

Floating Ball Valves

JUL, 2024

Subo Automation

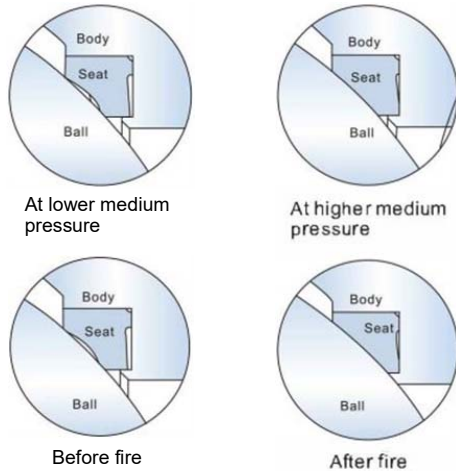
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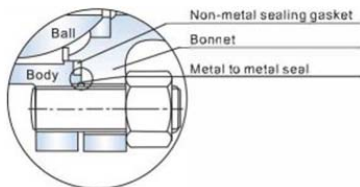
CLIPER

FLOATING BALL VALVE

Construction and features of floating ball valve



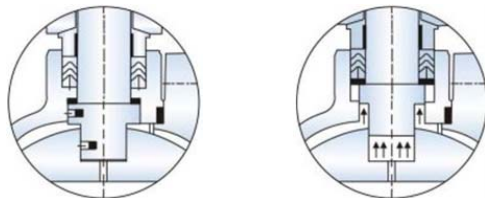
Fire safe design of seat



Fire safe design of valve body and bonnet flanges

Reliable stem seal

The stem is blowout proof to ensure that the stem will not be blown out of the medium in the event of an unexpected rise in pressure in the body chamber or failure of the packing flange. The stem features a design with a backseat that is assembled from below. With the increase of medium pressure, the sealing force on the backseat also increases. Therefore, the reliable sealing of the stem can be guaranteed under change of medium pressure.



The stem assembled from underneath cannot be blown out by the medium

The downward assembled stem may blow out

Packed fastening design is available for more reliable stem packing seal and bevel spring loading upon request.

Application

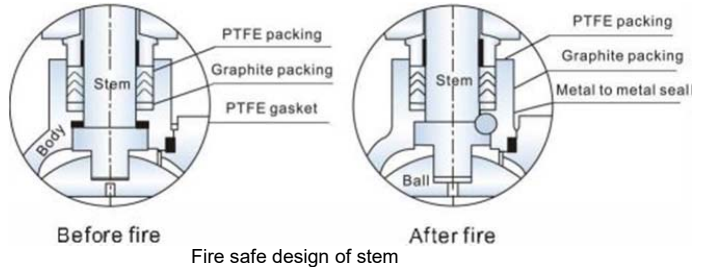
Floating ball valve is suitable for various kinds of pipelines of Class 150 to Class 1500 to turn on or off the pipeline medium, which operation types include manual, wormgear and pneumatic or electric actuator.

Reliable seat seal

Float ball valve adopts elastic sealing ring structure design. The seat design is characterized by a greater sealing pressure ratio between the torus and the ball and a smaller contact area when the medium pressure is reduced, so as to ensure a reliable seal. When the medium pressure increases, the elastic change of the sealing ring makes the contact area between the valve seat and the ball increase, and bears the greater force driven by the medium without damage.

Fire safe design

When the valve is heated in a fire environment, non-metallic material components such as Teflon seat seals, Stem backseat gaskets, gland packing, and sealing gaskets between the body and the bonnet may disintegrate or damage due to high temperatures. We specially designed auxiliary meta-to-metal sealing structure effectively prevents leakage from both inside and outside the valve. Float ball valves produced can meet the requirements of API 607, API 6FA, BS 6755 and JB/T6899 fire protection design upon request

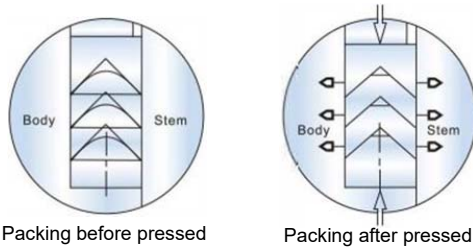


Fire safe design of stem

V-type packing structure is used to effectively convert the thrust and medium pressure of gland flange into sealing force on valve stem.



