

硬密封球阀

Metal seat ball valve

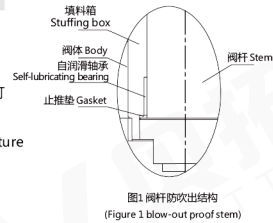


设计特征 Design features

阀杆防吹出和上密封结构 blow-out proof Stem and seal structure

通用硬密封球阀阀杆采用下装式和设置带止推垫的上密封结构。在阀腔压力升高的时候，既可保证阀杆不被介质冲出阀体外又有好的密封效果(如图1)。

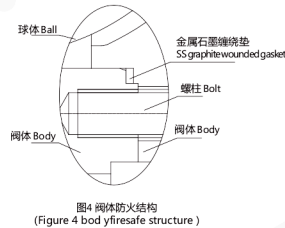
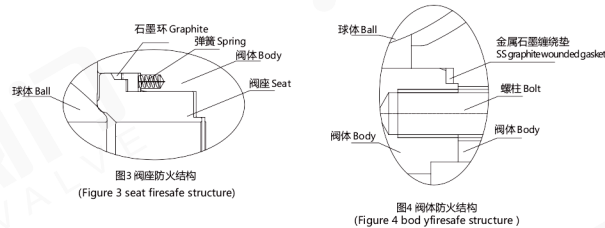
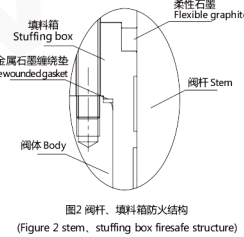
our metal seat ball valves' stem adopted bottom entry and set the inverted sealing structure with the thrust pad. With the body cavity pressure increasing, the valve stem can be ensured not to be blown out of the body and has a good sealing effect (Figure 1).



无条件防火、防静电结构 Unconditional fire prevention, anti-static structure

防火设计是通用球阀标准的设计。通用的金属球阀所有的密封组件都是由防火性能最佳的柔性石墨或金属材料制成，能实现无条件防火安全。同时，由于阀杆、球体、阀体之间始终保持金属接触，形成通路，避免了开关时摩擦静电电荷的聚积(如图2、3、4)。

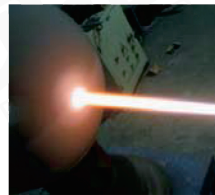
Fire safe design is our ball valves' standard design. All our metal ball valve sealing components are made by excellent fireproof performance of flexible graphite or metal materials, which can realize the unconditional fire safety. At the same time, because of the valve stem, sphere, always keep the metal contact & formed conductive path, it avoided friction electrostatic charge accumulation when the switch open & close (Figure 2, 3, 4).



先进的球体和阀座硬化技术 The advanced ball and seat hardening technology

针对用户不同使用工况和要求，通用硬密封球阀采用了多种先进的球体和阀座硬化技术，包括表面硬化处理、堆焊硬质合金、超音速喷涂（HVOF）、镍基喷焊以及采用高强度高硬度陶瓷材料等。

For users of different operating conditions and requirements, our metal seat ball valve uses a variety of advanced sphere and valve seat hardening technology, including case hardening Processing, welding carbide, supersonic spraying (HVOF) spray, nickel base welding, and with high strength and high hardness of the ceramic materials, etc.



优异的密封性能 Excellent sealing performance

通用硬密封球阀首先将球体与研磨器具在空间不同方位的旋转，使球体表面达到极高的圆度和光洁度。再将球体与阀座配磨，使两者间的密封性达到或超过标准要求。

Our metal seat ball valves' sphere and the grinding apparatus rotated in different direction, making the sphere surface to achieve high roundness and smooth finish. Then let the sphere and valve seat match grinding, making the sealing meet or exceed the standard.



