Sawamura

SAWAMURA VALVE Co., Ltd

Ball Valve

沢村バルブ株式会社

Sawamura

1925年創業の我社は
おかげさまで90周年を迎えました。

長い長い業歴の中
造船業を始め各種プラント、発電所など
幅広い産業に納入して参りました。
様々な用途に合わせた
様々なバルブを製作するなかで
“作ってみよう”を掛け声に
創意工夫で開発・改良を重ね
個性ある製品づくりに取り組んで参りました。

一方
長い長い業歴の中
私達には
“日本の品質管理”の考え方が
あたかも日々の入浴習慣のように染付いています。

近年マーケットの国際化に伴い
仕入・販売を東アジアに拡大する一方
海外業務に於いても
“個性ある製品づくり”と“日本の品質管理”を以て
“世界中のお客様に喜んで頂ける製品を提供する”
ことを目標に歩んで参ります。

Since our establishment in 1925,
We have been supplying our products to
various industries, such as shipbuilding, power plant, petro-chemical plant, and etc.

Nature of our company is "Just try it".

During the period, we developed and improved many kind of valves in many applications to meet customers' needs of safe, durable, high performance and cost effectiveness.

Through the above experiences, we built up highly solid manufacturing standard of "Japan Quality" in our company.

Following globalization of the market, we aim to expand our supply and purchase network to Asian countries

We would contribute customers in the area through supplying our original products made with our policy, "Japan Quality with International Price".

with best regards,
Naoki Sawamura, President

Contents

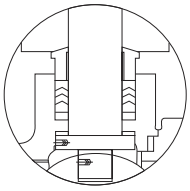
Floating Ball Valve	01–08
Trunnion Pipeline Ball Valve	09–26
Double Block And Bleed Valve	27–30
Full Welded Ball Valve	31–37

Floating Ball Valve

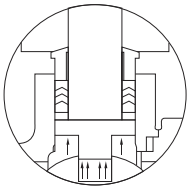
STRUCTURAL FEATURES

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 accidentspreading.

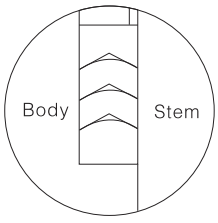


The bottom–mounted stem will not be blown out by medium pressure

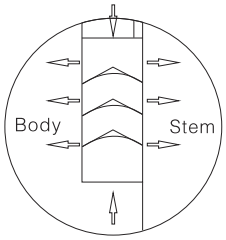


The top–mounted stem may be blown out by medium pressure

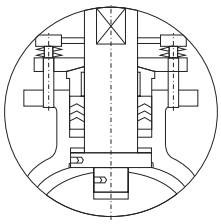
The stem adopts V type packing sealing structure. The V type packing can effectively change the pressing force and medium force of the gland into the sealing force of the stem. According to user requirements, the disc spring loaded packing pressing mechanism can be adopted to make the sealing of stem packing more reliable.



Before the packing is pressed



After the packing is pressed

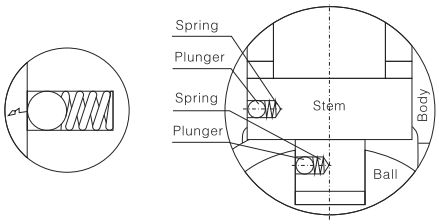


The disc spring loaded packing pressing mechanism is adopted

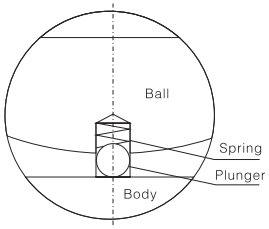
STRUCTURAL FEATURES

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≥32

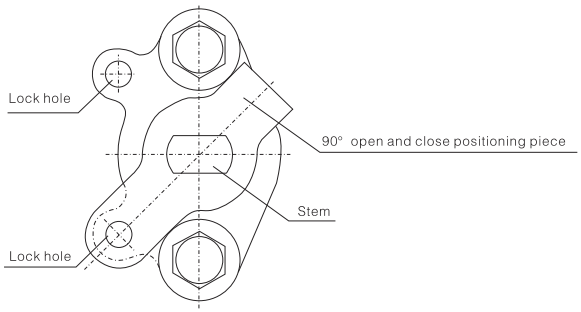


Anti–static structure design of ball valve with DN≥25

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–operations, and it can also prevent valve opening or closing, or other accidents caused by pipeline vibration or unpedictable 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.

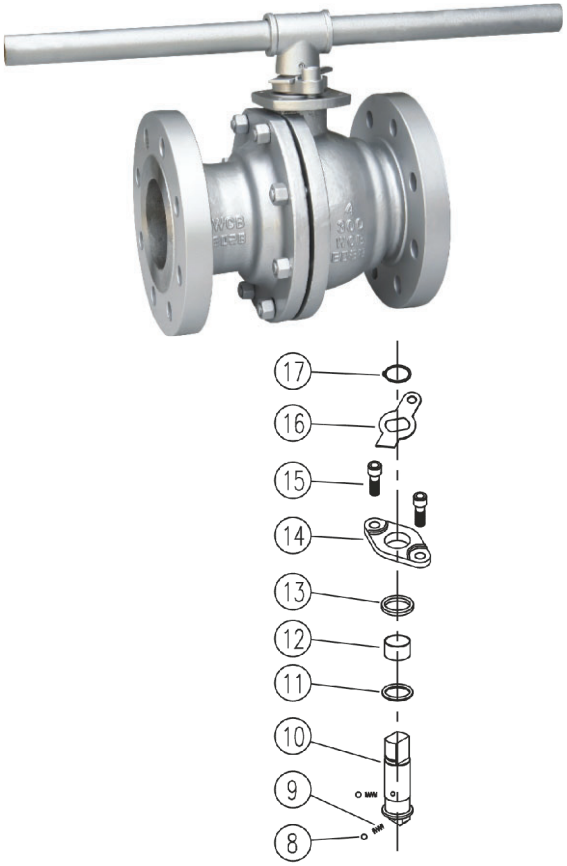
Lock And Misoperation Prevention Structure

