

用途 Application

浮动球阀适用于Class150~Class1500、PN16~PN100、JIS10K~JIS20K的各种管路上，用于截断或接通管路中的介质，选用不同的材质，可分别适用于水、蒸汽、油品、液化气、天然气、煤气、硝酸、醋酸、氧化性介质、尿素等多种介质。驱动方式为手动、涡轮蜗杆传动、气动或电动。浮动球阀一般采用法兰连接，也可采用对焊连接。

Floating ball valves are suitable for using on various kinds of pipelines of Class 150 to Class 1500, PN16 to PN100, and JIS 10K to JIS 20K to turn on or off the pipeline medium, of which the operation types include manual, worm gear and pneumatic or electric actuators.

型号、材料及主要参数 Material and Main Valve Data

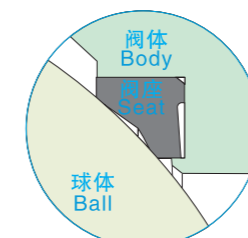
配管法兰 Pipe flange	公称压力 Pressure rating	法兰 密封面 Flange face	常规产品型号 Type							
			Q41F-A1C	Q41F-A1P	Q41F-A1P8	Q41F-A1P3	Q41F-A1R	Q41F-A1R8	Q41F-A1R3	
ASME B16.5 GB/T9112-9124 HG/T 20592 JB/T 74-90	Class150	凸面 RF	Q41F-A3	Q41F-A3P	Q41F-A3P8	Q41F-A3P3	Q41F-A3R	Q41F-A3R8	Q41F-A3R3	
	Class300		Q41F-A6	Q41F-A6P	Q41F-A6P8	Q41F-A6P3	Q41F-A6R	Q41F-A6R8	Q41F-A6R3	
	Class600		Q41F-A9	Q41F-A9P	Q41F-A9P8	Q41F-A9P3	Q41F-A9R	Q41F-A9R8	Q41F-A9R3	
	Class900		Q41F-A15	Q41F-A15P	Q41F-A15P8	Q41F-A15P3	Q41F-A15R	Q41F-A15R8	Q41F-A15R3	
	Class1500		Q41F-A16C	Q41F-A16P	Q41F-A16P8	Q41F-A16P3	Q41F-A16R	Q41F-A16R8	Q41F-A16R3	
GB/T9112-9124 HG/T 20592 JB/T 74-90	PN16	凸面 RF	Q41F-A25	Q41F-A25P	Q41F-A25P8	Q41F-A25P3	Q41F-A25R	Q41F-A25R8	Q41F-A25R3	
	PN25		Q41F-A40	Q41F-A40P	Q41F-A40P8	Q41F-A40P3	Q41F-A40R	Q41F-A40R8	Q41F-A40R3	
	PN40	凹凸面 MF	Q41F-A63	Q41F-A63P	Q41F-A63P8	Q41F-A63P3	Q41F-A63R	Q41F-A63R8	Q41F-A63R3	
	PN63		Q41F-A100	Q41F-A100P	Q41F-A100P8	Q41F-A100P3	Q41F-A100R	Q41F-A100R8	Q41F-A100R3	
	PN100		Q41F-K1C	Q41F-K1P	Q41F-K1P8	Q41F-K1P3	Q41F-K1R	Q41F-K1R8	Q41F-K1R3	
JIS B2238	10K	凸面 RF	Q41F-K2	Q41F-K2P	Q41F-K2P8	Q41F-K2P3	Q41F-K2R	Q41F-K2R8	Q41F-K2R3	
	20K		Q41F-K1C	Q41F-K1P	Q41F-K1P8	Q41F-K1P3	Q41F-K1R	Q41F-K1R8	Q41F-K1R3	
主要零件材料 Main parts material	阀体Body	WCB	ZG1Cr18Ni9Ti	CF8	CF3	ZG1Cr18Ni12Mo2Ti	CF8M	CF3M		
	球体、阀杆 Ball, Stem	A105	1Cr18Ni9Ti	304	304L	1Cr18Ni12Mo2Ti	316	316L		
	密封面 sealing surface	增强聚四氟乙烯、对位聚苯 RPTFE, PPL								
适用工况 Applicable condition	适用介质 Applicable medium	水、蒸汽、油品、煤气、液化气、天然气等 Water, Steam, Oil, Coal gas, Liquefied gas, Gas		硝酸类腐蚀性介质 Nitric acid corrosion medium	强氧化性介质 Strong oxidizing medium	醋酸类腐蚀性介质 Acetic acid corrosive medium	尿素类腐蚀性介质 Urea corrosive medium			
	适用温度 Applicable temperature	≤180℃ (增强聚四氟乙烯) ≤300℃ (对位聚苯)								
涡轮蜗杆传动球阀 worm gear ball valve	在相应的手动型号的Q后插入“3”表示，示例：Q341F-A1C									
气动球阀 pneumatic ball valve	在相应的手动型号的Q后插入“6”表示，示例：Q641F-A1C									
电动球阀 electric ball valve	在相应的手动型号的Q后插入“9”表示，示例：Q941F-A1C									
缩径球阀 reduced bore ball valve	在相应的全通径球阀的型号前加“S”表示，示例：SQ941F-A1C									
注：本表为常规法兰连接浮动球阀的型号编制、主要零件材料及适用工况，其他要求及其型号见球阀型号编制方法 Note: This table is about the model preparation, main parts material and applicable condition of flange ends metal to metal sealed ball valve.										