FLOATING BALL VALVE



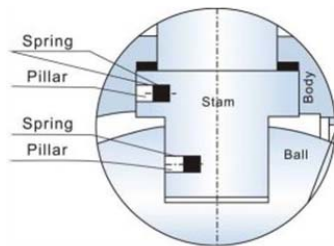
Packing before pressed

Packing after pressed

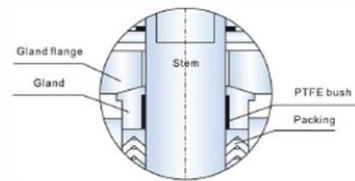
The traditional packing flange design has been improved to be of two pieces structure, i.e., being as a gland flange and gland, the latter contacts the gland flange with spherical surface. Thus, the gland remains vertical always, and is lined internally with a PTFE bush to prevent the galling against and friction between the stem, which can also reduce the operation torque of the valve.

Anti-static feature

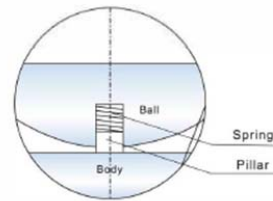
When operating the valve, Electrostatic builds up on the ball due to friction between the ball and the seat. In order to prevent the generation of electrostatic sparks, the valve is specially equipped with anti-static device, the electrostatic generated by the switching process is exported. The design can effectively prevent the occurrence of accidents.



Anti-static design for ball valve $\geq 32\text{mm}$



Stem galling prevented in application



Anti-static design for ball valve $\leq 25\text{mm}$

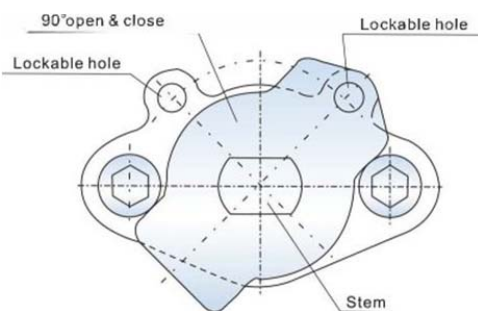


Wrong operation prevention

Key lock of opening and closing the positioning pad 90° is provided. In order to prevent misoperation of the ball valve, which can be locked according to the need. At the stem head, where the lever is held, a flat surface is designed so that the lever is parallel to the pipe when the valve is opened. When the lever is at right angle to the pipe, the valve closes. So as to ensure the indication of valve never be wrong.

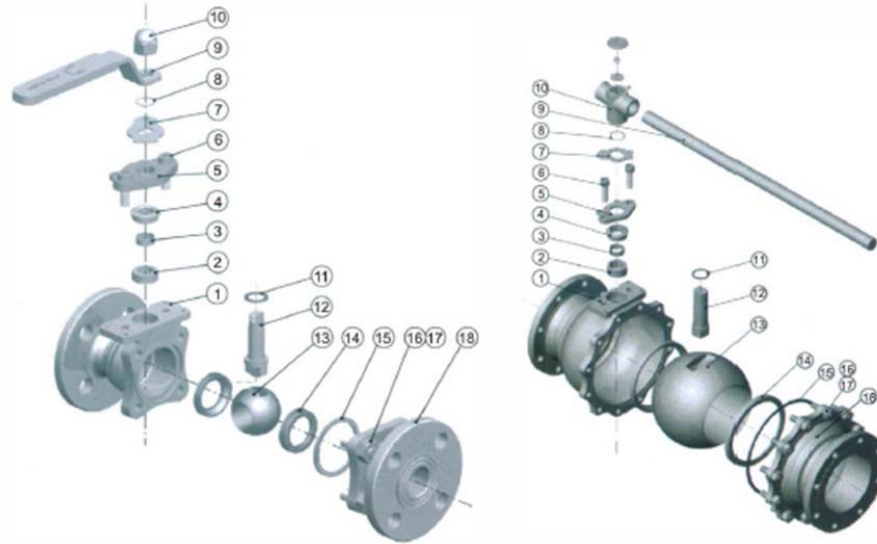
Mounting pad provided

We provide mounting kits for easy installation of actuators such as worm gear, pneumatic and electric actuators.