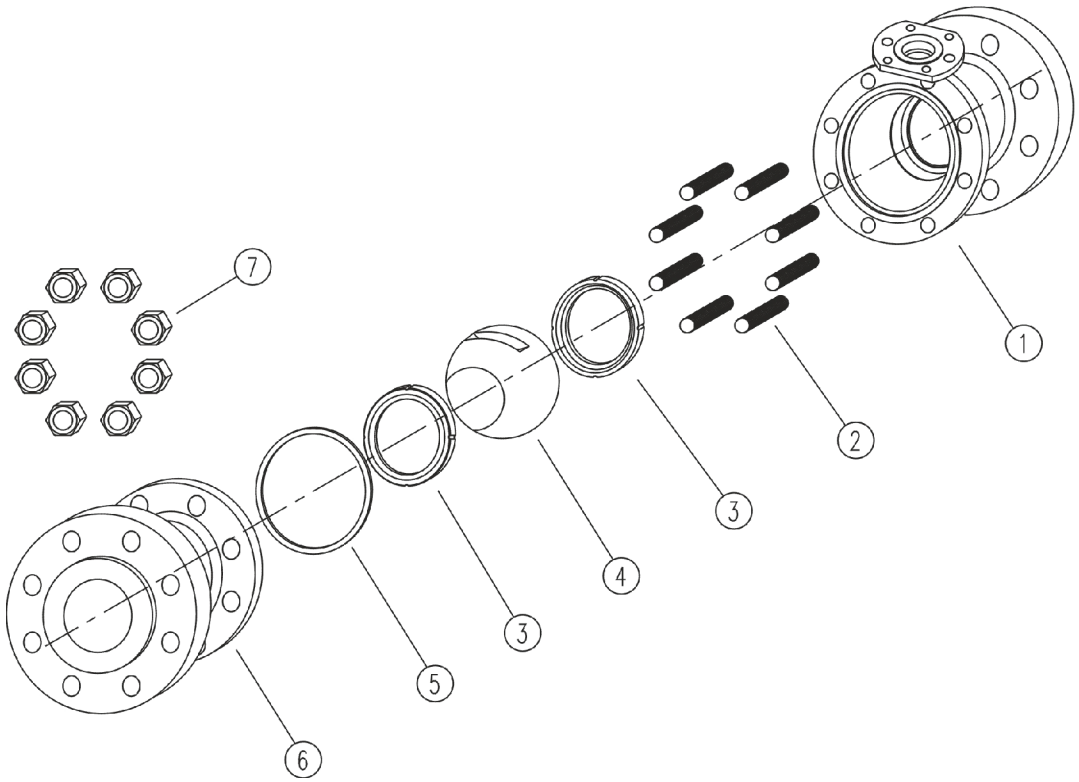


Cast Steel Floating Ball Valve

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





Cast Steel Floating Ball Valve

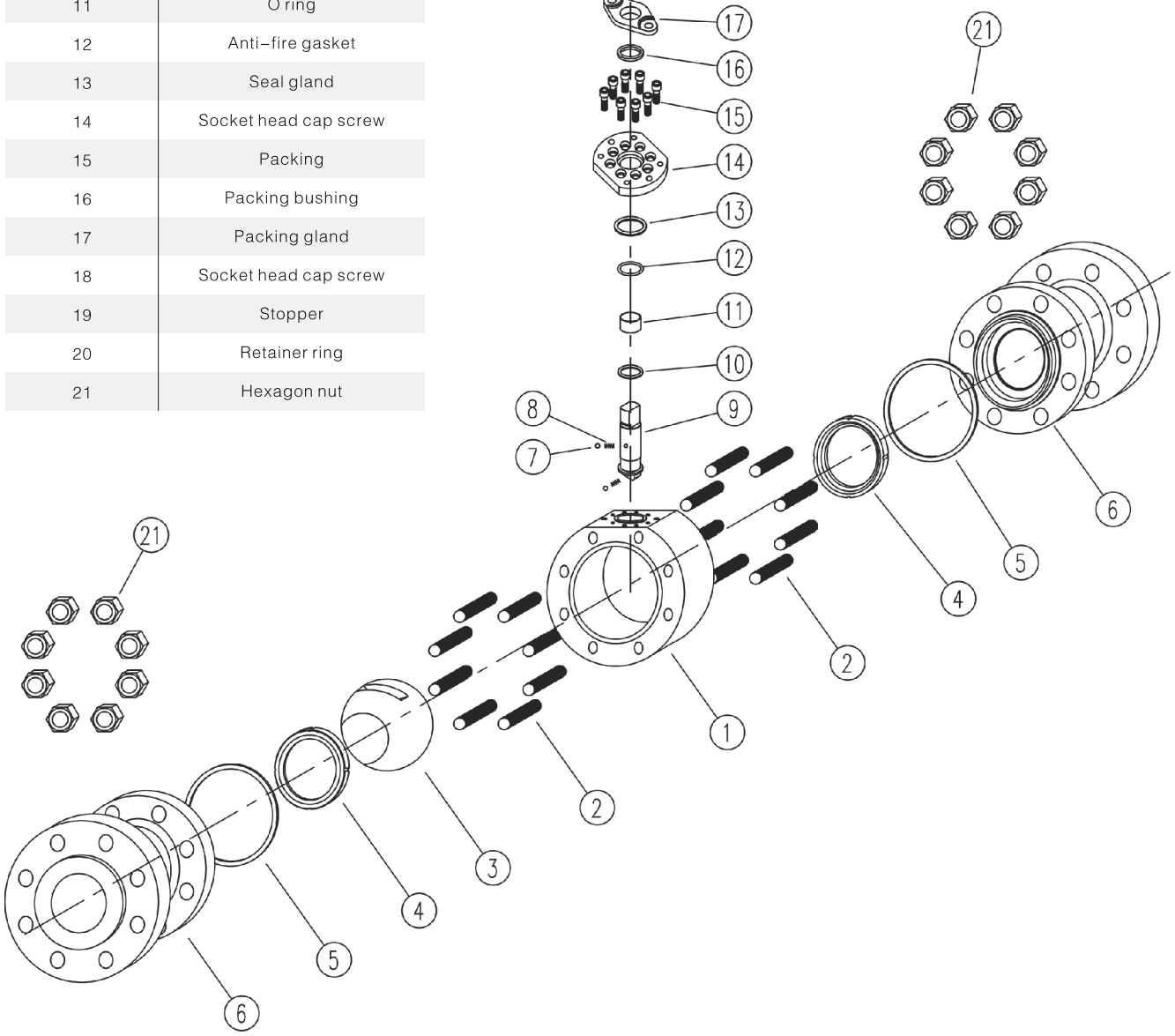
Part Materials And Main Parameters

Nominal diameter(in)			NPS1/2~8				
Nominal pressure(MPa)			Class150~Class600				
	No	Part Name	Material				
			Carbon steel	Stainless steel			
Materials of parts	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					
	11	Sliding baring					
	12	Packing					
	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				

Forged Steel Floating Ball Valve

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

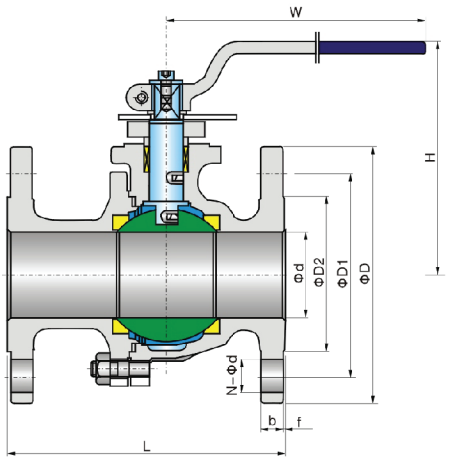


Forged Steel Floating Ball Valve

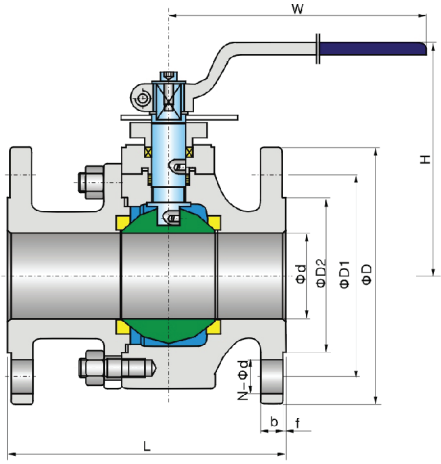
Part Materials And Main Parameters

Nominal diameter(in)			NPS1/2~8				
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	Stem	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	ASME 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 servie 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 moe			Manual, worm and worm gear transmission, pneumatic, electric				

Floating Ball Valve



Floating cast steel ball valve



Floating forged steel ball valve

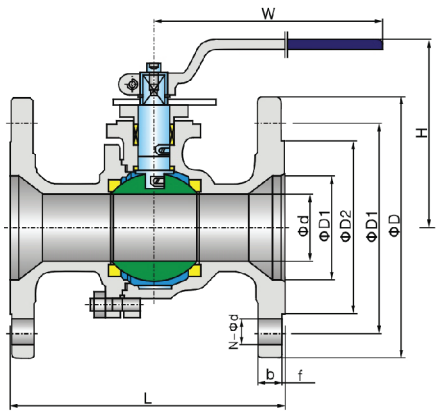
Main size of outside & weight

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		H	H	Cast steel	Forged steel
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	△
	11/4"	32	32	140	–	178	115	89	64	2	11	4-Φ16	180	106	100	6.5	△
	11/2"	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	△
	11/4"	32	32	178	–	178	135	98.5	64	2	17.5	4-Φ19	180	106	100	8.5	△
	11/2"	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	△
	11/4"	32	32	229	–	229	135	98.5	64	7	21	4-Φ19	200	115	110	13	△
	11/2"	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	△

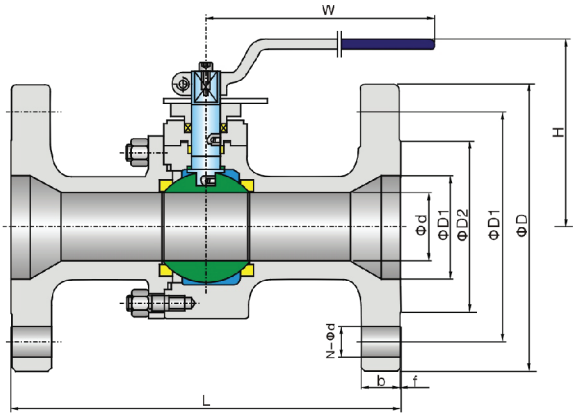
△ Please consult the factory:

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.

Floating Ball Valve



Floating cast steel ball valve



Floating forged steel ball valve

Main size of outside & weight

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	H	Cast steel	Forged steel
	3/4" × 1/2"	20	13	19	117	–	152	100	70	43	2	10	4-Φ16	140	80	78	△	△
	1" × 3/4"	25	19	25	127	–	165	110	79.5	51	2	11	4-Φ16	140	86	82	△	△
	11/4" × 1"	32	25	32	140	–	178	115	89	64	2	11	4-Φ16	180	98	95	△	△
	11/2" × 11/4"	40	32	38	165	–	190	125	98.5	73	2	13	4-Φ16	180	106	100	△	△
150	2" × 11/2"	50	38	50	178	191	216	150	120.5	92	2	14.5	4-Φ19	200	133	128	8	△
	3" × 2"	80	50	75	203	216	283	190	152.5	127	2	17.5	4-Φ19	300	138	137	14	△
	4" × 3"	100	75	100	229	241	305	230	190.5	157	2	22.5	8-Φ19	650	175	148	24	△
	6" × 4"	150	100	150	267	279	403	280	241.5	216	2	24	8-Φ22	800	235	223	41	△
	8" × 6"	200	150	201	292	305	419	345	298.5	270	2	27	8-Φ22	1000	285	278	68	△
	3/4" × 1/2"	20	13	19	152	–	152	115	82.5	43	2	14.5	4-Φ19	140	80	78	△	△
	1" × 3/4"	25	19	25	165	–	165	125	89	51	2	16	4-Φ19	140	86	82	△	△
	11/4" × 1"	32	25	32	178	–	178	135	98.5	64	2	17.5	4-Φ19	180	98	95	△	△
	11/2" × 11/4"	40	32	38	190	–	190	155	114.5	73	2	19.5	4-Φ22	180	106	100	△	△
300	2" × 11/2"	50	38	50	216	232	216	165	127	92	2	21	8-Φ19	200	133	128	11	△
	3" × 2"	80	50	75	283	298	283	210	168.5	127	2	27	8-Φ22	300	138	137	21	△
	4" × 3"	100	75	100	305	321	305	255	200	157	2	30.5	8-Φ22	650	175	148	36	△
	6" × 4"	150	100	150	403	419	457	320	270	216	2	35	12-Φ22	800	235	223	82	△
	8" × 6"	200	150	201	419	435	419	380	330	270	2	40	12-Φ25	1000	285	278	126	△
	3/4" × 1/2"	20	13	19	190	–	190	115	82.5	43	7	16	4-Φ19	140	78	68	△	△
	1" × 3/4"	25	19	25	216	–	216	125	89	51	7	17.5	4-Φ19	180	80	76	△	△
	11/4" × 1"	32	25	32	229	–	229	135	98.5	64	7	21	4-Φ19	200	110	106	△	△
600	11/2" × 11/4"	40	32	38	241	–	241	155	114.5	73	7	22.5	4-Φ22	250	115	110	△	△
	2" × 11/2"	50	38	50	292	295	292	165	127	92	7	26	8-Φ19	300	135	128	△	△
	3" × 2"	80	50	75	356	359	356	210	168.5	127	7	32	8-Φ22	650	152	140	△	△
	4" × 3"	100	75	100	432	435	432	275	216	157	7	38.5	8-Φ25	800	224	213	△	△

△ 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.