浮动球阀的结构设计特点  
Construction and features of floating ball valve

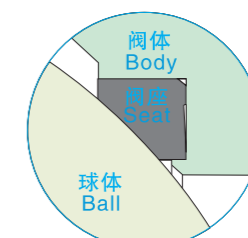
阀座的可靠密封 Reliable seat seal

浮动球阀采用弹性密封圈结构设计。当介质压力较小时，密封圈与球体接触面积较小，在密封圈与球体接触处形成较大的密封比压，确保可靠密封。当介质压力较大时，随着密封圈的弹性变形，密封圈与球体的接触面积增大，密封圈与球体的接触面积增大，密封圈能承受较大的介质推力而不会损坏。

The structure design of elastic sealing ring has been adopted for floating ball valves. This seat design features a bigger sealing pressure ratio between the ring surface and the ball when medium pressure gets lower, where the contacting area is smaller. Thus, the reliable seal is ensured. When the medium pressure gets higher, the contacting area between seat ring and ball becomes bigger as the Ball sealing ring transforms elastically to undertake the bigger force pushed by the medium without any damage.



介质压力较小时  
At lower medium pressure

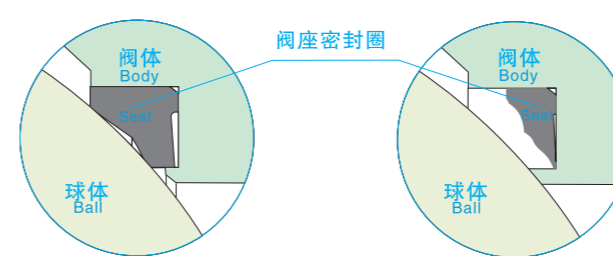


介质压力较大时  
At higher medium pressure  
弹性阀座  
Resilient seated

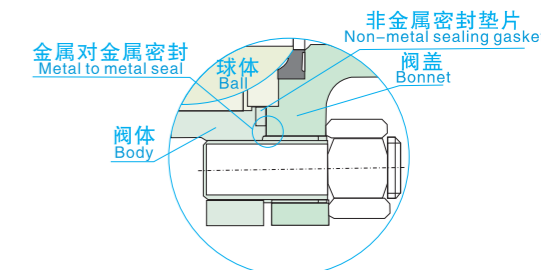
防火结构设计 Fire safe design

在阀门的使用现场发生火灾时，当聚四氟乙烯等非金属材料制作的阀座密封圈、阀杆上密封垫、阀杆密封填料以及中法兰密封垫片在高温下分解或破坏后，祺隆球阀能够借助于特别设计的金属对金属密封结构，有效地控制阀门的内漏和外漏。对于用户有防火要求的浮动球阀，祺隆公司的防火设计均符合API607、API16FA、BS6755及JB/T6899等规范要求。

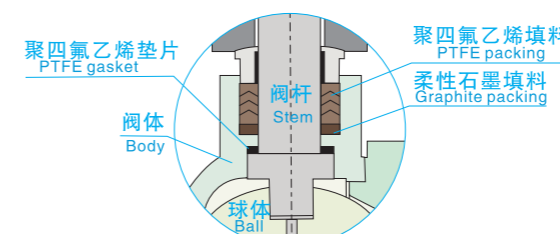
With the valve heated in a fire application, the non-metal material parts such as seat sealing ring of PTFE, stem back seat gasket, gland packing, and the sealing gasket between body and bonnet might disintegrate or be damaged due to high temperature. QILONG's specially designed structure of auxiliary metal to metal seal is provided to effectively prevent both internal and external Ball leakage of the valve. As required by customers, QILONG's floating ball valves with fire safe design can meet the requirement of API 607, API 6FA, BS 6755 and JB/T 6899.