FLOATING BALL VALVE

Typical drawing of floating ball valve

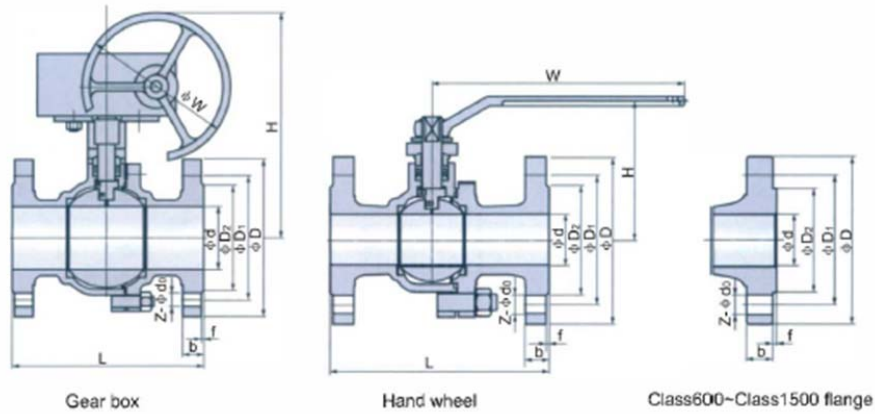


Bill of Material

Parts No.	Parts Name	Materials				
		WCB/13Cr	WCB/304	WCB/316	CF8	CF8M
1	Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
2	Packing	PTFE	PTFE	PTFE	PTFE	PTFE
3	Stem bearing	PTFE	PTFE	PTFE	PTFE	PTFE
4	Gland	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
5	Gland flange	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
6	Gland bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
7	Stop collar	Carbon steel	Carbon steel	Carbon steel	Stainless steel	Stainless steel
8	Circlip	Carbon steel	Carbon steel	Carbon steel	Stainless steel	Stainless steel
9	Nut or wrench head	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
10	Lever	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
11	Thrust washer	PTFE	PTFE	PTFE	PTFE	PTFE
12	Stem	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
13	Ball	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
14	Seat	Reinforced PTFE	Reinforced PTFE	Reinforced PTFE	Reinforced PTFE	Reinforced PTFE
15	Gasket	PTFE	PTFE	PTFE	PTFE	PTFE
16	Body nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
17	Body bolting	ASTM A193 B7	ASTM A193 B7	ASTMA193 B7	ASTMA193 B8	ASTM A193 B8M
18	Closure	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M

Note: Only some common components are listed in the table. Other material can be provided upon request or according to actual valve working condition.