Trunnion Pipeline Ball Valve

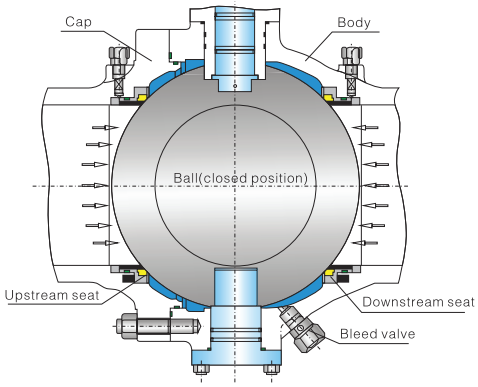
USAGE

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 includs manual operation, worm and worm gear transmission, pneumatic operation and electric operation. The connection ends can be flange or butt welding.

STRUCTUREAL FEATURES

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.



Double Block And Bleed Function

Low Operating Torque

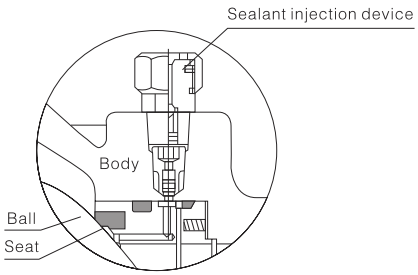
The trunnion pipeline ball valve adopts the trunnion ball structure and floating valve seat, so as to achieve lower torque under operating pressure. It uses self lubricating PTFE and metal sliding bearing to reduce the friction coefficient to the lowest in conjunction with the high intensity and high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

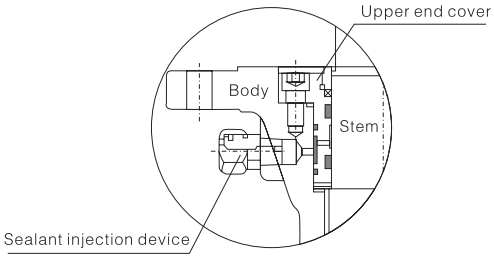
Emergency Sealing Device

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 cleanlinedss.

STRUCTURAL FEATURES

Sealant Injection Device

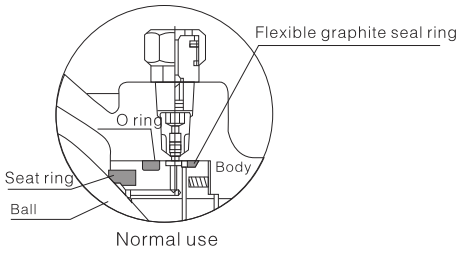


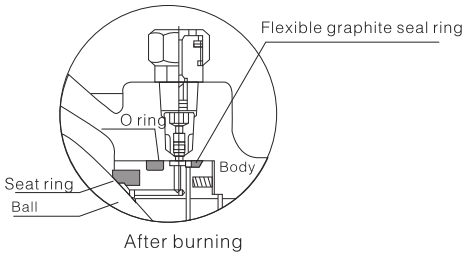


Fireproof Structure Design

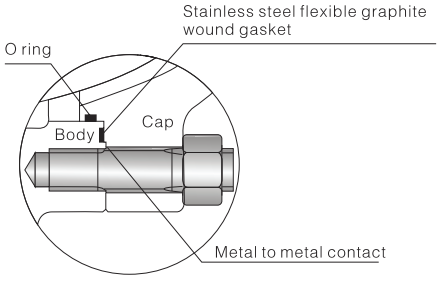
In case of fire during the use of valve, the seat ring, stem O ring and middle flange O ring made of PTFE, rubber or other non–metal materials will be decomposed or damaged under high temperature. Under pressure of the medium, the ball valve will push the seat reatainer rapidly towards the ball to make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

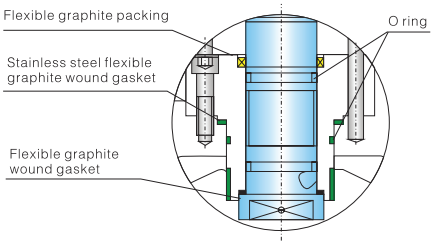




Fireproof Structure Of Middle Flange



Fireproof Structure Design Of Stem



Trunnion Pipeline Ball Valve

STRUCTUREAL FEATURES

Anti-static Structure

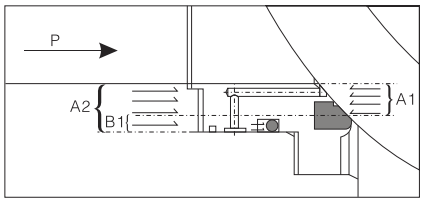
The ball valve is provided with the anti–static structure and adopts the static electricity discharge device to directly form a static channel between the ball and body or form a static channel between the ball and body through the stem, so as to discharge the static electricity produced due to friction 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.

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 reasonaly, which realize high pressure sealing by the pressure of the medium itself. The following two kinds of ball sealing can be realized.

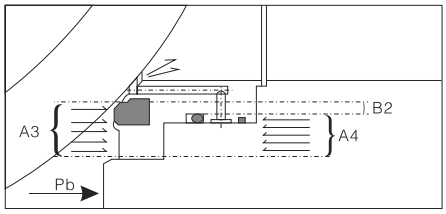
Single Sealing(automatic Pressure Relief In Middle Cavity Of Valve)

Generally, the single sealing structure is used, that is, there is only the upstream sealing. As the independent spring loaded upstream and downstream sealing seats are used, the over–pressure inside valve cavity can overcome the pre–tightening effect of the spring, so as to make the seat release from the ball and realize automatic pressure relief towards the downstream part. The upstream side: When the seat moves axially along the valve, the pressure P exerted on the upstream part (inlet) produces a reverse force on A1. As A2 is higher than A1,A2–A1=B1, the force on B1 will push the seat to the ball and realize tight sealing of the upstream part.



A2>A1

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

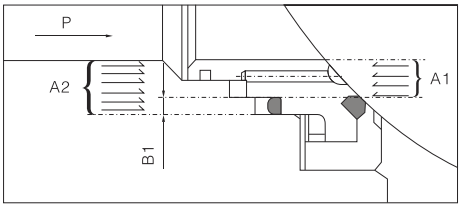


A3>A4

STRUCTURAL FEATURES

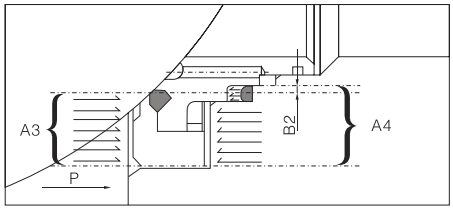
Double Sealing(double Piston)

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 seal 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.



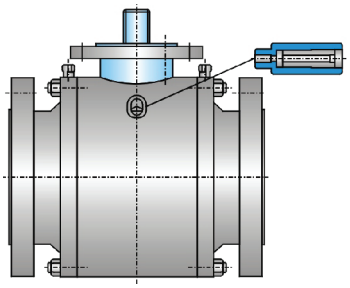
A4>A3

Trunnion Pipeline Ball Valve

STRUCTURAL FEATURES

Safety Relief Device

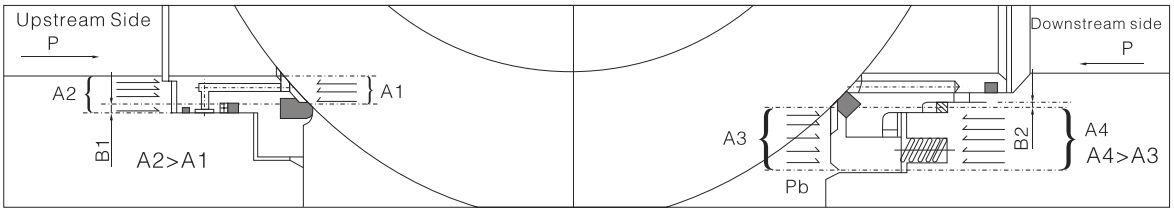
As the ball valve is designed with the advanced primary and secondary sealing that has double piston effect, and the middle cavity cannot realize automatic pressure relief, the safety relief valve must be installed on the body in order to prevent the danger of over–pressure damage inside the valve cavity 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 indicated 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.



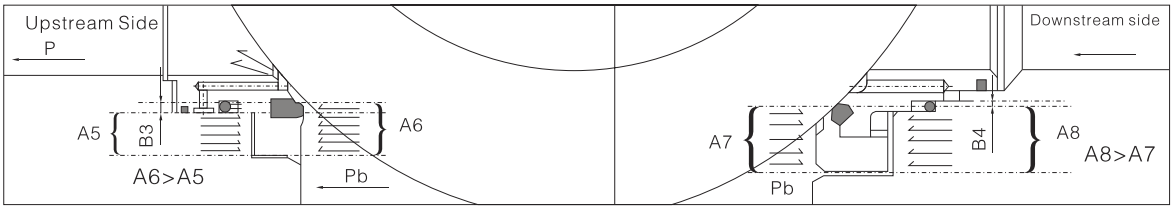
Secial Structure Of Automatic Pressure Relief Towards Upper Stream

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



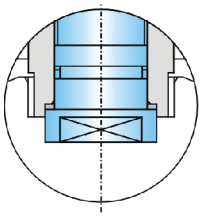
Principle drawing of ball valve cavity pressure relief to the upper stream and of downstream sealing



STRUCTURAL FEATURES

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

Corrosion Resistance And Sulfide Stress Resistance

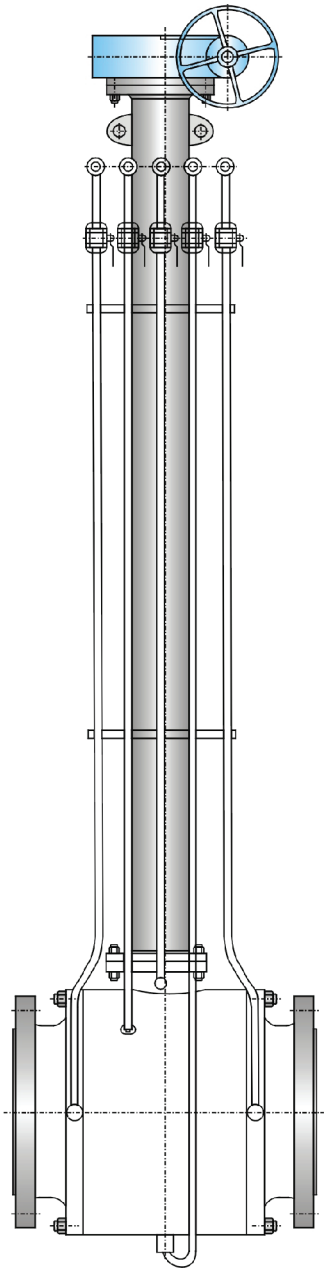
Certain corrosion allowance is left for the body wall thickness. The carbon steel stem, fixed shaft, ball, seat and seat ring are subjected to chemical nickel plating according to ASTM B733 and B656. In addition, various corrosion resistant materials are available for users to select.