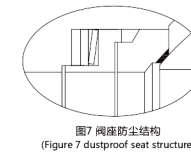
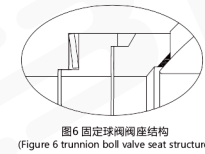
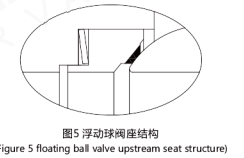
硬密封球阀

Metal seat ball valve

多种阀座结构设计 A variety of seat structure design

通用硬密封球阀标准设计为单向密封结构，固定硬密封球阀标准设计为双阻断泄放结构（DBB），如需其它结构请在采购合同予以说明。通用硬密封球阀采用具有弹性、具有自动补偿功能的阀座密封结构，保证阀门在高温、有磨损、有腐蚀的工况正常工作。同时对于含颗粒的恶劣工况下，细小的颗粒或粉尘会进入阀座的补偿机构，影响机构的正常工作，我们设计了具有防尘功能阀座(如图5、6、7)。

our metal seat floating ball valve standard design is one-way seal structure, metal seat trunnion ball valve standard design for double block & bleed structure (DBB), please make it clear in the order for other structure. Our metal seat ball valve adopts flexible seating, which has the function of automatic compensation structure, guarantee the normal work of the valve under the high temperature, wear and corrosion condition. At the same time for bad working conditions, the tiny particles or dust will enter the seats Compensation mechanism, affect the normal operation of the organization, mechanism, we designed dustproof seat (Figure 5, 6, 7).



硬质颗粒介质的磨损和冲刷问题 Hard particle medium wear and erosion problems

对于含硬质固体颗粒的高压介质，当阀门密封不良或开关的瞬间是最容易引起磨损和冲刷问题的，通用硬密封球阀通过以下几个措施来减缓磨损或冲刷：

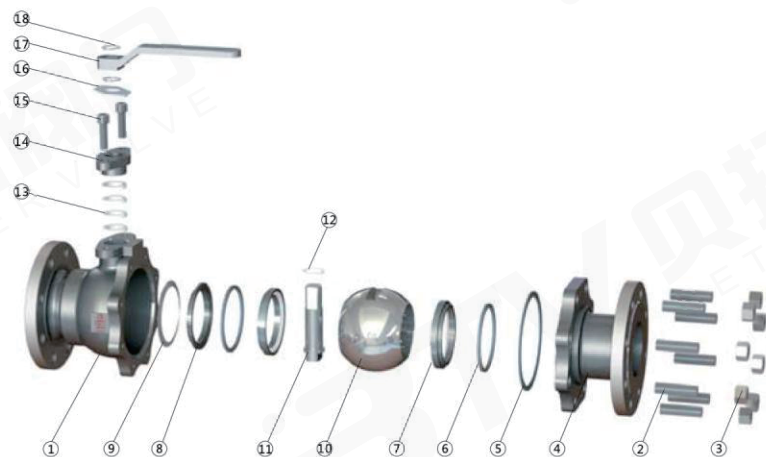
- (1) 提高阀门启闭速度，快速从全开启状态切换到全关闭状态；
- (2) 在开启前通过旁通对阀前、阀后的压力进行平衡；
- (3) 适当增大球体直径；
- (4) 在球体和阀座最容易磨损的部位喷焊耐磨材料；
- (5) 在介质通过的部位增加耐磨材料，以增强阀门的抗磨能力。

For high pressure medium containing hard solid particles, when the valve is sealed or switch moment is the most likely to lead to wear and erosion problems, our metal seat ball valves can be slow down wear or wash by the following measures:

- (1) improve the valve opening and closing speed, quickly switch from full open to full close state;
- (2) Balanced the valve pressure by the bypass valve before opening;
- (3) the appropriate increasing of sphere diameter.
- (4) spray welding wear-resisting material in the part of sphere & seat that most probably got worn;
- (5) increase the wear resistant material in the area of media go through, in order to enhance antiwear ability of the valve.