阀座的防火结构设计  
Fire safe design of seat

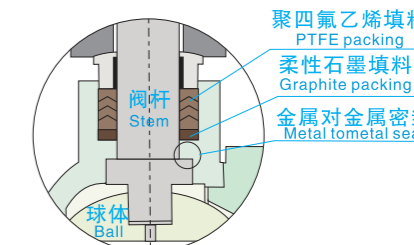


中法兰密封的防火结构设计  
Fire safe design of valve body and bonnet flanges



火烧前  
Before fire

阀杆的防火结构设计  
Fire safe design of stem

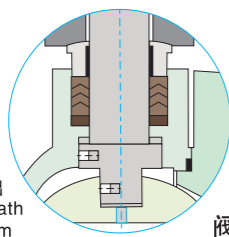


火烧后  
After fire

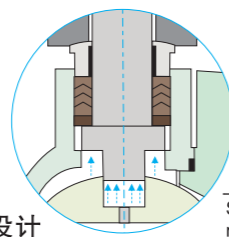
阀杆的可靠密封 Reliable stem seal

阀杆采用防喷出结构设计，即使在阀腔异常升压以及填料压板失效等极端情况下，也能保证阀杆不会被介质喷出。阀杆采用有倒密封的下装式结构设计，倒密度的密封力随着介质压力的增高而增大，故能在各种压力下均能确保阀杆的可靠密封。

The blow-out proof design has been adopted for the stem to ensure that even if the pressure in the body cavity is risen accidentally and the packing flange becomes invalid, the stem may not be blown out by medium. The stem features the design with a back seat, being assembled from underneath. The sealing force against the backseat gets higher as the medium pressure becomes higher. So the reliable seal of the stem can be assured under variable medium pressure.



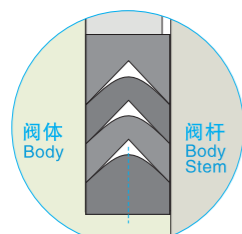
下装式阀杆不会被介质压力吹出  
Stem assembled from underneath may not be blown out by medium



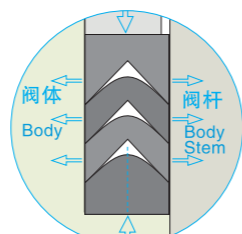
上装式阀杆有被介质压力吹出的可能  
Stem assembled downward may be blown out

阀杆的防喷出结构设计  
blow-out proof design of stem

阀杆采用V型填料密封结构，V型填料能将填料压盖的压紧力及介质有效地转化成阀杆的密封力。V type packing structure has been employed to effectively transform the pushing force of the gland flange and the medium pressure into the sealing force against the stem.



填料压紧前  
Packing before pressed

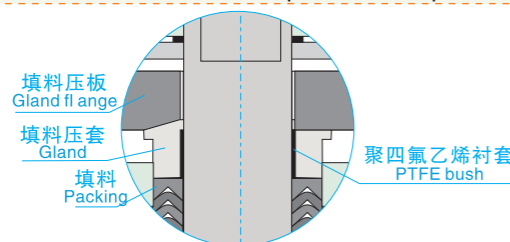


填料压紧后  
Packing after pressed

阀杆采用V型填料密封结构  
V type packing structure of stem

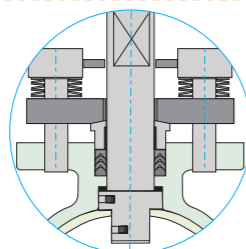
将传统的填料压盖改进为填料压板与填料压套的两体式结构设计，填料压套与填料压板采用球形接触，确保填料压套始终垂直，并在填料压套内部设置了聚四氟乙烯衬套，避免了阀杆与填料压套的擦伤与磨损，并减小了阀门的操作力矩。

The traditional packing flange design has been improved to be two-piece 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.



防止阀杆使用中的磨损  
Stem galling prevented in application

可根据用户的需要，可以采用蝶形弹簧加载填料压紧机构，使阀杆填料的密封更加可靠。Based on customers' requirement, a packing tightening design may be employed to obtain more reliable stem packing seal, which is loaded by beveling spring.

