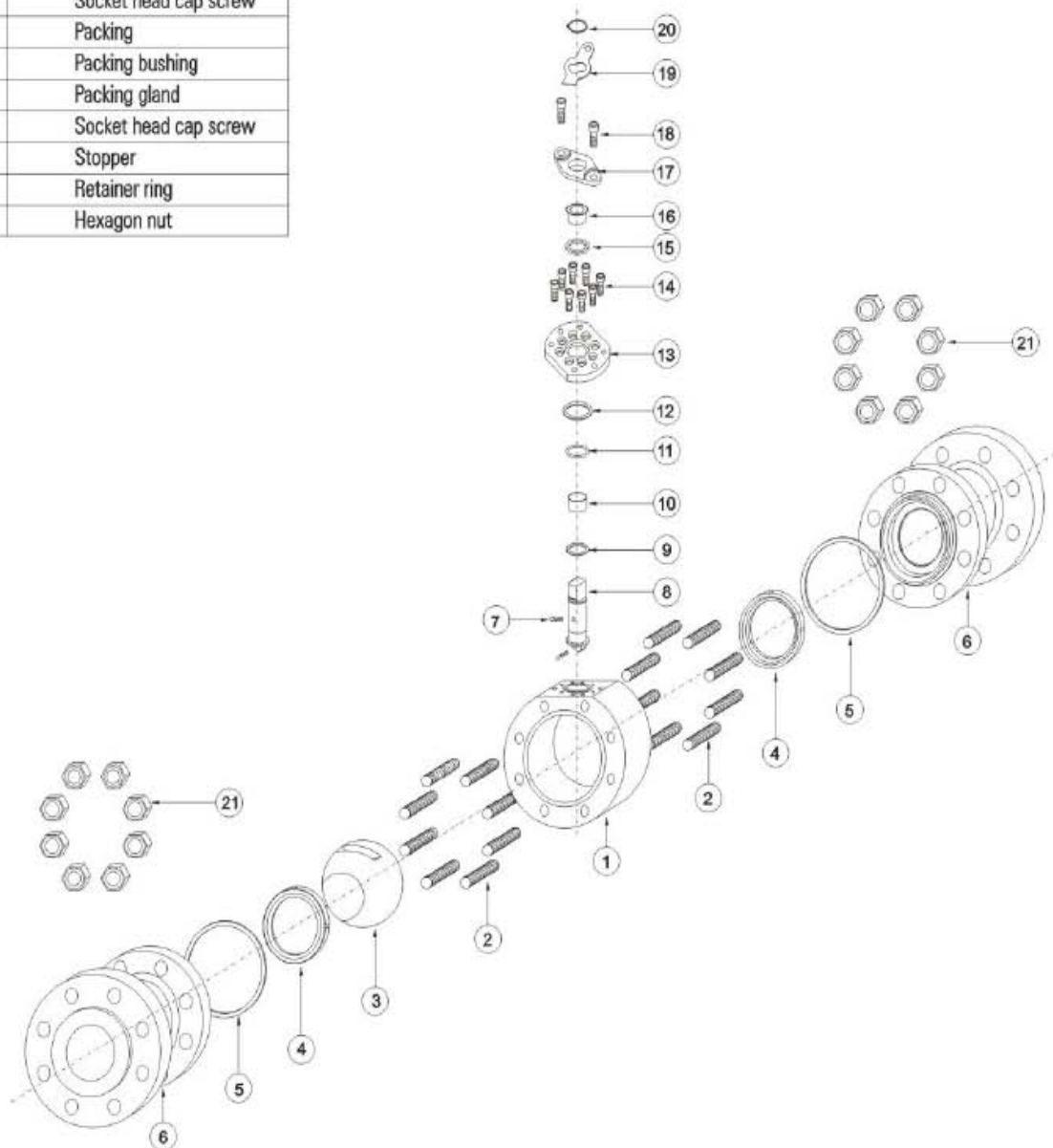
PART MATERIALS AND MAIN PARAMETERS

Nominal diameter (in)		NPS 1/2~8				
Nominal pressure (MPa)		Class150~Class600				
No.	Part Name	Material				
		Carbon steel	Stainless steel			
1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
2	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
3	Seat	PTFE/NYLON/PEEK/PPL				
4	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
5	Anti-fire gasket	SST+ Graphite				
6	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
7	Hexagon nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
8	Anti-static device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
9	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
10	Thrust bearing	PTFE				
11	Sliding bearing	PTFE				
12	Packing	Graphite				
13	Packing bushing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
14	Packing gland	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB
15	Socket head cap screw	A193 B7M	A193 B7M	A193 B7M	A193 B7M	A193 B7M
16	Stopper	A3.Zn	A3.Zn	A3.Zn	A3.Zn	A3.Zn
17	Retainer ring	65Mn	65Mn	65Mn	65Mn	65Mn
Applicable service conditions	Applicable media	Water, steam, oil, gas liquefied gas, natural gas, etc.	Nitric acid	Acetic acid	Strong oxidizer	Urea
	Applicable temperature	≤120℃ (PTFE) 、≤80℃ (NYLON) 、≤250℃ (PEEK) 、≤250℃ (PPL)				
Design and manufacturing		API 608				
Face-to-face dimensions		ASME B16.10				
Type of connection		Flange	ASME B16.5		Butt welding	ASME B16.25
Pressure test		API 598				
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric				

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FORGED STEEL FLOATING BALL VALVE

1	Body
2	Stud
3	Ball
4	Seat
5	Anti-fire gasket
6	Bonnet
7	Anti-static device
8	Stem
9	Thrust bearing
10	Sliding bearing
11	O ring
12	Anti-fire gasket
13	Seal gland
14	Socket head cap screw
15	Packing
16	Packing bushing
17	Packing gland
18	Socket head cap screw
19	Stopper
20	Retainer ring
21	Hexagon nut





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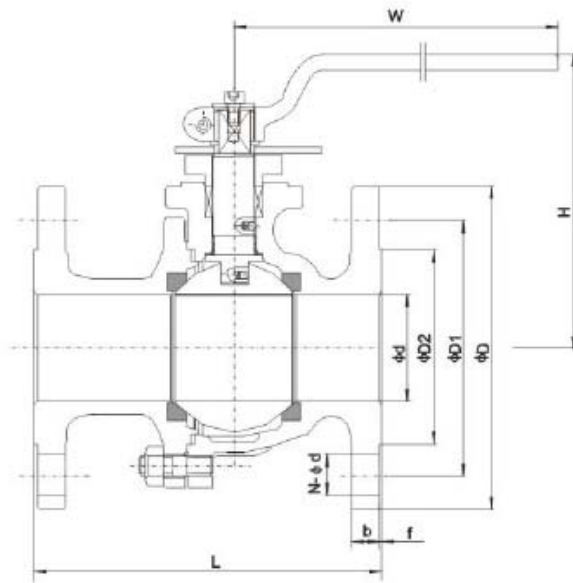


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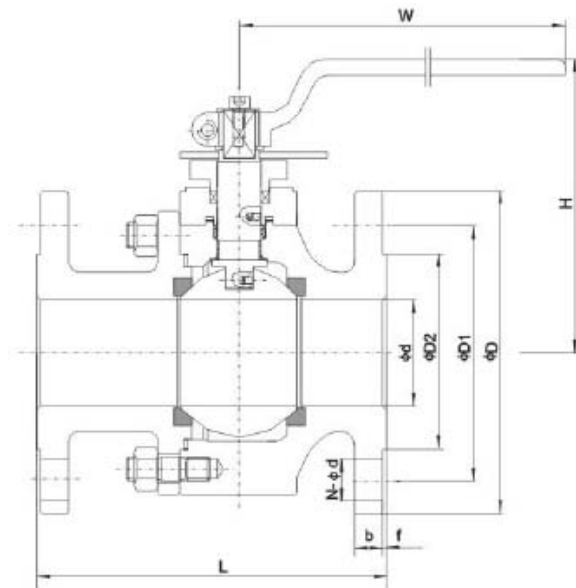
PART MATERIALS AND MAIN PARAMETERS

Nominal diameter (in)		NPS 1/2~8					
Nominal pressure (MPa)		Class150~Class600					
No.	Part Name	Material					
		Carbon steel	Stainless steel				
Materials of parts	1	Body	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	2	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	3	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	4	Seat	PTFE/NYLON/PEEK/PPL				
	5	Anti-fire gasket	SST+ Graphite				
	6	Bonnet	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	7	Anti-static device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	8	Stern	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	9	Thrust bearing	PTFE				
	10	Sliding bearing	PTFE				
	11	O ring	VITON				
	12	Anti-fire gasket	SST+ Graphite				
	13	Seal gland	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	14	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	15	Packing	Graphite				
	16	Packing bushing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
	17	Packing gland	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB
	18	Socket head cap screw	A193 B7M	A193 B7M	A193 B7M	A193 B7M	A193 B7M
	19	Stopper	A3.Zn	A3.Zn	A3.Zn	A3.Zn	A3.Zn
	20	Retainer ring	65Mn	65Mn	65Mn	65Mn	65Mn
	21	Hexagon nut	A194 2H	A194-8	A194 -8M	A194-8	A194-8M
Applicable service conditions	Applicable media	Water, steam, oil, gas liquefied gas, natural gas, etc.	Nitric acid	Acetic acid	Strong oxidizer	Urea	
	Applicable temperature	≤120°C (PTFE) 、 ≤80°C (NYLON) 、 ≤250°C (PEEK) 、 ≤250°C (PPL)					
Design and manufacturing		API 608					
Face-to-face dimensions		ASME B16.10					
Type of connection		Flange	ASME B16.5			Butt welding	ASME B16.25
Pressure test		API 598					
Transmission moe		Manual, worm and worm gear transmission, pneumatic, electric					

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Floating cast steel ball valve



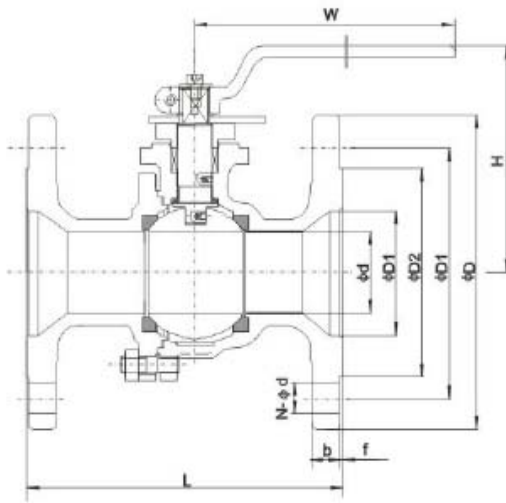
Floating forged steel ball valve

Pressure rating	Nominal Diameter		d	Flanged		Butt welding	Raised face flange						W	Cast steel	Forged steel	Weight(kg)	
	Class	NPS		DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	f				b	N-Φ d
150	1/2"	15	13	108	-	140	90	60.5	35	2	9	4-Φ16	140	80	78	2	△
	3/4"	20	19	117	-	152	100	70	43	2	10	4-Φ16	140	86	82	2.5	△
	1"	25	25	127	-	165	110	79.5	51	2	11	4-Φ16	140	98	95	3.5	△
	1 1/4"	32	32	140	-	178	115	89	64	2	11	4-Φ16	180	106	100	6.5	△
	1 1/2"	40	38	165	-	190	125	98.5	73	2	13	4-Φ16	180	133	128	7.5	△
	2"	50	50	178	191	216	150	120.5	92	2	14.5	4-Φ19	200	138	137	9	△
	3"	80	75	203	216	283	190	152.5	127	2	17.5	4-Φ19	300	175	148	19	△
	4"	100	100	229	241	305	230	190.5	157	2	22.5	8-Φ19	650	235	223	36	△
	6"	150	150	394	406	457	280	241.5	216	2	24	8-Φ22	800	285	278	79	△
8"	200	201	457	470	521	345	298.5	270	2	27	8-Φ22	1000	342	336	160	△	
300	1/2"	15	13	140	-	140	95	66.5	35	2	13	4-Φ16	140	80	78	2.5	△
	3/4"	20	19	152	-	152	115	82.5	43	2	14.5	4-Φ19	140	86	82	3.6	△
	1"	25	25	165	-	165	125	89	51	2	16	4-Φ19	140	98	95	5	△
	1 1/4"	32	32	178	-	178	135	98.5	64	2	17.5	4-Φ19	180	106	100	8.5	△
	1 1/2"	40	38	190	-	190	155	114.5	73	2	19.5	4-Φ22	180	133	128	10	△
	2"	50	50	216	232	216	165	127	92	2	21	8-Φ19	200	138	137	12	△
	3"	80	75	283	298	283	210	168.5	127	2	27	8-Φ22	300	175	148	28	△
	4"	100	100	305	321	305	255	200	157	2	30.5	8-Φ22	650	235	223	46	△
	6"	150	150	403	419	457	320	270	216	2	35	12-Φ22	800	285	278	104	△
8"	200	201	502	518	521	380	330	270	2	40	12-Φ25	1000	342	336	208	△	
600	1/2"	15	13	165	-	165	95	66.5	35	7	14.5	4-Φ16	140	78	68	5	△
	3/4"	20	19	190	-	190	115	82.5	43	7	16	4-Φ19	140	80	76	7	△
	1"	25	25	216	-	216	125	89	51	7	17.5	4-Φ19	180	110	106	9	△
	1 1/4"	32	32	229	-	229	135	98.5	64	7	21	4-Φ19	200	115	110	13	△
	1 1/2"	40	38	241	-	241	155	114.5	73	7	22.5	4-Φ22	250	135	128	17	△
	2"	50	50	292	295	292	165	127	92	7	26	8-Φ19	300	152	140	21	△
	3"	80	75	356	359	356	210	168.5	127	7	32	8-Φ22	650	224	213	43	△
	4"	100	100	432	435	432	275	216	157	7	38.5	8-Φ25	800	248	238	85	△

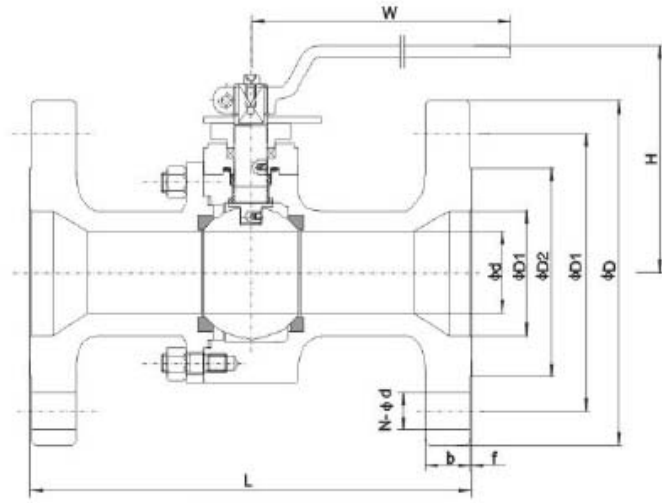
△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

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Floating cast steel ball valve



Floating forged steel ball valve

Pressure rating	Nominal Diameter		d	d1	Flanged		Butt welding	Raised face flange					W	Cast steel	Forged steel	Weight(kg)			
	Class	NPS			DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2				f	b	N-φd	H
150		1/2" x 1/2"	20	13	19	117	-	152	100	70	43	2	10	4-φ16	140	80	78	△	△
		1" x 3/4"	25	19	25	127	-	165	110	79.5	51	2	11	4-φ16	140	86	82	△	△
		1 1/4" x 1"	32	25	32	140	-	178	115	89	64	2	11	4-φ16	180	98	95	△	△
		1 1/2" x 1 1/4"	40	32	38	165	-	190	125	98.5	73	2	13	4-φ16	180	106	100	△	△
		2" x 1 1/2"	50	38	50	178	191	216	150	120.5	92	2	14.5	4-φ19	200	133	128	8	△
		3" x 2"	80	50	75	203	216	283	190	152.5	127	2	17.5	4-φ19	300	138	137	14	△
		4" x 3"	100	75	100	229	241	305	230	190.5	157	2	22.5	8-φ19	650	175	148	24	△
		6" x 4"	150	100	150	267	279	403	280	241.5	216	2	24	8-φ22	800	235	223	41	△
300		1/2" x 1/2"	20	13	19	152	-	152	115	82.5	43	2	14.5	4-φ19	140	80	78	△	△
		1" x 3/4"	25	19	25	165	-	165	125	89	51	2	16	4-φ19	140	86	82	△	△
		1 1/4" x 1"	32	25	32	178	-	178	135	98.5	64	2	17.5	4-φ19	180	98	95	△	△
		1 1/2" x 1 1/4"	40	32	38	190	-	190	155	114.5	73	2	19.5	4-φ22	180	106	100	△	△
		2" x 1 1/2"	50	38	50	216	232	216	165	127	92	2	21	8-φ19	200	133	128	11	△
		3" x 2"	80	50	75	283	298	283	210	168.5	127	2	27	8-φ22	300	138	137	21	△
		4" x 3"	100	75	100	305	321	305	255	200	157	2	30.5	8-φ22	650	175	148	36	△
		6" x 4"	150	100	150	403	419	457	320	270	216	2	35	12-φ22	800	235	223	82	△
600		1/2" x 1/2"	20	13	19	190	-	190	115	82.5	43	7	16	4-φ19	140	78	68	△	△
		1" x 3/4"	25	19	25	216	-	216	125	89	51	7	17.5	4-φ19	180	80	76	△	△
		1 1/4" x 1"	32	25	32	229	-	229	135	98.5	64	7	21	4-φ19	200	110	106	△	△
		1 1/2" x 1 1/4"	40	32	38	241	-	241	155	114.5	73	7	22.5	4-φ22	250	115	110	△	△
		2" x 1 1/2"	50	38	50	292	295	292	165	127	92	7	26	8-φ19	300	135	128	△	△
		3" x 2"	80	50	75	356	359	356	210	168.5	127	7	32	8-φ22	650	152	140	△	△
	4" x 3"	100	75	100	432	435	432	275	216	157	7	38.5	8-φ25	800	224	213	△	△	

△ Please consult the factory;

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TRUNNION PIPELINE BALL VALVE



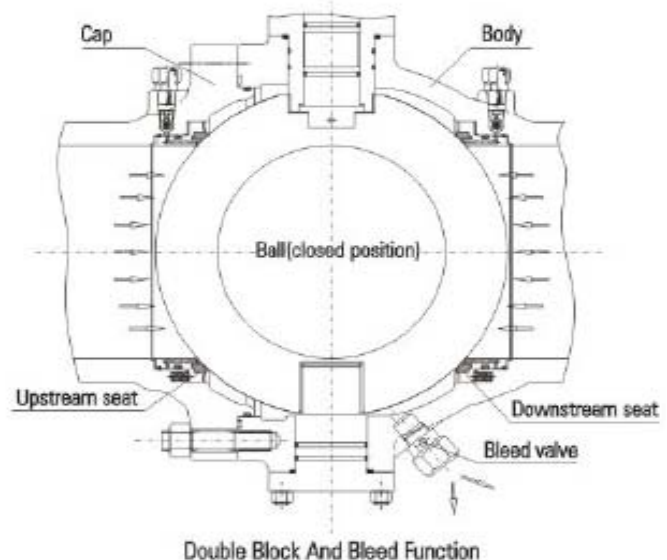
USAGE

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.

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 the 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.

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STRUCTURAL FEATURES

Sealant Injection Device

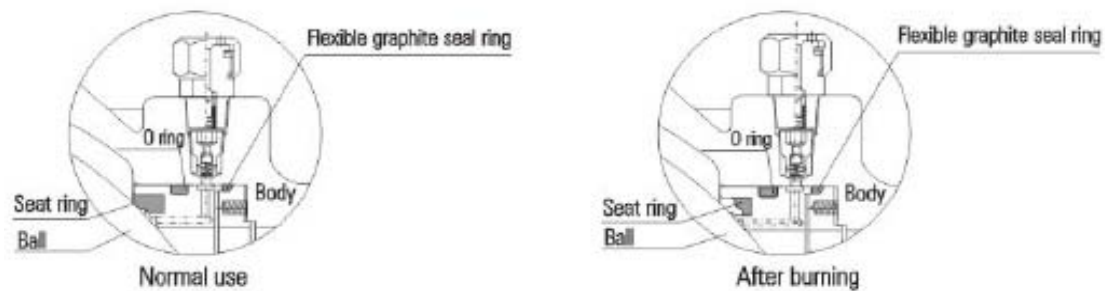


4、Fireproof Structure Design

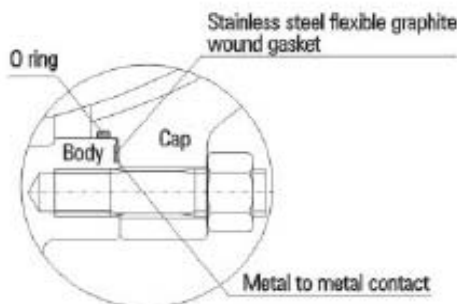
In case of fire during the use of valve, the seat ring, stem O ring and middle flange O ring made of PTFE, rubber or other non-metal materials will be decomposed or damaged under high temperature. Under pressure of the medium, the ball valve will push the seat retainer rapidly towards the ball to make 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, BS 6755 and other standards.

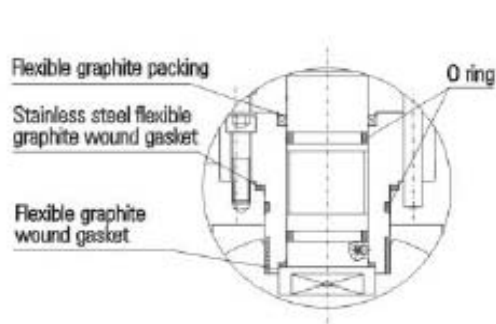
Fireproof Structure Of Seat



Fireproof Structure Of Middle Flange



Fireproof Structure Design Of Stem



STRUCTURAL FEATURES

5、 Anti-static Structure

The ball valve is provided with the anti-static structure and adopts the 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 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,

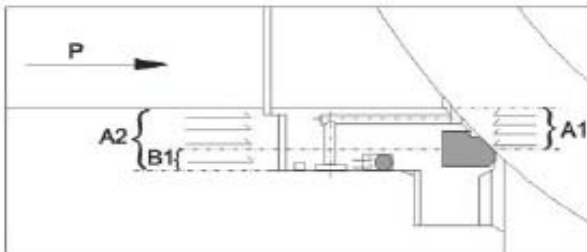
the piston effect of valve seat is designed reasonably, which realizes high pressure sealing by the pressure of the medium itself. The following two kinds of ball sealing can be realized.

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.

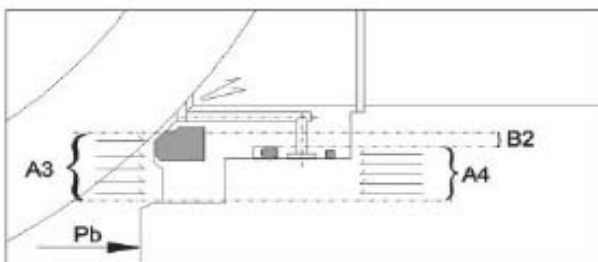
The upstream side: When the seat moves axially along the valve, the pressure P exerted on the upstream part (inlet) produces a reverse force on A_1 . As A_2 is higher than A_1 , $A_2 - A_1 = B_1$, the force on B_1 will push the seat to the ball and realize tight sealing of the upstream part.



$$A_2 > A_1$$

The downstream side: Once the pressure P_b inside the valve cavity increases, the force exerted on A_3 is higher than that on A_4 . As $A_3 - A_4 = B_2$, the pressure differential on B_2 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.



$$A_3 > A_4$$

STRUCTURAL FEATURES

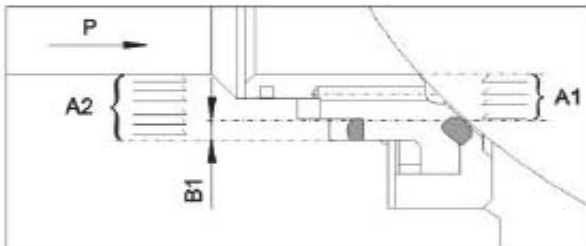
8. Double Sealing (double Piston)

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.

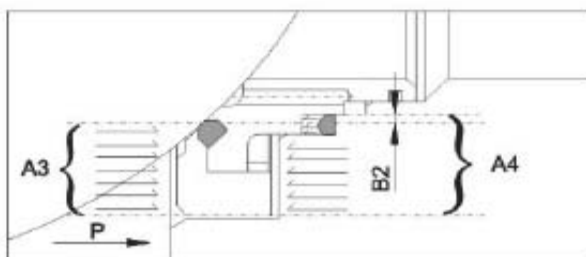
Primary sealing: Upstream. When the pressure differential is lower or there is no pressure differential, the floating seat will move axially along the valve under the spring action and push the seat towards the ball to keep tight sealing. When the pipeline pressure P increases, the force exerted on the area $A2$ of valve seat is higher than the force exerted on the area $A1$, $A2-A1=B1$. Therefore, the force on $B1$ will push the seat towards the ball and realize tight sealing of the upstream part.



$$A2 > A1$$

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 $A4$ of valve seat is higher than the force exerted on the area $A3$, $A4-A3=B1$. Therefore, the force on $B1$ will push the seat towards the ball and realize tight sealing of the upstream part.



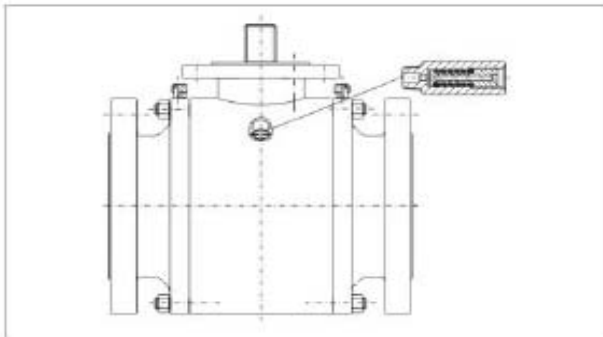
$$A4 > A3$$

STRUCTURAL FEATURES

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.

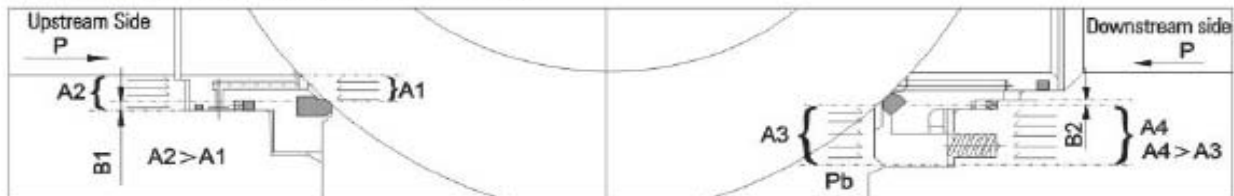


10. Special Structure Of Automatic Pressure Relief Towards Upper Stream

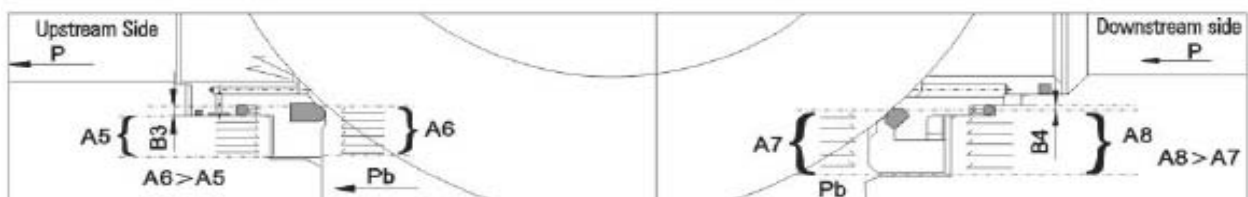
As the ball valve is designed with the advanced primary and secondary sealing that has double piston effect, and the middle cavity cannot realize automatic pressure relief, the ball valve with the special structure is recommended to meet the requirement of automatic pressure relief and ensure no pollution 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

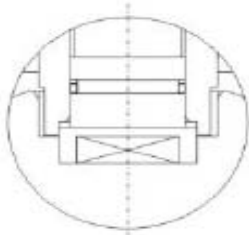


STRUCTURAL FEATURES

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 end 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

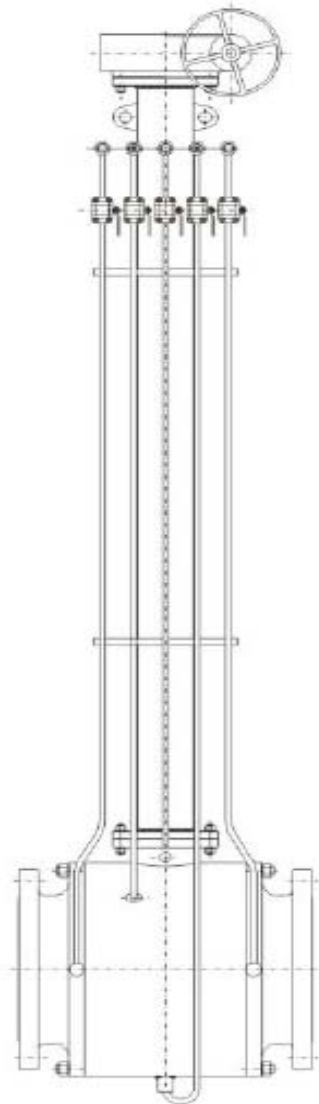
Certain corrosion allowance is left for the body wall thickness. The carbon steel stem, fixed shaft, ball, seat and seat ring are subjected to chemical nickel plating according to ASTM B733 and B656. In addition, various corrosion resistant materials are available for users to select.

According to customer requirements, the valve materials can be selected according to NACE MR 0175/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、 Extension Stem

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.