硬密封浮动球阀

Metal seat floating ball valve

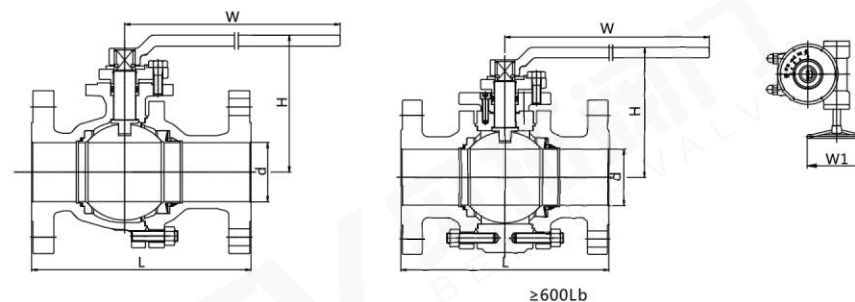


主要零件材料 major parts material

序号 NO.	零件 Part	碳钢材质 Carbon Steel	酸性工况 Acidic Conditions	不锈钢材质 Stainless Steel
1	阀体 Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8
2	螺栓 Bolt	ASTM A193 B7	ASTM A193 B7M	ASTM A193 B8
3	螺母 Nut	ASTM A194 2H	ASTM A194 2HM	ASTM A194 8
4	阀盖 Bonnet	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8
5	垫片 Gasket	304+石墨缠绕垫 Graphite wound Gasket+304		
6	密封环 Seat Ring	柔性石墨 Flexible Graphite	柔性石墨 Flexible Graphite	柔性石墨 Flexible Graphite
7	阀座 Seat	ASTM A182 F304+WC	ASTM A182 F304+WC	ASTM A182 F304+WC
8	弹黄座 ring joint gasket	ASTM A182 F304	ASTM A182 F304	ASTM A182 F304
9	蝶簧 Disc Spring	17-7PH	INCONEL X-750	ANSI 1566
10	球体 Ball	ASTM A182 F304+STL	ASTM A182 F304+STL	ASTM A182 F304+STL
11	阀杆 Stem	17-4PH	17-4PH	17-4PH
12	止推垫 Stop Washer	不锈钢 SS	不锈钢 SS	不锈钢 SS
13	填料 Packing	石墨 Graphite	石墨 Graphite	石墨 Graphite
14	填料压板 Gland Flange	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8
15	螺钉 Screw	ASTM A193 B7	ASTM A193 B7M	ASTM A193 B8
16	定位片 Positioning Plate	碳钢 CS	不锈钢 SS	
17	手柄 Level	碳钢 CS	碳钢 CS	不锈钢 SS
18	卡簧 circlip	ANSI 1566	ANSI 1566	ANSI 1566

硬密封浮动球阀

Metal seat floating ball valve



ANSI应用规范 ANSI application specification

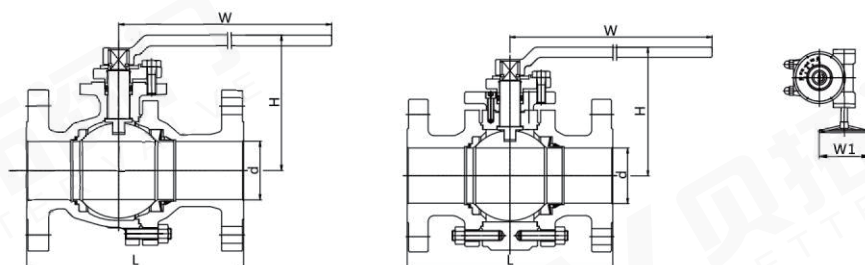
标准 Standard	ANSI系列 ANSI Series	标准 Standard	ANSI系列 ANSI Series
温度-压力额定值 Temperature-pressure ratings	ASME B16.34	试验标准 Inspection & testing	API 6D, API598
设计标准 Design	API 6D, ISO 14313	抗硫材料要求 sulfur resistant material	NACE MR 0175/0103, ISO 15156
结构长度标准 Face to face	API 6D, ASME B16.10		
法兰连接端标准 End flange	ASME B16.5, ASME B16.47		