FLOATING BALL VALVE

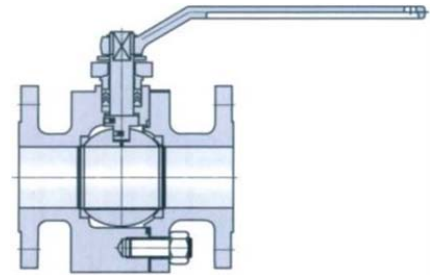


Pressure Rating	Size		Dimensions(mm)								Weight(kg)	
	DN	NPS	L		d	W		H		Lever	Gearbox	
			RF	RTJ		Lever	Gearbox	Lever	Gearbox			
Class150	15	1/2	108	-	14	140	-	85	-	3	-	
	20	3/4	117	-	19	140	-	90	-	4	-	
	25	1	127	-	25	150	-	99	-	5	-	
	32	1 1/4	140	-	32	180	-	105	-	7	-	
	40	1 1/2	165	-	38	200	-	126	-	8	-	
	50	2	178	-	51	250	-	140	*	12	-	
	65	2 1/2	190	-	64	300	-	165	-	18	-	
	80	3	203	-	76	350	-	178	-	24	-	
	100	4	229	-	102	500	305	230	380	38	53	
	125	5	356	-	127	800	305	280	405	60	79	
	150	6	394	-	152	800	305	310	460	82	102	
200	8	457	-	203	1000	305	350	550	145	185		
250	10	533	-	254	-	400	-	706	-	280		
Class300	15	1/2	140	-	14	140	140	85	85	3	-	
	20	3/4	152	-	19	140	140	90	90	5	-	
	25	1	165	-	25	150	150	99	99	6	-	
	32	1 1/4	178	-	32	180	180	105	105	8	-	
	40	1 1/2	190	-	38	200	200	126	126	11	-	
	50	2	216	-	51	250	250	142	142	16	-	
	65	2 1/2	241	-	64	300	300	165	165	24	-	
	80	3	283	-	76	350	350	178	178	34	52	
	100	4	305	-	102	500	500	230	230	56	76	
	125	5	381	-	127	800	800	280	280	86	124	
150	6	403	-	152	800	800	310	310	125	163		
200	8	502	-	203	1000	1000	350	350	222	267		
Class600	15	1/2	165	164	14	140	-	79	-	5	-	
	20	3/4	190	190	19	140	-	83	-	7	-	
	25	1	216	216	25	200	-	114	-	9	-	
	32	1 1/4	229	229	32	200	-	120	-	13	-	
	40	1 1/2	241	241	38	250	-	125	-	17	-	
	50	2	292	295	51	300	-	156	*	25	-	
	65	2 1/2	330	333	64	350	-	172	-	42	-	
	80	3	356	359	76	500	305	220	370	56	76	
100	4	432	435	102	650	305	250	400	85	123		
Class900	15	1/2	15	216	14	150	-	98	-	9	-	
	20	3/4	20	229	20	150	-	105	-	13	-	
	25	1	25	254	25	200	-	110	-	16	-	
	32	1 1/4	32	279	32	250	-	120	*	24	-	
	40	1 1/2	40	305	38	250	-	125	-	31	-	
50	2	50	371	50	350	-	160	-	45	-		
Class1500	15	1/2	216	216	14	182	-	98	-	10	-	
	20	3/4	229	229	20	200	-	105	-	14	-	
	25	1	254	254	25	250	-	110	-	17	-	
	32	1 1/4	279	279	32	300	-	120	-	25	-	
	40	1 1/2	305	305	38	350	-	130	-	33	-	
50	2	368	371	50	500	-	160	-	48	-		

FLOATING BALL VALVE

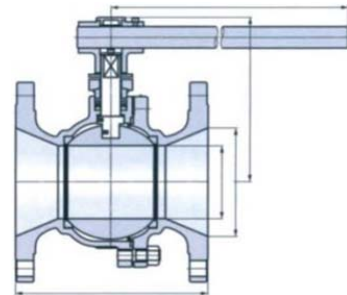
Forged steel ball valve

Floating ball valve usually has cast steel body, however, , forged steel body may also be available upon request. The main dimensions of the flange connection and face to face dimensions are the same as cast steel ball valves.



Ball valve with reduced bore

In addition to full bore float valves, we also produce reduce bore float valves to meet the different requirements of customers, not only to reduce costs and prices, but also to meet the special requirements of customers



Size		Class150 PN20						Class300 PN50						Class600 PN110				
NPS	DN	L		d	d1	H	W	L		d	d1	H	W	L	d	d1	H	W
		Long	Short					Long	Short									
1/2	15	108	108	10	14	80	140	140	140	10	14	80	140	165	10	14	75	140
3/4	20	117	117	14	19	85	140	152	152	14	19	85	140	190	14	19	79	140
1	25	127	127	20	25	90	140	165	165	20	25	90	140	216	20	25	83	140
1 1/4	32	140	140	25	32	99	150	178	178	25	32	99	150	229	25	32	114	150
1 1/2	40	165	165	32	38	105	180	190	190	32	38	105	180	241	32	38	120	200
2	50	178	178	38	51	126	200	216	216	38	51	126	200	292	38	51	125	250
2 1/2	65	190	190	51	64	140	250	241	241	51	64	140	250	330	51	64	156	300
3	80	203	203	64	76	165	300	283	283	64	76	165	300	356	64	76	172	350
4	100	229	229	76	102	178	350	305	305	76	102	178	350	432	76	102	220	500
5	125	356	356	102	127	230	500	381	381	102	127	230	500	508	102	127	250	650
6	150	394	267	127	152	280	800	403	403	127	152	280	800	-	-	-	-	-
8	200	457	292	152	203	310	800	502	419	152	203	310	800	-	-	-	-	-
10	250	533	330	203	254	350	1000	568	457	203	254	350	1000	-	-	-	-	-

Note: Dimensions of reduce ball flanged ball valve are same as that of full bore.



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