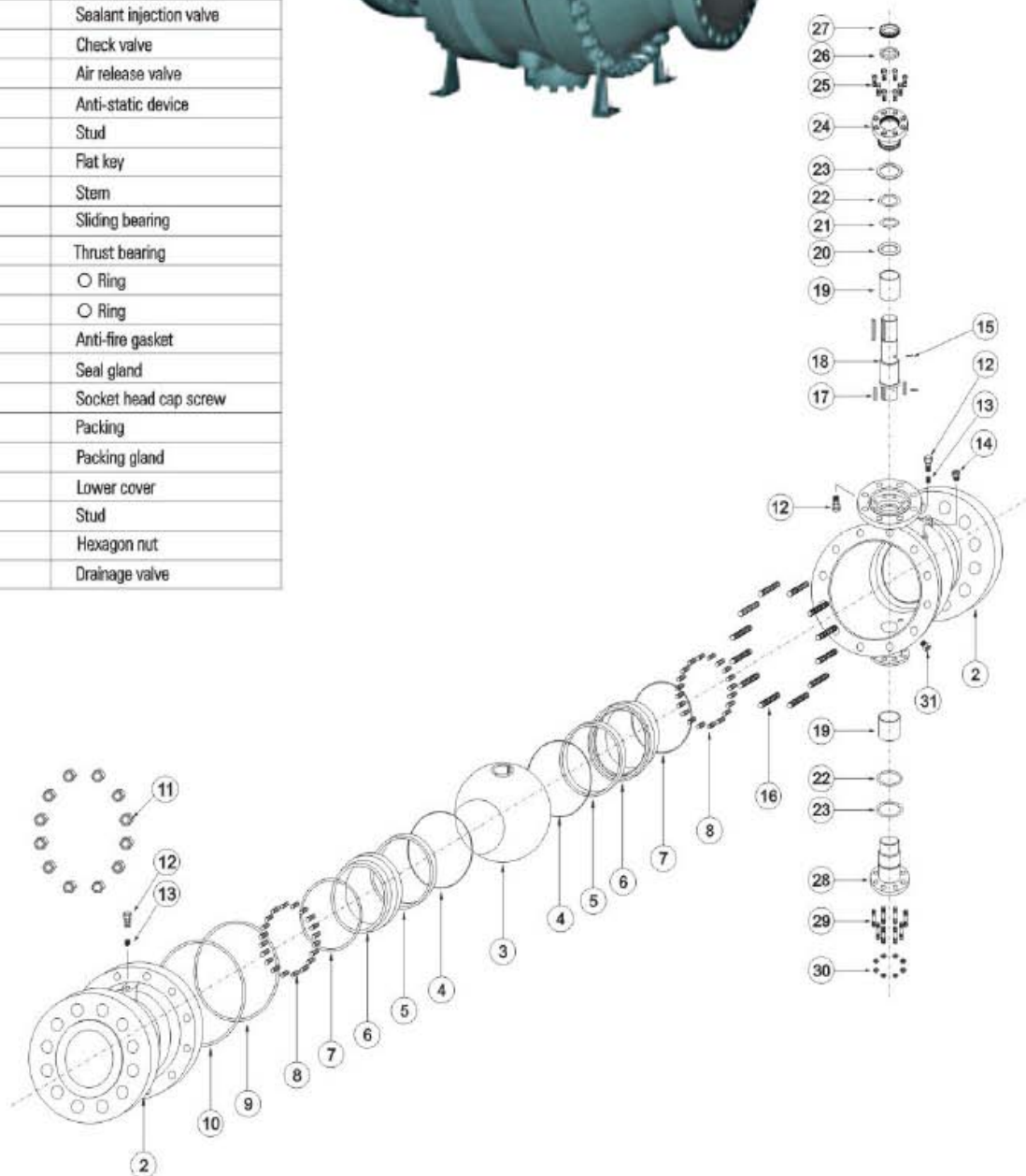


Schematic diagram of extension stem

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CAST TRUNNION BALL VALVE

1	Body
2	Bonnet
3	Ball
4	Anti-fire packing
5	Seat
6	Seat support ring
7	O Ring
8	Spring
9	O Ring
10	Anti-fire gasket
11	Hexagon nut
12	Sealant injection valve
13	Check valve
14	Air release valve
15	Anti-static device
16	Stud
17	Flat key
18	Stem
19	Sliding bearing
20	Thrust bearing
21	O Ring
22	O Ring
23	Anti-fire gasket
24	Seal gland
25	Socket head cap screw
26	Packing
27	Packing gland
28	Lower cover
29	Stud
30	Hexagon nut
31	Drainage valve





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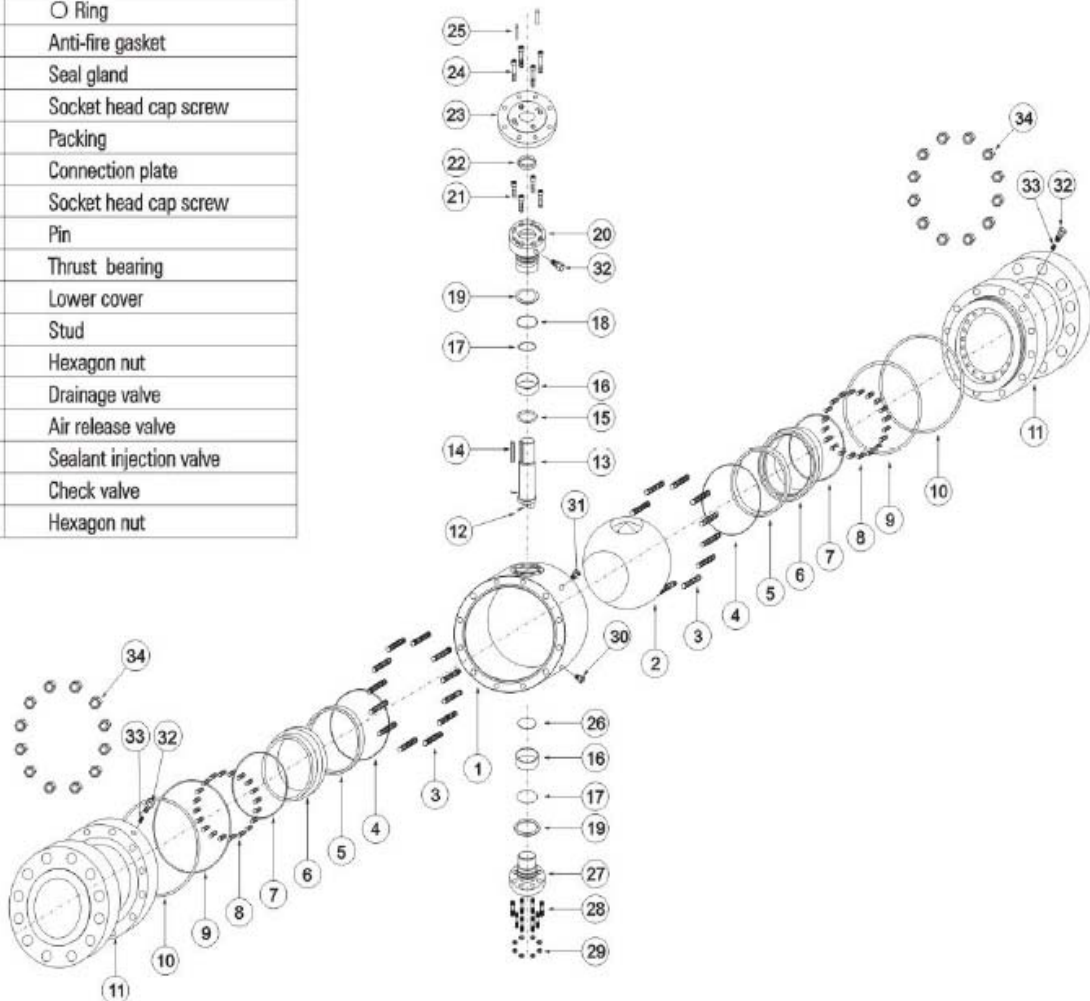
Part Materials And Main Parameters

Nominal diameter (in)		NPS 1/2~8				
Nominal pressure (MPa)		Class150~Class900				
No.	Part Name	Material				
		Carbon Steel	Stainless Steel			
1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
2	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
3	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
4	Anti-fire paking	Graphite				
5	Seat	PTFE/NYLON/PEEK/PPL				
6	Seat support ring	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
7	○ Ring	VITON				
8	Spring	17-7PH				
9	○ Ring	VITON				
10	Anti-fire gasket	SST+ Graphite				
11	Hexagon nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
12	Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
13	Check valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
14	Air release valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
15	Anti-static device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
16	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
17	Flat key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
18	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
19	Sliding bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
20	Thrust bearing	PTFE				
21	○ Ring	VITON				
22	○ Ring	VITON				
23	Anti-fire gasket	SST+ Graphite				
24	Seal gland	ASTM A105 • ENP	ASTM A182 304	ASTM A182316	ASTM A182304L	ASTM A182316L
25	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
26	Packing	Graphite				
27	Packing gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
28	Lower cover	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
29	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
30	Hexagon nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
31	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	Acetic 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				
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				

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FORGED TRUNNION BALL VALVE

1	Body
2	Ball
3	Stud
4	Anti-fire packing
5	Seat
6	Support ring
7	O Ring
8	Spring
9	O Ring
10	Anti-fire gasket
11	Bonnet
12	Anti-static device
13	Stem
14	Flat key
15	Thrust bearing
16	Sliding bearing
17	O Ring
18	O Ring
19	Anti-fire gasket
20	Seal gland
21	Socket head cap screw
22	Packing
23	Connection plate
24	Socket head cap screw
25	Pin
26	Thrust bearing
27	Lower cover
28	Stud
29	Hexagon nut
30	Drainage valve
31	Air release valve
32	Sealant injection valve
33	Check valve
34	Hexagon nut





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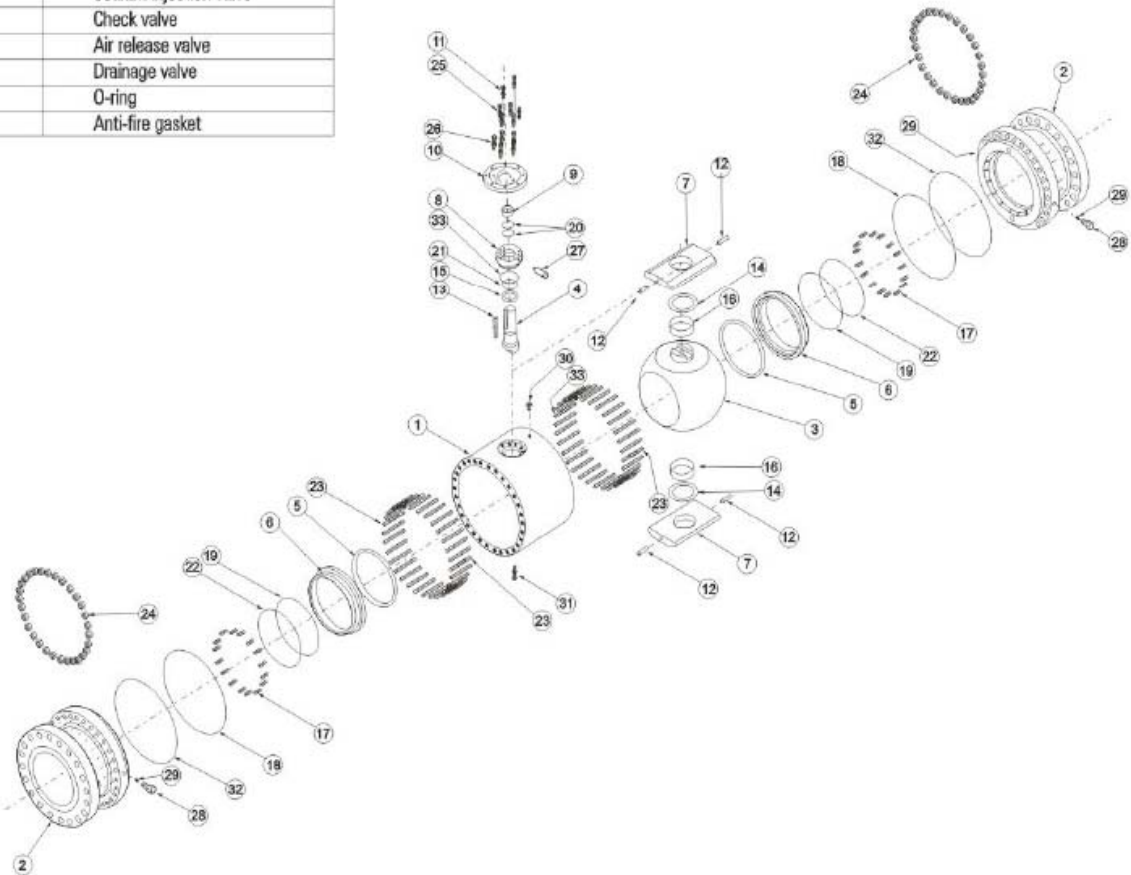
Part Materials And Main Parameters

Nominal diameter (in)		NPS 1/2~8				
Nominal pressure (MPa)		Class150~Class900				
No.	Part Name	Materials				
		Carbon Steel		Stainless Steel		
1	Body	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
2	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
3	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
4	Anti-fire packing	Graphite				
5	Seat	PTFE/NYLON/PEEK/PPL				
6	Support ring	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
7	○ Ring	VITON				
8	Spring	17-7PH				
9	○ Ring	VITON				
10	Anti-fire gasket	SST+Graphite				
11	Bonnet	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
12	Anti-static device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
13	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
14	Flat key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
15	Thrust bearing	PTFE				
16	Sliding bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
17	○ Ring	VITON				
18	○ Ring	VITON				
19	Anti-fire gasket	SST+Graphite				
20	Seal gland	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
21	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
22	Packing	Graphite				
23	Connection plate	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
24	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
25	Pin	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035
26	Thrust bearing	PTFE				
27	Lower cover	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
28	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
29	Hexagon nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
30	Drainage valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
31	Air release valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
32	Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
33	Check valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
34	Hexagon nut	A194 2HM	A194-8	A194 -8 M	A194-8	A194-8 M
Applicable service conditions	Applicable media	Water, steam, oil, gas liquefied gas, natural gas, etc.	Nitric Acid	Acetic Acid	Strong Oxidizer	Urea
	Applicable temperature	120°C (PTFE)、≤80°C (NYLON)、≤250°C (PEEK)、≤250°C (PPL)				
Design and manufacturing	API 608、API 6D					
Face-to-face dimensions	ASME B16.10、API 6D					
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					

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FORGED TRUNNION BALL VALVE

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





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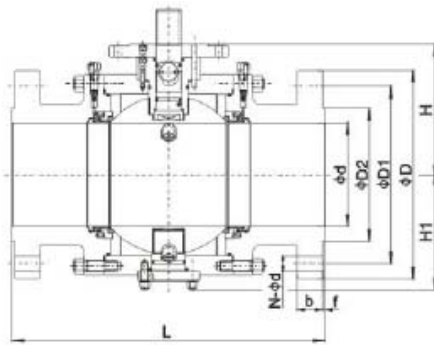


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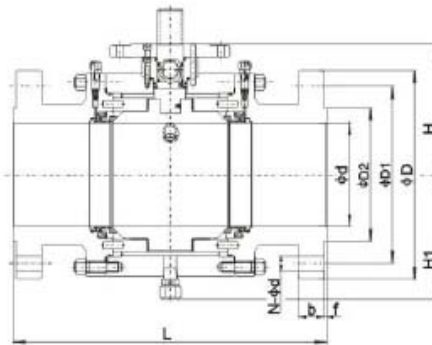
Part Materials And Main Parameters

Nominal size (in)		NPS 2~48				
Nominal pressure (MPa)		Class150~Class2500				
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	Bonnet	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
3	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
4	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
5	Seat	PTFE/NYOLN/PEEK/PPL				
6	Seat ring	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
7	Bearing holder	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
8	Seal gland	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
9	Packing	Graphite				
10	Connection plate	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
11	Pin	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035
12	Pin	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035
13	Flat key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
14	Thrust bearing	PTFE				
15	Thrust bearing	PTFE				
16	Sliding bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
17	Spring	17-7PH				
18	O-Ring	VITON				
19	O-Ring	VITON				
20	O-Ring	VITON				
21	O-Ring	VITON				
22	Anti-fire packing	Graphite				
23	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
24	Hexagon nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
25	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
26	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
27	Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
28	Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
29	Check valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
30	Air release valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
31	Drainage valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
32	O-ring	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
33	Anti-fire gasket	SST+Graphite				
Applicable service conditions	Applicable media	Water, steam, oil, gas liquefied gas, natural gas, etc.	Nitric Acid	Acetic Acid	Strong Oxidizer	Urea
	Applicable temperature	120°C (PTFE) 、 ≤80°C (NYLON) 、 ≤250°C (PEEK) 、 ≤250°C (PPL)				
Design and manufacturing		API 608、API 6D				
Face-to-face dimensions		ASME B16.10、API 6D				
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				

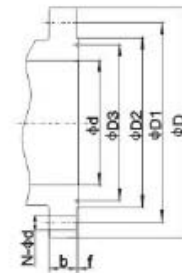
Absperr-Armaturen, Regelventile, Turbinen-Umleitsysteme für Kraftwerkstechnik, Dampfanlagen und die Verfahrenstechnik
Isolating, Control Valves and Turbine Bypass Systems for the Electric Power Industry, Steam Plant Utilities and Process Industry



External supporting structure



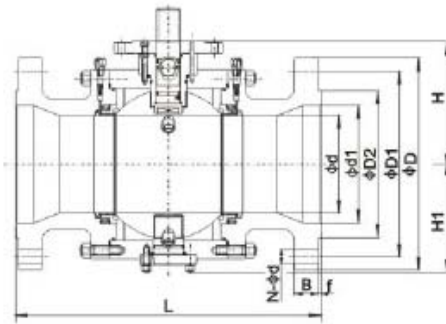
Internal supporting structure



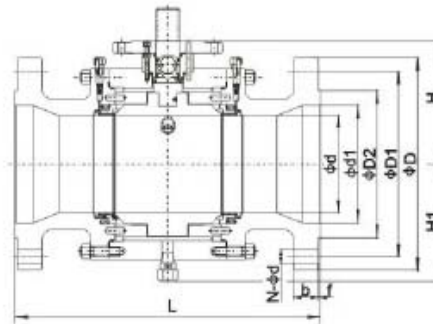
Pressure rating	Nominal Diameter		d	Flanged		Butt welding	Raised face flange						General		Support Board		Weight(kg)		
	Class	NPS		DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-φ d	H	H1	H	H1
150	2"	50	50	178	191	216	150	120.5	92	-	2	14.5	4-φ 19	93	88	-	-	19	-
	3"	80	75	203	216	283	190	152.5	127	-	2	17.5	4-φ 19	118.5	117	-	-	28	-
	4"	100	100	229	241	305	230	190.5	157	-	2	22.5	8-φ 19	143.5	137	-	-	50	-
	6"	150	150	394	406	457	280	241.5	216	-	2	24	8-φ 22	208	178.5	-	-	160	-
	8"	200	201	457	470	521	345	298.5	270	-	2	27	8-φ 22	248	222	248	235	270	284
	10"	250	252	533	546	559	405	362	324	-	2	29	12-φ 25	294	265	294	288	415	436
	12"	300	303	610	622	635	485	432	381	-	2	30.5	12-φ 25	344.5	308.5	345	330	660	693
	14"	350	334	686	699	762	535	476	413	-	2	33.5	12-φ 29	377	334	377	360	890	935
	16"	400	385	762	775	838	595	540	470	-	2	35	16-φ 29	418	375	418	400	1080	1134
	18"	450	436	864	876	914	635	578	533	-	2	38.5	16-φ 32	463	410	463	435	1480	1554
	20"	500	487	914	927	991	700	635	584	-	2	41.5	20-φ 32	502	458	502	484	1970	2069
	24"	600	589	1067	1080	1143	815	749.5	692	-	2	46.5	20-φ 35	586	534	586	568	3000	3150
	26"	650	633	1143	-	1245	870	806.5	749	-	2	68	24-φ 35	626	582	626	594	3812	3793
	28"	700	684	1245	-	1346	927	864	800	-	2	71	28-φ 35	644	605	644	658	4402	4622
	30"	750	735	1295	-	1397	984	914.5	857	-	2	75	28-φ 35	720	672	720	677	5112	5368
	32"	800	779	1372	-	1524	1060	978	914	-	2	81	28-φ 41	742	704	742	746	6667	7000
	36"	900	874	1524	-	1727	1168	1086	1022	-	2	90	32-φ 41	839	796	839	791	8827	9058
	40"	1000	976	1753	-	-	1289	1200	1124	-	2	90	36-φ 41	913.5	866	913.5	863	12313	12929
42"	1050	1020	1855	-	-	1346	1257	1194	-	2	97	36-φ 41	943	881	943	937	14000	14700	
48"	1200	1166	2134	-	-	1511	1472	1359	-	2	108	44-φ 41	1097	1016	1097	1066	21470	22544	
56"	1400	1360	2489	-	-	1746	1651	1575	-	2	124	48-φ 48	1302	1186	1302	1253	33431	35103	
300	2"	50	50	216	232	216	165	127	92	-	2	21	8-φ 19	93	88	-	-	22	-
	3"	80	75	283	298	283	210	168.5	127	-	2	27	8-φ 22	118.5	117	-	-	38	-
	4"	100	100	305	321	305	255	200	157	-	2	30.5	8-φ 22	143.5	137	-	-	60	-
	6"	150	150	403	419	457	320	270	216	-	2	35	12-φ 22	208	178.5	-	-	180	189
	8"	200	201	502	518	521	380	330	270	-	2	40	12-φ 25	248	222	248	235	295	310
	10"	250	252	568	584	559	445	387.5	324	-	2	46.5	16-φ 29	294	265	294	288	450	473
	12"	300	303	648	664	635	520	451	381	-	2	49.5	16-φ 32	344.5	308.5	345	330	700	735
	14"	350	334	762	778	762	585	514.5	413	-	2	52.5	20-φ 32	377	334	377	360	1160	1218
	16"	400	385	838	854	838	650	571.5	470	-	2	56	20-φ 35	423	380	423	345	1340	1407
	18"	450	436	914	930	914	710	628.5	533	-	2	59	24-φ 35	463	410	463	431	1610	1691
	20"	500	487	991	1010	991	775	686	584	-	2	62	24-φ 35	502	458	502	474	2200	2310
	24"	600	589	1143	1165	1143	915	813	692	-	2	68.5	24-φ 41	592	549	592	561	3460	3633
	26"	650	633	1245	-	1245	972	876.5	749	-	2	79	28-φ 45	633	590	633	601	4017	4218
	28"	700	684	1346	-	1346	1035	940	800	-	2	86	28-φ 45	680	637	680	636	4974	5223
	30"	750	735	1397	-	1397	1092	997	857	-	2	92	28-φ 48	730	682	730	681	5681	5965
	32"	800	779	1524	-	1524	1149	1054	914	-	2	98	28-φ 51	765	720	765	716	6837	7179
	36"	900	874	1727	-	1727	1270	1168	1022	-	2	105	32-φ 54	847	804	847	798	8700	9135
	40"	1000	976	1956	-	-	1238	1156	1086	-	2	114	32-φ 45	921	877	921	871	12299	12914
42"	1050	1020	2083	-	-	1289	1206.5	1137	-	2	119	32-φ 45	936	900	936	890	14379	15098	
48"	1200	1166	2170	-	-	1467	1372	1302	-	2	134	32-φ 51	1093	1052	1093	1040	21482	22556	
56"	1400	1360	2743	-	-	1708	1600	1518	-	2	154	28-φ 60	1263	1216	1263	1203	34066	35769	

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

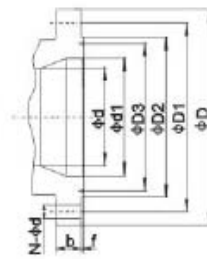
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Isolating, Control Valves and Turbine Bypass Systems for the Electric Power Industry, Steam Plant Utilities and Process Industry



External supporting structure



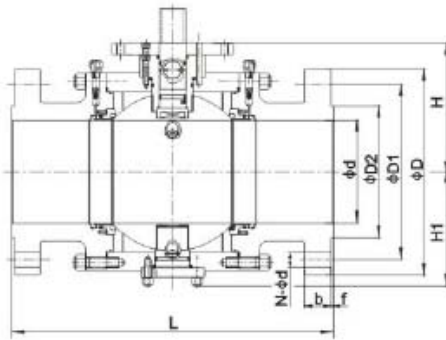
Internal supporting structure



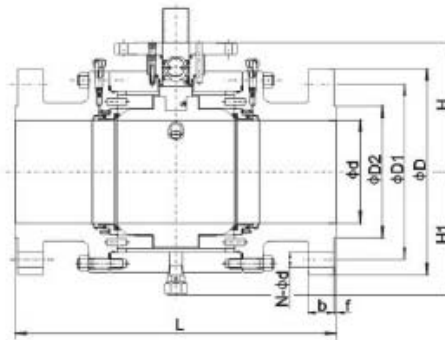
Pressure rating	Nominal Diameter		d	d1	Flanged		Butt welding	Raised face flange						General		Support Board		Weight(kg)			
	Class	NPS			DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-φd	H	H1	H	H1	General
150		3" × 2"	80	50	75	203	216	283	190	152.5	127	-	2	17.5	4-φ19	93	88	-	-	28	-
		4" × 3"	100	75	100	229	241	305	230	190.5	157	-	2	22.5	8-φ19	118.5	117	-	-	45	-
		6" × 4"	150	100	150	394	406	457	280	241.5	216	-	2	24	8-φ22	143	137	-	-	95	-
		8" × 6"	200	150	201	457	470	521	345	298.5	270	-	2	27	8-φ22	208	178.5	-	-	170	179
		10" × 8"	250	201	252	533	546	559	405	362	324	-	2	29	12-φ25	248	222	248	235	313	329
		12" × 10"	300	252	303	610	622	635	485	432	381	-	2	30.5	12-φ25	294	265	294	288	470	494
		14" × 10"	350	252	334	686	699	762	535	476	413	-	2	33.5	12-φ29	294	265	294	288	521	580
		14" × 12"	350	303	334	686	699	762	535	476	413	-	2	33.5	12-φ29	344.5	308.5	345	330	760	840
		16" × 12"	400	303	385	762	775	838	595	540	470	-	2	35	16-φ29	344.5	308.5	345	330	834	920
		16" × 14"	400	334	385	762	775	838	595	540	470	-	2	35	16-φ29	377	334	377	360	930	1020
		18" × 16"	450	385	436	864	876	914	635	578	533	-	2	38.5	16-φ32	418	375	418	400	1120	1210
		20" × 16"	500	385	487	914	927	991	700	635	584	-	2	41.5	20-φ32	418	375	418	400	1480	1570
		20" × 18"	500	436	487	914	927	991	700	635	584	-	2	41.5	20-φ32	463	410	463	431	1620	1710
		24" × 20"	600	487	589	1067	1080	1143	815	749.5	692	-	2	46.5	20-φ35	502	458	502	484	2270	2384
	30" × 24"	750	589	735	1295	-	1397	984	914.5	857	-	2	75	28-φ35	586	534	586	568	3730	3917	
	36" × 30"	900	735	874	1524	-	1727	1168	1086	1022	-	2	90	32-φ41	720	672	720	677	6740	7077	
300		3" × 2"	80	50	75	283	298	283	210	168.5	127	-	2	27	8-φ22	93	88	-	-	42	-
		4" × 3"	100	75	100	305	321	305	255	200	157	-	2	30.5	8-φ22	118.5	117	-	-	62	-
		6" × 4"	150	100	150	403	419	457	320	270	216	-	2	35	12-φ22	143.5	137	-	-	115	120.8
		8" × 6"	200	150	201	502	518	521	380	330	270	-	2	40	12-φ25	208	178.5	-	-	196	206
		10" × 8"	250	201	252	568	584	559	445	387.5	324	-	2	46.5	16-φ29	248	222	248	235	350	368
		12" × 10"	300	252	303	648	664	635	520	451	381	-	2	49.5	16-φ32	294	265	294	288	552	580
		14" × 10"	350	252	334	762	778	762	585	514.5	413	-	2	52.5	20-φ32	294	265	294	288	644	684
		14" × 12"	350	303	334	762	778	762	585	514.5	413	-	2	52.5	20-φ32	344.5	308.5	345	330	780	860
		16" × 12"	400	303	385	838	854	838	650	571.5	470	-	2	56	20-φ35	344.5	308.5	345	330	908	988
		16" × 14"	400	334	385	838	854	838	650	571.5	470	-	2	56	20-φ35	377	334	377	360	1105	1180
		18" × 16"	450	385	436	914	930	914	710	628.5	533	-	2	59	24-φ35	423	380	423	345	1500	1575
		20" × 16"	500	385	487	991	1010	991	775	686	584	-	2	62	24-φ35	423	380	423	345	1600	1700
		20" × 18"	500	487	436	991	1010	991	775	686	584	-	2	62	24-φ35	463	410	463	431	1910	2053
		24" × 20"	600	487	589	1143	1165	1143	915	813	692	-	2	68.5	24-φ41	502	458	502	474	2940	3087
	30" × 24"	750	589	735	1397	-	1397	1092	997	857	-	2	92	28-φ48	592	549	592	561	4430	4652	
	36" × 30"	900	735	874	1727	-	1727	1270	1168	1022	-	2	105	32-φ54	730	682	730	681	7520	7896	

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

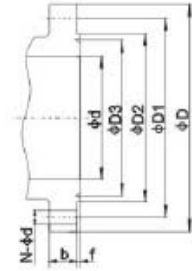
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Isolating, Control Valves and Turbine Bypass Systems for the Electric Power Industry, Steam Plant Utilities and Process Industry