主要尺寸 Dimensions

CLASS	全通径 Full Bore							CLASS	全通径 Full Bore						
	NPS	d	L	H	H1	W	W1		NPS	d	L	H	H1	W	W1
150Lb	1/2	13	108	85	-	140	-	300Lb	1/2	13	140	85	-	140	-
	3/4	19	117	90	-	140	-		3/4	19	152	90	-	140	-
	1	25	127	99	-	150	-		1	25	165	99	-	150	-
	1-1/4	32	140	105	-	180	-		1-1/4	32	178	105	-	180	-
	1-1/2	38	165	126	-	200	-		1-1/2	38	191	126	-	200	-
	2	49	178	140	-	250	-		2	49	216	140	-	250	-
	2-1/2	62	191	165	-	300	-		2-1/2	62	241	165	-	300	-
	3	74	203	178	-	350	-		3	74	283	178	330	350	305
	4	100	229	230	380	500	305		4	100	305	230	380	500	305
	5	125	356	280	405	800	305		5	125	381	280	420	800	305
600Lb	6	150	394	310	460	800	305	900Lb	6	150	403	310	480	800	305
	8	201	457	350	550	1000	305		8	201	502	350	560	1000	305
	1/2	13	165	79	-	140	-		1/2		216	98	-	150	-
	3/4	19	190	83	-	140	-		3/4		229	105	-	150	-
	1	25	216	114	-	200	-		1		254	110	-	200	-
	1-1/4	32	229	120	-	200	-		1-1/4		279	120	-	250	-
	1-1/2	38	241	125	-	250	-		1-1/2		305	125	-	250	-
	2	49	292	156	-	300	-		2		368	150	-	350	-
	2-1/2	62	330	172	-	350	-								
	3	74	356	220	370	500	305								
1500Lb	4	100	432	250	400	650	305								
	1/2		216	98	-	182	-								
	3/4		229	105	-	200	-								
	1		254	110	-	250	-								
	1-1/4		279	120	-	300	-								
	1-1/2		305	130	-	350	-								
	2		368	160	-	500	-								

硬密封浮动球阀

Metal seat floating ball valve



GB应用规范 GB application specification

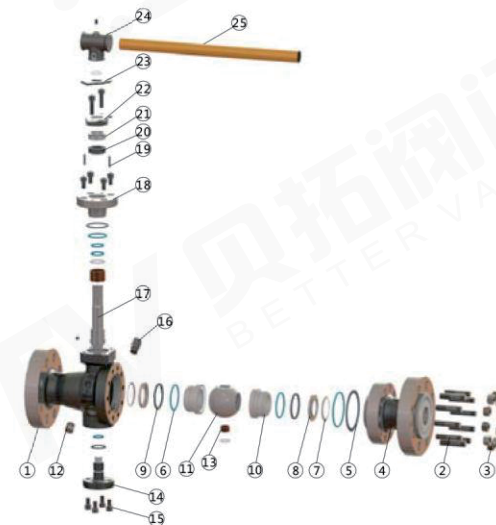
标准 Standard	GB系列 GB Series	标准 Standard	GB系列 GB Series
温度-压力额定值 Temperature-pressure ratings	GB/T 12224	试验标准 Inspection & testing	GB/T 13927, JB/T 9092
设计标准 Design	GB/T 12237, JB/T 7745	抗硫材料要求 sulfur resistant material	SY/T 0599, GB/T 20972
结构长度标准 Face to face	GB/T 12221		
连接端标准 End	JB/T 79, GB/T 9113, HG/T 20592		