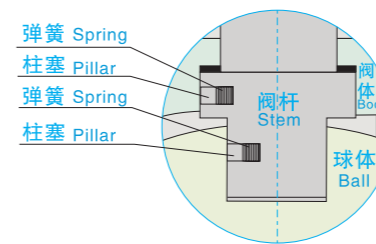


采用蝶形弹簧加载的填料压紧机构  
a packing tightening design loaded by beveling spring

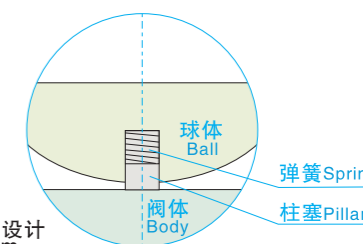
防静电结构 Anti-static feature

根据用户要求，球阀可以设有防静电结构。采用弹簧-钢球（或柱塞）静电引出装置，使球体与阀体之间直接形成静电通道（对于DN≤25的球阀）或通过阀杆使球体与阀体之间形成静电通道（对于DN≤32的球阀）。从而可将球体与阀座开关过程中摩擦产生的静电通过阀体引到大地，防止静电火花可能引起的火灾或爆炸等危险。

The traditional packing flange design has been improved to be of two piece structure, i.e., being as a packing flange plate and a follower, the latter contacts the flange plate with spherical surface. Thus, the follower 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 design for ball valve ≥ 32mm



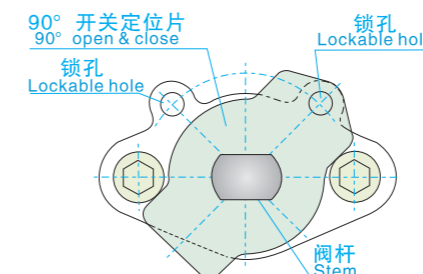
Anti-Static design for ball valve ≤ 25mm

阀杆的防静电结构设计  
anti-static stem

防止误操作 Wrong operation prevention

设置了带锁孔的90°开关定位片，根据需要可以加锁，防止误操作。阀杆头部安装手柄的部位采用扁型设计，当阀门开启时，手柄与管道平行，当阀门关闭时，手柄与管道垂直，能够确保阀门的开关指示不会发生错误。

To prevent the ball valve from wrong operation, the key lock with 90° of open and close positioning pad has been provided, which can be lockable as required. At the stem head, where the lever fixes, a flat is so designed that the valve opens with the lever in parallel to piping, and with the lever right-angled to the piping, the valve is closed. So, it is ensured that the valve indicator of open and close can never make mistake.