External supporting structure



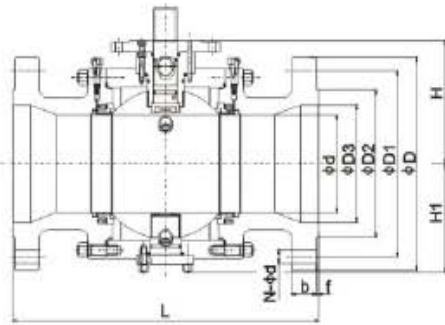
Internal supporting structure



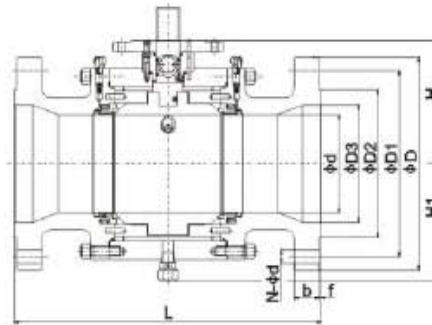
Pressure rating	Nominal Diameter		d	Flanged		Butt welding	Raised face flange						General		Support Board		Weight(kg)		
	Class	NPS		DN	L(RF)	L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-φd	H	H1	H	H1	General
600	2"	50	50	292	295	292	165	127	92	-	7	26	8-φ19	107	91.5	-	-	38	-
	3"	80	75	356	359	356	210	168.5	127	-	7	32	8-φ22	140	119	-	-	65	-
	4"	100	100	432	435	432	275	216	157	-	7	38.5	8-φ25	164	150	-	-	118	-
	6"	150	150	559	562	559	355	292	216	-	7	48	12-φ29	222	192.5	224	208	250	263
	8"	200	201	660	664	660	420	349	270	-	7	56	12-φ32	271	235	272	248	430	452
	10"	250	252	787	791	787	510	432	324	-	7	64	16-φ35	317.5	280	318	303	680	714
	12"	300	303	838	841	838	560	489	381	-	7	67	20-φ35	360	320	355	341	985	1034
	14"	350	334	889	892	889	605	527	413	-	7	70	20-φ39	390	350	390	370	1287	1351
	16"	400	385	991	994	991	685	603	470	-	7	77	20-φ41	440	395	400	415	1640	1722
	18"	450	436	1092	1095	1092	745	654	533	-	7	83	20-φ44	485	439	485	460	2268	2381
	20"	500	487	1194	1200	1194	815	724	584	-	7	89	24-φ44	533	490	533	510	2830	2972
	24"	600	589	1397	1407	1397	940	838	692	-	7	102	24-φ51	616	573	616	595	4400	4620
	26"	650	633	1448	-	1448	1016	914.5	749	-	7	108	28-φ51	643.5	612	643.5	635	5455	5728
	28"	700	684	1549	-	1549	1073	965	800	-	7	112	28-φ54	665	670	665	692	7610	7991
	30"	750	735	1651	-	1651	1130	1022	857	-	7	114	28-φ54	753	710	753	690	8420	8841
	32"	800	779	1778	-	1778	1194	1079.5	914	-	7	118	28-φ54	768	780	768	804	9230	9692
36"	900	874	2083	-	2083	1314	1194	1022	-	7	124	28-φ67	861	840	861	865	13000	13650	
900	2"	50	50	368	371	368	215	165	124	95.25	7.92	38.5	8-φ25	126.5	105	-	-	57	-
	3"	80	75	381	384	381	240	190.5	156	123.83	7.92	38.5	8-φ25	150	130	-	-	87	-
	4"	100	100	457	460	457	290	235	181	149.23	7.92	45	8-φ32	172.5	158	-	-	193	-
	6"	150	150	610	613	610	380	317.5	241	211.12	7.92	56	12-φ32	230	197	235	210	340	357
	8"	200	201	737	740	737	470	393.5	308	269.88	7.92	64	12-φ39	285	250	290	255	570	598.5
	10"	250	252	838	841	838	545	470	362	323.85	7.92	70	16-φ39	330	294	330	316	912	957.6
	12"	300	303	965	968	965	610	533.5	419	381	7.92	79.5	20-φ39	366	334	366	351	1325	1391
	14"	350	322	1029	1038	1029	640	559	487	419.1	11.13	86	20-φ42	415	368	415	376	1620	1701
	16"	400	373	1130	1140	1130	705	616	524	469.9	11.13	89	20-φ45	452	408	452	421	1990	2090
	18"	450	423	1219	1232	1219	785	686	594	533.4	12.7	102	20-φ51	501	461	501	463	2611	2742
	20"	500	471	1321	1334	1321	855	749.5	648	584.2	12.7	108	20-φ54	544	506	544	505	3880	4074
	24"	600	570	1549	1568	1549	1040	901.5	772	692.15	15.88	140	20-φ67	657	616	657	608	6296	6611
	26"	650	617	1651	-	1651	1086	952.5	749	-	7	124	20-φ73	700	635	700	625	7280	8050
	28"	700	665	1753	-	1753	1168	1022	800	-	7	143	20-φ79	727	685	727	673	9166	9624
	30"	750	712	1880	-	1880	1232	1086	857	-	7	149	20-φ79	760	722	760	706	11277	11841
	32"	800	760	2032	-	2032	1314	1156	914	-	7	159	20-φ86	795	755	795	734	12300	12915
36"	900	855	2286	-	2286	1461	1289	1022	-	7	172	20-φ92	886	846	886	822	17500	18375	

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

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External supporting structure

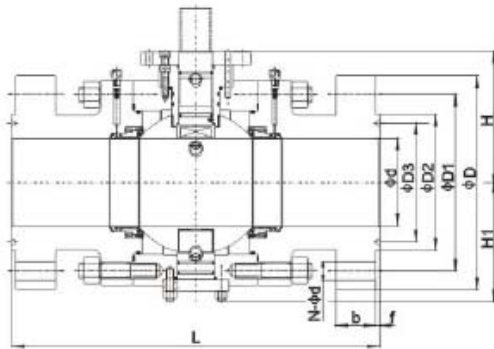


Internal supporting structure

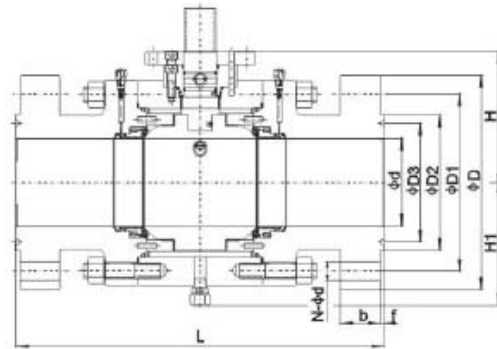
Pressure rating	Nominal Diameter		d	d1	Flanged		Butt welding	Raised face flange						General		Support Board		Weight(kg)		
	Class	NPS			DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-φd	H	H1	H	H1
600	3"×2"	80	50	75	356	359	356	210	168.5	127	-	7	32	8-φ22	107	91.5	-	-	44	-
	4"×3"	100	75	100	432	435	432	275	216	157	-	7	36.5	8-φ25	140	119	-	-	85	-
	6"×4"	150	100	150	559	562	559	355	292	216	-	7	48	12-φ29	167	150	-	-	169	177
	8"×6"	200	150	201	660	664	660	420	349	270	-	7	56	12-φ32	222	192.5	224	208	280	294
	10"×8"	250	201	252	787	791	787	510	432	324	-	7	64	16-φ35	271	235	272	248	520	546
	12"×10"	300	252	303	838	841	838	560	489	381	-	7	67	20-φ35	317.5	280	318	303	790	830
	14"×10"	350	252	334	889	892	889	605	527	413	-	7	70	20-φ39	317.5	280	318	303	960	1050
	14"×12"	350	303	334	889	892	889	605	527	413	-	7	70	20-φ39	360	320	355	341	1070	1180
	16"×12"	400	303	385	991	994	991	685	603	470	-	7	77	20-φ41	360	320	355	341	1250	1370
	16"×14"	400	334	385	991	994	991	685	603	470	-	7	77	20-φ41	390	350	390	370	1367	1490
	18"×16"	450	385	436	1092	1095	1092	745	654	533	-	7	83	20-φ44	440	395	400	415	1840	1932
	20"×16"	500	385	487	1194	1200	1194	815	724	584	-	7	89	24-φ44	440	395	400	415	2177	2340
	20"×18"	500	436	487	1194	1200	1194	815	724	584	-	7	89	24-φ44	485	439	485	460	2390	2540
	24"×20"	600	487	589	1397	1407	1397	940	838	682	-	7	102	24-φ51	533	490	533	510	3560	3738
30"×24"	750	589	735	1651	-	1651	1130	1022	857	-	7	114	28-φ54	616	573	616	595	5200	5460	
36"×30"	900	735	874	2083	-	2083	1314	1194	1022	-	7	124	28-φ67	753	710	753	690	9900	10395	
900	3"×2"	80	50	75	381	384	381	240	190.5	156	123.83	7.92	36.5	8-φ25	126.5	105	-	-	56	-
	4"×3"	100	75	100	457	460	457	290	235	181	149.23	7.92	45	8-φ32	150	130	-	-	97	-
	6"×4"	150	100	150	610	613	610	380	317.5	241	211.12	7.92	56	12-φ32	172.5	158	-	-	220	231
	8"×6"	200	150	201	737	740	737	470	393.5	308	269.88	7.92	64	12-φ39	230	197	235	210	436	458
	10"×8"	250	201	252	838	841	838	545	470	362	323.85	7.92	70	16-φ39	285	250	290	255	650	683
	12"×10"	300	252	303	965	968	965	610	533.5	419	381	7.92	79.5	20-φ39	330	294	330	316	1050	1103
	14"×10"	350	252	322	1029	1038	1029	640	559	467	419.1	11.13	86	20-φ42	330	294	330	316	1230	1390
	14"×12"	350	303	322	1029	1038	1029	640	559	467	419.1	11.13	86	20-φ42	366	334	366	351	1435	1565
	16"×12"	400	303	373	1130	1140	1130	705	616	524	469.9	11.13	89	20-φ45	366	334	366	351	1700	1820
	16"×14"	400	322	373	1130	1140	1130	705	616	524	46.99	11.13	89	20-φ45	415	368	415	376	1820	2080
	18"×16"	450	373	423	1219	1232	1219	785	686	594	533.4	12.7	102	20-φ51	452	408	452	421	2550	2678
	20"×16"	500	373	471	1321	1334	1321	855	749.5	648	584.2	12.7	108	20-φ54	452	408	452	421	2630	2765
	20"×18"	500	373	471	1321	1334	1321	855	749.5	648	584.2	12.7	108	20-φ54	501	461	501	463	3630	3900
	24"×20"	600	471	570	1549	1568	1549	1040	901.5	772	692.15	15.88	140	20-φ67	544	506	544	505	5030	5282
30"×24"	750	570	712	1880	-	1880	1232	1086	857	-	7	149	20-φ79	657	616	657	608	8730	9167	
36"×30"	900	712	855	2286	-	2286	1461	1289	1022	-	7	172	20-φ92	760	722	760	706	15385	16154	

Notes: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

Absperr-Armaturen, Regelventile, Turbinen-Umleitsysteme für Kraftwerkstechnik, Dampfanlagen und die Verfahrenstechnik
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External supporting structure

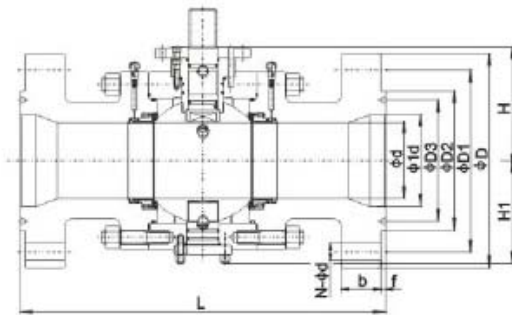


Internal supporting structure

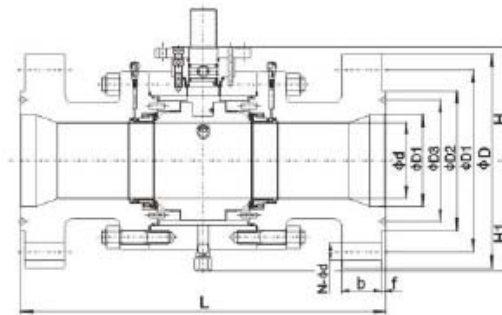
Pressure rating	Nominal Diameter		d	Flanged		Butt welding	Raised face flange						General		Support Board		Weight(kg)		
	Class	NPS		DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-φd	H	H1	H	H1
1500	2"	50	50	368	371	368	215	165	124	95.25	7.92	38.5	8-φ25	126.5	105	-	-	57	-
	3"	80	75	470	473	470	265	203.2	168	136.53	7.92	48	8-φ32	166	149	-	-	168	-
	4"	100	100	546	549	546	310	241.3	194	161.93	7.92	54	8-φ35	219	178	-	-	230	-
	6"	150	144	705	711	705	395	317.5	248	211.14	9.53	83	12-φ39	268	227	-	-	685	-
	8"	200	192	832	841	832	485	393.7	318	269.88	11.13	92	12-φ45	303	267	305	270	993	1043
	10"	250	239	991	1000	991	585	482.6	371	323.85	11.13	108	12-φ51	358	323	358	336	1781	1870
	12"	300	287	1130	1146	1130	675	571.5	438	381	14.27	124	16-φ54	414	381	414	395	2280	2394
	14"	350	315	1257	1276	1257	750	635	489	419.1	15.88	134	16-φ60	471	432	471	441	3000	3150
	16"	400	360	1384	1407	1384	825	704.8	546	469.9	17.48	146.5	16-φ67	498	453	498	456	3816	4007
	18"	450	406	1537	1559	-	915	774.7	613	533.4	17.48	162	16-φ73	570	530	570	535	6195	6505
20"	500	454	1664	1686	-	985	831.8	673	584.2	17.48	178	16-φ79	611	569	611	561	9075	9529	
2500	2"	50	42	451	454	451	235	171.4	133	101.6	7.92	51	8-φ29	149	123	-	-	140	-
	3"	80	62	578	584	578	305	228.6	168	127	9.53	67	8-φ35	215	171	-	-	216	-
	4"	100	87	673	683	673	355	273	203	157.18	11.13	76.5	8-φ42	245	206	-	-	328	-
	6"	150	131	914	927	914	485	366.3	279	228.8	12.7	108	8-φ54	308	263	308	265	1030	1082
	8"	200	179	1022	1038	1022	550	438.2	340	279.4	14.27	127	12-φ54	361	330	361	336	1570	1649
	10"	250	223	1270	1292	1270	675	539.8	425	342.9	17.48	166	12-φ67	426	388	426	394	2550	2678
	12"	300	265	1422	1445	1422	760	619.1	495	406.4	17.48	185	12-φ74	479	440	479	446	3872	4066

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

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External supporting structure



Internal supporting structure

Pressure rating	Nominal Diameter		d	d1	Flanged			Butt welding	Raised face flange					General		Support Board		Weight(kg)			
	Class	NPS			DN	L(RF)	L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-Φd	H	H1	H	H1	General	Support flange
1500		3" × 2"	80	50	75	470	473	470	265	203.2	168	136.53	7.92	38.5	8-Φ32	126.5	105	-	-	2	-
		4" × 3"	100	74	100	546	549	546	310	241.3	194	161.93	7.92	54	8-Φ35	166	149	-	-	195	205
		6" × 4"	150	100	144	705	711	705	395	317.5	248	211.14	9.53	83	12-Φ39	219	178	-	-	270	284
		8" × 6"	200	144	192	832	841	832	485	393.7	318	269.88	11.13	92	12-Φ45	268	227	-	-	586	615
		10" × 8"	250	192	239	991	1000	991	585	482.6	371	323.85	11.13	108	12-Φ51	303	267	305	270	1010	1061
		12" × 10"	300	239	287	1130	1146	1130	675	571.5	438	381	14.27	124	16-Φ54	358	323	358	336	1760	1848
		14" × 10"	350	239	315	1257	1276	1257	750	635	489	419.1	15.88	134	16-Φ60	358	323	358	336	2010	2238
		14" × 12"	350	287	315	1257	1276	1257	750	635	489	419.1	15.88	134	16-Φ60	414	381	414	395	2680	2940
		16" × 12"	400	287	360	1384	1407	1384	825	704.8	546	469.9	17.48	146.5	16-Φ67	414	381	414	395	2860	3180
		16" × 14"	400	315	360	1384	1407	1384	825	704.8	546	469.9	17.48	146.5	16-Φ67	471	432	471	441	3530	3850
		18" × 16"	450	360	406	1537	1559	-	915	774.7	13	533.4	17.48	162	16-Φ73	498	453	498	456	5030	5282
		20" × 16"	500	360	454	1664	1686	-	985	831.8	673	584.2	17.48	178	16-Φ79	498	453	498	355	-	-
	20" × 18"	500	406	454	1664	1686	-	985	831.8	673	584.2	17.48	178	16-Φ79	570	530	570	456	5380	5790	
2500		3" × 2"	80	42	62	578	584	578	305	228.6	168	127	9.53	67	8-Φ35	149	123	-	-	157	165
		4" × 3"	100	62	87	673	683	673	355	273	203	157.18	11.13	76.5	8-Φ42	215	171	-	-	260	273
		6" × 4"	150	87	131	914	927	914	485	368.3	279	228.6	12.7	108	8-Φ54	245	206	-	-	548	575
		8" × 6"	200	131	179	1022	1038	1022	550	438.2	340	279.4	14.27	127	12-Φ54	306	263	306	265	1100	1155
		10" × 8"	250	179	223	1270	1292	1270	675	539.8	425	342.9	17.48	166	12-Φ67	361	330	361	336	1890	1985
		12" × 10"	300	223	265	1422	1445	1422	760	619.1	495	406.4	17.48	185	12-Φ74	426	388	426	394	2850	2993

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.



®

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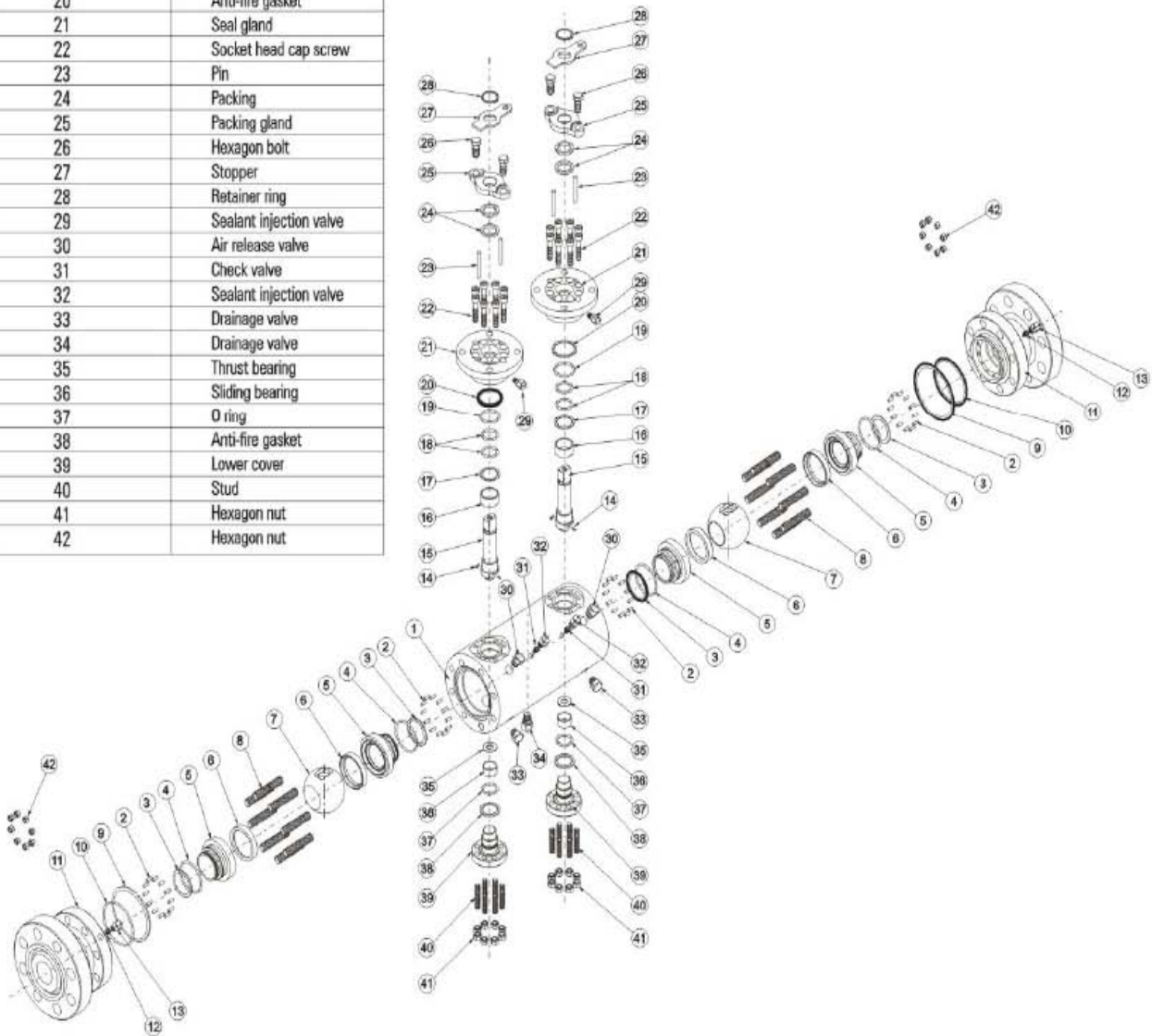
DOUBLE BLOCK AND BLEED VALVE



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Isolating, Control Valves and Turbine Bypass Systems for the Electric Power Industry, Steam Plant Utilities and Process Industry

DOUBLE BLOCK AND BLEED VALVE

1	Body
2	Spring
3	Anti-fire packing
4	O ring
5	Seat ring
6	Seat
7	Ball
8	Stud
9	Anti-fire gasket
10	O ring
11	Bonnet
12	Check valve
13	Sealant injection valve
14	Anti-static device
15	Stem
16	Sliding bearing
17	Thrust bearing
18	O ring
19	O ring
20	Anti-fire gasket
21	Seal gland
22	Socket head cap screw
23	Pin
24	Packing
25	Packing gland
26	Hexagon bolt
27	Stopper
28	Retainer ring
29	Sealant injection valve
30	Air release valve
31	Check valve
32	Sealant injection valve
33	Drainage valve
34	Drainage valve
35	Thrust bearing
36	Sliding bearing
37	O ring
38	Anti-fire gasket
39	Lower cover
40	Stud
41	Hexagon nut
42	Hexagon nut

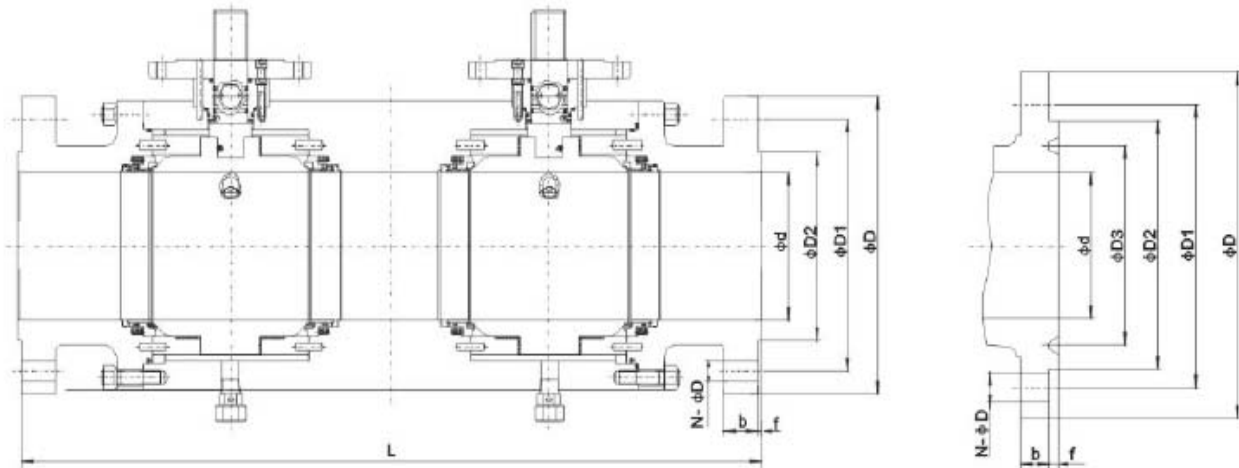


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Part Materials And Main Parameters

Nominal diameter (in)		NPS 2~16				
Nominal pressure (MPa)		Class150~Class2500				
No.	Part Name	Materials				
		Carbon Steel	Stainless Steel			
1	Body	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
2	Spring	17-7PH				
3	Anti-fire packing	Graphite				
4	O ring	VITON	VITON	VITON	VITON	VITON
5	Seat ring	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
6	Seat	PTFE/NYLON/PEEK/PPL				
7	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
8	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
9	Anti-fire gasket	SST+Graphite				
10	O ring	VITON				
11	Bonnet	ASTM A105	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
12	Check valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
13	Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
14	Anti-static device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
15	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
16	Sliding bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
17	Thrust bearing	PTFE				
18	O ring	VITON				
19	O ring	VITON				
20	Anti-fire gasket	SST+Graphite				
21	Seal gland	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
22	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
23	Pin	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035
24	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
25	Packing gland	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB
26	Hexagon bolt	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
27	Stopper	A3 • HZn	A3 • Zn	A3 • HZn	A3 • HZn	A3 • HZn
28	Retainer ring	65Mn	65Mn	65Mn	65Mn	65Mn
29	Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
30	Air release valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
31	Check valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
32	Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
33	Drainage valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
34	Drainage valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
35	Thrust bearing	PTFE				
36	Sliding bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
37	O ring	VITON				
38	Anti-fire gasket	SST+Graphite				
39	Lower cover	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
40	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
41	Hexagon nut	A194 2HM	A194-8	A194-8 M	A194-8	A194-8 M
42	Hexagon nut	A194 2HM	A194-8	A194-8 M	A194-8	A194-8 M
Applicable service conditions	Applicable media	Water, steam, oil, gas, liquefied gas, natural gas, etc.		Nitric Acid	Acetic Acid	Strong Oxidizer
	Applicable temperature	120°C (PTFE) 、 ≤80°C (NYLON) 、 ≤250°C (PEEK) 、 ≤250°C (PPL)				
Design and manufacturing		API 608、API 6D				
Face-to-face dimensions		ASME B16.10、API 6D				
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				

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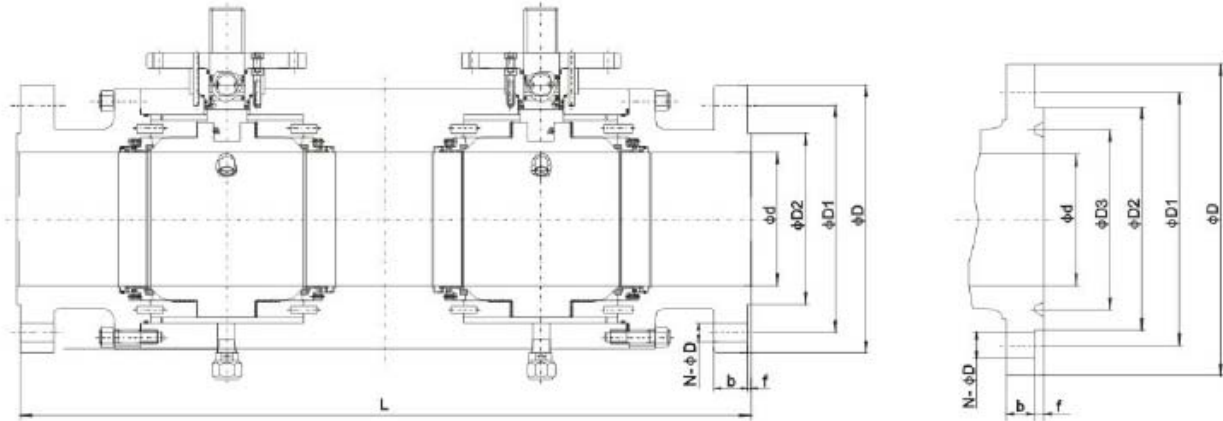


Pressure rating	Nominal Diameter		d	Flanged		Butt welding	Raised face flange						H	H1	Weight (Kg)		
	Class	NPS		DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	D3				f	b
150		2"	50	50	356	369	394	150	120.5	92	-	2	14.5	4-φ19	93	88	△
		3"	80	75	457	470	537	190	152.5	127	-	2	17.5	4-φ19	118.5	117	△
		4"	100	100	502	514	578	230	190.5	157	-	2	22.5	8-φ19	143.5	137	△
		6"	150	150	787	799	850	280	241.5	216	-	2	24	8-φ22	208	178.5	△
		8"	200	201	902	915	966	345	298.5	270	-	2	27	8-φ22	248	235	△
		10"	250	252	991	1004	1017	405	362	324	-	2	29	12-φ25	294	288	△
		12"	300	303	1130	1142	1155	485	432	381	-	2	30.5	12-φ25	345	330	△
		14"	350	334	1245	1258	1321	535	476	413	-	2	33.5	12-φ29	377	360	△
		16"	400	385	1372	1385	1448	595	540	470	-	2	35	16-φ29	418	400	△
300		2"	50	50	394	410	394	165	127	92	-	2	21	8-φ19	93	88	△
		3"	80	75	495	510	495	210	168.5	127	-	2	27	8-φ22	118.5	117	△
		4"	100	100	568	584	568	255	200	157	-	2	30.5	8-φ22	143.5	137	△
		6"	150	150	826	842	826	320	270	216	-	2	35	12-φ22	208	178.5	△
		8"	200	201	991	1007	991	380	330	270	-	2	40	12-φ25	248	235	△
		10"	250	252	1054	1070	1054	445	387.5	324	-	2	46.5	16-φ29	294	288	△
		12"	300	303	1194	1210	1194	520	451	381	-	2	49.5	16-φ32	345	330	△
		14"	350	334	1346	1362	1346	585	514.5	413	-	2	52.5	20-φ32	377	360	△
		16"	400	385	1473	1489	1473	650	571.5	470	-	2	56	20-φ35	423	345	△
600		2"	50	50	470	473	470	165	127	92	-	7	26	8-φ19	107	91.5	△
		3"	80	75	610	613	610	210	168.5	127	-	7	32	8-φ22	140	119	△
		4"	100	100	762	765	762	275	216	157	-	7	38.5	8-φ25	164	150	△
		6"	150	150	978	981	978	355	292	216	-	7	48	12-φ29	224	208	△
		8"	200	201	1143	1147	1143	420	349	270	-	7	56	12-φ32	272	248	△
		10"	250	252	1372	1376	1372	510	432	324	-	7	64	16-φ35	318	303	△
		12"	300	303	1448	1451	1448	560	489	381	-	7	67	20-φ35	355	341	△
		14"	350	334	1549	1552	1549	605	527	413	-	7	70	20-φ39	390	370	△
		16"	400	385	1778	1781	1778	685	603	470	-	7	77	20-φ41	400	415	△

△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes Hand weight will not be notified otherwise.