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 manfacturing so as to fully meet the requirements in the standards and meet the service conditions in sulfurization environment.

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

Cast Trunnion Ball Valve

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

Cast Trunnion Ball Valve

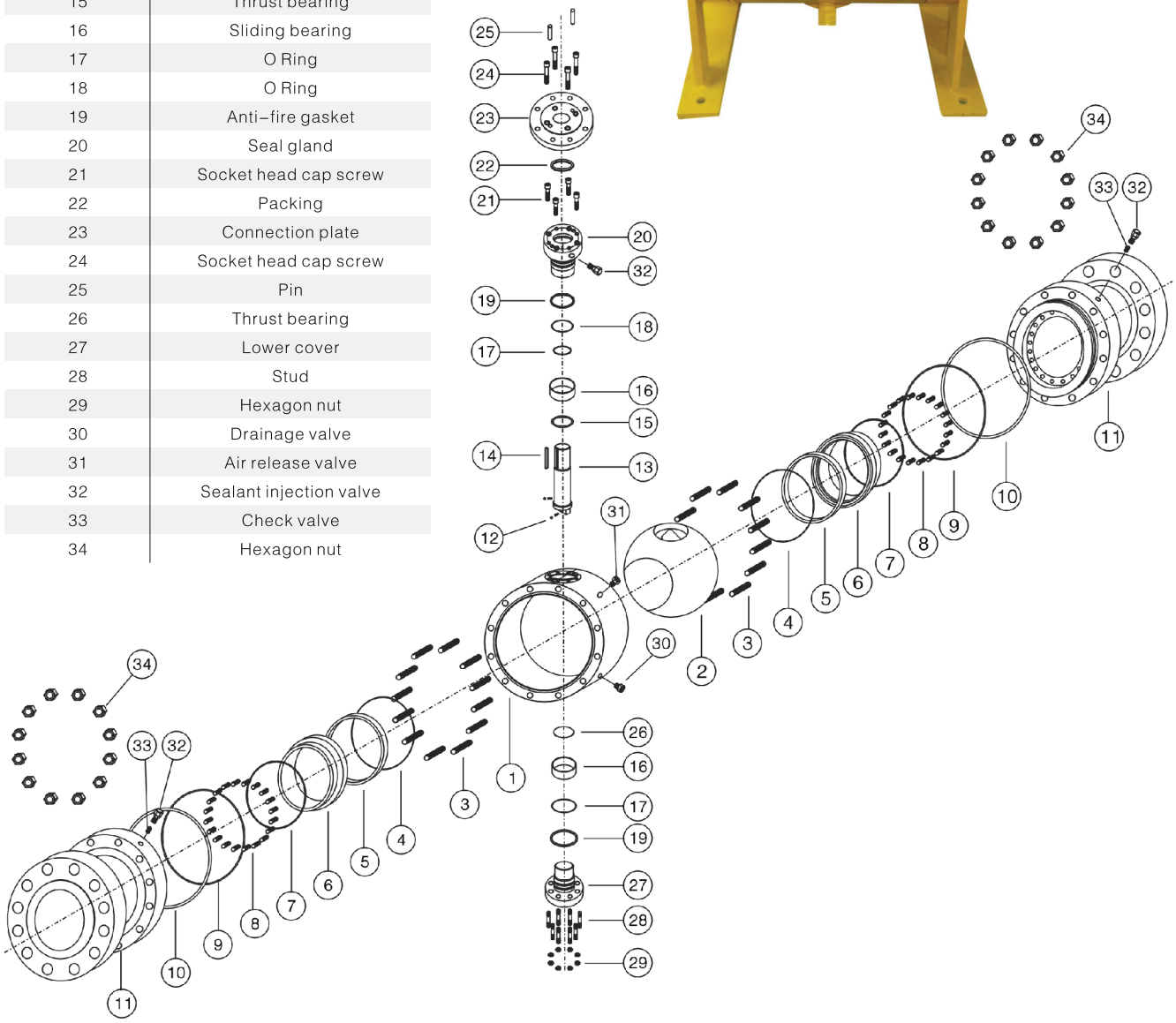
Part Materials And Main Parameters

Nominal diameter(in)			NPS 1/2~8				
Nominal pressure(MPa)			Class150~Class900				
	No	Part Name	Material				
			Carbon Steel	Stainless Steel			
Materials of parts	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 packing	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	O Ring	VITON				
	8	Spring	17-7PH				
	9	O 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	O Ring	VITON				
	22	O Ring	VITON				
	23	Anti-fire gasket	SST+Graphite				
	24	Seal gland	ASTM A105 · ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	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				

Forged Trunnion Ball Valve

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



Forged Trunnion Ball Valve

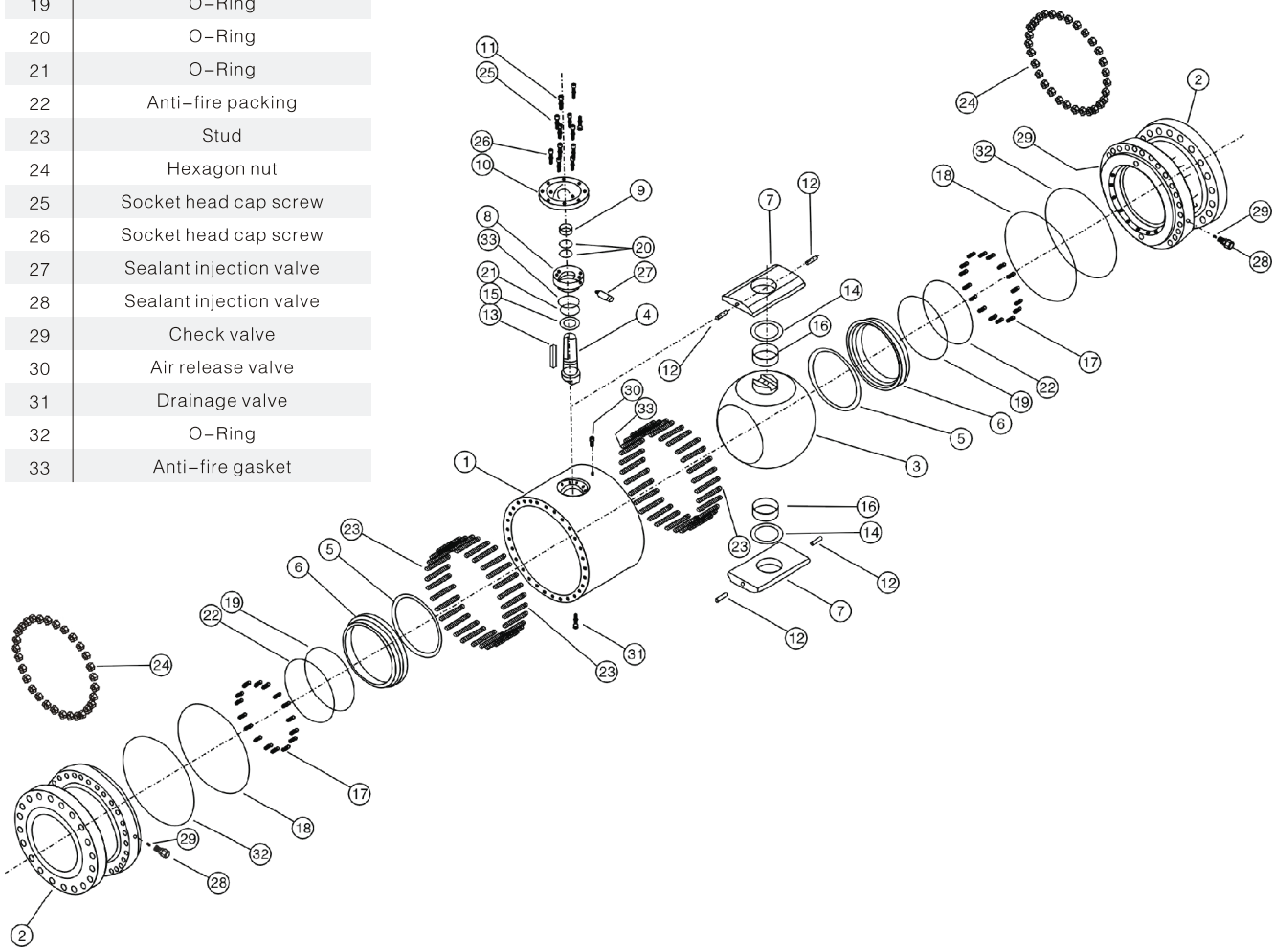
Part Materials And Main Parameters

Nominal diameter(in)			NPS 1/2~8				
Nominal pressure(MPa)			Class150~Class900				
	No	Part Name	Material				
			Carbon Steel	Stainless Steel			
Materials of parts	1	Body	ASTM A105	ASTM A182 304	ASTN 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	O Ring	VITON				
	8	Spring	17-7PH				
	9	O 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	O Ring	VITON				
	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	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+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℃(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				