防止误操作的结构设计  
Structural design to prevent misoperation



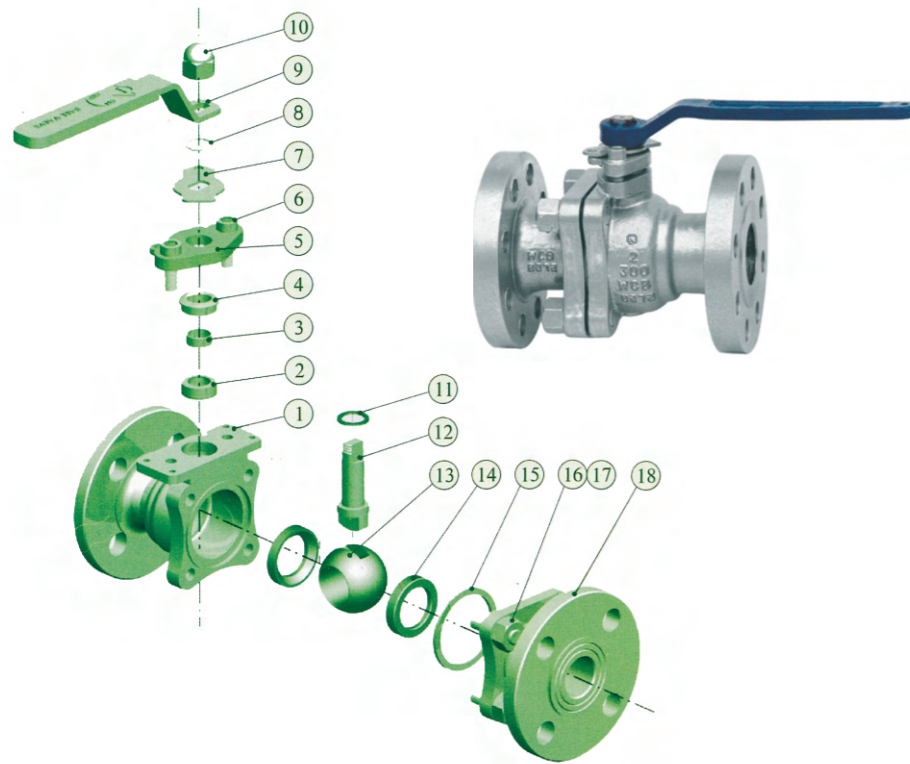
驱动装置安装平台的设置 Mounting pad provided

祺隆公司的浮动球阀均设置了安装驱动装置的支架平台，通过驱动装置支架，可以方便的安装涡轮蜗杆传动装置、气动装置或电动装置。

QILONG company has provided for floating ball valve with a mounting pad, through which it is easy to fix the actuators, such as worm gear, pneumatic and electric actuators.



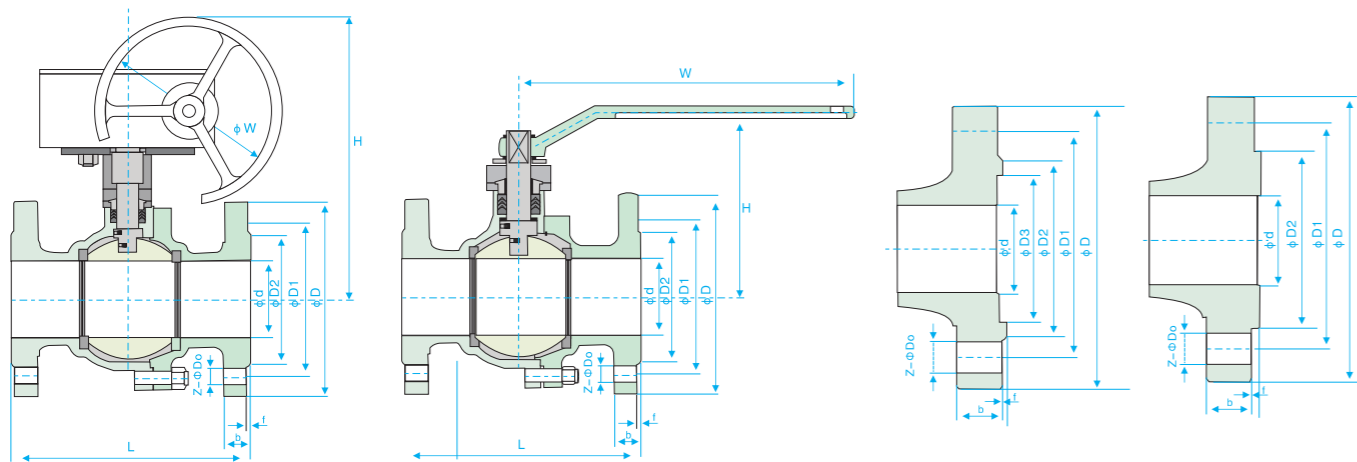
支架平台的设置能够方便的安装驱动装置  
The mounting pad is designed to match with the actuator easily.



- |          |                  |
|----------|------------------|
| 1-阀体;    | 1-Body           |
| 2-填料;    | 2-Packing        |
| 3-衬套;    | 3-Bush           |
| 4-填料压套;  | 4-Gland          |
| 5-填料压板;  | 5-Gland flange   |
| 6-螺钉;    | 6-Bolt           |
| 7-定位片;   | 7-Stop collar    |
| 8-挡圈;    | 8-Circlip        |
| 9-扳手;    | 9-Lever          |
| 10-螺母;   | 10-Nut           |
| 11-上密封垫; | 11-Thrust washer |
| 12-阀杆;   | 12-Stem          |
| 13-球体;   | 13-Ball          |
| 14-密封圈;  | 14-Seat          |
| 15-垫片;   | 15-Gasket        |
| 16-螺柱;   | 16-Gasket        |
| 17-螺母;   | 17-Stud          |
| 18-阀盖;   | 18-Bonnet        |