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Pressure rating	Nominal Diameter		d	Flanged			Butt welding	Raised face flange						H	H1	Weight (Kg)
				L(RF)	L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-φd			
Class	NPS	DN														
900	2"	50	50	610	613	610	215	165	124	95.25	7.92	38.5	8-φ25	126.5	105	△
	3"	80	75	660	663	660	240	190.5	156	123.83	7.92	38.5	8-φ25	150	130	△
	4"	100	100	826	829	826	290	235	181	149.23	7.92	45	8-φ32	172.5	158	△
	6"	150	150	1054	1057	1054	380	317.5	241	211.12	7.92	56	12-φ32	230	210	△
	8"	200	201	1295	1298	1295	470	393.5	308	269.88	7.92	64	12-φ39	290	255	△
	10"	250	252	1473	1476	1473	545	470	362	323.85	7.92	70	16-φ39	330	316	△
	12"	300	303	1651	1654	1651	610	533.5	419	381	7.92	79.5	20-φ39	366	351	△
	14"	350	322	1880	1889	1880	640	559	467	419.1	11.13	86	20-φ42	415	376	△
16"	400	373	1930	1940	1930	705	616	524	469.9	11.13	89	20-φ45	452	421	△	
1500	2"	50	50	610	613	610	215	165	124	95.25	7.92	38.5	8-φ25	126.5	105	△
	3"	80	75	826	829	826	265	203.2	168	136.53	7.92	48	8-φ32	166	149	△
	4"	100	100	965	968	965	310	241.3	194	161.93	7.92	54	8-φ35	219	178	△
	6"	150	144	1232	1238	1232	395	317.5	248	211.14	9.53	83	12-φ39	268	234	△
	8"	200	192	1448	1457	1448	485	393.7	318	269.88	11.13	92	12-φ45	305	270	△
	10"	250	239	1778	1787	1778	585	482.8	371	323.85	11.13	108	12-φ51	358	336	△
	12"	300	287	2083	2099	2083	675	571.5	438	381	14.27	124	16-φ54	414	395	△
	14"	350	315	2286	2305	2286	750	635	489	419.1	15.88	134	16-φ60	471	441	△
16"	400	360	2422	2445	2422	825	704.8	546	469.9	17.48	146.5	16-φ67	498	456	△	
2500	2"	50	42	762	765	762	235	171.4	133	101.6	7.92	51	8-φ29	149	123	△
	3"	80	62	1029	1153	1029	305	228.6	168	127	9.53	67	8-φ35	215	171	△
	4"	100	87	1143	1562	1143	355	273	203	157.18	11.13	76.5	8-φ42	245	206	△
	6"	150	131	1549	1559	1549	485	368.3	279	228.6	12.7	108	8-φ54	306	265	△
	8"	200	179	1880	1896	1880	550	438.2	340	279.4	14.27	127	12-φ54	361	336	△

△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes Hand weight will not be notified otherwise.



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Isolating, Control Valves and Turbine Bypass Systems for the Electric Power Industry, Steam Plant Utilities and Process Industry

FULL WELDED BALL VALVE



STRUCTURAL FEATURES

1、 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.

13、 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.

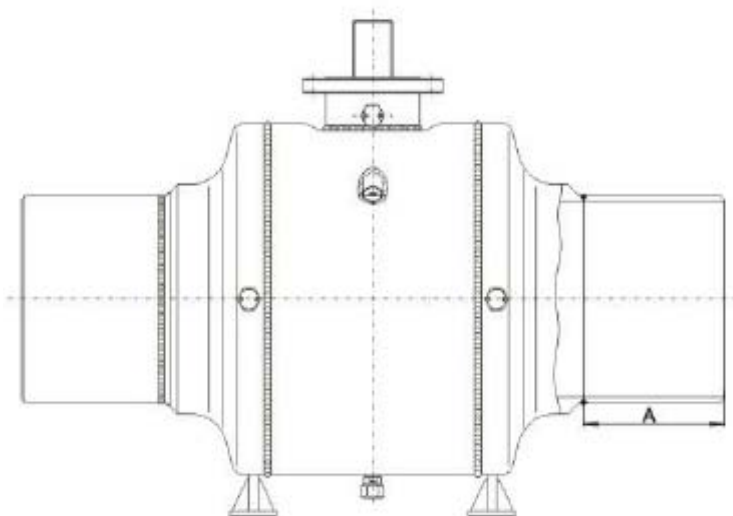
According to customer requirements, the valve materials can be selected according to NACE MR 0175/ISO 15156 or NACE MR 0103, and strict quality control and quality inspection should be carried out during the manufacturing so as to fully meet the requirements in the standards and meet the service conditions in sulfurization environment.

STRUCTURAL FEATURES

15、 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

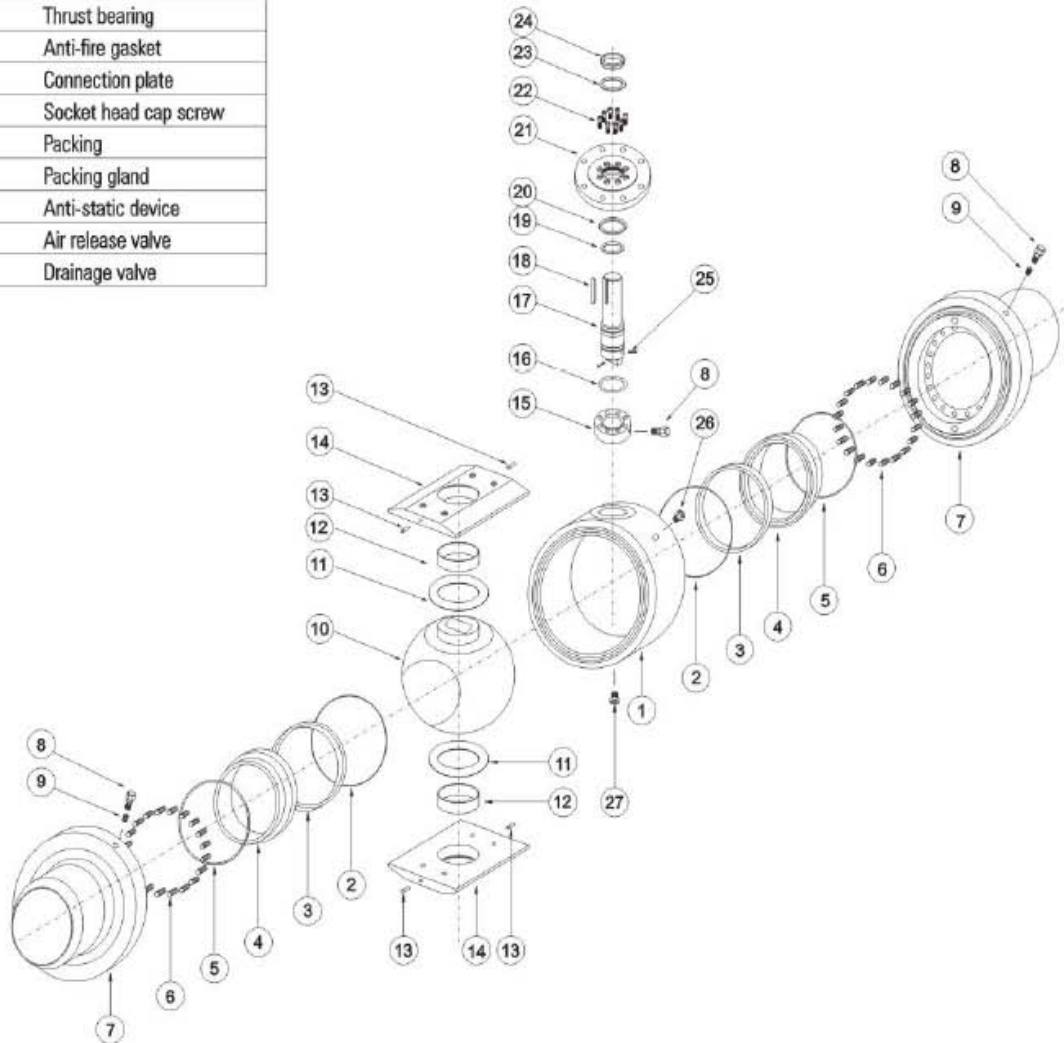
or by our company according to user requirements. Please indicate the transition pipe diameter and length A when placing orders.



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FULL WELDED BALL VALVE

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





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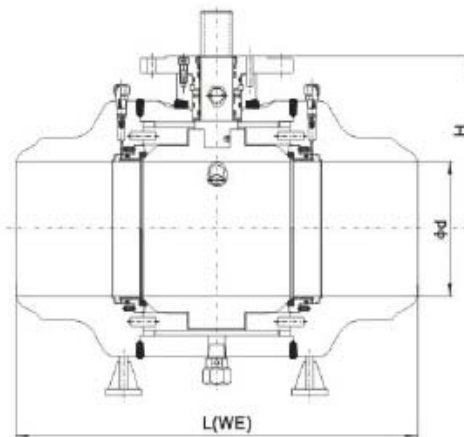
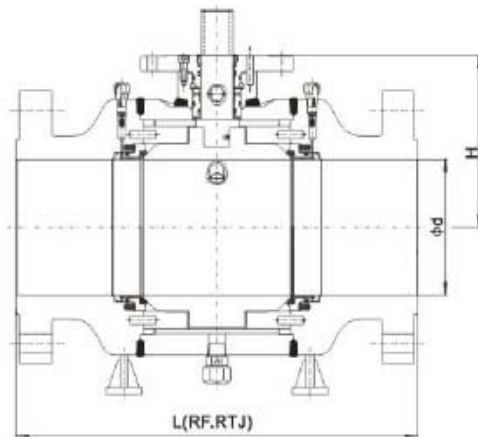


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Part Materials And Main Parameters

Nominal diameter (In)		NPS 6~40					
Nominal pressure (MPa)		Class150~Class1500					
Materials of parts	No.	Part Name	Materials				
			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				
	3	seat	PTFE/NYLON/PEEK/PPL				
	4	Seat ring	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	5	O ring	VITON				
	6	Spring	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				
	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				
	17	Stam	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				
	20	Anti-fire gasket	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 petroleum gas, natural gas	Nitric acid	Acetic 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					

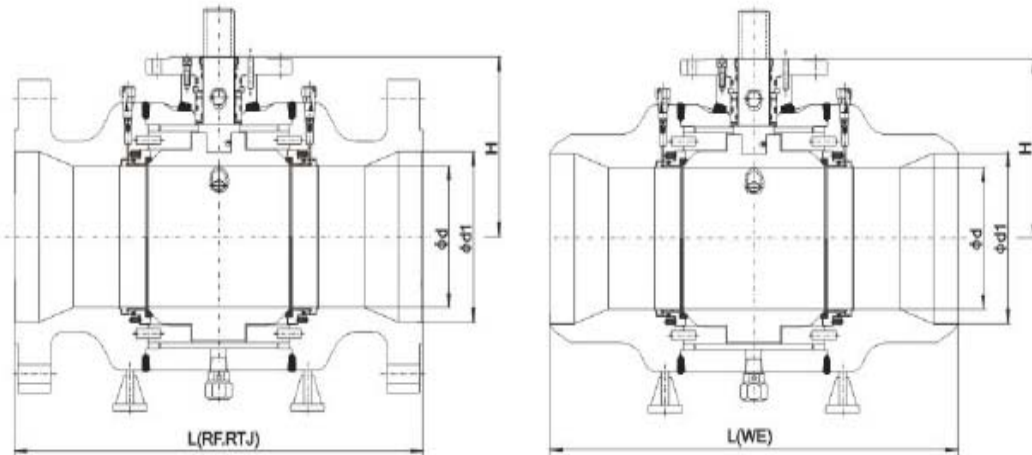
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Pressure rating	Nominal Diameter		d	Flanged		Butt welding	H	Weight(kg)		
	Class	NPS		DN	L(RF)	L(RTJ)		L(BW)	WE	RF
150		6"	150	150	394	406	457	225	185	220
		8"	200	201	457	470	521	258	250	290
		10"	250	252	533	546	559	310	400	430
		12"	300	303	610	622	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	930	10290	11900	

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

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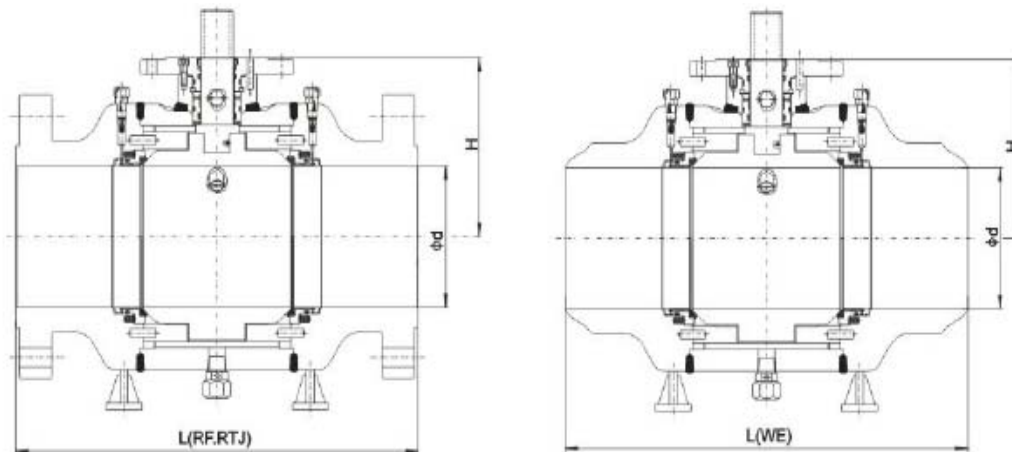


Pressure rating	Nominal Diameter		d	d1	Flanged		Butt welding	H	Weight(kg)		
	Class	NPS			DN	L(RF)			L(RTJ)	L(BW)	WE
150		8" × 6"	200	150	201	457	470	521	225	△	△
		10" × 8"	250	201	252	533	546	559	258	△	△
		12" × 10"	300	252	303	610	622	635	310	△	△
		14" × 10"	350	252	334	686	699	762	310	△	△
		14" × 12"	350	303	334	686	699	762	350	△	△
		16" × 12"	400	303	385	762	775	838	350	△	△
		16" × 14"	400	334	385	762	775	838	382	△	△
		18" × 16"	450	385	436	864	876	914	421	△	△
		20" × 16"	500	385	487	914	927	991	421	△	△
		20" × 18"	500	436	487	914	927	991	468	△	△
		24" × 20"	600	487	589	1067	1080	1143	510	△	△
		30" × 24"	750	589	735	1295	-	1397	592	△	△
	36" × 30"	900	735	874	1524	-	1727	723	△	△	
300		8" × 8"	200	150	201	502	518	521	225	△	△
		10" × 8"	250	201	252	568	584	559	258	△	△
		12" × 10"	300	252	303	648	664	635	310	△	△
		14" × 10"	350	252	334	762	778	762	310	△	△
		14" × 12"	350	303	334	762	778	762	350	△	△
		16" × 12"	400	303	385	838	854	838	350	△	△
		16" × 14"	400	334	385	838	854	838	382	△	△
		18" × 16"	450	385	436	914	930	914	421	△	△
		20" × 16"	500	385	487	991	1010	991	421	△	△
		20" × 18"	500	436	487	991	1010	991	468	△	△
		24" × 20"	600	487	589	1143	1165	1143	510	△	△
		30" × 24"	750	589	735	1397	1422	1397	592	△	△
	36" × 30"	900	735	874	1727	1756	1727	723	△	△	

△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes Hand weight will not be notified otherwise.

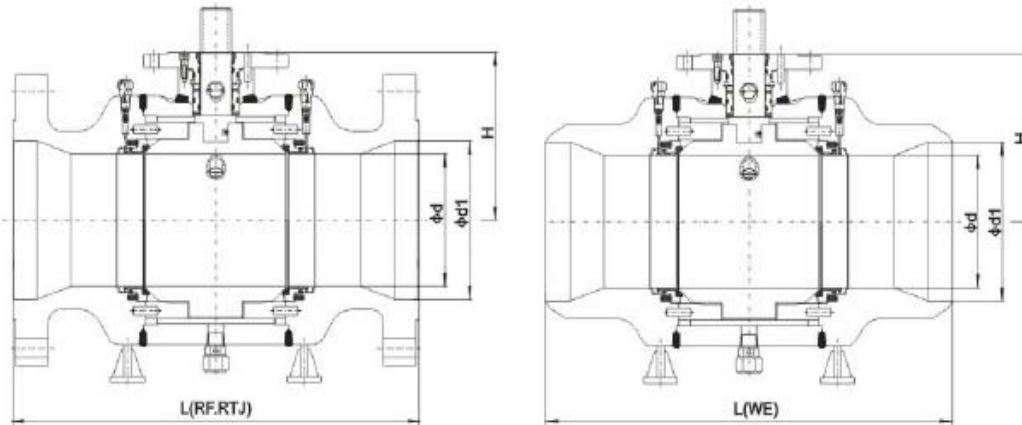
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Pressure rating	Nominal Diameter		d	Flanged		Butt welding	H	Weight(kg)		
	Class	NPS		DN	L(RF)	L(RTJ)		L(BW)	WE	RF
600		6"	150	150	559	562	559	255	250	330
		8"	200	201	660	664	660	290	340	450
		10"	250	252	787	791	787	320	570	710
		12"	300	303	838	841	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

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

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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" × 6"	200	150	201	660	664	660	255	△	△
		10" × 8"	250	201	252	787	791	787	290	△	△
		12" × 10"	300	252	303	838	841	838	320	△	△
		14" × 10"	350	252	334	889	892	889	380	△	△
		14" × 12"	350	303	334	889	892	889	380	△	△
		16" × 12"	400	303	385	991	994	991	380	△	△
		16" × 14"	400	334	385	991	994	991	410	△	△
		18" × 16"	450	385	436	1092	1095	1092	435	△	△
		20" × 16"	500	385	487	1194	1200	1194	435	△	△
		20" × 18"	500	436	487	1194	1200	1194	495	△	△
		24" × 20"	600	487	589	1397	1407	1397	535	△	△
		30" × 24"	750	589	735	1651	-	1651	642	△	△
	36" × 30"	900	735	874	2083	-	2083	745	△	△	
900		8" × 6"	200	150	201	737	740	737	255	△	△
		10" × 8"	250	201	252	838	841	838	290	△	△
		12" × 10"	300	252	303	965	968	965	320	△	△
		14" × 10"	350	252	322	1029	1038	1029	320	△	△
		14" × 12"	350	303	322	1029	1038	1029	380	△	△
		16" × 12"	400	303	373	1130	1140	1130	380	△	△
		16" × 14"	400	322	373	1130	1140	1130	410	△	△
		18" × 16"	450	373	423	1219	1232	1219	435	△	△
		20" × 16"	500	373	471	1321	1334	1321	435	△	△
		20" × 18"	500	423	471	1321	1334	1321	495	△	△
1500		8" × 6"	200	144	192	832	841	832	255	△	△
		10" × 8"	250	192	239	991	1000	991	290	△	△
		12" × 10"	300	239	287	1130	1146	1130	320	△	△
		14" × 10"	350	239	315	1257	1276	1257	320	△	△
		14" × 12"	350	287	315	1257	1276	1257	380	△	△
		16" × 12"	400	287	360	1384	1407	1384	380	△	△

△ Please consult the factory:

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TOP ENTRY BALL VALVE



USAGE

The top entry ball valve is mainly used on pipelines and industrial systems. It has such advantages as top online maintenance function, small fluid resistance, simple structure, reliable sealing, convenient operation and maintenance, rapid on-off operation, flexible opening and closing, 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.

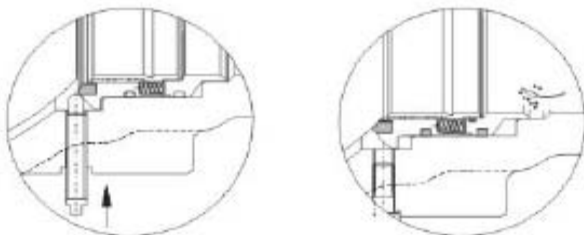
STRUCTURAL FEATURES

1、 Integral structure

The body adopts the integral structure, so as to ensure that it has enough strength and rigidity under the maximum rated working pressure. The valve trims have been carefully designed and selected to ensure reliability under various service conditions. The sufficient wall thickness and the connection bolts of high strength are very helpful to the maintenance and servicing of valves and are able to endure pipeline stress.

2、 Top Entry Structure

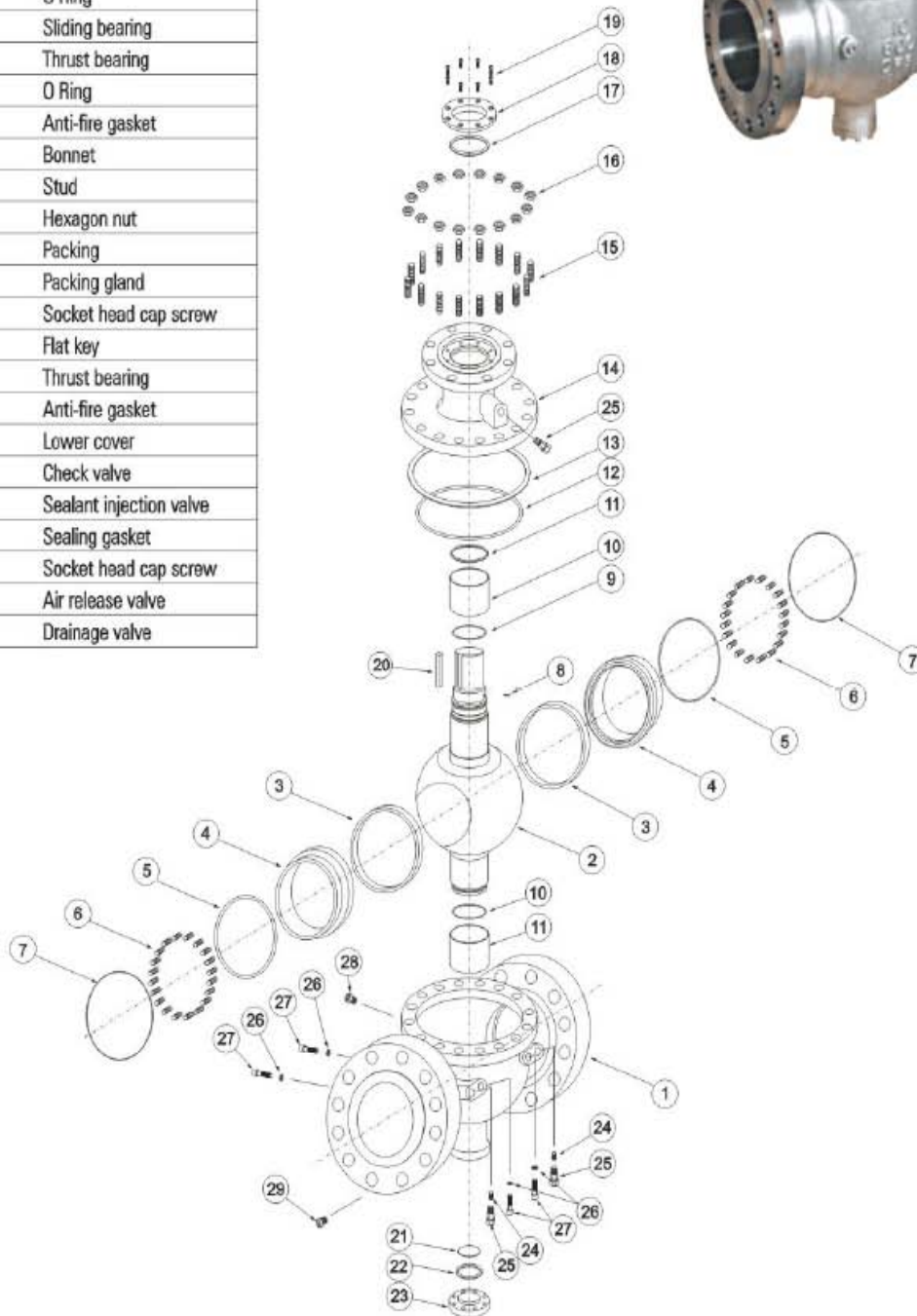
The valve adopts the top entry structure. The most distinctive difference between this kind of valve and others is that the online maintenance function can be realized without the need of removing the valve from the pipeline. The seat adopts the concession type seat structure, and the rear end of the seat retainer is set as oblique angle to prevent impurities accumulated on the seat from influencing the concession of seat.



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TOP ENTRY BALL VALVE

1	Body
2	Ball
3	Seat
4	Seat ring
5	O Ring
6	Spring
7	Anti-fire packing
8	Anti-static device
9	O Ring
10	Sliding bearing
11	Thrust bearing
12	O Ring
13	Anti-fire gasket
14	Bonnet
15	Stud
16	Hexagon nut
17	Packing
18	Packing gland
19	Socket head cap screw
20	Flat key
21	Thrust bearing
22	Anti-fire gasket
23	Lower cover
24	Check valve
25	Sealant injection valve
26	Sealing gasket
27	Socket head cap screw
28	Air release valve
29	Drainage valve





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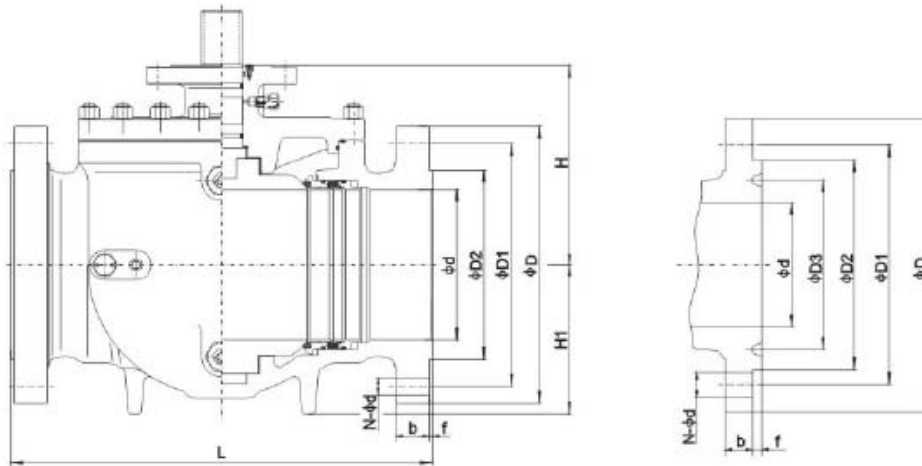


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Part Materials And Main Parameters

Nominal diameter (in)		NPS 2~36				
Nominal pressure (MPa)		Class150~Class900				
No.	Part name	Material				
		Carbon steel		Stainless steel		
1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
2	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
3	Seat	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				
6	Spring	17-7PH				
7	Anti-fire packing	Graphite				
8	Anti-static device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
9	O Ring	VITON				
10	Sliding bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
11	Thrust bearing	PTFE				
12	O Ring	VITON				
13	Anti-fire gasket	SST+Graphite				
14	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
15	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
16	Hexagon nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
17	Packing	Graphite				
18	Packing gland	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
19	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
20	Flat key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
21	Thrust bearing	PTFE				
22	Anti-fire gasket	SST+Graphite				
23	Lower cover	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
24	Check valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
25	Sealant injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
26	Sealing gasket	SST+Graphite				
27	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
28	Air release valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
29	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	Acetic 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、Gear、Pneumatic、Electric					

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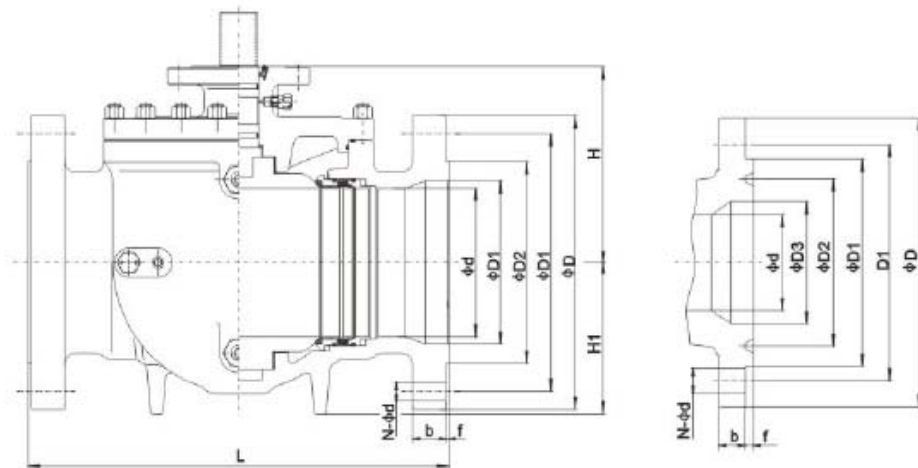


Pressure rating	Nominal Diameter		d	Flanged			Butt welding	Flanged						H	H1	Weight(kg)	
	Class	NPS		DN	L(RF)	L(RTJ)		L(BW)	D	D1	D2	D3	f				b
150		2"	50	50	292	295	292	150	120.5	92	-	2	14.5	4-φ19	130	102	△
		3"	80	75	283	298	283	190	152.5	127	-	2	17.5	4-φ19	163	150	△
		4"	100	100	432	435	432	230	190.5	157	-	2	22.5	8-φ19	177	175	△
		6"	150	150	559	562	559	280	241.5	216	-	2	24	8-φ22	240	231	△
		8"	200	201	660	664	660	345	298.5	270	-	2	27	8-φ22	266	256	△
		10"	250	252	787	791	787	405	362	324	-	2	29	12-φ25	324	309.5	△
		12"	300	303	838	841	838	485	432	381	-	2	30.5	12-φ25	383	310	△
		14"	350	334	889	892	889	535	476	413	-	2	33.5	12-φ29	390	300	△
		16"	400	385	991	994	991	595	540	470	-	2	35	16-φ29	435	340	△
		18"	450	436	1092	1095	1092	635	578	533	-	2	38.5	16-φ32	522	410	△
		20"	500	487	1194	1200	1194	700	635	584	-	2	41.5	20-φ32	565	445	△
		24"	600	589	1397	1407	1397	815	749.5	692	-	2	48.5	20-φ35	618	480	△
		26"	650	633	1448	-	1448	870	806.5	749	-	2	68	24-φ35	660	540	△
		28"	700	684	1549	-	1549	927	864	800	-	2	71	28-φ35	690	596	△
		30"	750	735	1651	-	1651	984	914.5	857	-	2	75	28-φ35	770	620	△
		32"	800	779	1778	-	1778	1060	978	914	-	2	81	28-φ41	838	680	△
	36"	900	874	2083	-	2083	1168	1086	1022	-	2	90	32-φ41	910	710	△	
300		2"	50	50	292	295	292	165	127	92	-	2	21	8-φ19	130	102	△
		3"	80	75	283	298	283	210	168.5	127	-	2	27	8-φ22	163	150	△
		4"	100	100	432	435	432	255	200	157	-	2	30.5	8-φ22	177	175	△
		6"	150	150	559	562	559	320	270	216	-	2	35	12-φ22	240	231	△
		8"	200	201	660	664	660	380	330	270	-	2	40	12-φ25	266	276	△
		10"	250	252	787	791	787	445	387.5	324	-	2	46.5	16-φ29	324	303.5	△
		12"	300	303	838	841	838	520	451	381	-	2	49.5	16-φ32	383	362	△
		14"	350	334	889	892	889	585	514.5	413	-	2	52.5	20-φ32	390	300	△
		16"	400	385	991	994	991	650	571.5	470	-	2	56	20-φ35	440	385	△
		18"	450	436	1092	1095	1092	710	628.5	533	-	2	59	24-φ35	535	420	△
		20"	500	487	1194	1200	1194	775	686	584	-	2	62	24-φ35	575	450	△
		24"	600	589	1397	1407	1397	915	813	692	-	2	68.5	24-φ41	640	490	△
		26"	650	633	1448	-	1448	972	876.5	749	-	2	79	28-φ45	680	560	△
		28"	700	684	1549	-	1549	1035	940	800	-	2	86	28-φ45	720	610	△
		30"	750	735	1651	-	1651	1092	997	857	-	2	92	28-φ48	808	640	△
		32"	800	779	1778	-	1778	1149	1054	914	-	2	98	28-φ51	860	700	△
	36"	900	874	2083	-	2083	1270	1168	1022	-	2	105	32-φ54	935	730	△	