Forged Trunnion Ball Valve

Forged Trunnion Ball Valve

1	Body
2	Bonnet
3	Ball
4	Stem
5	Seat
6	Seat ring
7	Bearing bolder
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

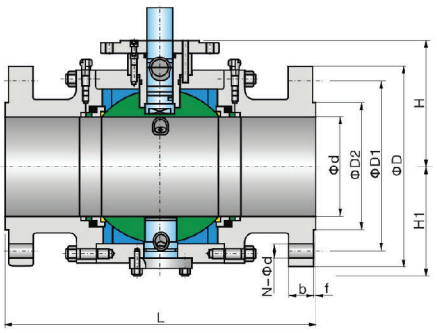


Forged Trunnion Ball Valve

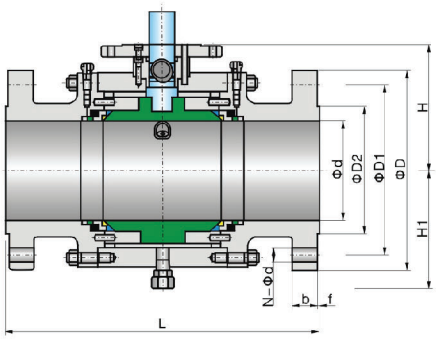
Main Materials and Parameter

Nominal diameter(in)			NPS 2~48				
Nominal pressure(MPa)			Class150~Class2500				
	No	Part Name	Material				
			Carbon Steel	Stainless Steel			
Valve Parts Materials	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/NYLON/PEEK/PPL				
	6	Seat ring	ASTM A105 · ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	7	Bearing bolder	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℃(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				

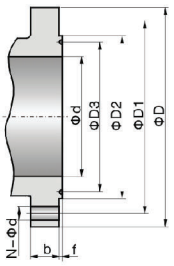
Trunnion Pipeline Ball Valve



External supporting structure



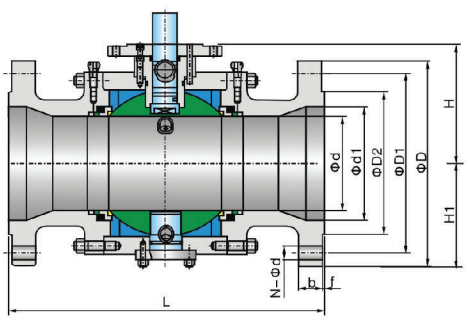
Internal supporting structure



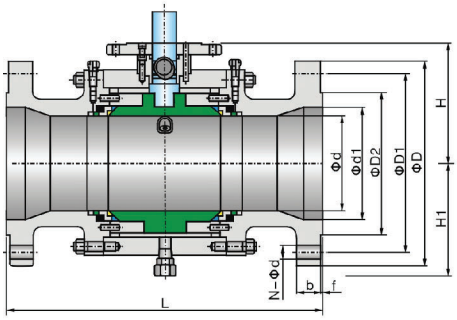
Pressure rating	Nominal diameter		d	Flanged		Butt welding	Raised face flange							General		Support Board		Weight(kg)	
Class	NPS	DN		L(RF)	L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N–Φd	H	H1	H	H1	General	Support Board
	2"	50	50	178	191	216	150	120.5	92	–	2	14.5	4–Φ19	93	88	–	–	19	–
	3"	80	75	203	216	283	190	152.5	127	–	2	17.5	4–Φ19	118.5	117	–	–	28	–
	4"	100	100	229	241	305	230	190.5	157	–	2	22.5	8–Φ19	143.5	137	–	–	50	–
	6"	150	150	394	406	457	280	241.5	216	–	2	24	8–Φ22	208	178.5	–	–	160	–
	8"	200	201	457	470	521	345	298.5	270	–	2	27	8–Φ22	248	222	248	235	270	284
	10"	250	252	533	546	559	405	362	324	–	2	29	12–Φ25	294	265	294	288	415	436
	12"	300	303	610	622	635	485	432	381	–	2	30.5	12–Φ25	344.5	308.5	345	330	660	693
	14"	350	334	686	699	762	535	476	413	–	2	33.5	12–Φ29	377	334	377	360	890	935
	16"	400	385	762	775	838	595	540	470	–	2	35	16–Φ29	418	375	418	400	1080	1134
	18"	450	436	864	876	914	635	578	533	–	2	38.5	16–Φ32	463	410	463	435	1480	1554
150	20"	500	487	914	927	991	700	635	584	–	2	41.5	20–Φ32	502	458	502	484	1970	2069
	24"	600	589	1067	1080	1143	815	749.5	692	–	2	46.5	20–Φ35	586	534	586	568	3000	3150
	26"	650	633	1143	–	1245	870	806.5	749	–	2	68	24–Φ35	626	582	626	594	3612	3793
	28"	700	684	1245	–	1346	927	864	800	–	2	71	28–Φ35	644	605	644	658	4402	4622
	30"	750	735	1295	–	1397	984	914.5	857	–	2	75	28–Φ35	720	672	720	677	5112	5368
	32"	800	779	1372	–	1524	1060	978	914	–	2	81	28–Φ41	742	704	742	746	6667	7000
	36"	900	874	1524	–	1727	1168	1086	1022	–	2	90	32–Φ41	839	796	839	791	8627	9058
	40"	1000	976	1753	–	–	1289	1200	1124	–	2	90	36–Φ41	913.5	866	913.5	863	12313	12929
	42"	1050	1020	1855	–	–	1346	1257	1194	–	2	97	36–Φ41	943	881	943	937	14000	14700
	48"	1200	1166	2134	–	–	1511	1422	1359	–	2	108	44–Φ41	1097	1016	1097	1066	21470	22544
	56"	1400	1360	2489	–	–	1746	1651	1575	–	2	124	48–Φ48	1302	1186	1302	1253	33431	35103
	2"	50	50	216	232	216	165	127	92	–	2	21	8–Φ19	93	88	–	–	22	–
	3"	80	75	283	298	283	210	168.5	127	–	2	27	8–Φ22	118.5	117	–	–	38	–
	4"	100	100	305	321	305	255	200	157	–	2	30.5	8–Φ22	143.5	137	–	–	60	–
	6"	150	150	403	419	457	320	270	216	–	2	35	12–Φ22	208	178.5	–	–	180	189
	8"	200	201	502	518	521	380	330	270	–	2	40	12–Φ25	248	222	248	235	295	310
	10"	250	252	568	584	559	445	387.5	324	–	2	46.5	16–Φ29	294	265	294	288	450	473
	12"	300	303	648	664	635	520	451	381	–	2	49.5	16–Φ32	344.5	308.5	345	330	700	735
	14"	350	334	762	778	762	585	514.5	413	–	2	52.5	20–Φ32	377	334	377	360	1160	1218
	16"	400	385	838	854	838	650	571.5	470	–	2	56	20–Φ35	423	380	423	345	1340	1407
	18"	450	436	914	930	914	710	628.5	533	–	2	59	24–Φ35	463	410	463	431	1610	1691
300	20"	500	487	991	1010	991	775	686	584	–	2	62	24–Φ35	502	458	502	474	2200	2310
	24"	600	589	1143	1165	1143	915	813	692	–	2	68.5	24–Φ41	592	549	592	561	3460	3633
	26"	650	633	1245	–	1245	972	876.5	749	–	2	79	28–Φ45	633	590	633	601	4017	4218
	28"	700	684	1346	–	1346	1035	940	800	–	2	86	28–Φ45	680	737	680	736	4974	5223
	30"	750	735	1397	–	1397	1092	997	857	–	2	92	28–Φ48	730	682	730	681	5681	5965
	32"	800	779	1524	–	1524	1149	1054	914	–	2	98	28–Φ51	765	720	765	716	6837	7179
	36"	900	874	1727	–	1727	1270	1168	1022	–	2	105	32–Φ54	847	804	847	798	8700	9135
	40"	1000	976	1956	–	–	1238	1156	1086	–	2	114	32–Φ45	921	877	921	971	12299	12914
	42"	1050	1020	2083	–	–	1289	1206.5	1137	–	2	119	32–Φ45	936	900	936	890	14379	15098
	48"	1200	1166	2170	–	–	1467	1372	1302	–	2	134	32–Φ51	1093	1052	1093	1040	21482	22556
	56"	1400	1360	2743	–	–	1708	1600	1518	–	2	154	28–Φ60	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 size H, H1 and weight will not be notified otherwise.

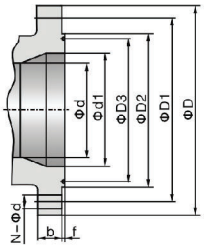
Trunnion Pipeline Ball Valve



External supporting structure



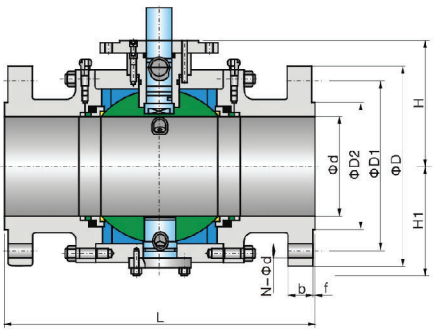
Internal supporting structure



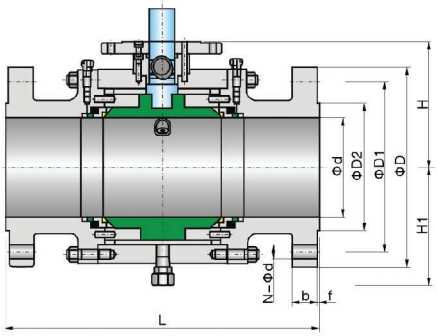
Pressure rating	Nominal diameter		d	d1	Flanged		Butt welding	Raised face flange						General		Support Board		Weight(kg)	
Class	NPS	DN			L(RF)	L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N–Φd	H	H1	H	H1	General	Support Board
150	3"×2"	80	50	75	203	216	283	190	152.5	127	–	2	17.5	4–Φ19	93	88	–	–	28	–
	4"×3"	100	75	100	229	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	485	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 size H, H1 and weight will not be notified otherwise.