浮动球阀典型结构及零部件组成  
Typical drawing of Floating ball valve and parts composition

主要尺寸及重量 Main size and weight



涡轮蜗杆传动球阀  
worm gear ball valve

手动球阀  
manual ball valve

PN40-PN100法兰、CLASS600-CLASS1500法兰  
PN40-PN100FLANGE、CLASS600-CLASS1500FLANGE

公称压力 Pressure Rating	公称尺寸 Dimensions		尺寸Dimensions (mm)											重量 Weight (Kg)			
	DN	NPS	L		d	D	D1	D2	b	f	Z-φ do	W		H		手动 Hand wheel	蜗轮 Gear box
			RF	RJ								手动 Hand wheel	蜗轮 Gear box	手动 Hand wheel	蜗轮 Gear box		
Class150 PN20	15	1/2	108	119	14	89	60.5	35	11.5	1.6	4-15	140	-	85	-	3	-
	20	3/4	117	130	19	98	70	43	11.5	1.6	4-15	140	-	90	-	4	-
	25	1	127	140	25	108	79.5	51	11.5	1.6	4-15	150	-	99	-	5	-
	32	1 1/4	140	153	32	117	89	64	13	1.6	4-15	180	-	105	-	7	-
	40	1 1/2	165	178	38	127	98.5	73	14.5	1.6	4-15	200	-	126	-	8	-
	50	2	178	191	51	152	120.5	92	16	1.6	4-19	250	-	140	-	12	-
	65	2 1/2	190	203	64	178	139.5	105	17.5	1.6	4-19	300	-	165	-	18	-
	80	3	203	216	76	190	152.5	127	19.5	1.6	4-19	350	-	178	-	24	-
	100	4	229	242	102	229	190.5	157	24	1.6	8-19	500	305	230	380	38	53
	125	5	356	369	127	254	216	186	24	1.6	8-22	800	305	280	405	60	79
Class300 Pn50	15	1/2	140	151	14	95	66.5	35	14.5	1.6	4-15	140	-	85	-	3	-
	20	3/4	152	165	19	117	82.5	43	16	1.6	4-19	140	-	90	-	5	-
	25	1	165	178	25	124	89	51	17.5	1.6	4-19	150	-	99	-	6	-
	32	1 1/4	178	191	32	133	98.5	64	19.5	1.6	4-19	180	-	105	-	8	-
	40	1 1/2	190	203	38	156	114.5	73	21	1.6	4-22	200	-	126	-	11	-
	50	2	216	232	51	165	127	92	22.5	1.6	8-19	250	-	142	-	16	-
	65	2 1/2	241	257	64	190	149	105	25.5	1.6	8-22	300	-	165	-	24	-
	80	3	283	299	76	210	168.5	127	29	1.6	8-22	350	-	178	330	34	52
	100	4	305	321	102	254	200	157	32	1.6	8-22	500	305	230	380	56	76
	125	5	381	397	127	279	235	186	35	1.6	8-22	800	305	280	420	86	124
Class600 Pn110	15	1/2	165	164	14	95	66.5	35	14.5	6.4	4-15	140	-	79	-	5	-
	20	3/4	190	190	19	118	82.5	43	16	6.4	4-19	140	-	83	-	7	-
	25	1	216	216	25	124	89	51	17.5	6.4	4-19	200	-	114	-	9	-
	32	1 1/4	229	229	32	133	98.5	64	21	6.4	4-19	200	-	120	-	13	-
	40	1 1/2	241	241	38	156	114.5	73	22.5	6.4	4-22	250	-	125	-	17	-
	50	2	292	295	51	165	127	92	25.5	6.4	8-19	300	-	156	-	25	-
	65	2 1/2	330	333	64	190	149	105	29	6.4	8-22	350	-	172	-	42	-
	80	3	356	359	76	210	168	127	32	6.4	8-22	500	305	220	370	56	76
	100	4	432	435	102	273	216	157	38.5	6.4	8-25	650	305	250	400	85	123
	Class900 Pn150	15	1/2	216	216	14	121	82.5	35	22.5	6.4	4-23	150	-	98	-	9
20		3/4	229	229	20	130	88.9	43	25.5	6.4	4-23	150	-	105	-	13	-
25		1	254	254	25	149	101.6	51	29	6.4	4-26	200	-	110	-	16	-
32		1 1/4	279	279	32	159	111.1	64	29	6.4	4-26	250	-	120	-	24	-
40		1 1/2	305	305	38	178	123.8	73	32	6.4	4-29	250	-	125	-	31	-
Class1500 Pn260	15	1/2	216	216	14	121	82.5	35	22.5	6.4	4-23	182	-	98	-	10	-
	20	3/4	229	229	20	130	88.9	43	25.5	6.4	4-23	200	-	105	-	14	-
	25	1	254	254	25	149	101.6	51	29	6.4	4-26	250	-	110	-	17	-
	32	1 1/4	279	279	32	159	111.1	64	29	6.4	4-26	300	-	120	-	25	-
	40	1 1/2	305	305	38	178	123.8	73	32	6.4	4-29	350	-	130	-	33	-
50	2	368	371	50	216	165.1	92	38.5	6.4	8-26	500	-	160	-	48	-	