△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

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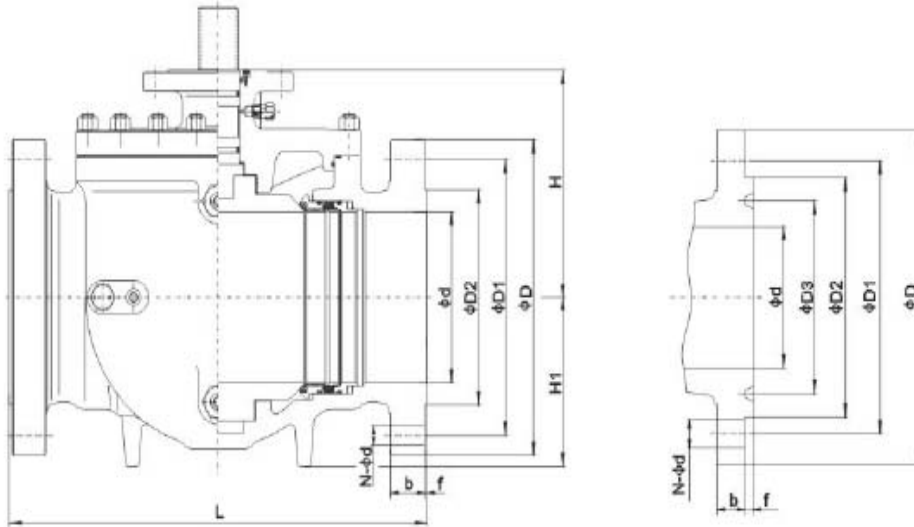


Pressure rating	Nominal Diameter		d	d1	Flanged		Butt welding	Flanged						H	H1	Weight(kg)	
	Class	NPS			DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	D3				f
150	3"×2"	80	50	75	283	298	283	190	152.5	127	-	2	17.5	4-φ19	130	102	△
	4"×3"	100	75	100	432	435	432	230	190.5	157	-	2	22.5	8-φ19	163	150	△
	6"×4"	150	100	150	559	562	559	280	241.5	216	-	2	24	8-φ22	177	175	△
	8"×6"	200	150	201	660	664	660	345	298.5	270	-	2	27	8-φ22	240	231	△
	10"×8"	250	201	252	787	791	787	405	362	324	-	2	29	12-φ25	266	256	△
	12"×10"	300	252	303	838	841	838	485	432	381	-	2	30.5	12-φ25	324	303.5	△
	14"×10"	350	252	334	889	892	889	535	476	413	-	2	33.5	12-φ29	324	303.5	△
	14"×12"	350	303	334	889	892	889	535	476	413	-	2	33.5	12-φ29	383	310	△
	16"×12"	400	303	385	991	994	991	595	540	470	-	2	35	16-φ29	383	310	△
	16"×14"	400	334	385	991	994	991	595	540	470	-	2	35	16-φ29	390	300	△
	18"×16"	450	385	436	1092	1095	1092	635	578	533	-	2	38.5	16-φ32	435	340	△
	20"×16"	500	385	487	1194	1200	1194	700	635	584	-	2	41.5	20-φ32	435	340	△
	20"×18"	500	436	487	1194	1200	1194	700	635	584	-	2	41.5	20-φ32	522	410	△
	24"×20"	600	487	589	1397	1407	1397	815	749.5	692	-	2	46.5	20-φ35	565	445	△
	30"×24"	750	589	735	1651	-	1651	984	914.5	857	-	2	75	28-φ35	618	480	△
36"×30"	900	735	874	2083	-	2083	1168	1086	1022	-	2	90	32-φ41	770	620	△	
300	3"×2"	80	50	75	283	298	283	210	168.5	127	-	2	27	8-φ22	130	102	△
	4"×3"	100	75	100	432	435	432	255	200	157	-	2	30.5	8-φ22	163	150	△
	6"×4"	150	100	150	559	562	559	320	270	216	-	2	35	12-φ22	177	175	△
	8"×6"	200	150	201	660	664	660	380	330	270	-	2	40	12-φ25	240	231	△
	10"×8"	250	201	252	787	791	787	445	387.5	324	-	2	46.5	16-φ29	266	276	△
	12"×10"	300	252	303	838	841	838	520	451	381	-	2	49.5	16-φ32	324	303.5	△
	14"×10"	350	252	334	889	892	889	585	514.5	413	-	2	52.5	20-φ32	324	303.5	△
	14"×12"	350	303	334	889	892	889	585	514.5	413	-	2	52.5	20-φ32	383	362	△
	16"×12"	400	303	385	991	994	991	650	571.5	470	-	2	56	20-φ35	383	362	△
	16"×14"	400	334	385	991	994	991	650	571.5	470	-	2	56	20-φ35	390	300	△
	18"×16"	450	385	436	1092	1095	1092	710	628.5	533	-	2	59	24-φ35	440	365	△
	20"×16"	500	385	487	1194	1200	1194	775	686	584	-	2	62	24-φ35	440	365	△
	20"×18"	500	436	487	1194	1200	1194	775	686	584	-	2	62	24-φ35	535	420	△
	24"×20"	600	487	589	1397	1407	1397	915	813	692	-	2	68.5	24-φ41	575	450	△
	30"×24"	750	589	735	1651	-	1651	1092	997	857	-	2	92	28-φ48	640	490	△
36"×30"	900	735	874	2083	-	2083	1270	1168	1022	-	2	105	32-φ54	808	640	△	

△ Please consult the factory;

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

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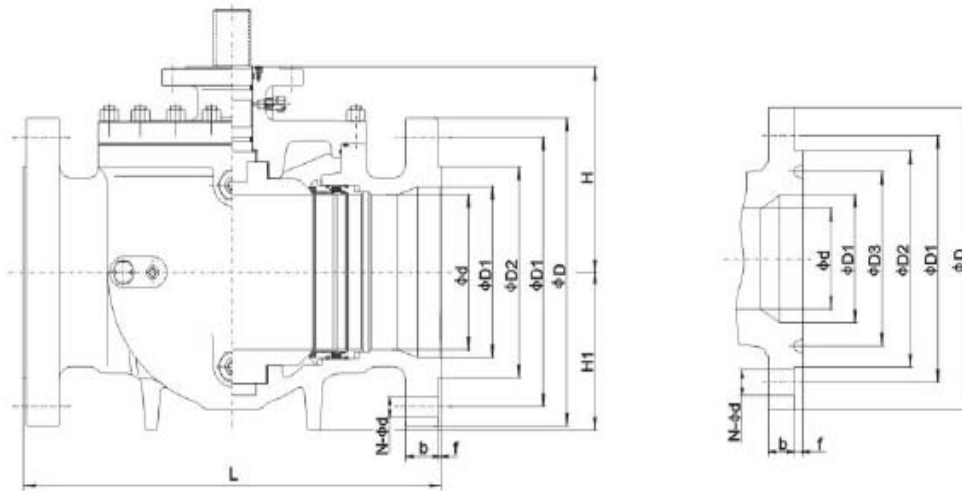


Pressure rating	Nominal Diameter		d	Flanged			Butt welding	Flanged						H	H1	Weight(kg)
	Class	NPS		DN	L(RF)	L(RTJ)		L(BW)	D	D1	D2	D3	f			
600	2"	50	50	292	295	292	165	127	92	-	7	26	8-φ19	142	110	△
	3"	80	75	356	359	356	210	168.5	127	-	7	32	8-φ22	188	165	△
	4"	100	100	432	435	432	275	216	157	-	7	38.5	8-φ25	205	193	△
	6"	150	150	559	562	559	355	292	216	-	7	48	12-φ29	255	242	△
	8"	200	201	660	664	660	420	349	270	-	7	56	12-φ32	282	268	△
	10"	250	252	787	791	787	510	432	324	-	7	64	16-φ35	369	339	△
	12"	300	303	838	841	838	560	489	381	-	7	67	20-φ35	402	300	△
	14"	350	334	889	892	889	605	527	413	-	7	70	20-φ39	410	320	△
	16"	400	385	991	994	991	685	603	470	-	7	77	20-φ41	467	360	△
	18"	450	436	1092	1095	1092	745	654	533	-	7	83	20-φ44	560	430	△
	20"	500	487	1194	1200	1194	815	724	584	-	7	89	24-φ44	633	490	△
24"	600	589	1397	1407	1397	940	838	692	-	7	102	24-φ51	692	536	△	
900	2"	50	50	388	371	388	215	165	124	95.25	7.92	38.5	8-φ25	160	112	△
	3"	80	75	381	384	381	240	190.5	156	123.83	7.92	38.5	8-φ25	213	168	△
	4"	100	100	457	460	457	290	235	181	149.23	7.92	45	8-φ32	232	197.5	△
	6"	150	150	610	613	610	380	317.5	241	211.12	7.92	56	12-φ32	289	258	△
	8"	200	201	737	740	737	470	393.5	308	269.88	7.92	64	12-φ39	319	294	△
	10"	250	252	838	841	838	545	470	362	323.85	7.92	70	16-φ39	407	372	△
	12"	300	303	965	968	965	610	533.5	419	381	7.92	79.5	20-φ39	443	329	△
	14"	350	322	1029	1038	1029	640	559	467	419.1	11.13	86	20-φ42	467	345	△
	16"	400	373	1130	1140	1130	705	616	524	469.9	11.13	89	20-φ45	527	388	△
	18"	450	423	1219	1232	1219	785	686	594	533.4	12.7	102	20-φ51	632	463	△
	20"	500	471	1321	1334	1321	855	749.5	648	584.2	12.7	108	20-φ54	715	527	△
24"	600	570	1549	1568	1549	1040	901.5	772	692.15	15.88	140	20-φ67	782	573	△	

△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

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Pressure rating	Nominal Diameter		d	d1	Flanged		Butt welding	Flanged					H	H1	Weight(kg)		
	Class	NPS			DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2				D3	f
600	3"×2"	80	50	75	356	359	356	210	168.5	127	-	7	32	8-φ22	142	110	△
	4"×3"	100	75	100	432	435	432	275	216	157	-	7	38.5	8-φ25	188	165	△
	6"×4"	150	100	150	559	562	559	355	292	216	-	7	48	12-φ29	205	193	△
	8"×6"	200	150	201	660	664	660	420	349	270	-	7	56	12-φ32	255	242	△
	10"×8"	250	201	252	787	791	787	510	432	324	-	7	64	16-φ35	282	268	△
	12"×10"	300	252	303	838	841	838	560	489	381	-	7	67	20-φ35	369	339	△
	14"×10"	350	252	334	889	892	889	605	527	413	-	7	70	20-φ39	369	339	△
	14"×12"	350	303	334	889	892	889	605	527	413	-	7	70	20-φ39	402	300	△
	16"×12"	400	303	385	991	994	991	685	603	470	-	7	77	20-φ41	402	300	△
	16"×14"	400	334	385	991	994	991	685	603	470	-	7	77	20-φ41	410	320	△
	18"×16"	450	385	436	1092	1095	1092	745	654	533	-	7	83	20-φ44	467	360	△
	20"×16"	500	385	487	1194	1200	1194	815	724	584	-	7	89	24-φ44	467	360	△
20"×18"	500	436	487	1194	1200	1194	815	724	584	-	7	89	24-φ44	560	430	△	
24"×20"	600	487	589	1397	1407	1397	940	838	692	-	7	102	24-φ51	633	490	△	
900	3"×2"	80	50	75	381	384	381	240	190.5	156	123.83	7.92	38.5	8-φ25	160	112	△
	4"×3"	100	75	100	457	460	457	290	235	181	149.23	7.92	45	8-φ32	213	168	△
	6"×4"	150	100	150	610	613	610	380	317.5	241	211.12	7.92	56	12-φ32	232	197.5	△
	8"×6"	200	150	201	737	740	737	470	393.5	308	269.88	7.92	64	12-φ39	289	258	△
	10"×8"	250	201	252	838	841	838	545	470	362	323.85	7.92	70	16-φ39	319	294	△
	12"×10"	300	252	303	965	968	965	610	533.5	419	381	7.92	79.5	20-φ39	407	372	△
	14"×10"	350	252	322	1029	1038	1029	640	559	467	419.1	11.13	86	20-φ42	407	372	△
	14"×12"	350	303	334	1029	1038	1029	640	559	467	419.1	11.13	86	20-φ42	443	329	△
	16"×12"	400	303	373	1130	1140	1130	705	616	524	469.9	11.13	89	20-φ45	443	329	△
	16"×14"	400	334	385	1130	1140	1130	705	616	524	469.9	11.13	89	20-φ45	467	345	△
	18"×16"	450	373	423	1219	1232	1219	785	686	594	533.4	12.7	102	20-φ51	527	388	△
	20"×16"	500	373	471	1321	1334	1321	855	749.5	648	584.2	12.7	108	20-φ54	527	388	△
20"×18"	500	423	471	1321	1334	1321	855	749.5	648	584.2	12.7	108	20-φ54	632	463	△	
24"×20"	600	471	570	1549	1568	1549	1040	901.5	772	692.2	15.88	140	20-φ67	715	527	△	

△ Please consult the factory:

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®

A-T ARMATUREN-TECHNIK GMBH



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METAL SEATED BALL VALVE



SUMMARY

With such features as small fluid resistance, smooth flow channel, rapid opening and closing, and easy automatic control, the ball valve has been widely used. But the seat of regular ball valves is generally made of PTFE and other nonmetal materials. Limited by seat seal materials, the regular valves cannot be used under the service condition

of high temperature. Therefore, the use of regular ball valves is limited to a certain degree. The series of new style practical metal seated ball valve products are newly designed to solve the above problem, and have been widely applied in petroleum, chemical industry, electric power, metallurgy, light industry and etc.

USAGE

The metal seated ball valve is used to cut off or connect the media in various pipelines. It is suitable for severe service conditions containing solid granules, slurry, coal powder, cinder and etc.

STRUCTURAL FEATURES

1、Advanced Ball And Seat Hardening Technology

The ball and seat of the metal seated ball valve absolutely adopts the sealing mode of metal to metal. According to different service conditions and requirements of users, various advanced ball and seat hardening technologies can be adopted, including HVOF coating, nickel-base alloy spray welding, high nickel alloy spray welding, nickel-base tungsten carbide alloy spray welding, cobalt-base hard alloy spray welding, etc. Generally, the ball and seat surface hardness can reach HRC55~ 60 with the maximum value of HRC70. Generally, the heat resistance of the sealing face material can reach 540℃ with the maximum value of 980℃. The sealing face material has also good wear resistant and impact resistant performances.



STRUCTURAL FEATURES

2、 Flexible Valve Opening And Closing

Under the service condition of high temperature, the ball and seat will expand too much because of thermal expansion, and thus causing that the valve cannot be opened. The ball valve adopts the disc spring or spring loaded sealing structure so that thermal expansion of parts under high temperature can be absorbed by the disc spring or spring, and it is ensured that the valve will be flexibly opened and closed under high temperature without expanding too much under high temperature.

3、 Fireproof Structure Design

In the metal to metal sealing structure for the valve, the gasket is the stainless steel + flexible graphite and the packing is the flexible graphite. Therefore, reliable sealing of the valve can be ensured even in case of fire.

4、 Double Block And Bleed (metal Seated Trunnion Ball Valve)

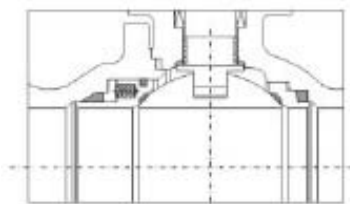
The metal seated trunnion ball valve usually adopts the sealing structure before the ball. When the valve is closed and the middle cavity is emptied through the discharge valve, the upstream and downstream seats will independently block the fluid at the inlet and outlet to realize double block function.

The metal seated floating ball valve usually adopts the sealing structure after the ball. Unidirectional sealing is generally adopted with flow direction marked on the body. If users have special requirements, bidirectional sealing structure can be adopted.

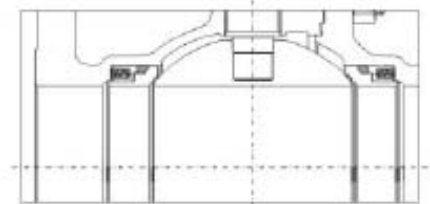
5、 Reliable Sealing Performance

The unique ball grinding technology is adopted. Through rotation of the ball and the grinder at different positions, the ball surface will achieve high roundness and fineness. 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 sealing level of the valve meets the requirement of level IV in ANSI B16.104.

Metal seated floating ball valve



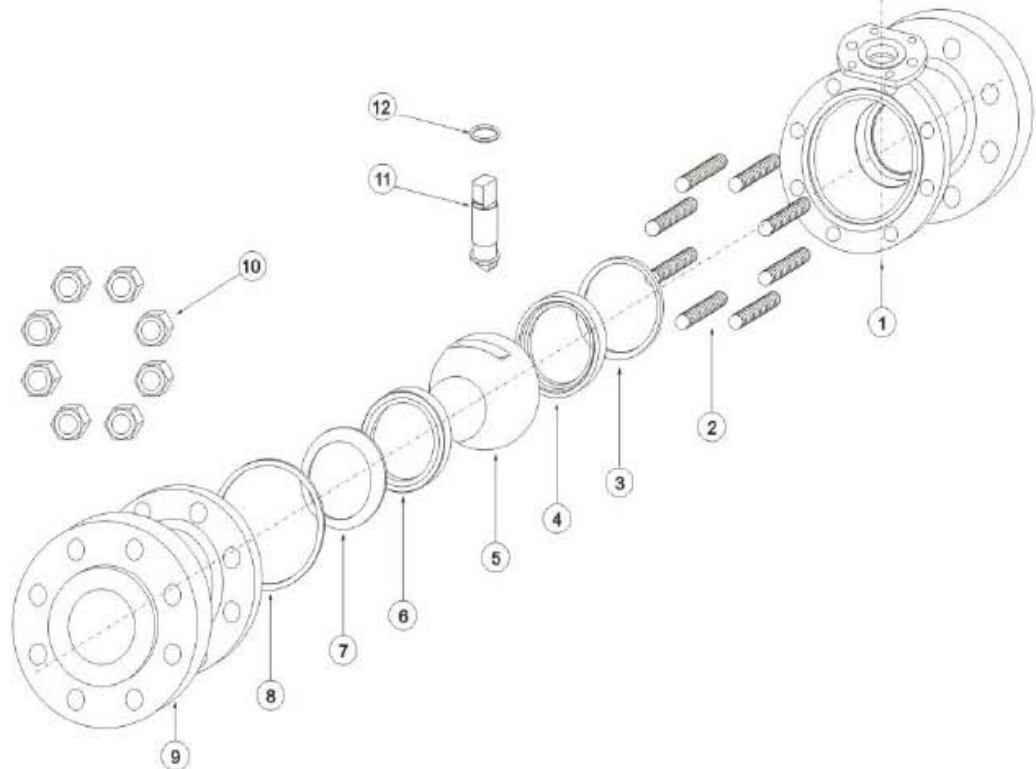
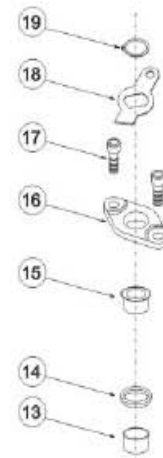
Metal seated trunnion ball valve



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Isolating, Control Valves and Turbine Bypass Systems for the Electric Power Industry, Steam Plant Utilities and Process Industry

METAL SEATED FLOATING BALL VALVE

1	Body
2	Stud
3	Sealing gasket
4	Back seat
5	Ball
6	Front seat
7	Disc spring
8	Sealing gasket
9	Bonnet
10	Hexagon nut
11	Stem
12	Thrust bearing
13	Sliding bearing
14	Packing
15	Packing bushing
16	Packing gland
17	Socket head cap screw
18	Stopper
19	Retainer ring



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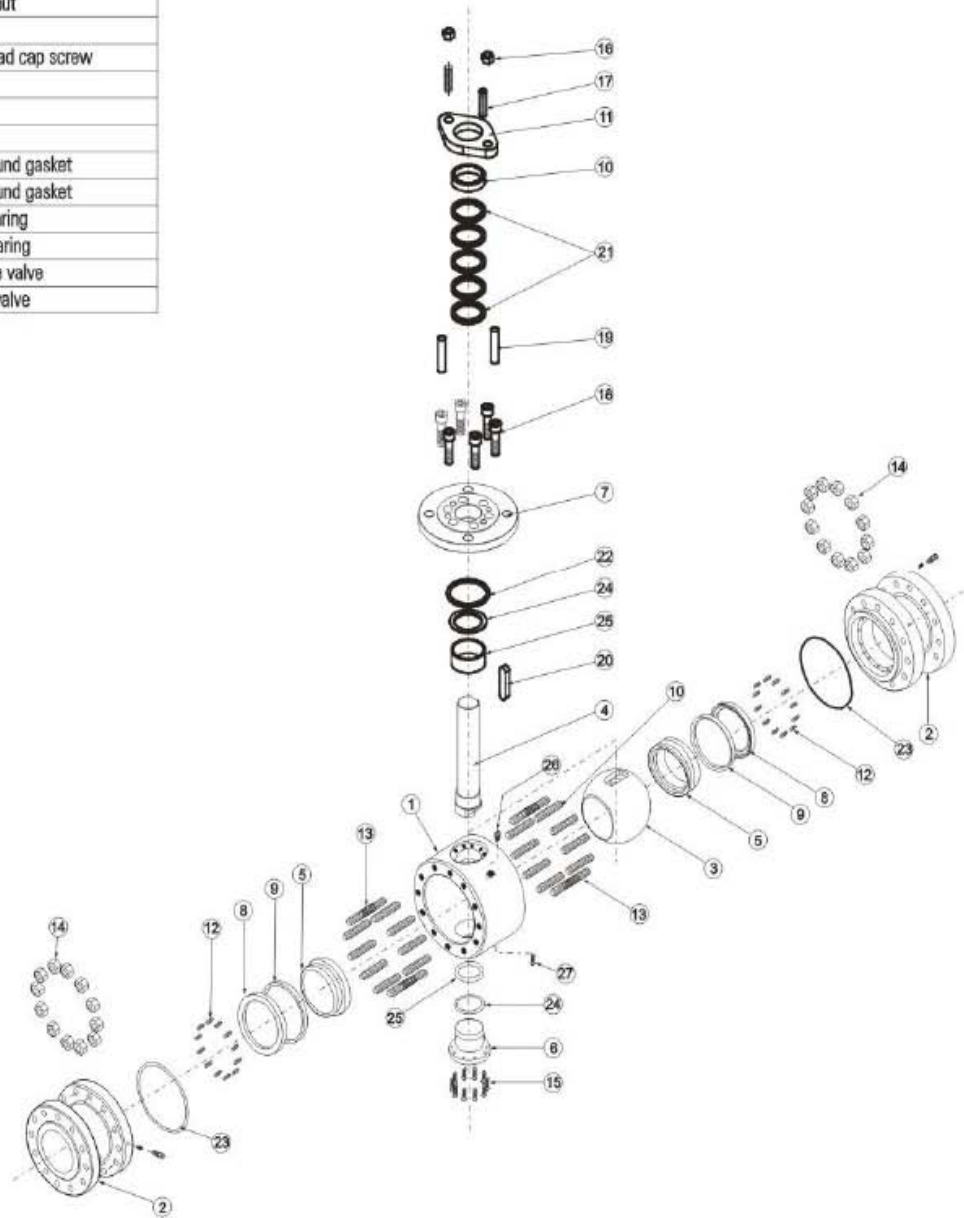
PART MATERIALS AND MAIN PARAMETERS

Nominal diameter (in)		NPS 1/2 ~ 8					
Nominal pressure (MPa)		Class150 ~ Class600					
Materials of parts	No.	Part Name	Materials				
			Carbon steel	Stainless steel			
	1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	2	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	3	Sealing gasket	Graphite				
	4	Back seat	ASTM A105+HF	ASTM A182 304+HF	ASTM A182 316+HF	ASTM A182 304L+HF	ASTM A182 316L+HF
	5	Ball	ASTM A105+HF	ASTM A182 304+HF	ASTM A182 316+HF	ASTM A182 304L+HF	ASTM A182 316L+HF
	6	Front seat	ASTM A105+HF	ASTM A182 304+HF	ASTM A182 316+HF	ASTM A182 304L+HF	ASTM A182 316L+HF
	7	Disc spring	17-7PH				
	8	Sealing gasket	Graphite				
	9	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	10	Hexagon nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
	11	Stern	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	12	Thrust bearing	SST+Graphite				
	13	Sliding bearing	TF-2				
	14	Packing	Graphite				
	15	Packing bushing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
	16	Packing gland	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB
	17	Socket head cap screw	A193 B7M	A193 B7M	A193 B7M	A193 B7M	A193 B7M
18	Stopper	A3.Zn	A3.Zn	A3.Zn	A3.Zn	A3.Zn	
19	Retainer ring	65Mn	65Mn	65Mn	65Mn	65Mn	
Applicable service conditions	Applicable media	Water, steam, oil, coal gas, liquefied gas, natural gas	Nitric acid	Acetic acid	Strong Oxidizer	Urea	
	Applicable temperature	-29 ~ + 425 °C ≤ 200 °C					
Design and manufacturing		ASME B16.34					
Face-to-face dimensions		ASME B16.10					
Type of connection		Flange	ASME B16.5		Butt welding	ASME B16.25	
Pressure test		API 598					
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric					

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Isolating, Control Valves and Turbine Bypass Systems for the Electric Power Industry, Steam Plant Utilities and Process Industry

METAL TO METAL BALL VALVE

1	Body
2	Bonnet
3	Ball
4	Stem
5	Seat
6	Lower cover
7	Connection plate
8	Spring seat
9	Sealing gasket
10	Packing bushing
11	Packing gland
12	Spring
13	Stud
14	Hexagon nut
15	Hexagon bolt
16	Hexagon nut
17	Stud
18	Socket head cap screw
19	Pin
20	Flat key
21	Packing
22	Metal wound gasket
23	Metal wound gasket
24	Thrust bearing
25	Sliding bearing
26	Air release valve
27	Drainage valve





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A-T ARMATUREN-TECHNIK GMBH

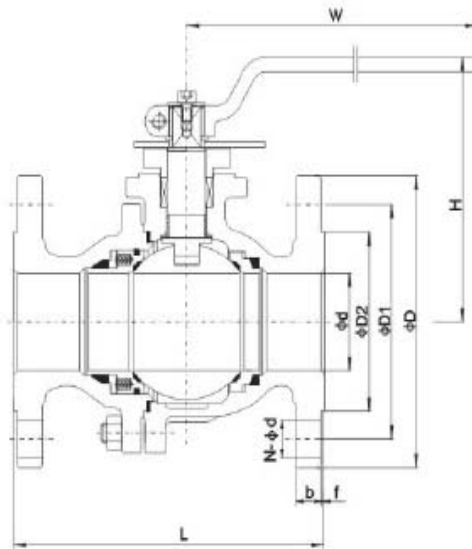


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Isolating, Control Valves and Turbine Bypass Systems for the Electric Power Industry, Steam Plant Utilities and Process Industry

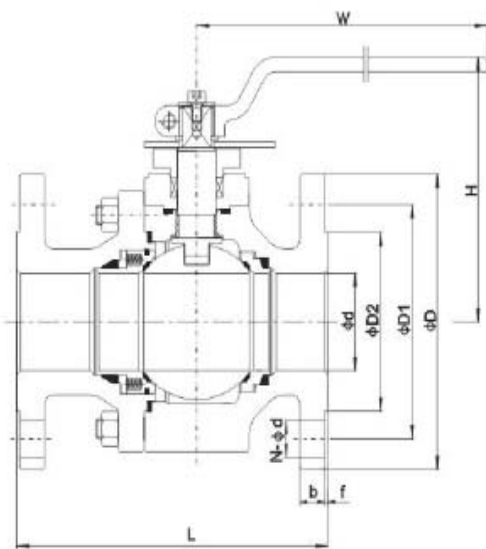
PART MATERIALS AND MAIN PARAMETERS

Nominal diameter (in)		NPS 1/2~8					
Nominal pressure (MPa)		Class150~Class600					
Materials of parts	No.	Part Name	Materials				
			Carbon steel	Stainless steel			
	1	Body	ASTM A105	ASTM A182 304L	ASTM A182 316	ASTM A182 304	ASTM A182 316L
	2	Bonnet	ASTM A105	ASTM A182 304L	ASTM A182 316	ASTM A182 304	ASTM A182 316L
	3	Ball	ASTM A105+HF	ASTM A182 304L+HF	ASTM A182 316+HF	ASTM A182 304+HF	ASTM A182 316L+HF
	4	Stem	ASTM A182 F6a	ASTM A182 304L	ASTM A182 316	ASTM A182 304	ASTM A182 316L
	5	Seat	ASTM A105+HF	ASTM A182 304L+HF	ASTM A182 316+HF	ASTM A182 304+HF	ASTM A182 316L+HF
	6	Lower cover	ASTM A105 • CHR	ASTM A182 304L	ASTM A182 316	ASTM A182 304	ASTM A182 316L
	7	Connection plate	ASTM A105	ASTM A182 304L	ASTM A182 316	ASTM A182 304	ASTM A182 316L
	8	Spring seat	ASTM A105 • CHR	ASTM A182 304L	ASTM A182 316	ASTM A182 304	ASTM A182 316L
	9	Sealing gasket	Graphite				
	10	Packing bashing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
	11	Packing gland	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB
	12	Spring	17-7PH				
	13	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	14	Hexagon nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
	15	Hexagon bolt	A193 B7M	A320 B8	A320 B8 M	A320 B8	A320 B8M
	16	Hexagon nut	A194 2H	A194-8	A194 -8	A194-8	A194-8
	17	Stud	A193 B7M	A193 B7M	A193 B7M	A193 B7M	A193 B7M
	18	Socket head cap screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	19	Pin	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035
	20	Flat key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
	21	Packing	Graphite				
	22	Metal wound gasket	SST+Graphite				
	23	Metal wound gasket	SST+Graphite				
	24	Thrust bearing	SST+Graphite				
	25	Sliding bearing	Combined parts	TF-2			
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	
Applicable service conditions	Applicable media	Water, steam, oil, gas, liquefied petroleum gas, natural gas	Nitric acid	Acetic acid	Strong Oxidizer	Urea	
	Applicable temperature	≤200°C					
Design and manufacturing		API 6D					
Face-to-face dimensions		ASME B16.10					
Type of connection		Flange	ASME B16.5	Butt welding	ASME B16.25		
Pressure test		API 598、API 6D					
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric					