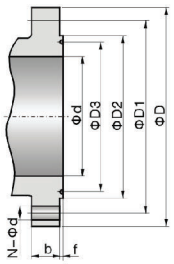
Trunnion Pipeline Ball Valve



External supporting structure



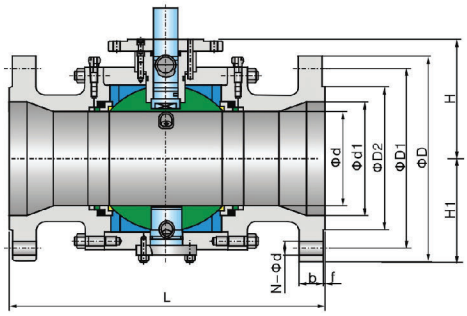
Internal supporting structure



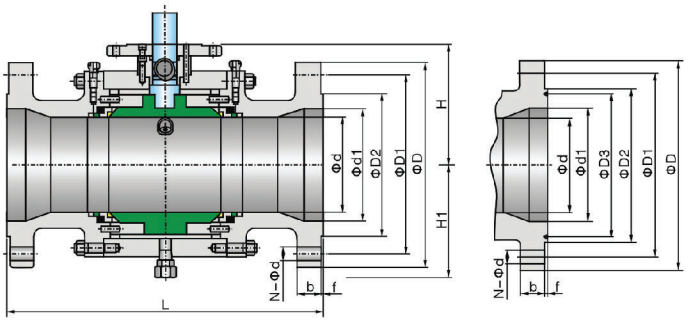
Pressure rating	Nominal diameter		d	Flanged		Butt welding	Raised face flange							General		Support Board		Weight(kg)	
Class	NPS	DN		L(RF)	L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-Φd	H	H1	H	H1	General	Support Board
600	2"	50	50	292	295	292	165	127	92	–	7	26	8-Φ19	107	91.5	–	–	38	–
	3"	80	75	356	359	356	210	168.5	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	467	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 size H, H1 and weight will not be notified otherwise.

Trunnion Pipeline Ball Valve



External supporting structure

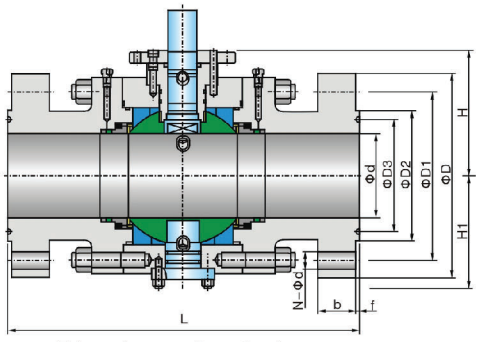


Internal supporting structure

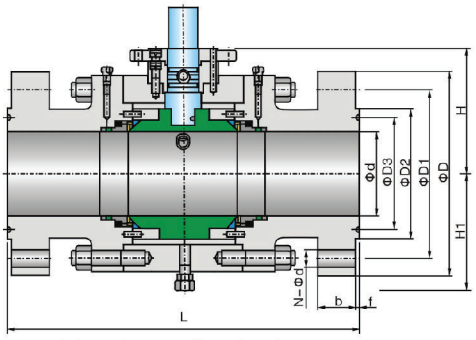
Pressure rating	Nominal diameter		d	d1	Flanged		Butt welding	Raised face flange							General		Support Board		Weight(kg)	
Class	NPS	DN			L(RF)	L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N–Φd	H	H1	H	H1	General	Support Board
600	3"×2"	80	50	75	356	359	356	210	168.5	127	–	7	32	8–Φ22	107	91.5	–	–	44	–
	4"×3"	100	75	100	432	435	432	275	216	157	–	7	38.5	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	692	–	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	38.5	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

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

Trunnion Pipeline Ball Valve



External supporting structure

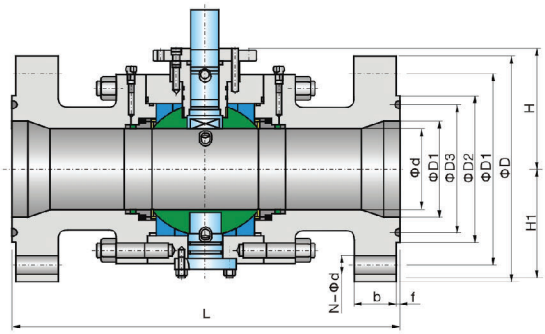


Internal supporting structure

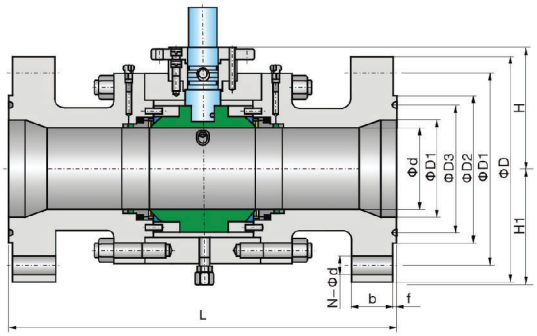
Pressure rating	Nominal diameter		d	Flanged		Butt welding	Raised face flange							General		Support Board		Weight(kg)	
Class	NPS	DN		L(RF)	L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N–Φd	H	H1	H	H1	General	Support Board
	2"	50	50	368	371	368	215	165	124	95.25	7.92	38.5	8–Φ25	126.5	105	–	–	57	–
	3"	80	75	470	473	470	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
1500	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
	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	–
2500	6"	150	131	914	927	914	485	368.3	279	228.6	12.7	108	8–Φ54	306	263	306	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 size H, H1 and weight will not be notified otherwise.

Trunnion Pipeline Ball Valve



External supporting structure



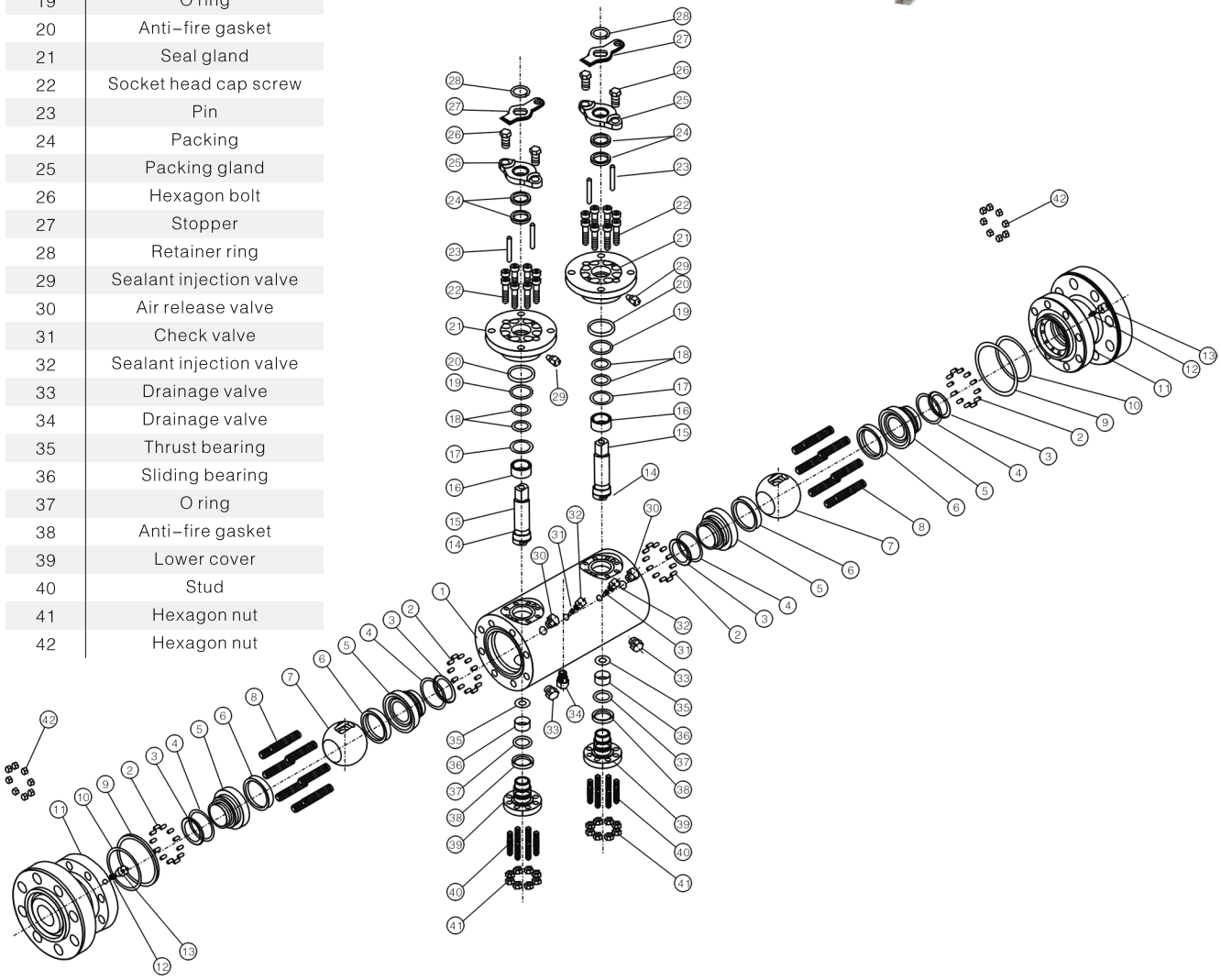
Internal supporting structure

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 Board
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 size H, H1 and weight will not be notified otherwise.