主要尺寸 Dimensions

PN	全通径 Full Bore							PN	全通径 Full Bore						
1.6MPa	NPS	d	L	H	H1	W	W1	2.5~4.0MPa	NPS	d	L	H	H1	W	W1
	1/2	13	130	85	-	140	-		1/2	13	130	85	-	140	-
	3/4	19	140	90	-	140	-		3/4	19	140	90	-	140	-
	1	25	150	99	-	150	-		1	25	150	99	-	150	-
	1-1/4	32	165	105	-	180	-		1-1/4	32	165	105	-	180	-
	1-1/2	38	180	126	-	200	-		1-1/2	38	180	126	-	200	-
	2	49	200	140	-	250	-		2	49	200	140	-	250	-
	2-1/2	62	220	165	-	300	-		2-1/2	62	220	165	-	300	-
	3	74	250	178	-	350	-		3	74	250	178	330	350	305
	4	100	280	230	380	500	305		4	100	320	230	380	500	305
6.3MPa	5	125	320	280	405	800	305	5	125	400	280	420	800	305	
	6	150	360	310	460	800	305	6	150	400	310	480	800	305	
	8	201	400	350	550	1000	305	8	201	550	350	560	1000	305	
	1/2	13	165	79	-	140	-	1/2	13	165	79	-	140	-	
	3/4	19	190	83	-	140	-	3/4	19	190	83	-	140	-	
	1	25	216	114	-	200	-	1	25	216	114	-	200	-	
	1-1/4	32	229	120	-	200	-	1-1/4	32	229	120	-	200	-	
	1-1/2	38	241	125	-	250	-	1-1/2	38	241	125	-	250	-	
	2	49	292	156	-	300	-	2	49	292	156	-	300	-	
	2-1/2	62	330	172	-	350	-	2-1/2	62	330	172	-	350	-	
	3	74	356	220	370	500	305	3	74	356	220	390	500	305	
	4	100	432	250	400	650	305	4	100	432	250	440	650	305	

硬密封固定球阀

Metal seat trunnion ball valve



主要零件材料 major parts material

序号 NO.	零件 Part	标准材质 Material	酸性工况 Acidic Conditions	不锈钢材质 Stainless Steel
1	阀体 Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8
2	螺栓 Bolt	ASTM A193 B7	ASTM A193 B7M	ASTM A193 B8
3	螺母 Nut	ASTM A194 2H	ASTM A194 2HM	ASTM A194 8
4	阀盖 Bonnet	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8
5	垫片 Gasket	304+石墨缠绕垫 Graphite Wound Gasket+304		
6	O型圈 O-ring	氟橡胶 Fluororubber		
7	弹簧 Spring	17-7PH	INCONEL X-750	INCONEL X-750
8	弹簧座 Ring joint gasket	ASTM A182 F304	ASTM A182 F304	ASTM A182 F304
9	密封环 Seat Ring	石墨 Graphite	石墨 Graphite	石墨 Graphite
10	阀座 Seat	ASTM A182 F304+WC	ASTM A182 F304+WC	ASTM A182 F304+WC
11	球体 Ball	ASTM A182 F304+STL	ASTM A182 F304+STL	ASTM A182 F304+STL
12	排污阀 Drain plug	碳钢 CS	不锈钢 SS	碳钢 CS
13	自润滑轴承 Self-lubricating bearing	304+PTFE	304+PTFE	304+PTFE
14	下轴 Trunnion	ASTM A182 F304	ASTM A182 F304	ASTM A182 F304
15	螺钉 Screw	ASTM A193 B7	ASTM A193 B7M	ASTM A193 B8
16	排气阀 Vent plug	碳钢 CS	不锈钢 SS	碳钢 CS
17	阀杆 Stem	17-4PH	17-4PH	17-4PH
18	填料箱 Stuffing box	ASTM A182 F304	ASTM A182 F304	ASTM A182 F304
19	销 Pin	ANSI 1566	ANSI 1566	ANSI 1566
20	填料 Packing	石墨 Graphite	石墨 Graphite	石墨 Graphite
21	填料压套 Packing gland	碳钢 CS	碳钢 CS	不锈钢 SS
22	填料压板 Gland Flange	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8
23	定位片 Positioning plate	碳钢 CS	碳钢 CS	不锈钢 SS
24	手柄接头 Lever adapter	碳钢 CS	碳钢 CS	不锈钢 SS
25	手柄 Level	碳钢 CS	碳钢 CS	不锈钢 SS