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Floating cast steel ball valve



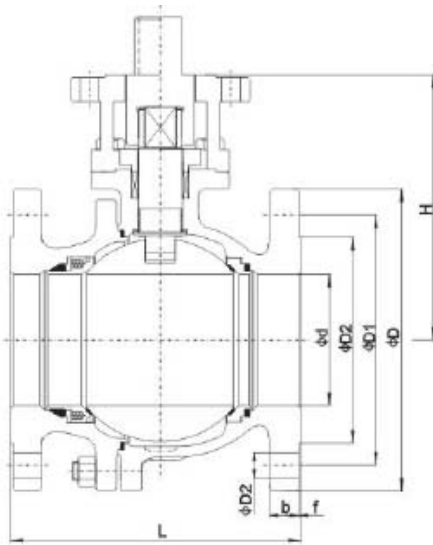
Floating forged steel ball valve

Pressure rating	Nominal Diameter		d	Flanged		Butt welding	Raised face flange						W	Cast steel	Forged steel	Weight(kg)	
	Class	NPS		DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	f				b	N-φd
150	1/2"	15	13	108	-	140	90	60.5	35	2	9	4-φ16	140	80	63	2.3	△
	3/4"	20	19	117	-	152	100	70	43	2	10	4-φ16	140	86	82.5	3	△
	1"	25	25	127	-	165	110	79.5	51	2	11	4-φ16	140	95	93.5	4.5	△
	1 1/4"	32	32	140	-	178	115	89	64	2	11	4-φ16	180	101	96	5.5	△
	1 1/2"	40	38	165	-	190	125	98.5	73	2	13	4-φ16	180	128.5	128	7	△
	2"	50	50	178	191	216	150	120.5	92	2	14.5	4-φ19	200	136	136	9.5	△
	3"	80	75	203	216	283	190	152.5	127	2	17.5	4-φ19	300	145	145	19	△
	4"	100	100	229	241	305	230	190.5	157	2	22.5	8-φ19	650	197.5	204	33	△
300	1/2"	15	13	140	-	140	95	66.5	35	2	13	4-φ16	140	80	63	2.5	△
	3/4"	20	19	152	-	152	115	82.5	43	2	14.5	4-φ19	140	82	82.5	3.5	△
	1"	25	25	165	-	165	125	89	51	2	16	4-φ19	140	84	93.5	5.5	△
	1 1/4"	32	32	178	-	178	135	98.5	64	2	17.5	4-φ19	180	101	96	8	△
	1 1/2"	40	38	190	-	190	155	114.5	73	2	19.5	4-φ22	180	128.5	128	10.5	△
	2"	50	50	216	232	216	165	127	92	2	21	8-φ19	200	136	136	15	△
	3"	80	75	283	298	283	210	168.5	127	2	27	8-φ22	300	145	145	30	△
	4"	100	100	305	321	305	255	200	157	2	30.5	8-φ22	650	197.5	204	55	△
600	1/2"	15	13	165	-	165	95	66.5	35	7	14.5	4-φ16	140	88	78	3.5	△
	3/4"	20	19	190	-	190	115	82.5	43	7	16	4-φ19	140	98	92.5	6.5	△
	1"	25	25	216	-	216	125	89	51	7	17.5	4-φ19	180	115	102	8.5	△
	1 1/4"	32	32	229	-	229	135	98.5	64	7	21	4-φ19	200	125	110	10.5	△
	1 1/2"	40	38	241	-	241	155	114.5	73	7	22.5	4-φ22	250	142	128	13.5	△
	2"	50	50	292	295	292	165	127	92	7	26	8-φ19	300	160	142	△	△
	3"	80	75	356	359	356	210	168.5	127	7	32	8-φ22	650	178	156	△	△

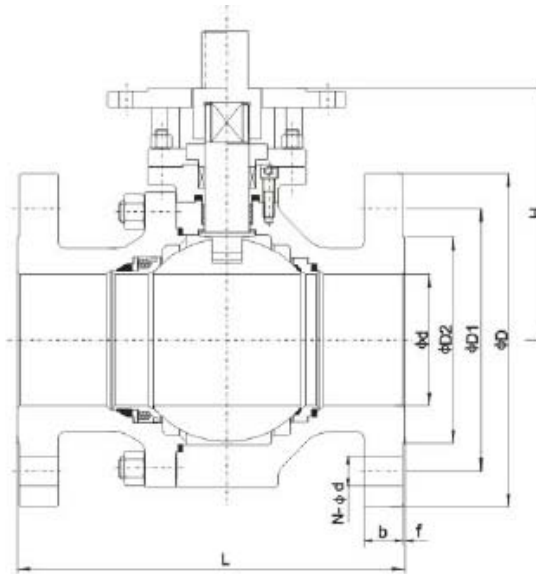
△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

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Isolating, Control Valves and Turbine Bypass Systems for the Electric Power Industry, Steam Plant Utilities and Process Industry



Floating cast steel ball valve



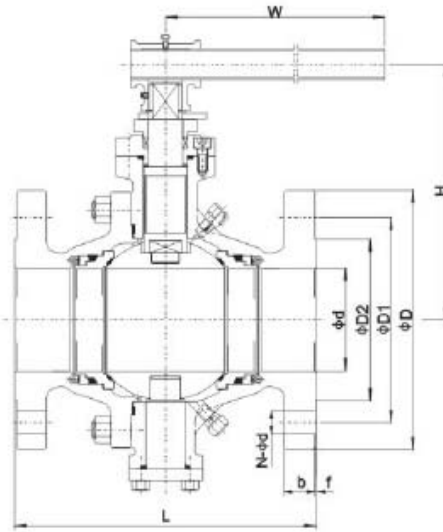
Floating forged steel ball valve

Pressure rating	Nominal Diameter		d	Flanged		Butt welding	Raised face flange						Cast steel	Forged steel	Weight(kg)	
	Class	NPS		DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	f			b	N-Φ d
150	4"	100	100	229	241	305	230	190.5	157	2	22.5	8-Φ 19	220	197	33	△
	6"	150	150	394	406	457	280	241.5	216	2	24	8-Φ 22	300	250	93	△
	8"	200	201	457	470	521	345	298.5	270	2	27	8-Φ 22	355	290	160	△
300	4"	100	100	305	321	305	255	200	157	2	30.5	8-Φ 22	220	197	55	△
	6"	150	150	403	419	457	320	270	216	2	35	12-Φ 22	300	250	118	△
	8"	200	201	502	518	521	380	330	270	2	40	12-Φ 25	355	290	200	△
600	4"	100	100	432	435	432	275	216	157	7	38.5	8-Φ 25	230	205	△	△
	6"	150	150	559	562	559	355	292	216	7	48	12-Φ 29	310	260	△	△
	8"	200	201	660	664	660	420	349	270	7	56	12-Φ 32	370	310	△	△

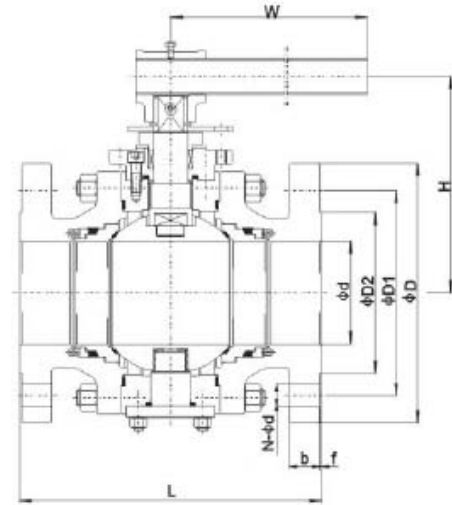
△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

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Trunnion cast steel ball valve



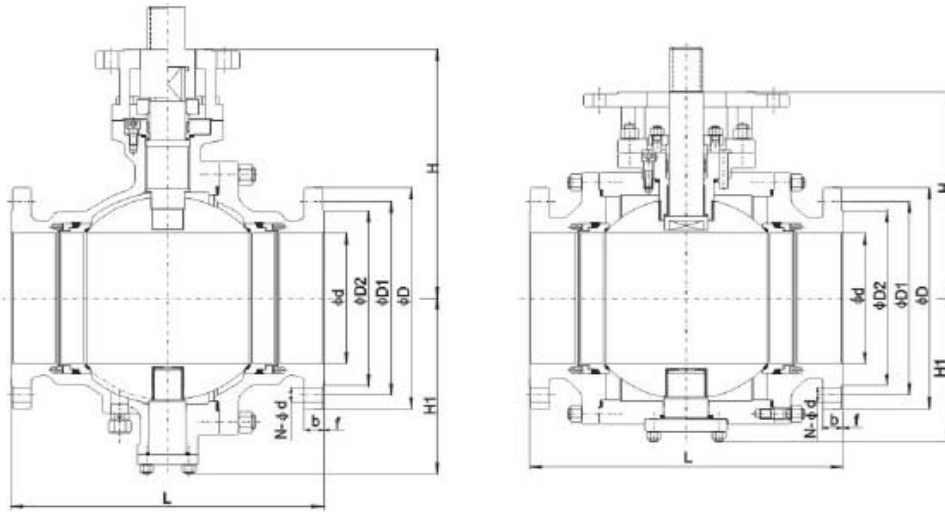
Trunnion forged steel ball valve

Pressure rating	Nominal Diameter		D	Flanged			Butt welding	Raised face flange						W	Cast steel	Forged steel	Weight(kg)	
	Class	NPS		DN	L(RF)	L(RTJ)		L(BW)	D	D1	D2	D3	f				b	N-φ d
150	2"	50	50	178	191	216	150	120.5	92	-	2	14.5	4-φ 19	200	174	153	14	19
	3"	80	75	203	216	283	190	152.5	127	-	2	17.5	4-φ 19	300	178	162	26	28
	4"	100	100	229	241	305	230	190.5	157	-	2	22.5	8-φ 19	650	288	240	45	48
300	2"	50	50	216	232	216	165	127	92	-	2	21	8-φ 19	200	174	153	17	22
	3"	80	75	283	298	283	210	168.5	127	-	2	27	8-φ 22	300	178	162	35	38
	4"	100	100	305	321	305	255	200	157	-	2	30.5	8-φ 22	650	288	240	55	60
600	2"	50	50	292	295	292	165	127	92	-	7	26	8-φ 19	300	178	153	28	28
	3"	80	75	356	359	356	210	168.5	127	-	7	32	8-φ 22	300	283	244	55	65
900	2"	50	50	388	371	368	215	165	124	95.25	7.92	38.5	8-φ 25	650	233	222	△	57
	3"	80	75	381	384	381	240	190.5	156	123.83	7.92	38.5	8-φ 25	800	276	255	△	87

△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

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Pressure rating	Nominal Diameter		d	Flanged		Butt welding	Raised face flange						Cast steel		Forged steel		Weight(kg)		
	Class	NPS		DN	L(RF)		L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-φd	H	H1	H	H1
150	6"	150	150	394	406	457	280	241.5	216	-	2	24	8-φ22	310	213.5	276	178.5	120	170
	8"	200	201	457	470	521	345	298.5	270	-	2	27	8-φ22	384.5	272	319	222	300	300
	10"	250	252	533	546	559	405	362	324	-	2	29	12-φ25	434	363	370	265	315	430
	12"	300	303	610	622	635	485	432	381	-	2	30.5	12-φ25	513	412	419.5	310	500	680
	14"	350	334	686	699	762	535	476	413	-	2	33.5	12-φ29	535	436	432	334	670	930
	16"	400	385	762	775	838	595	540	470	-	2	35	16-φ29	575	462	515	375	900	1130
	18"	450	436	864	876	914	635	578	533	-	2	38.5	16-φ32	615	507	560	410	1080	1560
	20"	500	487	914	927	991	700	635	584	-	2	41.5	20-φ32	685	536	623	458	1560	2020
300	6"	150	150	403	419	457	320	270	216	-	2	35	12-φ22	310	213.5	276	178.5	160	180
	8"	200	201	502	518	521	380	330	270	-	2	40	12-φ25	384.5	272	319	222	260	258
	10"	250	252	568	584	559	445	387.5	324	-	2	46.5	16-φ29	434	363	370	265	380	413
	12"	300	303	648	664	635	520	451	381	-	2	49.5	16-φ32	513	412	419.5	310	570	629
	14"	350	334	762	778	762	585	514.5	413	-	2	52.5	20-φ32	535	436	432	334	750	887
	16"	400	385	838	854	838	650	571.5	470	-	2	56	20-φ35	575	462	515	375	1120	1340
	18"	450	436	914	930	914	710	628.5	533	-	2	59	24-φ35	615	507	560	410	1460	1610
	20"	500	487	991	1010	991	775	686	584	-	2	62	24-φ35	685	536	623	458	2030	2200
600	4"	100	100	432	435	432	275	216	157	-	7	38.5	8-φ25	234	165	261	150	102	118
	6"	150	150	559	562	559	355	292	216	-	7	48	12-φ29	335	251	283	192.5	250	250
	8"	200	201	660	664	660	420	349	270	-	7	56	12-φ32	430	290	339.5	235	430	430
	10"	250	252	787	791	787	510	432	324	-	7	64	16-φ35	466	334	380	280	680	680
	12"	300	303	838	841	838	560	489	381	-	7	67	20-φ35	528	383	432	320	985	985
	14"	350	334	889	892	889	605	527	413	-	7	70	20-φ39	600	398	473	350	1002	1002
	16"	400	385	991	994	991	685	603	470	-	7	77	20-φ41	630	434	515	395	1160	1160
	18"	450	436	1092	1095	1092	745	654	533	-	7	83	20-φ44	685	473	560	439	1611	1611
	20"	500	487	1194	1200	1194	815	724	584	-	7	89	24-φ44	740	506	617	490	2985	2985
900	4"	100	100	457	460	457	290	235	181	149.23	7.92	45	8-φ32	310	186	267	267	△	△
	6"	150	150	610	613	610	380	317.5	241	211.12	7.92	56	12-φ32	372	262	288.5	200	△	△
	8"	200	201	737	740	737	470	393.5	308	269.88	7.92	64	12-φ39	428	300	300	250	△	△
	10"	250	252	838	841	838	545	470	362	323.85	7.92	70	16-φ39	477	346	410	300	△	△
	12"	300	303	965	968	965	610	533.5	419	381	7.92	79.5	20-φ39	543	388	432	320	△	△
	14"	350	322	1029	1038	1029	640	559	467	419.1	11.13	86	20-φ42	558	402	△	△	△	△
	16"	400	373	1130	1140	1130	705	616	524	469.9	11.13	89	20-φ45	605	442	△	△	△	△
	18"	450	423	1219	1232	1219	785	686	594	533.4	12.7	102	20-φ51	657	489	△	△	△	△
20"	500	471	1321	1334	1321	855	749.5	648	584.2	12.7	108	20-φ54	729	538	△	△	△	△	

△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.



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ORBIT BALL VALVE



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SUMMARY

The valve is suitable for use in petrochemical industry, liquefied petroleum gas storage, refinery, natural gas, compressor system, oil and gas transportation pipeline, light industry, textile and other industries.

STRUCTURAL FEATURES

1、Top Entry Structure

The valve adopts the top entry structure. The most distinctive difference between this kind of valve and others is that the online maintenance function can be realized without the need of removing the valve from the pipeline.

2、Integral Structure

The body adopts the integral structure, so as to ensure that it has enough strength and rigidity under the maximum rated working pressure. The valve trims have been carefully designed and selected to ensure reliability under various service conditions. The sufficient wall thickness and the connection bolts of high strength are very helpful to the maintenance and servicing of valves and are able to endure pipeline stress.

3、Lower Torque Operation

The stem structure is specially designed and there is no friction between seat and ball sealing faces. Therefore the stem can turn easily with low opening and closing torque.

WORK PRINCIPLE

Opening Of Orbit Ball Valve

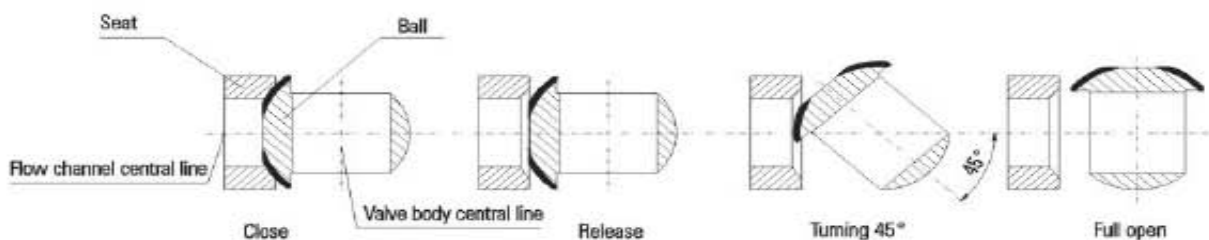
When it is at the closed position, the ball is closely pressed onto the seat under the mechanical pressure of stem. When the handwheel is turned counterclockwise, the stem will move upward, and the angular plane at the bottom of stem will make the ball sealing face leave the seat. The stem will continue rising and interact with the guide pin in the stem spiral groove to make the ball turn 90° itout friction until the stem rises to the ultimate position and the ball hole is aligned with the valve channel.

Closing Of Ball Valve

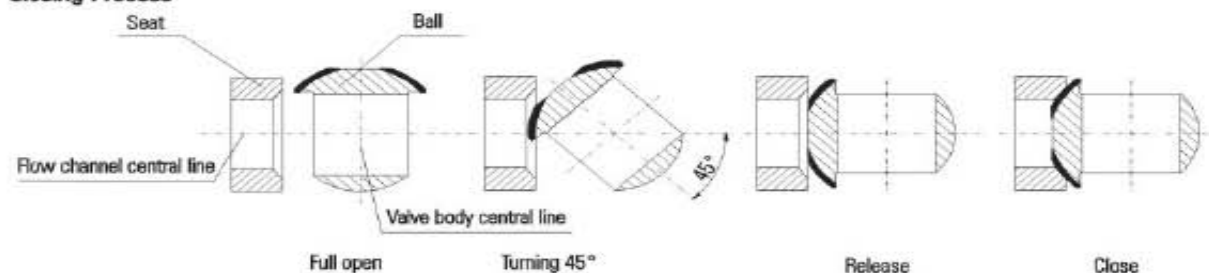
During the closing, turn the handwheel clockwise, the stem will move downward and make the ball start rotation. Continue turning the handwheel, and the stem will make the stem and ball turn 90° together under the action of guide pin in the spiral groove embedded in the stem. When it is nearly closed, the ball has turned 90° without contact with the seat. The stem will continue moving downward, the ball sways to press the seat so as to make the sealing face in the seat produce elastic deformation and closely fit the ball sealing face, and therefore, ensuring safe and reliable zero leakage.

Opening And Closing Schematic Diagram

Opening Process



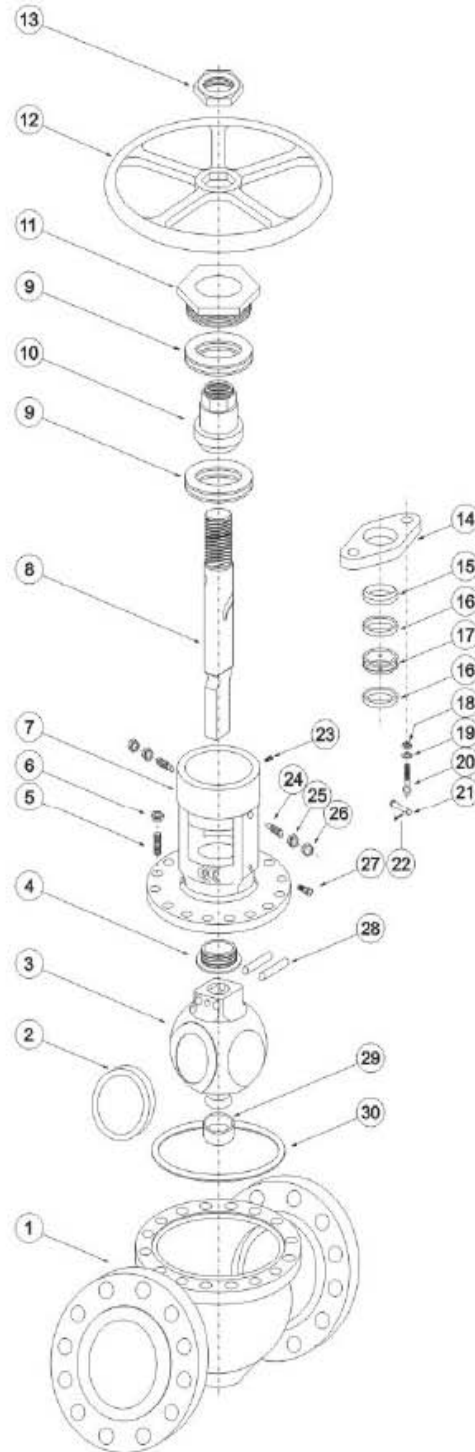
Closing Process



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ORBIT BALL VALVE

1	Body
2	Seat
3	Ball
4	Upper bearing sleeve
5	Stud
6	Hexagon nut
7	Bonnet
8	Stem
9	Rolling bearing
10	Stem nut
11	Nut gland
12	Handwheel
13	Anchor nut
14	Packing gland
15	Bushing
16	Packing
17	Lantern ring
18	Hexagon nut
19	Flat washer
20	Eye bolt
21	Pin
22	Forelock
23	Oil cap
24	Holding screw
25	Hexagon nut
26	Cap nut
27	Sealant injection valve
28	Rolling pin
29	Locating bush
30	Metal wound gasket





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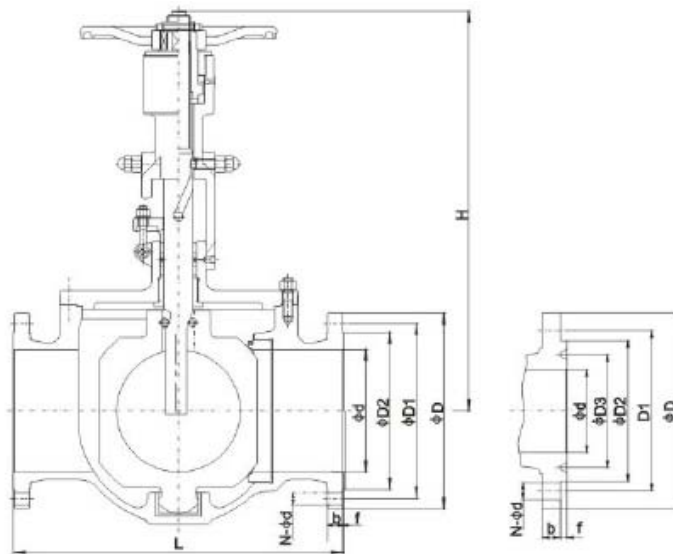


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Part Materials And Main Parameters

Nominal diameter (In)		NPS 2~20				
Nominal pressure (MPa)		Class150~Class600				
No.	Part name	Materials				
		Carbon steel		Stainless steel		
1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
2	Seat	ASTM A105+HF	ASTM A182 304+HF	ASTM A182 316+HF	ASTM A182 304L+HF	ASTM A182 316L+HF
3	Ball	ASTM A105+HF	ASTM A182 304+HF	ASTM A182 316+HF	ASTM A182 304L+HF	ASTM A182 316L+HF
4	Upper bearing sleeve	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
5	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
6	Hexagon nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
7	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
8	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
9	Rolling bearing	bearing steel	bearing steel	bearing steel	bearing steel	bearing steel
10	Stem nut	A429 D-2	A429 D-2	A429 D-2	A429 D-2	A429 D-2
11	Nut gland	ASTM A105	ASTM A105	ASTM A105	ASTM A105	ASTM A105
12	Handwheel	QT400-17	QT400-17	QT400-17	QT400-17	QT400-17
13	Anchor nut	A194 2HM	A194 2HM	A194 2HM	A194 2HM	A194 2HM
14	Packing gland	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB
15	Bushing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
16	Packing	Graphite				
17	Lantern ring	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
18	Hexagon nut	A194 2HM	A194 2HM	A194 2HM	A194 2HM	A194 2HM
19	Flat washer	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025
20	Eye bolt	A193 B7M	A193 B7M	A193 B7M	A193 B7M	A193 B7M
21	Pin	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035
22	Forelock	A3	A3	A3	A3	A3
23	Oil bowl	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
24	Holding screw	A193 B7M	A193 B7M	A193 B7M	A193 B7M	A193 B7M
25	Hexagon nut	A194 2HM	A194 2HM	A194 2HM	A194 2HM	A194 2HM
26	Cap nut	A194 2HM	A194 2HM	A194 2HM	A194 2HM	A194 2HM
27	Sealant Injection valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
28	Rolling pin	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
29	Locating bush	TF-2	TF-2	TF-2	TF-2	TF-2
30	Metal wound gasket	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite	SST+Graphite
Applicable service conditions	Applicable media	Water, steam, oil, coal gas, liquefied gas, natural gas	Nitric acid	Acetic acid	Strong Oxidizer	Urea
	Applicable temperature	-29~+ 425℃		≤200℃		
Design and manufacturing		API 6D				
Face-to-face dimensions		ASME B16.10、API 6D				
Type of connection		Flange	ASME B16.5		Butt welding	ASME B16.25
Pressure test		API 598、API 6D				
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric				

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Pressure rating	Nominal Diameter		d	Flanged			Butt welding	Raised face flange						H	Weight
				L(RF)	L(RTJ)	L(BW)		D	D1	D2	D3	f	b		
150	2"	50	50	292	295	292	150	120.5	92	-	2	14.5	4-φ19	360	28
	3"	80	75	356	359	356	190	152.5	127	-	2	17.5	4-φ19	490	41
	4"	100	100	406	410	406	230	190.5	157	-	2	22.5	8-φ19	525	55
	6"	150	150	403	419	457	280	241.5	216	-	2	24	8-φ22	611	115
	8"	200	201	597	600	597	345	298.5	270	-	2	27	8-φ22	750	215
	10"	250	252	673	676	673	405	362	324	-	2	29	12-φ25	826	270
	12"	300	303	762	765	762	485	432	381	-	2	30.5	12-φ25	920	385
	14"	350	334	826	829	826	535	476	413	-	2	33.5	12-φ29	990	502
	16"	400	385	902	905	902	595	540	470	-	2	35	16-φ29	1090	878
	18"	450	436	978	981	978	635	578	533	-	2	38.5	16-φ32	1200	980
20"	500	487	1054	1060	1054	700	635	584	-	2	41.5	20-φ32	1320	1240	
300	2"	50	50	292	295	292	165	127	92	-	2	21	8-φ19	360	32
	3"	80	75	356	359	356	210	168.5	127	-	2	27	8-φ22	490	48
	4"	100	100	406	410	406	255	200	157	-	2	30.5	8-φ22	525	65
	6"	150	150	403	419	457	320	270	216	-	2	35	12-φ22	611	130
	8"	200	201	597	600	597	380	330	270	-	2	40	12-φ25	750	235
	10"	250	252	673	676	673	445	387.5	324	-	2	46.5	16-φ29	826	305
	12"	300	303	762	765	762	520	451	381	-	2	49.5	16-φ32	920	410
	14"	350	334	826	829	826	585	514.5	413	-	2	52.5	20-φ32	990	550
	16"	400	385	902	905	902	650	571.5	470	-	2	56	20-φ35	1090	825
	18"	450	436	978	981	978	710	628.5	533	-	2	59	24-φ35	1200	1135
20"	500	487	1054	1060	1054	775	686	584	-	2	62	24-φ35	1320	1365	
600	2"	50	50	292	295	292	165	127	92	-	7	26	8-φ19	430	50
	3"	80	75	356	359	356	210	168.5	127	-	7	32	8-φ22	490	74
	4"	100	100	432	435	432	275	216	157	-	7	38.5	8-φ25	570	101
	6"	150	150	559	562	559	355	292	216	-	7	48	12-φ29	645	202
	8"	200	201	660	664	660	420	349	270	-	7	56	12-φ32	780	364
	10"	250	252	787	791	787	510	432	324	-	7	64	16-φ35	860	473
	12"	300	303	838	841	838	560	489	381	-	7	67	20-φ35	985	636
	14"	350	334	889	892	889	605	527	413	-	7	70	20-φ39	1050	853
	16"	400	385	991	994	991	685	603	470	-	7	77	20-φ41	1160	1434
	18"	450	436	1092	1095	1092	745	654	533	-	7	83	20-φ44	1275	1759
20"	500	487	1194	1200	1194	815	724	584	-	7	89	24-φ44	1410	2116	

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V TYPE BALL VALVE



USAGE

The V type ball valve is suitable for use on various pipelines of Class150~Class300. According to different user requirements, the V type ball valve can be used for two purposes. One is it can be used to cut off or connect the medium in the pipeline. The other is it can serve as a control valve for controlling parameters such as flow rate of medium in the pipeline. The V type ball valve for cut-off purpose can adopt different driving modes such as manual operation, worm and worm gear transmission,

pneumatic operation and electric operation. The V type ball valve for control purpose adopt the driving modes such as pneumatic operation and electric operation.

By using different materials, the V type ball valve can be used for various media such as water, steam, oil, liquefied gas, natural gas, coal gas, nitric acid, acetic acid, oxidizing medium, urea and etc.