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

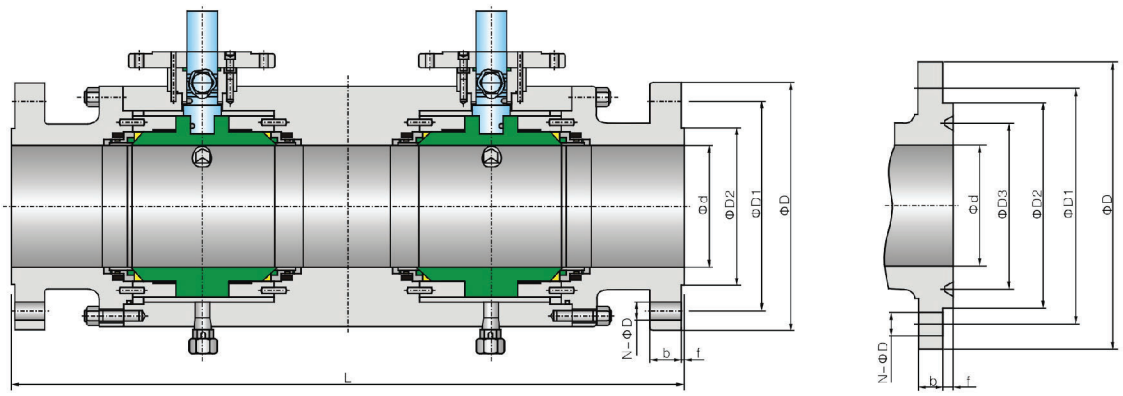


Double Block And Bleed Valve

Double block and bleed valves

Nominal diameter(in)			NPS2~16				
Nominal pressure(MPa)			Class150~Class2500				
	No	Part Name	Materials				
			Carbon Steel	Stainless Steel			
Materials of parts	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	A194-8M	A194-8	A194-8M
	42	Hexagon nut	A194 2HM	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℃(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				

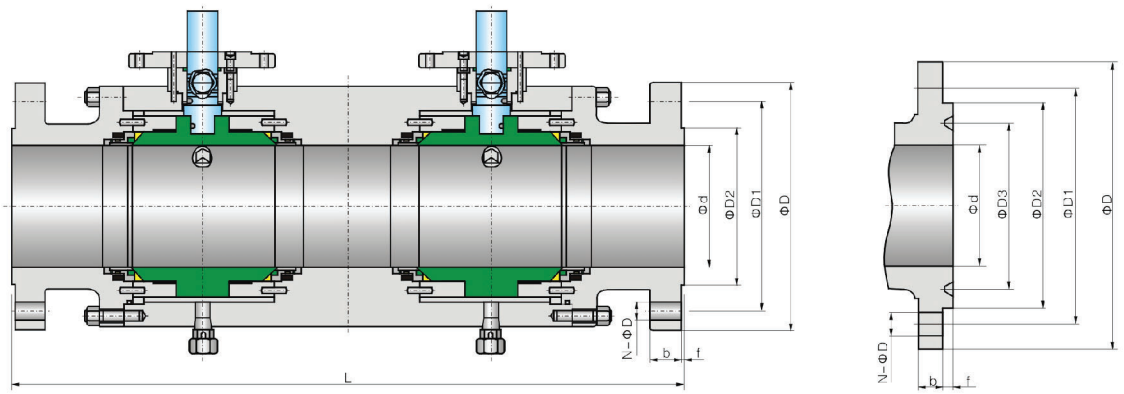
Double Block And Bleed Valve



Pressure rating	Nominal diameter		d	Flanged		Butt welding	Raised face flange							H	H1	Weight
Class	NPS	DN		L(RF)	L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-Φd			(Kg)
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.

Double Block And Bleed Valve



Pressure rating	Nominal diameter		d	Flanged		Butt welding	Raised face flange							H	H1	Weight
Class	NPS	DN		L(RF)	L(RTJ)	L(BW)	D	D1	D2	D3	f	b	N-Φd			(Kg)
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	482.6	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.

Full Welded Ball Valve

STRUCTURAL FEATURES

Integral Valve Structure

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

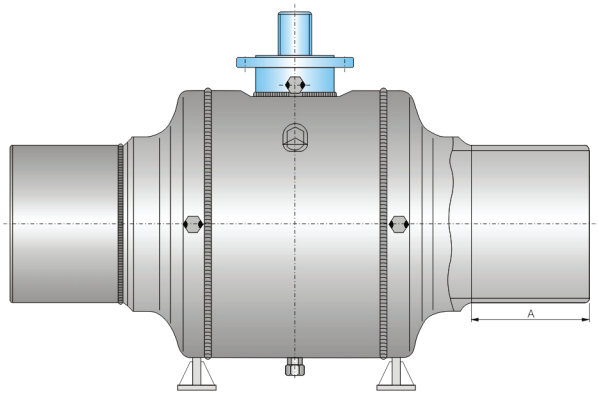
Corrosion Resistance And Sulfide Stress Resistance

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

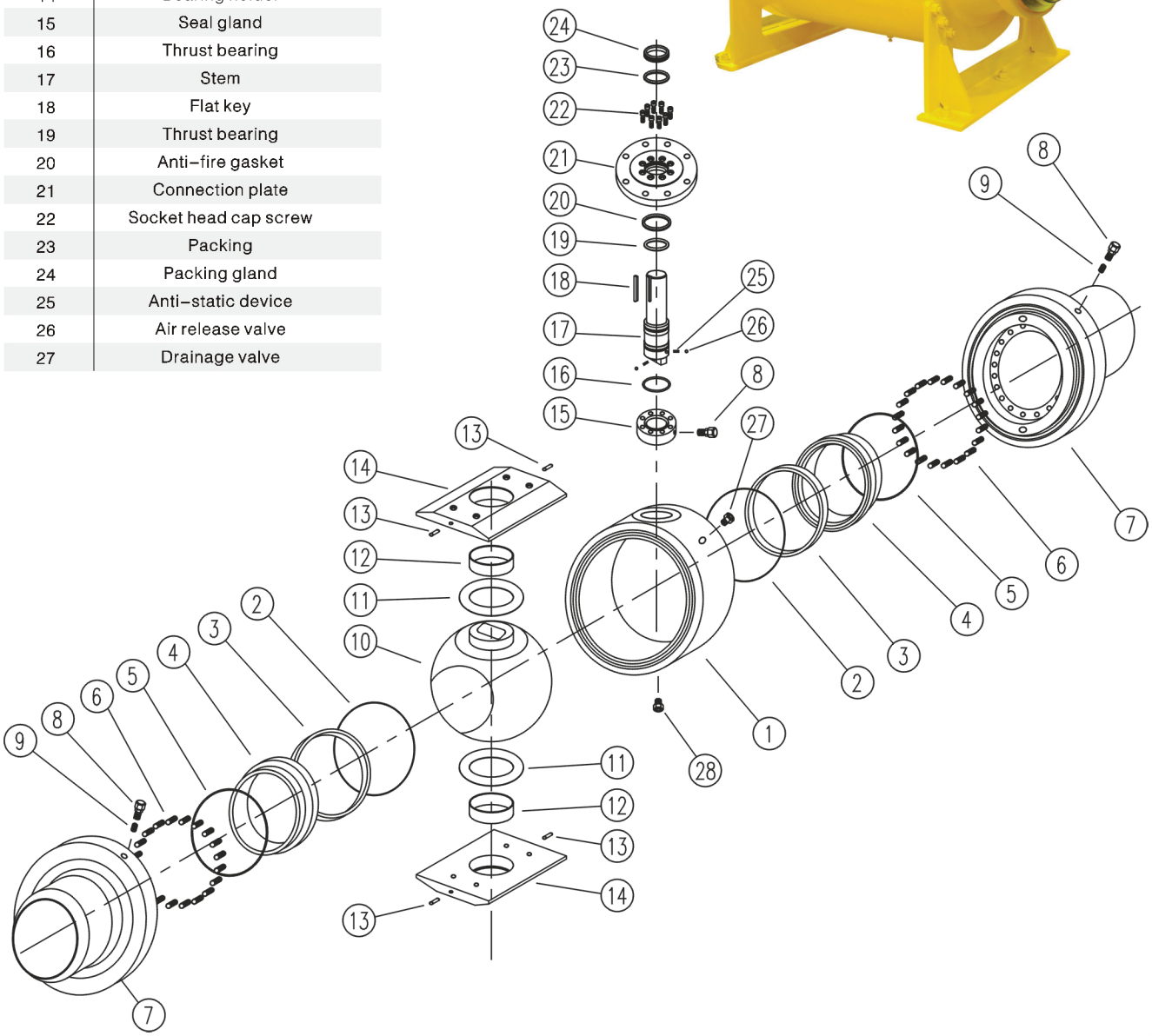
Welding Of Transition Pipe

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 indicated the transition pipe diameter and length A when placing orders.