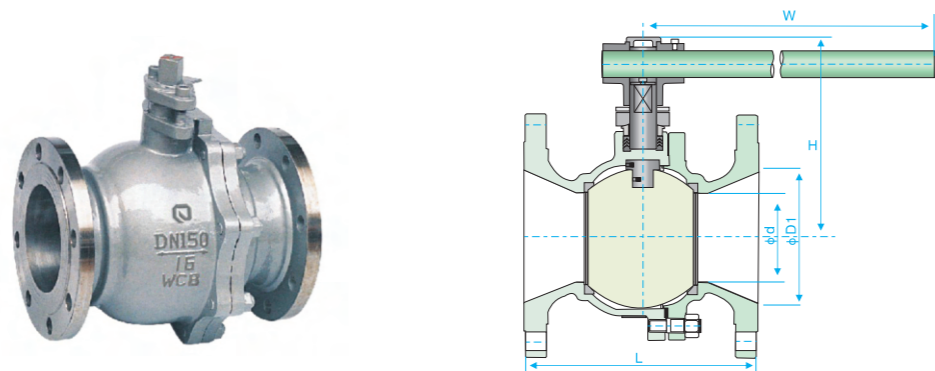
注: 1、RF表示凸面法兰, RJ表示环连接面法兰。 note: 1. RF means raised flange, RJ means ring joint flange.  
2、本表法兰尺寸按ASME B16.5标准。 2. This table of flange size is as per standard ASME B16.5



**缩径球阀 Reduced bore ball valve**

祺隆阀门除了生产全通径浮动球阀以外，还生产缩径浮动球阀，以满足用户的不同需求。缩径球阀不仅能适当的降低成本及价格，而且能满足用户的一些特定要求。

In addition to the full bore floating ball valve, QILONG company is also manufacturing the floating ball valve with reduced bore to satisfy different requirement of customers, which can not only lower the cost and the pricing, but also meet customers' special requirement.



**用途 Application**

固定球阀适用于Class150~Class2500、PN16~PN160、JIS 10K~JIS 20K的各种管路上，用于截断或接通管路中的介质，选用不同材质，可分别适用于水、蒸汽、油品、液化气、天然气、煤气、硝酸、醋酸、氧化性介质、尿素等多种介质。固定球阀的驱动方式为蜗轮蜗杆传动、手动、气动或电动。固定球阀一般采用法兰连接，也可采用对焊连接。

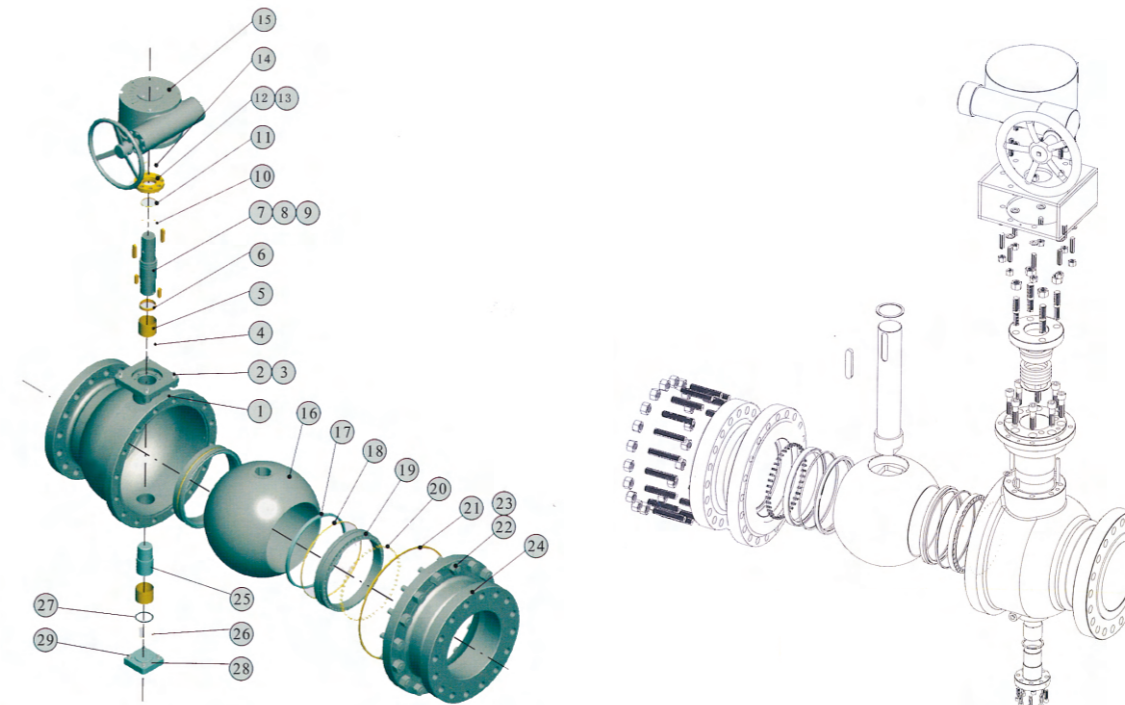
Trunnion Mounted ball valves are suitable for using on various kinds of pipelines of Class 150 Class 2500, PN16PN160, JIS10KJIS20K to cut off or turn on the pipeline medium, of which the operation types include worm gear, manual, pneumatic or electric actuators, being in general of flange connection, and butt welding end connection as well.

