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## Ceramic Lined Ball Valve

## 陶瓷球阀

## Product Feature

## 产品特征

陶瓷球阀利用结构陶瓷的耐腐蚀性、耐磨损性的特点和先进的设计结构。广泛应用于电厂脱硫系统、化工厂等场所。该阀门可提供手动、电动、气动等多种驱动方式。球阀与阀座之间是经过精密研磨的球面密封，密封面的表面光洁度达到Ra0.1~0.2，加之氧化锆陶瓷的高硬度和自润滑特性，阀门的泄漏等级在达到VI级的同时，阀门的启闭扭矩小于同规格金属密封球阀和软密封球阀，这样避免了启闭扭矩过大而导致陶瓷球阀破裂的发生。因此本阀门具有良好密封性、较强的耐磨性，启闭灵活。

FREE-VALVE's ceramic lined ball valve takes advantage of the characters of corrosion resistance and wear resistance of the structural ceramic and the advanced designing structure. The valve is widely used in power plant desulfurizing system, chemical plant ,etc. According to the conditions, manual driving, electric driving and pneumatic driving and so on can be supplied. It is spherical seal of precision grinding between the ball and seat , the roughness surface of the sealing surface is up to Ra0.1 ~ 0.2, coupled with high hardness and good self-lubricating properties of Zirconia ceramics, in ensuring the valve leakage level can reach grade VI at the same time, the valve opening and closing torque is less than metal sealing and soft sealing ball valves with the same specifications, avoid the open/close torque too big and lead to broken ceramic ball. The valve has good sealing performance, high wear-resistance performance, open and close flexible.

## Ceramic Ball Structure

## 陶瓷球结构



通常情况下，陶瓷球阀分为O型和V型两种球阀结构，V型球阀主要用于流量调节，O型球阀主要起切断作用。V型开口的球阀具有等百分比流量特性，小开度时调节性能稳定，适用于对流量调节的精度性和稳定性要求较高的工况条件，同时V型也可切断介质中的颗粒纤维等杂质，具有密封面自清洁功能。O型球阀在流量调节精度要求不高的工况下，也可以作为调节阀使用。

Ceramic lined ball valves are divided into O - type and V - type ball valve. Usually, V - type valve ball is mainly used for flow control, O - type valve ball mainly plays a cutting role. The V type ball valve has the flow characteristics of equal percentage, and the regulating performance is stable when the opening is small. It is suitable for the working conditions with high requirements on the accuracy and stability of the flow regulation. At the same time, the V type ball valve can also cut off the impurities such as the particle fiber in the medium, and has the self-cleaning function on the sealing surface. The valve can also be used as a regulating valve under the condition that the accuracy of flow regulation is not high.



## Ceramic Control Ball Valve and Cv Value

## 陶瓷调节阀及Cv值

球阀V型口采用不同的V型球体可获得不同的调节曲线，同时配以精确的控制定位器，使流量调节准确可靠。调节型球阀换成陶瓷球阀后，球阀才能够真正的当调节阀使用，因为陶瓷具有极强的耐冲蚀能力，能够长期保证阀门的调节性和密封性。

FREE-VALVE company offers the V port ball of valve for precise modulating control service, At the same time with accurate control positioner, so that the flow regulation accurate and reliable. In addition to the feature and benefits that have made it the process industry's most preferred lined ball valve worldwide. The ceramic have extremely high shock and erosion resistance to maintain controlling ability and sealing property for a long time. So only with ceramic ball, ball valves can be used as controlling valves.

## Flow Coefficient Table

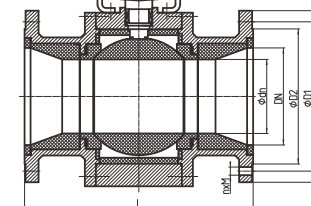
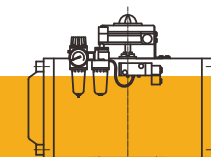
### 陶瓷球阀流量系数表

公称口径 Size Range		流量系数 Cv Value			
NPS	DN	O port	V60°	V45°	V30°
1/2"	15	10.2	7	4	3
3/4"	20	10.2	7	4	3
1"	25	18.2	12	8	5
1 1/4"	32	28.6	18	12	8
1 1/2"	40	47	30	20	13
2"	50	73	46	31	21
2 1/2"	65	114	72	48	32
3"	80	181	115	76	51
4"	100	292	185	123	82
5"	125	456	289	192	128
6"	150	712	452	300	201
8"	200	1025	650	432	289

## Products Performance Specification

### 产品性能规范

法兰标准The standards of flange ends	ASME B16.5, GB/T9113
公称压力Nominal Pressure	1.0MPa,Class150
公称口径Size Range	DN25 ~ DN 200, NPS1 ~ NPS8
连接形式Connection type	Flange
工作温度Working Temperature	≤200℃
驱动方式Operating Type	Manual, Pneumatic, Electric
密封面材质Sealing surface material	Engineering ceramic
陶瓷球阀Ceramic ball	Zirconia ceramics
压力测试 Pressure test	GB/T13927, API598
结构长度Face to Face	GB/T12221, ASME B16.10



## Application

### 适用范围

1. 煤化工行业的黑水、干燥粉和灰水等工况

Coal chemical industry: black water, dry pulverized coal and ash water, etc

2. 造纸业的石英、漂白浆液和滤液等工况

Pulp and paper industry: quartz, pulp rejects and filtrated water, etc

3. 钢铁厂的煤粉喷射、硅酸盐和石灰等工况

Steel industry: coal powder injection, silica and lime, etc

4. 电厂的脱硫装置、飞灰系统和石灰浆液等工况

Power plants: FGD, fly ash system, lime slurry, etc

5. 硅化工的有机硅、多晶硅和硅粉等工况

Silicon chemical: organic silicon, polysilicon and silicon powder, etc



## Main Connection and Installation Dimensions

### 主要连接及安装尺寸

公称压力 Nominal pressure	尺寸 (mm) Dimension						
	DN	dn	L	D	D1	D2	n × M
PN10	25	20	127	115	85	68	4 × M12
	32	25	140	140	100	78	4 × M16
	40	32	165	150	110	88	4 × M16
	50	40	178	165	125	102	4 × M16
	65	50	190	185	145	120	4 × M16
	80	65	203	200	160	138	8 × M16
	100	80	229	220	180	158	8 × M16
	125	100	254	250	210	188	8 × M16
	150	125	267	285	240	212	8 × M20
	200	150	292	340	295	268	8 × M20