The connection ends of V type ball valve can be wafer or flange.

STRUCTURAL FEATURES

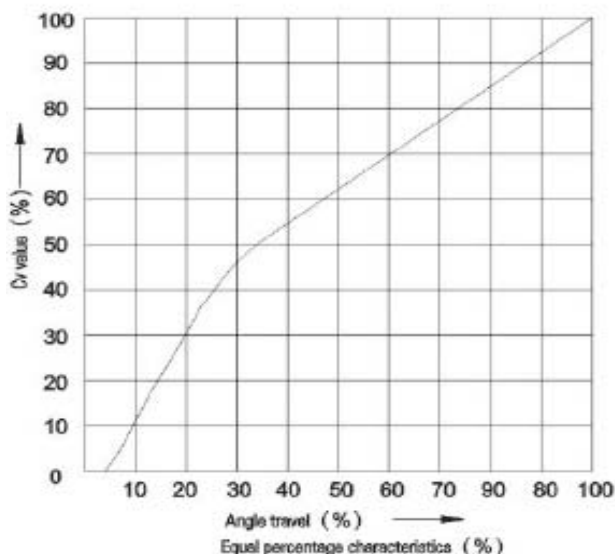
1. The V type ball valve adopts disc spring or cylindrical spring loaded moveable metal seat structure provided with compensation character, so no problems such as blocking or release of V type ball and seat will occur. The sealing is reliable and the service life is long.
2. The V type notch of the ball plays the shearing function between the metals, so the valve is especially suitable for media of high viscosity, containing fiber, solid granules, slurry and paper pulp.
3. According to different service conditions, the metal seated ball and seat sealing face can be subjected to various advanced technologies such as nickel-base alloy (HRC \geq 60) spray welding, tungsten cobalt alloy (HRC \geq 70) HVOF coating, suitable for various severe service

conditions.

4. When the valve is fully opened, the flow is high and pressure loss is low, and the media will not deposit in the middle cavity of valve. The valve has flow characteristics of equal percentage, and the V type ball valve for control purpose has a wide adjusting range with the maximum adjusting ratio of100:1. In addition, the valve is also provided with precise control and reliable positioning functions.

5. Compact structure, strong adaptability. The V type ball valve for cut-off purpose has good sealing performance and can replace various valves such as gate valve, globe valve, ordinary ball valve and etc.

Flow coefficient chart



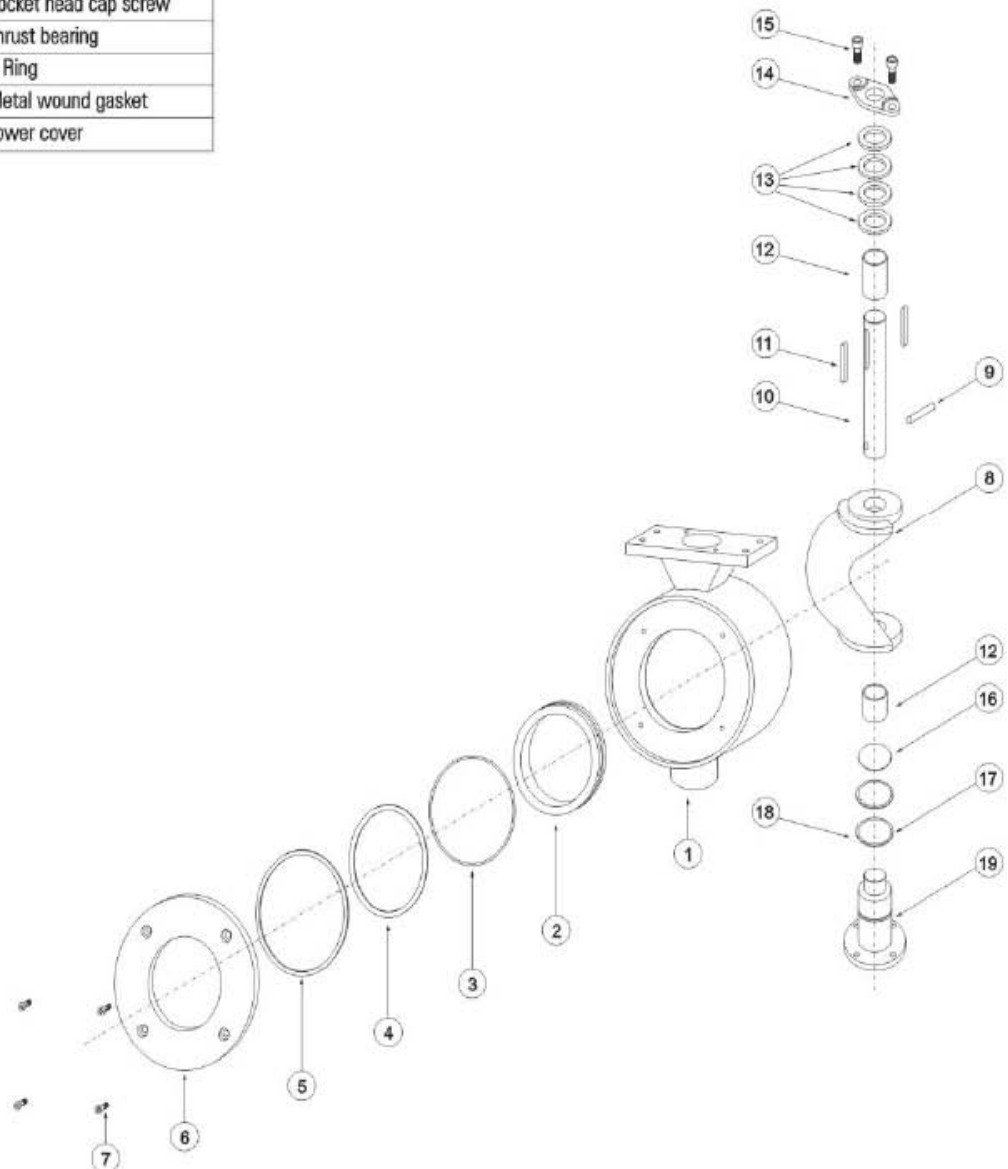
Relation of relative opening and flow coefficient Cv of the V type ball valve for control purpose

Inside nominal diameter		relative opening					
DN	NPS	10%	30%	50%	70%	90%	100%
		discharge coefficient Cv					
25	1	0.33	1.6	4.6	10	20	33
40	1½	0.85	4.5	15	29	60	90
50	2	1.36	7.6	22	48	100	145
65	2½	2.3	12	37	80	165	250
80	3	3.1	16.5	50	108	215	330
100	4	5	27	80	178	365	530
125	5	7	36	108	238	488	710
150	6	10	53	160	356	740	1080
200	8	16	85	258	573	1195	1750
250	10	31	148	396	825	1460	2170
300	12	42	202	552	1110	2130	3120

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V TYPE BALL VALVE

1	Body
2	Seat
3	O Ring
4	Disc spring
5	Metal wound gasket
6	Clamping ring
7	Socket head cap screw
8	Ball
9	Pin
10	Stem
11	Flat Key
12	Sliding bearing
13	Packing
14	Packing gland
15	Socket head cap screw
16	Thrust bearing
17	O Ring
18	Metal wound gasket
19	Lower cover

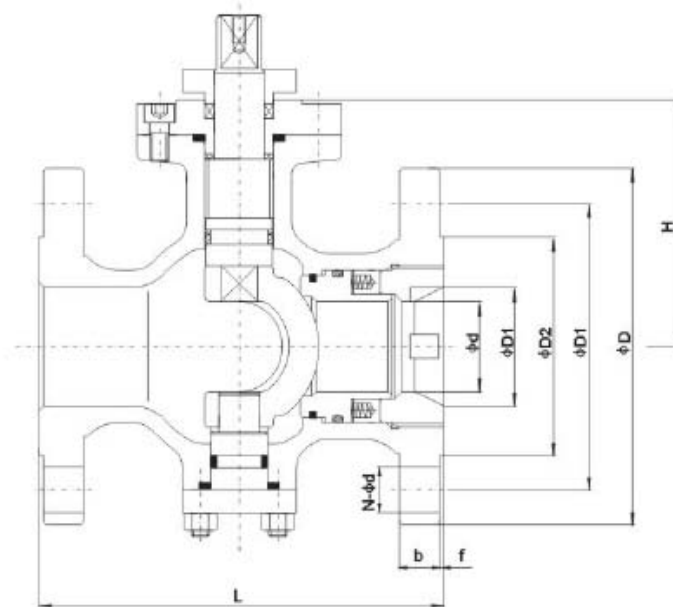


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PART MATERIALS AND MAIN PARAMETERS

Nominal diameter (in)		NPS 1~12					
Nominal pressure (MPa)		Class150~Class300					
Materials of parts	No.	Part name	Materials				
			Carbon steel	Stainless steel			
	1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	2	Seat	ASTM A105+HF	ASTM A182 304+HF	ASTM A182 316+HF	ASTM A182 304L+HF	ASTM A182 316L+HF
	3	O Ring	VITON				
	4	Disc spring	17-7PH				
	5	Metal wound gasket	SST+Graphite				
	6	Clamping ring	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	7	Socket head cap screw	A193 B7M	A320 B8	A320 B8 M	A320 B8	A320 B8M
	8	Ball	ASTM A216 WCB+HF	ASTM A351 CF8+HF	ASTM A351 CF8M+HF	ASTM A351 CF3+HF	ASTM A351 CF3M+HF
	9	Pin	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035	ANSI 1035
	10	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	11	Flat key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
	12	Sliding bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
	13	Packing	Graphite				
	14	Packing gland	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB
	15	Socket head cap screw	A193 B7M	A193 B7M	A193 B7M	A193 B7M	A193 B7M
	16	Thrust bearing	PTFE				
	17	O Ring	VITON				
18	Metal wound gasket	SST+Graphite					
19	Lower cover	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L	
Applicable service conditions	Applicable media	Water, steam, oil, gas, liquefied petroleum gas and natural gas etc	Nitric acid	Acetic acid	Strong Oxidizer	Urea	
	Applicable temperature	Regular products: =200℃, special orders: =425℃ (carbon steel) or =540℃ (Cr-Mo steel, Cr-Mo-V steel, stainless steel)					
Design and manufacturing		API 608、API 6D					
Face-to-face dimensions		ASME B16.10、API 6D					
Type of connection		Flange	ASME B16.5		Wafer	ASME B16.5	
Pressure test		API 598、API 6D					
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric					

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Pressure rating	Nominal Diameter		d	d1	L	Flanged						H	Weight	
	Class	NPS				DN	D	D1	D2	f	b			N-φd
150		1"	25	19	25	127	110	79.5	51	2	11	4-φ16	80	△
		1 1/4"	32	25	32	140	115	89	64	2	11	4-φ16	86	△
		1 1/2"	40	32	38	165	125	98.5	73	2	13	4-φ16	95	△
		2"	50	38	50	178	150	120.5	92	2	14.5	4-φ19	104	△
		3"	80	50	75	203	190	152.5	127	2	17.5	4-φ19	114	△
		4"	100	75	100	229	230	190.5	157	2	22.5	8-φ19	160	△
		6"	150	100	150	267	280	241.5	216	2	24	8-φ22	200	△
		8"	200	150	201	292	345	288.5	270	2	27	8-φ22	240	△
		10"	250	201	252	330	405	362	324	2	29	12-φ25	275	△
	12"	300	252	303	356	485	432	381	2	30.5	12-φ25	330	△	
300		1"	25	19	25	127	125	89	51	2	18	4-φ19	80	△
		1 1/4"	32	25	32	140	135	98.5	64	2	17.5	4-φ19	86	△
		1 1/2"	40	32	38	165	155	114.5	73	2	19.5	4-φ22	95	△
		2"	50	38	50	178	165	127	92	2	21	8-φ19	104	△
		3"	80	50	75	203	210	168.5	127	2	27	8-φ22	114	△
		4"	100	75	100	229	255	200	157	2	30.5	8-φ22	160	△
		6"	150	100	150	267	320	270	216	2	35	12-φ22	200	△
		8"	200	150	201	292	380	330	270	2	40	12-φ25	240	△
		10"	250	201	252	330	445	387.5	324	2	46.5	16-φ29	275	△
	12"	300	252	303	356	520	451	381	2	49.5	16-φ32	330	△	

△ Please consult the factory:

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.



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3-WAY/4-WAY BALL VALVE



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USAGE

The three-way/four-way ball valve is used for switching, converging and diverging pipeline medium flow direction. It is widely applied in metallurgy, mine, petroleum, chemical industry, electric power, light industry, shipping

industry and automation control systems, suitable for service conditions such as switching, mixing and diverging of fluid, gas and powder.

STRUCTURAL CHARACTERISTICS

The three-way/four-way ball valve is provided with reliable sealing and smooth flow channel so as to ensure accuracy of opening and closing through small fluid pressure loss and stable flow channel. According to the

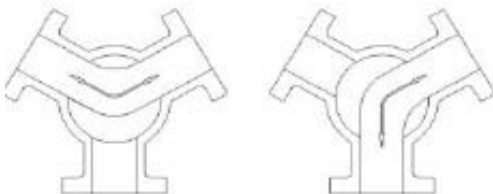
forms of flow channel, the valve can be classified into “Y” pattern three-way ball valve, “L” pattern three-way ball valve, “T” pattern three-way ball valve and “LL” pattern four-way ball valve.

“Y” pattern Three-way Ball Valve

The form of flow channel is “Y” pattern, which can effectively realize switching from service condition 1 to

service condition 2. It is mainly used for switching “Y” pattern pipeline flow direction.

Two service conditions of “Y” pattern three-way ball valve

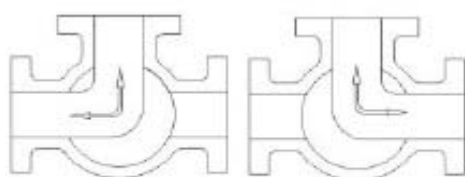


“L” Pattern Three-way Ball Valve

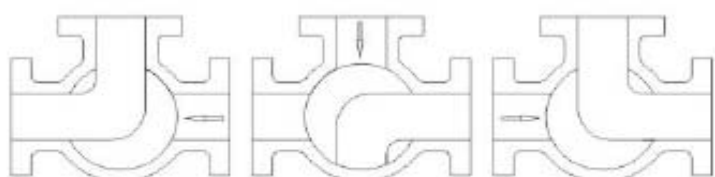
The “L” pattern three-way ball valve is used for switching pipeline medium flow direction. It can connect two flow channels that are vertical with each other. The

ordinary “L” pattern floating three-way ball valve may not be suitable for some service conditions, which shall be paid special attention to when users select it.

Two service conditions of “L” pattern three-way ball valve



Several service conditions for which the ordinary “L” pattern floating three-way ball valve is not suitable



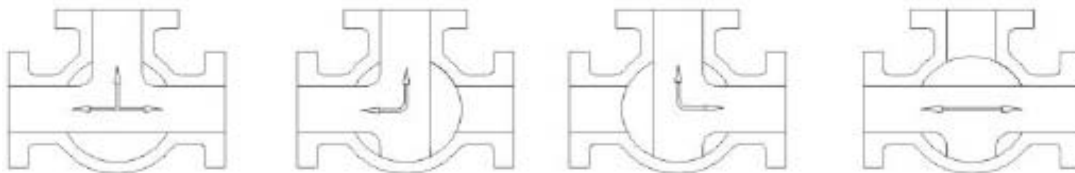
STRUCTURAL FEATURES

“T” Pattern Three-way Ball Valve

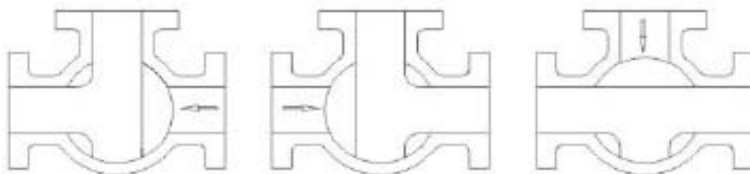
The “T” pattern three-way ball valve is used for switching, converging and diverging medium flow direction. The “T” pattern ball channel can make three channels connect with each other or two of them connect with each other to realize two, three or four kinds of functions. Different valve designs are adopted to realize different functions. Therefore, users shall make

detailed descriptions to the service requirements when selecting and ordering the “T” pattern three-way ball valve, so that our company can make designs and configurations correctly. The ordinary “T” pattern floating three-way ball valve may not be suitable for some service conditions, which shall be paid special attention to when users select it.

Several service conditions of “T” pattern three-way ball valve



Several service conditions for which the ordinary “T” pattern floating three-way ball valve is not suitable



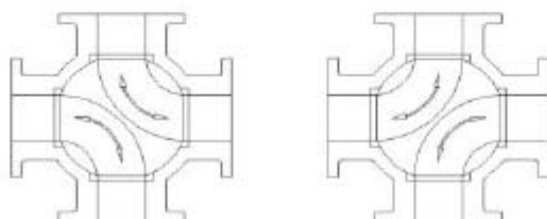
“LL” Pattern Four-way Ball Valve

The “LL” pattern four-way ball valve is provided with four seats to realize switching from service condition 1 to service condition 2. It can simultaneously switch the flow direction of two media, which realizes the effect of multiple functions in one valve with convenience and swiftness.

The work form is shown as follows:

1. When A(C) is the inlet, the two connections of A→B (C→D) or A→C (C→A) can be realized.
2. A cannot be realized.
3. A→D (C→B) 或 D→A (B→C) is impossible.

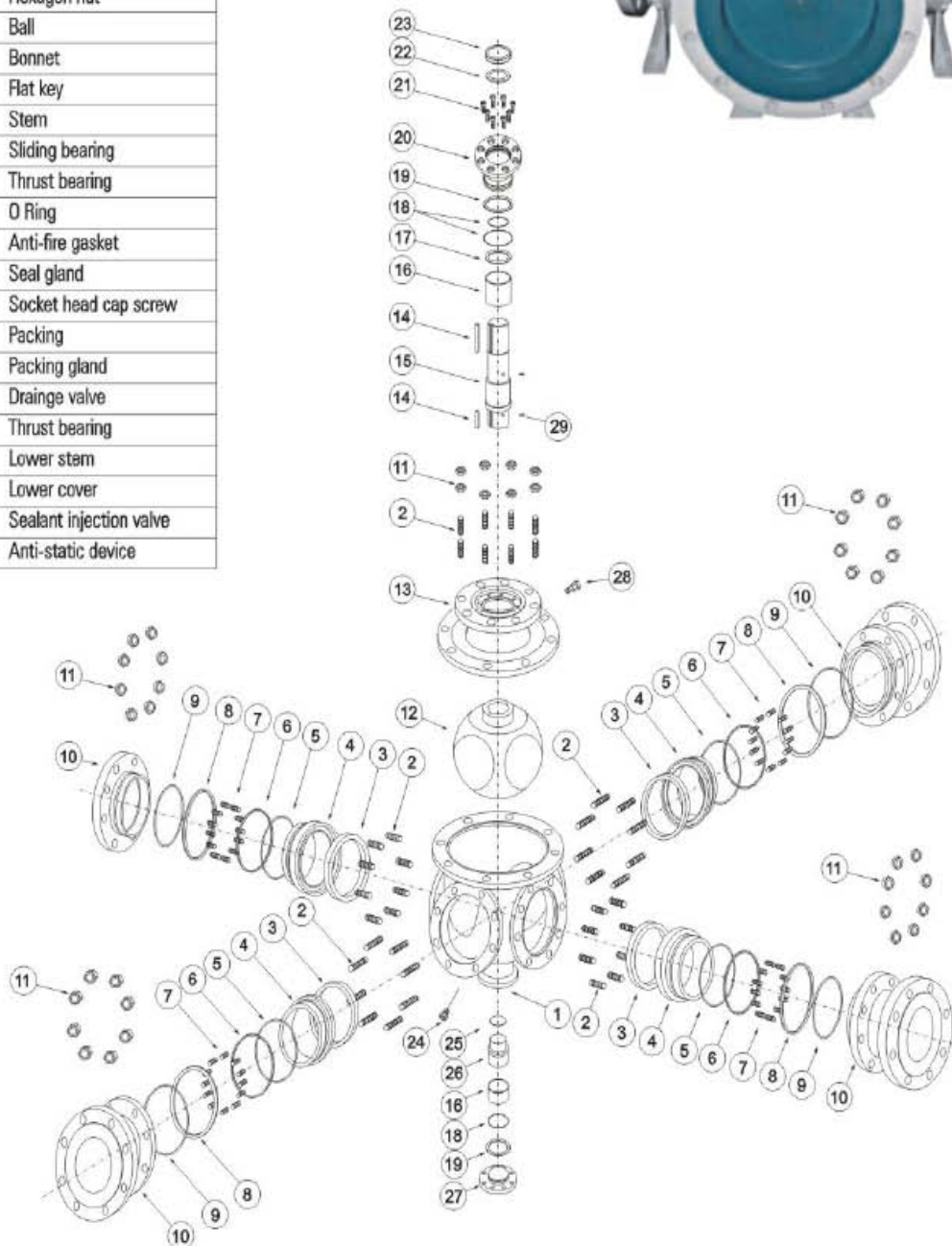
Service conditions of “LL” pattern four-way ball valve



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T PATTERN THREE-WAY BALL VALVE

1	Body
2	Stud
3	Seat
4	Seat ring
5	O Ring
6	Anti-fire packing
7	Spring
8	Anti-fire gasket
9	O Ring
10	Bonnet
11	Hexagon nut
12	Ball
13	Bonnet
14	Flat key
15	Stem
16	Sliding bearing
17	Thrust bearing
18	O Ring
19	Anti-fire gasket
20	Seal gland
21	Socket head cap screw
22	Packing
23	Packing gland
24	Drainage valve
25	Thrust bearing
26	Lower stem
27	Lower cover
28	Sealant injection valve
29	Anti-static device





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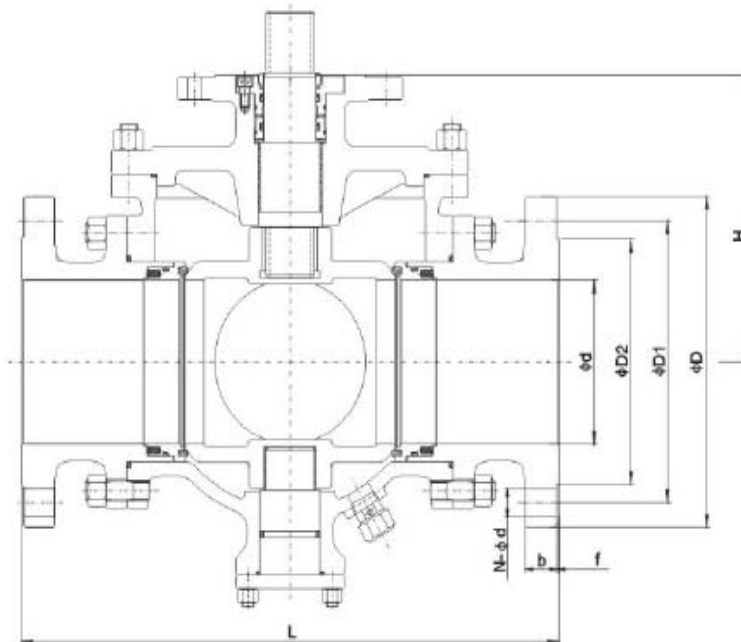


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Part Materials And Main Parameters

Nominal Diameter (in)		NPS 2~20					
Nominal Pressure (MPa)		Class150~Class300					
Materials of parts	No.	Part Name	Materials				
			Carbon steel	Stainless steel			
	1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	2	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	3	Seat	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				
	6	Anti-fire Packing	Graphite				
	7	Spring	17-7PH				
	8	Anti-fire Gasket	SST+Graphite				
	9	O Ring	VITON				
	10	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	11	Hexagon Nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
	12	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	13	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	14	Flat Key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
	15	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	16	Sliding Bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
	17	Thrust Bearing	PTFE				
	18	O Ring	VITON				
	19	Anti-fire Gasket	SST+Graphite				
	20	Seal Gland	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	21	Socket Head Cap Screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	22	Packing	Graphite				
	23	Packing Gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
	24	Drainage Valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	25	Thrust Bearing	PTFE				
	26	Lower Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	27	Lower Cover	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
28	Sealant Injection Valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts	
29	Anti-static Device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts	
Applicable Service Conditions	Applicable Media	Water, steam, oil, gas, liquefied petroleum gas, natural gas etc	Nitric acid	Acetic acid	Strong Oxidizer	Urea	
	Applicable Temperature	≤120°C (PTFE) 、 ≤80°C (NYLON) ≤250°C (PEEK) 、 ≤250°C (PPL)					
Design And Manufacturing		API 608、API 6D					
Type Of Connection		Flange	ASME B16.5		Wafer	ASME B16.5	
Pressure Test		API 598、API 6D					
Transmission Mode		Manual, worm and worm gear transmission, pneumatic, electric					

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Pressure Rating	Nominal Diameter		d	L	Flanged						H	Weight (kg)	
					D	D1	D2	D3	f	b			N-φd
Class	NPS	DN											
150	2"	50	50	260	150	120.5	92	-	2	14.5	4-φ19	205	△
	3"	80	75	320	190	152.5	127	-	2	17.5	4-φ19	245	△
	4"	100	100	370	230	190.5	157	-	2	22.5	8-φ19	305	△
	6"	150	150	510	280	241.5	216	-	2	24	8-φ22	340	△
	8"	200	201	580	345	298.5	270	-	2	27	8-φ22	425	△
	10"	250	252	670	405	362	324	-	2	29	12-φ25	450	△
	12"	300	303	760	485	432	381	-	2	30.5	12-φ25	530	△
	14"	350	334	850	535	476	413	-	2	33.5	12-φ29	630	△
	16"	400	385	980	595	540	470	-	2	35	16-φ29	680	△
	18"	450	436	1080	635	578	533	-	2	38.5	16-φ32	625	△
	20"	500	487	1220	700	635	584	-	2	41.5	20-φ32	670	△
24"	600	589	1360	815	749.5	692	-	2	46.5	20-φ35	705	△	
300	2"	50	50	260	165	127	92	-	2	21	8-φ19	205	△
	3"	80	75	320	210	168.5	127	-	2	27	8-φ22	245	△
	4"	100	100	370	255	200	157	-	2	30.5	8-φ22	305	△
	6"	150	150	510	320	270	216	-	2	35	12-φ22	340	△
	8"	200	201	580	380	330	270	-	2	40	12-φ25	425	△
	10"	250	252	670	445	387.5	324	-	2	46.5	16-φ29	450	△
	12"	300	303	760	520	451	381	-	2	49.5	16-φ32	530	△
	14"	350	334	850	585	514.5	413	-	2	52.5	20-φ32	630	△
	16"	400	385	980	650	571.5	470	-	2	56	20-φ35	680	△
	18"	450	436	1080	710	628.5	533	-	2	59	24-φ35	625	△
	20"	500	487	1220	775	686	584	-	2	62	24-φ35	670	△
24"	600	589	1360	915	813	692	-	2	68.5	24-φ41	705	△	

Notes: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.



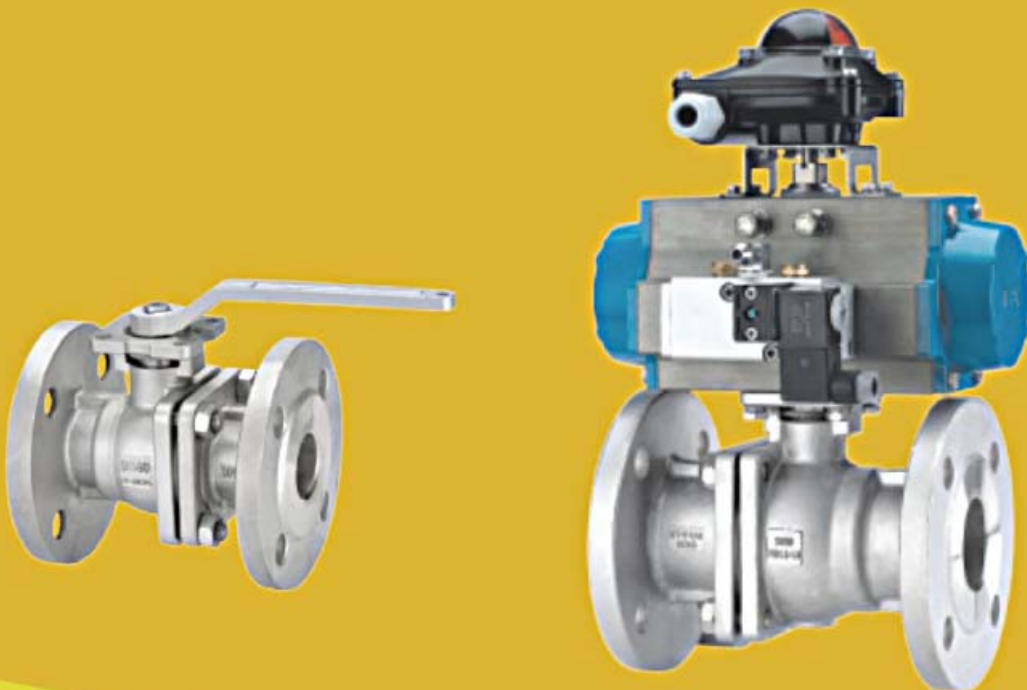
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MOUNTING PAD BALL VALVE



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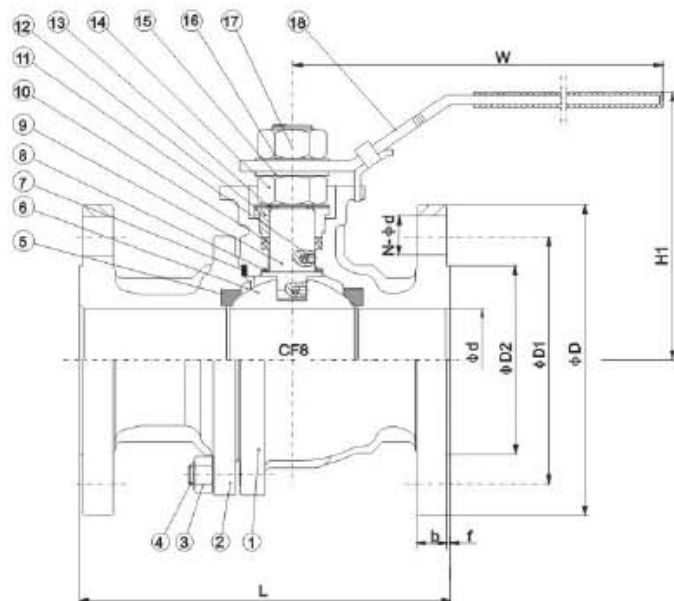
MOUNTING PAD BALL VALVE

The valve has such advantages as small fluid resistance, rapid opening and closing, compact structure, small volume, light weight and good sealing performance. The body and bonnet are subjected to silicasol precise casting. It adopts ISO 5211 platform design, and the two disc springs can compress the packing automatically. It is designed with the

blow-out proof stem and anti-static structure. It is suitable for water, gas, oil, natural gas and other acid and alkaline corrosive media. Suitable temperature is less than or equal to 200°C. The driving modes include: manual operation, worm gear transmission, pneumatic operation and electric operation.