公称尺寸 Dimensions		Class150、PN20					Class300、PN50					Class600、PN110						
DN	NPS	L		D	D1	H	W	L		D	D1	H	W	L	D	D1	H	W
		长 Long	短 Short					长 Long	短 Short									
15	1/2	108		10	14	80	140	140		10	14	80	140	165	10	14	75	140
20	3/4	117		14	19	85	140	152		14	19	85	140	190	14	19	79	140
25	1	127		20	25	90	140	165		20	25	90	140	216	20	25	83	140
32	1 1/4	140		25	32	99	150	178		25	32	99	150	229	25	32	114	150
40	1 1/2	165		32	38	105	180	190		32	38	105	180	241	32	38	120	200
50	2	178		38	51	126	200	216		38	51	126	200	292	38	51	125	250
65	2 1/2	190		51	64	140	250	241		51	64	140	250	330	51	64	156	300
80	3	203		64	76	165	300	283		64	76	165	300	356	64	76	172	350
100	4	229		76	102	178	350	305		76	102	178	350	432	76	102	220	500
125	5	356		102	127	230	500	381		102	127	230	500	508	102	127	250	650
150	6	394	267	127	152	280	800	403		127	152	280	800	-	-	-	-	-
200	8	457	292	152	203	310	800	502	419	152	203	310	800	-	-	-	-	-
250	10	533	330	203	254	350	1000	568	457	203	254	350	1000	-	-	-	-	-

注：1、缩径球阀的连接法兰尺寸与全通径球阀相同  
2、部分规格的缩径球阀，其结构长度有长系列和短系列两个系列

Note: 1. Sizes of flange connection of the ball valve with reduced bore are the same as that of full bore ball valves.

2. There are two series of face to face dimensions, i.e., the long series and the short series, for some of ball valves with reduced bore.



**固定球阀典型结构及零部件组成 Typical drawing of trunnion ball valve and parts composition**

1-阀体; 2-螺柱; 3-螺母; 4-O型圈; 5-轴套; 6-隔圈; 7-阀杆; ; 8-键; 9-键; 10-O型圈; 11-垫片; 12-压盖; 13-螺钉; 14-O型圈; 15-蜗轮蜗杆传动装置; 16-球体; 17-密封圈; 18-O型圈; 19-阀座; 20-弹簧; 21-垫片; 22-螺柱; 23-螺母; 24-阀盖; 25-下轴; 26-O型圈; 27-调整垫; 28-下端盖; 29-螺钉  
1-Body; 2-Stud; 3-Nut; 4-O ring; 5-Bush; 6-Washer; 7-Stem; 8-Key; 9-Key; 10-O ring; 11-Gasket; 12-Gland; 13-Bolt; 14-O ring; 15-Worm gear; 16-Ball; 17-seat; 18-O ring; 19-Seat; 20-Spring; 21-Gasket; 22-St ud; 23-Nut; 24-Bonnet; 25-Trunnion; 26-O ring; 27-Adjusting chshion; 28-Down end cap; 29-Bolt