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

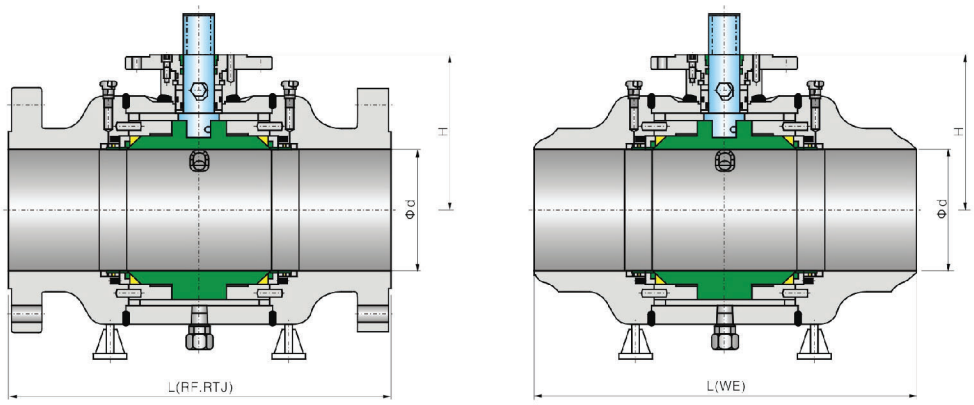


Full Welded Ball Valve

Part Materials And Main Parameters

Nominal diameter(in)			NPS 6~40				
Nominal pressure(MPa)			Class150~Class1500				
	No	Part Name	Materials				
			Carbon steel	Stainless steel			
Materials of parts	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	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	18	Flat key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
	19	Thrust bearing	PTFE				
	20	Anti-fire gasket	SST+Graphite				
	21	Connection plate	ASTM A105	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	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
	24	Packing gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
	25	Anti-static device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	26	Air release valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	27	Drainage valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Applicable service conditions		Applicable media	Water, steam, oil, gas liquefied gas, natural gas, etc	Nitric acid	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				

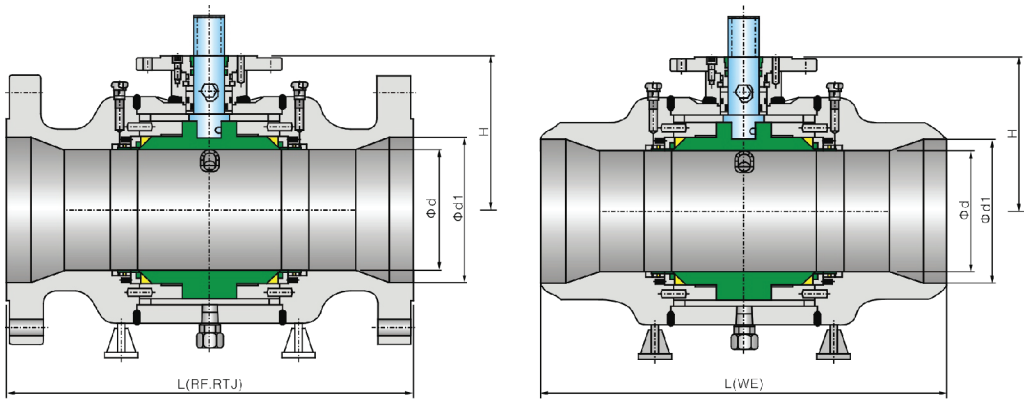
Full Welded Ball Valve



Pressure rating	Nominal Diameter		d	Flanged		Butt welding	H	Weight(kg)	
Class	NPS	DN		L(RF)	L(RTJ)	L(BW)		WE	R F
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.

Full Welded Ball Valve

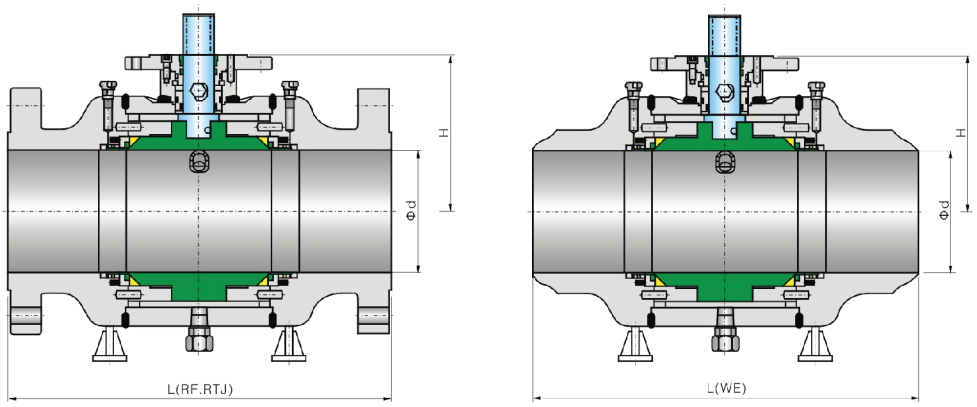


Pressure rating	Nominal Diameter		d	d1	Flanged		Butt welding	H	Weight(kg)	
Class	NPS	DN			L(RF)	L(RTJ)	L(BW)		WE	R F
150	8"×6"	200	150	201	457	470	521	225	△	△
	10"×8"	250	201	252	533	546	559	258	△	△
	12"×10"	300	252	303	610	622	635	310	△	△
	14"×10"	350	252	334	686	699	762	310	△	△
	14"×12"	350	303	334	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.

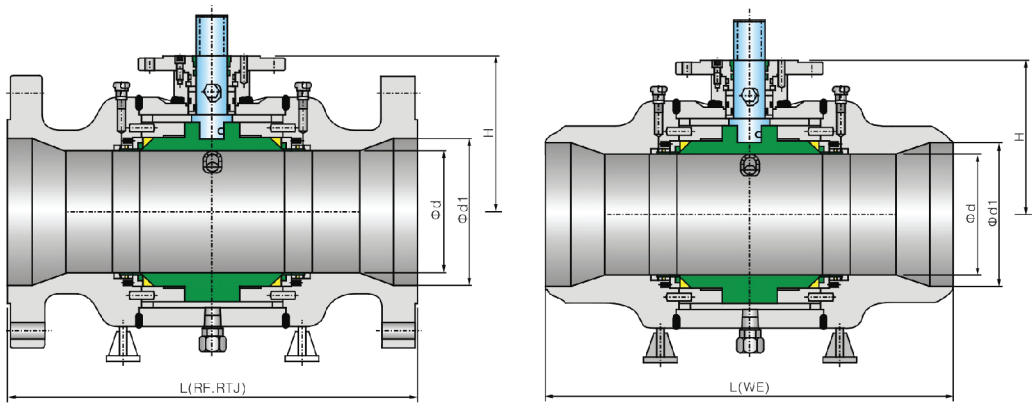
Full Welded Ball Valve



Pressure rating	Nominal Diameter		d	Flanged		Butt welding	H	Weight(kg)	
Class	NPS	DN		L(RF)	L(RTJ)	L(BW)		WE	R F
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.

Full Welded Ball Valve



Pressure rating	Nominal Diameter		d	d1	Flanged		Butt welding	H	Weight(kg)	
Class	NPS	DN			L(RF)	L(RTJ)	L(BW)		WE	R F
600	8"×6"	200	150	201	660	664	660	255	△	△
	10"×8"	250	201	252	787	791	787	290	△	△
	12"×10"	300	252	306	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	△	△
	24"×20"	600	471	570	1549	1568	1549	535	△	△
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:
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.

社長あいさつ

Naoki Sawamura, President

Since our establishment in 1925, We have been supplying our products to various industries, such as shipbuilding, power plant, petro-chemical plant, and etc.

Nature of our company is "Just try it".

During the period, we developed and improved many kind of valves in many applications to meet customers' needs of safe, durable, high performance and cost effectiveness.

Through the above experiences, we built up highly solid manufacturing standard of "Japan Quality" in our company.

Following globalization of the market, we aim to expand our supply and purchase network to Asian countries

We would contribute customers in the area through supplying our original products made with our policy, "Japan Quality with International Price".

with best regards,
Naoki Sawamura, President

会社概要

Company Name	SAWAMURA VALVE Co.,Ltd.
Head Quarters	1262-2 Kawasebaba-cho Hikone City, Shiga Prefecture, 522-0223, Japan TEL +81-749-25-1101 / FAX +81-749-25-2964
Tokyo Office	C-5 7F New Shimbashi BLDG, 2-16-1, Minato-ku, Tokyo, 105-0004, Japan TEL +81-3-5157-5011 / FAX +81-3-5157-5014
e-mail	s-info@sawamura-valve.co.jp
Start of Business	May 1925
Date of Foundation	May 10, 1943
Capital	10,000,000 Yen
Representative Director, President	Naoki SAWAMURA
Main Financing Banks	Hikone Branch, Shiga Bank, Ltd.

沿革

May 1925	Yoshitaro SAWAMURA established Sawamura Iron Works to start
May 1943	Sawamura Valve Manufacturing Co., Ltd. was established, with a cast iron and bronze factory constructed to start integrated production.
December 1953	Accredited by Ministry of Transport with the Japanese Industrial Standards Certificate for the manufacturing process of cast iron and bronze marine valves.
March 1954	Accredited by Minister of Economy, Trade and Industry with the Japanese Industrial Standards Certificate for the manufacturing process of cast iron and bronze land valves.
October 1969	The factory moved to a newly built plant of 3,500m^{2}u in a site area of 10,946m^{2}u in Kawasebaba-cho Hikone City, Shiga Prefecture.
May 1975	Celebrated its 50th year in business.
August 1990	Introduced NC lathe and machining center to start the automated production of marine valves.
August 1995	Started the production of ductile iron 20K valves and stainless steel valves.
September 2002	Started the production of cast iron cocks.
August 2004	Started the import of materials from China.
April 2008	Started the production of cast steel valves.
November 2011	Started the production of ship equipment.
April 2013	Company name changed to Sawamura Valve Co., Ltd.

沢村バルブ株式会社

〒522-0223　彦根市川瀬馬場町1262-2
TEL:0749-25-1101（代）　FAX:0749-25-2964
E-mail:s-info@sawamura-valve.co.jp

SAWAMURA VALVE Co., Ltd.

1262-2 kawase babacho hikone shiga 522-0223 japan
TEL +81-749-25-1101　FAX +81-749-25-2964
E-mail:s-info@sawamura-valve.co.jp