Main Parts And Materials

NO.	Part Name	Material	
1	Body	ASTM A351 CF8	ASTM A351 CF8M
2	Bonnet	ASTM A351 CF8	ASTM A351 CF8M
3	Stud	A320 B8	A320 B8M
4	Hexagon nut	A194-8	A194-8M
5	Seat	PTFE	
6	Ball	ASTM A182 304	ASTM A182 316
7	Fireproof sealing gasket	SST+ Graphite	
8	Thrust bearing	PTFE	
9	Stem	ASTM A182 304	ASTM A182 316
10	Packing	Graphite	
11	Anti-static device	Combined parts	Combined parts
12	Packing bushing	ASTM A182 304	ASTM A182 316
13	Gland	ANSI 1025	ANSI 1025
14	Hexagon nut	A194-8	A194-8
15	Handle gland	ANSI 1025	ANSI 1025
16	Gasket	ANSI 1025	ANSI 1025
17	Hexagon nut	A194-2HM	A194-2HM
18	Handle	Combined parts	Combined parts



Main size

Pressure class	Nominal diameter (in)		d	L	RF						H1	W
	NPS	DN			D	D1	D2	f	b	N-Φd		
150	1/2"	15	13	108	90	60.5	35	2	9	4-Φ16	79	140
	3/4"	20	19	117	100	70	43	2	10	4-Φ16	84	140
	1"	25	25	127	110	79.5	51	2	11	4-Φ16	95	180
	1 1/4"	32	32	140	115	89	64	2	11	4-Φ16	103	180
	1 1/2"	40	38	165	125	98.5	73	2	13	4-Φ16	111	200
	2"	50	50	178	150	120.5	92	2	14.5	4-Φ19	120	200
	3"	80	75	203	190	152.5	127	2	17.5	4-Φ19	163	300
	4"	100	100	229	230	190.5	157	2	22.5	8-Φ19	182	400
	6"	150	150	394	280	241.5	216	2	24	8-Φ22	280	800
300	1/2"	15	13	140	95	66.5	35	2	13	4-Φ16	79	140
	3/4"	20	19	152	115	82.5	43	2	14.5	4-Φ19	84	140
	1"	25	25	165	125	89	51	2	16	4-Φ19	95	180
	1 1/4"	32	32	178	135	98.5	64	2	17.5	4-Φ19	103	180
	1 1/2"	40	38	190	155	114.5	73	2	19.5	4-Φ22	111	200
	2"	50	50	216	165	127	92	2	21	8-Φ19	120	200
	3"	80	75	283	210	168.5	127	2	27	8-Φ22	163	300
	4"	100	100	305	255	200	157	2	30.5	8-Φ22	182	400
	6"	150	150	403	320	270	216	2	35	12-Φ22	280	800
8"	200	201	502	380	330	270	2	40	12-Φ25	448	1100	

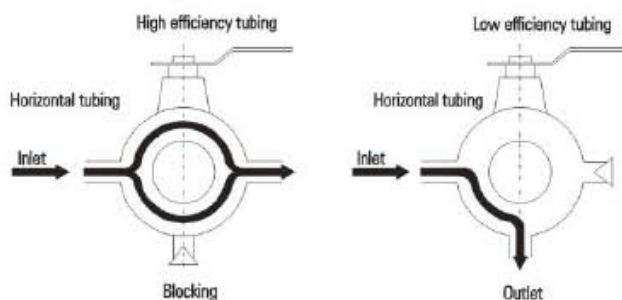
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JACKET BALL VALVE

Structural Features And Usage

The jacket ball valve has such features as small fluid resistance, compact structure, light weight, good heat and cold insulation performance, flexible opening and closing. The jacket ball valve adopts the integral structure, so it is much smaller than the ordinary ball valve, and its weight is much lighter with good sealing performance. The media that are allowed to pass the jacket include 1MPa steam or cooled water, or special design can be made according to user requirements. It is mainly used in various systems in petroleum, chemical industry, metallurgy, pharmacy, food and other industries for transporting media of high viscosity that will be solidified under normal temperature.

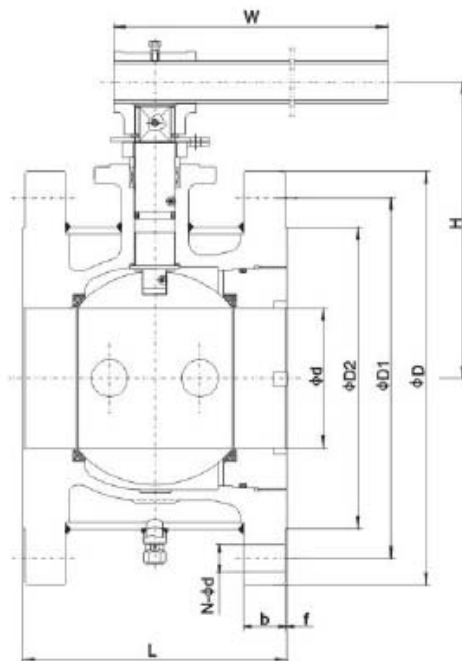
The installation and tubing of the jacket ball valve shall be made according to the followings



Part Materials And Main Parameters

Nominal diameter (in)		NPS 1/2~8					
Nominal pressure (MPa)		Class150~Class300					
Materials of parts	No.	Part Name	Materials				
			Carbon steel		Stainless steel		
	1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	2	Seat	PTFE/ PPL				
	3	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	4	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
5	Packing	Graphite					
Applicable service conditions	Applicable media	Water, steam, oil, gas, liquefied petroleum gas and natural gas etc.	Nitric acid	Acetic acid	Strong Oxidizer	Urea	
	Applicable temperature	≤120°C (PTFE)、≤250°C (PPL)					
Design and manufacturing		API 608					
Face-to-face dimensions		ASME B16.10					
Type of connection		Flange	ASME B16.5		Wafer	ASME B16.5	
Pressure test		API 598					
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric					

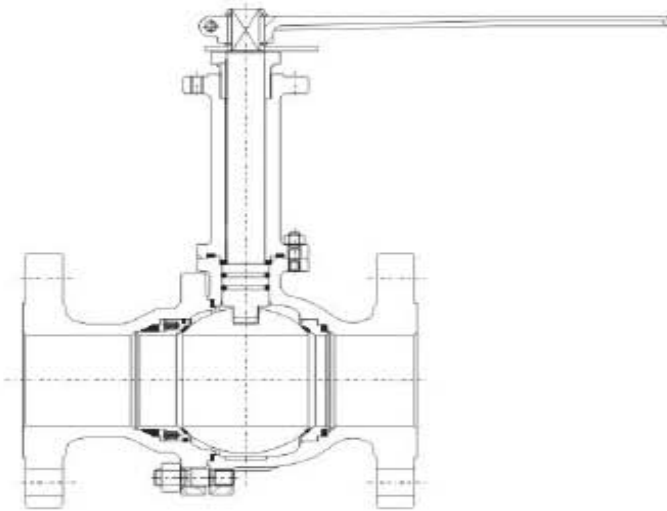
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Pressure rating	Nominal Diameter		Flanged		d	L	Raised face flange						W	H	Weight (kg)
							D	D1	D2	f	b	N-φd			
Class	NPS	DN	NPS	DN											
150	1/2"	15	1/2" × 1/4"	15 × 32	13	108	115	89	64	2	11	4-φ16	140	140	3
	3/4"	20	3/4" × 1/2"	20 × 40	19	117	125	98.5	73	2	13	4-φ16	140	150	4
	1"	25	1" × 2"	25 × 50	25	127	150	120.5	92	2	14.5	4-φ19	150	160	6
	1 1/4"	32	1 1/4" × 2"	32 × 50	32	140	150	120.5	92	2	14.5	4-φ19	180	180	8
	1 1/2"	40	1 1/2" × 2 1/2"	40 × 65	38	165	180	139.5	105	2	16	4-φ19	200	180	10
	2"	50	2" × 3"	50 × 80	50	178	190	152.5	127	2	17.5	4-φ19	250	200	14
	3"	80	3" × 6"	80 × 150	75	229	280	241.5	216	2	24	8-φ22	350	220	25
	4"	100	4" × 8"	100 × 200	100	254	345	298.5	270	2	27	8-φ22	500	250	36
	6"	150	6" × 10"	150 × 250	150	292	405	362	324	2	29	12-φ25	800	290	98
8"	200	8" × 14"	200 × 350	201	330	535	476	413	2	33.5	12-φ29	1000	330	160	
300	1/2"	15	1/2" × 1/4"	15 × 32	13	108	135	98.5	64	2	17.5	4-φ19	140	150	4
	3/4"	20	3/4" × 1/2"	20 × 40	19	117	155	114.5	73	2	19.5	4-φ22	140	160	5
	1"	25	1" × 2"	25 × 50	25	127	165	127	92	2	21	8-φ19	150	180	8
	1 1/4"	32	1 1/4" × 2"	32 × 50	32	140	165	127	92	2	21	8-φ19	180	200	10
	1 1/2"	40	1 1/2" × 2 1/2"	40 × 65	38	165	190	149	105	2	24	8-φ22	200	200	13
	2"	50	2" × 3"	50 × 80	50	178	210	168.5	127	2	27	8-φ22	250	220	18
	3"	80	3" × 6"	80 × 150	75	229	320	270	216	2	35	12-φ22	350	240	36
	4"	100	4" × 8"	100 × 200	100	254	380	330	270	2	40	12-φ25	500	270	58
	6"	150	6" × 10"	150 × 250	150	292	445	387.5	324	2	46.5	16-φ29	800	320	120
8"	200	8" × 14"	200 × 350	201	330	585	514.5	413	2	52.5	20-φ32	1000	370	212	

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

CRYOGENIC BALL VALVE



USAGE

The cryogenic ball valve is used to cut off or connect the media in various pipelines of Class150~Class1500. The valves made of different materials are suitable for various media and different temperature. The lowest working

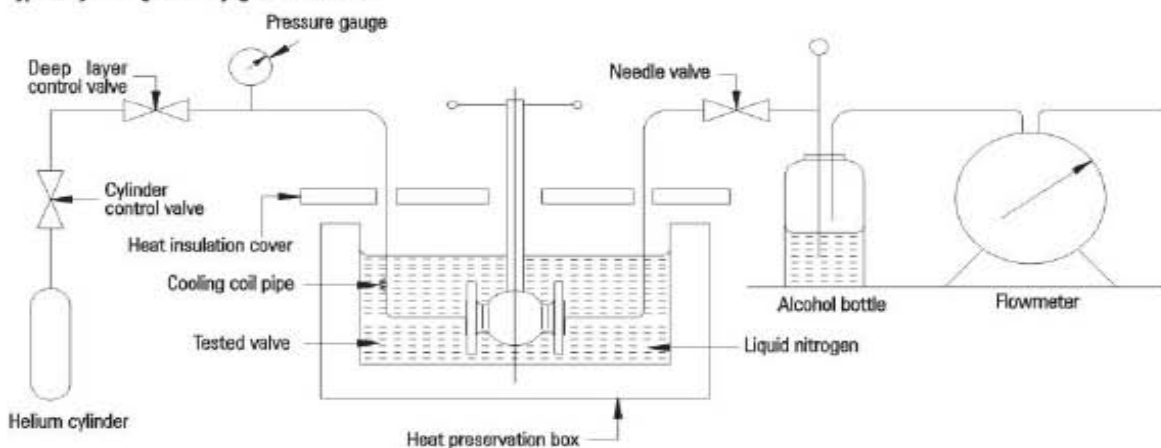
temperature is -196°C . The driving modes include manual operation, worm and worm gear transmission, pneumatic operation and electric operation. The connection ends can be flange or welding.

PRODUCT RANGE

The cryogenic ball valves are classified into cryogenic floating ball valves and cryogenic trunnion ball valves. Refer to the data of floating ball valve and trunnion ball valve for the product range, face-to-face dimensions, connection flange dimensions and etc. For the ball valves

with temperature higher than -50°C , the long neck structure is not designed. For the ball valves with temperature lower than -50°C , the neck length is generally designed according to standard requirements or according to user requirements.

Typical layout diagram of cryogenic test device



Note: The stem packing bushing is located on the top cover of the heat preservation box.

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STRUCTURAL FEATURES

The cryogenic ball valve is used for low temperature service condition, especially the dangerous media service conditions such as natural gas. Our company has

accumulated rich experience in designing, manufacturing, testing and inspecting the cryogenic ball valve.

Material Selection

Common steel will show low temperature brittleness under low temperature. Therefore, it is a key for design and manufacturing to select suitable body materials according to the lowest working temperature of the cryogenic ball valve. Refer to the following table for the lowest working temperature of body materials. The low temperature materials shall be subjected to low temperature impact test according to standard requirements. For valves with working temperature lower

than -100°C , the body, bonnet and stem must be subjected to cryogenic treatment after rough machining. The ball and seat sealing face should be subjected to cryogenic treatment hard alloy spray welding/overlay welding. Then grinding and assembly can be carried out, so as to ensure the adaptability of materials under low temperature. In addition, the packing, gasket, bolt and nut shall be made of materials suitable for low temperature service condition.

Lowest Working Temperature Of Shell Materials And Main Parameters

Lowest working temperature of shell materials				
Casting		Forging		
Materials	Lowest working	Materials	Lowest working	
ASTM A352 LCB	-46°C	ASTM A350 LF2	-46°C	
ASTM A352 LCC	-46°C		-46°C	
ASTM A352 LC1	-59°C	ASTM A350 LF5	-59°C	
ASTM A352 LC2	-73°C	ASTM A350 LF9	-73°C	
ASTM A352 LC3	-101°C	ASTM A350 LF3	-101°C	
ASTM A351 CF8	-254°C	ASTM A182 F304	-254°C	
ASTM A351 CF8M	-254°C	ASTM A182 F316	-254°C	
ASTM A351 CF3	-254°C	ASTM A182 F304L	-254°C	
ASTM A351 CF3M	-254°C	ASTM A182 F316L	-254°C	
main parameters				
Design and manufacturing	BS6364-1998、JB/T7749-1995			
Face-to-face dimensions	ASME B16.10			
Type of connection	Flange	ASME B16.5	Wafer	ASME B16.5
Pressure test	API 598			
Transmission mode	Manual ,worm drive, pneumatic, electrical			

Structural Design And Machining And Manufacturing Features

According to standard requirements, the ball valves with temperature lower than -50°C generally adopts the long neck structure design to improve the temperature at the packing and ensure reliable sealing of stem packing. The neck length is generally designed according to standard requirements or according to contract requirements if users have special requirements.

For the valve used for low temperature media, when the valve is at the closed position, the low temperature liquid staying in the middle cavity of valve will be gasified with the rise of temperature, which causes the volume to expand rapidly and leads to abnormal pressure rise in the middle cavity, or even valve breakage if serious. The ball

valve is provided with the function of middle cavity automatic pressure relief. In case of abnormal pressure rise in the middle cavity, the medium in the middle cavity will overcome the spring pre-tightening effect through its own force and push the seat out of the ball to realize automatic pressure relief, so as to ensure valve safety.

According to contract requirements, cryogenic test can be carried out to test operating torque, sealing performance and other indexes under low temperature.

The parts of the valve have been subjected to cryogenic treatment to ensure stability of form and size of parts under low temperature.

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NPT ENDS BALL VALVE



USAGE

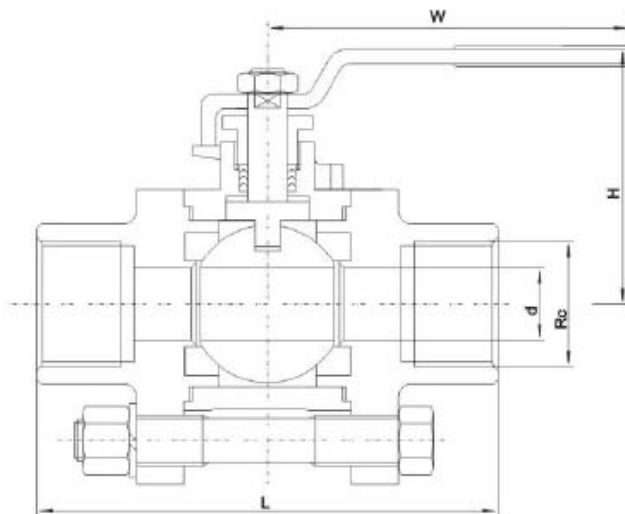
The NPT ends ball valve is used to cut off or connect the media in middle and low pressure pipelines. The driving modes include manual operation, or pneumatic operation and electric operation. According to different

structure designs, the valves can be one-piece, two-piece and three-piece.

Part Materials And Main Parameters

Structural features		Three-piece				
Nominal diameter (in)		NPS 3/8~3				
Pressure class (MPa)		800WOG or 1000WOG				
Materials of parts	No.	Part Name	Materials			
			Stainless steel			
	1	Body	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	2	Seat	PTFE/ PPL			
	3	Ball	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	4	Stem	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	5	Packing	Graphite			
Applicable service conditions	Applicable medium	Nitric acid	Acetic acid	Strong oxidizer	Urea	
	Applicable temperature	≤120℃ (PTFE)				
Design and manufacturing		API 608				
Type of connection		API 598				
Pressure test		Female thread connection (generally the taper pipe thread Rc is adopted, NPT thread can also be adopted according to user requirements)				
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric				

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Main dimensions and weight

Structural form	Dimensions		Rc	Size(mm)				weight (Kg)
	DN	NPS		L	D	W	H	
three-piece	10	3/8"	3/8"	60	10	95	57	0.4
	15	1/2"	1/2"	75	14	110	68	0.5
	20	3/4"	3/4"	80	19	110	70	0.7
	25	1"	1"	90	25	140	80	1.2
	32	1 1/4"	1 1/4"	110	32	140	85	1.9
	40	1 1/2"	1 1/2"	120	38	180	100	2.7
	50	2"	2"	144	50	180	110	3.9
	65	2 1/2"	2 1/2"	186	64	200	130	7.1
	80	3"	3"	206	76	250	150	11.5
	100	4"	4"	240	100	250	170	20.5

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ONE-PIECE BALL VALVE

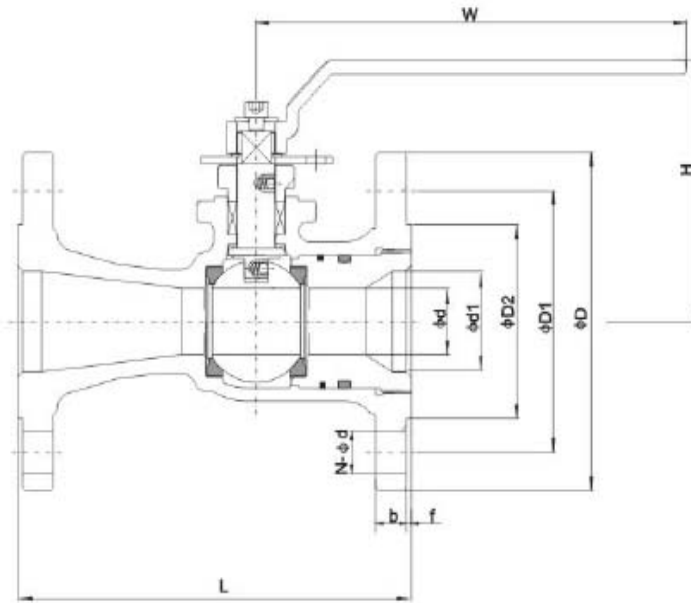
STRUCTURAL FEATURES AND USAGE

The integral ball valve has such features as small fluid resistance, compact structure, light weight, flexible opening and closing. The valve adopts the integral structure, so it is much smaller than the ordinary ball valve, and its weight is much lighter with good sealing performance. It is used to cut off or connect media in pipelines. The valves made of different materials are suitable for various media such as water, steam, oil, liquefied gas, natural gas, coal gas, nitric acid, acetic acid, oxidizing medium, urea and etc.

PART MATERIALS AND MAIN PARAMETERS

Nominal diameter (in)		NPS 1/2~8					
Nominal pressure (MPa)		Class600~Class1500					
Materials of parts	No.	Part Name	Materials				
			Carbon Steel	Material			
	1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	2	Seat	PTFE/ PPL				
	3	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	4	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	5	Packing	Graphite				
Applicable service conditions	Applicable media	water, steam, oil, coal gas, liquefied gas, natural gas etc	Nitrose corrosive medium	Nitric acid corrosive medium	Strong Oxidizer	Urea	
	Applicable temperature	≤120℃ (RTFE) 、 ≤250℃ (PPL)					
Design and manufacturing		API 608					
Face-to-face dimensions		ASME B16.10					
Type of connection		Flange	ASME B16.5				
Pressure test		API 598					
Transmission mode		Manual, worm and worm gear transmission, pneumatic, electric					

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Pressure rating	Nominal Diameter		d	d1	L	Raised face flange						W	Cast steel	Weight
						D	D1	D2	f	b	N-φd			
Class	NPS	DN												
150	1½" × 1¼"	40	32	38	165	125	98.5	73	2	13	4-φ16	150	100	6
	2" × 1½"	50	38	50	178	150	120.5	92	2	14.5	4-φ19	200	132	8
	3" × 2"	80	50	75	203	190	152.5	127	2	17.5	4-φ19	300	163	15
	4" × 3"	100	75	100	229	230	190.5	157	2	22.5	8-φ19	350	178	29
	6" × 4"	150	100	150	394	280	241.5	216	2	24	8-φ22	500	230	54
300	1½" × 1¼"	40	32	38	190	155	114.5	73	2	19.5	4-φ22	150	100	9
	2" × 1½"	50	38	50	216	165	127	92	2	21	8-φ19	200	132	11
	3" × 2"	80	50	75	283	210	168.5	127	2	27	8-φ22	300	163	22
	4" × 3"	100	75	100	305	255	200	157	2	30.5	8-φ22	350	178	40
	6" × 4"	150	100	150	403	320	270	216	2	35	12-φ22	500	230	81

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.

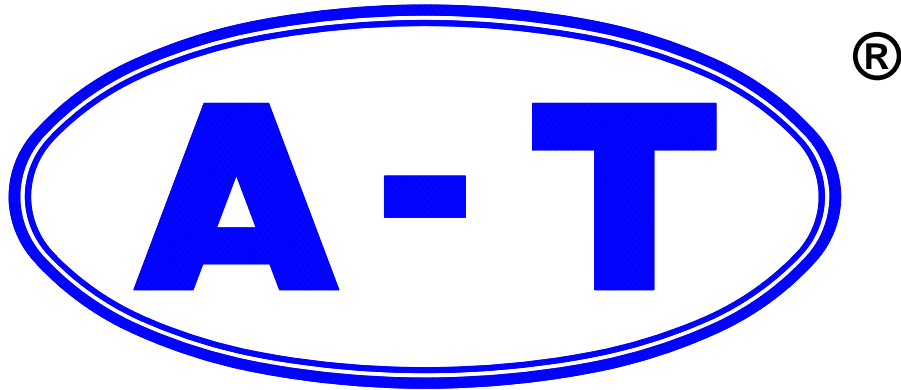


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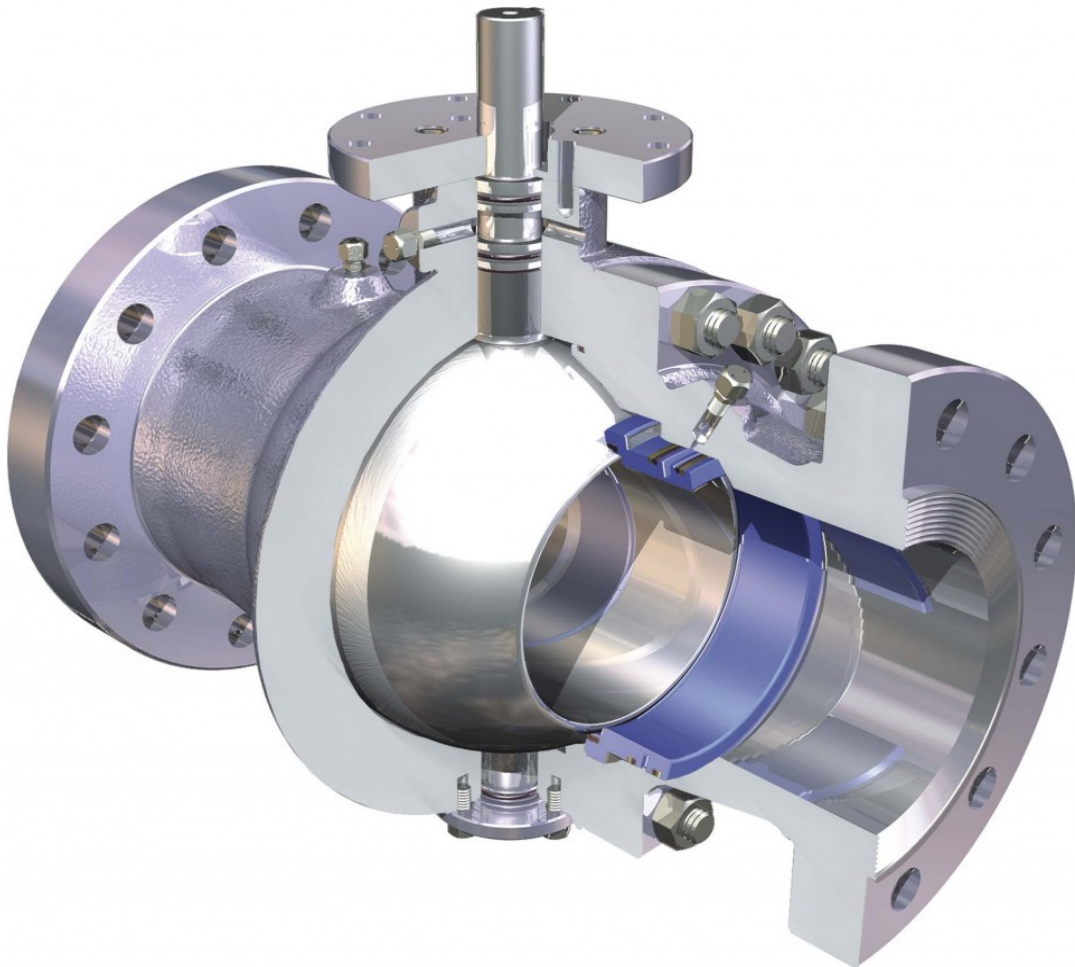
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TORQUE AND CV COEFFICIENT





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Cv Coefficient and Trunnion Ball Valve Torque Chart

NPS	150Lb		300Lb		600Lb		900Lb		1500Lb		2500Lb	
	N-M	Cv	N-M	Cv	N-M	Cv	N-M	Cv	N-M	Cv	N-M	Cv
1 1/2	30	308	60	308	75	308	95	165				
2 x 1 1/2	30	140	60	140	75	135	95	125				
2	42	500	80	420	115	350	150	320	468	320	589	285
3 x 2	42	220	80	210	115	190	150	185	468	180	589	170
3	140	1390	220	1050	334	1000	440	910	810	820	1580	825
4 x 3	140	630	220	600	334	560	440	505	810	500	1580	520
4	220	2550	360	2000	460	1850	830	1760	1500	1610	3964	1510
6 x 4	220	925	360	910	460	800	830	730	1500	730	3964	750
6	380	5249	680	5186	1000	4400	1880	4300	3750	4080	5500	3590
8 x 6	380	2500	680	2498	1000	2150	1880	2010	3750	2005	5500	2050
8	640	10750	1180	10262	2000	8450	3600	8400	5500	7980	11785	7160
10 x 8	640	5000	1180	4990	2000	4500	3600	4160	5500	4150	11785	3970
10	1200	17775	2120	17220	3580	14250	5280	14160	7560	13020	13200	11580
12 x 10	1200	8400	2120	8390	3580	8000	5280	7300	7560	7280	13200	6850
12	1655	26750	2490	25950	5890	22790	7380	21230	9800	19610	14692	17700
14 x 12	1655	14080	2490	14040	5890	13990	7380	13920				
14	2795	32600	4215	30900	6520	28600	8825	26600				
16 x 14	2795	14780	4215	14750	6520	14720	8825	14690				
16	3755	44700	5640	42600	8685	39250	11780	36600				
18 x 16	3755	20840	5640	20820	8685	20750	11780	20700				
18	5090	58500	8240	56450	13850	52000	18450	50540				
20 x 18	5090	28100	8240	28000	13850	27850	18450	27840				
20	6405	76000	11020	72700	18490	70500	25960	69700				
24 x 20	6405	29000	11020	28850	18490	28750	25960	26950				
24	12290	113500	19390	109450	30880	99000	42370	86750				
26	15100	128630	22770	123050	35180	114050	47590	102940				
28	17150	151750	25490	146050	38980	136500	52470	121200				
30	18580	179300	27460	171700	41830	158900	56200	140093				
36 x 30	18580	123000	27460	121550	41830	118300	56200	103080				
32	19880	199750	29550	187700	45190	175000	60840	159420				
36	22989	258300	34172	243050	52267	226300	70361	226033				

Floating ball valve open torque chart

A. Full bore torque

Size \ PN	150LB	300LB	600LB
	Torque N-M	Torque N-M	Torque N-M
2	30	65	200
3	70	160	480
4	130	280	780
6	420	620	
8	720	960	
10	1500	1600	

B.Reduced bore torque

Size \ PN	150LB	300LB	600LB
	Torque N-M	Torque N-M	Torque N-M
3	30	65	200
4	70	160	480
6	130	280	780
8	420	960	
10	720	1600	
12	1500	2800	

Remark:

- 1.The valve open torque data is under full load presure.
- 2.Nominal torque of driving device =valve open torque under full pressure head x1.5 time of safety factor.
- 3.The above data is detected under the condition of clean gas orliquid transmitter substance. The date detected will vary a little if two-phase transmitter substance is not clean.