

制造流程 Production Process



为您提供一切解决方案的合作伙伴



系列氧化锆陶瓷磨介

Series of Zirconia ceramic grinding media

本公司生产的氧化锆磨介是采用优质的原料和先进的加工工艺技术精制而成，适合各种砂磨机、磨剥机、搅拌球磨机、滚筒球磨机等对电子浆料、陶瓷粉末、磁性材料、电池原料、稀土材料、非金属矿、油漆、颜料、油墨、水墨、重钙、钛白粉、农药、食品医药原料等作高效、洁净和经济的分散和研磨。

与传统的研磨介质如氧化铝球、硅酸锆球、钢球、玛瑙球、玻璃珠相比，氧化锆磨介（Y-TZP磨介）具有高密度、高硬度、高韧性等特点，使其具有传统研磨介质所无法比拟的研磨效率。

TZP grinding media is made of superior material and advanced technical craft. It is suitable for any kinds of mills, such as micro-mill, attritor-mill, vibratory mill and ball mill. It can grind and disperse effectively and economically the material of electronic slurry, ceramic powder, magnetic material, battery material rare earth material, nonmetal ore, painting, dye, ink, calcium, titanium, pesticide, food stuff, medical and so on.

Comparing with other grinding media like Alumina media, zirconia silicate media, steel media, agate media and glass media. TZP grinding media has high density and toughness and superior hardness. So it has better grinding efficiency.

磨介材料常规性能指标 Grinding media material convention performance index

氧化锆陶瓷磨介材料是高纯氧化锆（纯度99.8%以上）为主体，以3mol%氧化钇为稳定剂，形成的稳定的四方相结构其常规性能指标如下表所示：
Zirconia ceramic grinding media material use high-purity zirconia (99.8% purity and above) as the main materials and 3mol% yttria as a stabilizer to form a stable tetragonal structure. Their composition shown as the table.

性能	Items	单位Unit	参数Typical Values
成分	Composition	wt%	94.8%ZrO ₂ 5.2%Y ₂ O ₃
硬度	Hardness(HV5)	Kgf/mm ²	1250
密度	Density	G/cm ³	6.01
压碎强度	Crushing Load	KN	15(φ5磨介)
抗弯强度	Bending toughness	MPa	900
弹性模量	Modulus Elasticity	GPa	200

备注：以上数据是根据通用的测试方法而测得的有代表性的平均值，并随正常生产情况的波动而变化。这些数据是作为一项技术服务内容而提供的，有时可能有所调整，所以，它们不应视作产品指示。如有需要，请与我公司联系以获取最新数据。

Remark: The above data is representative average value tested by general test methods. It will be a little different when the production situation is fluctuated. The data is only provided as a technical service. There will be some adjustments, so it cannot be taken as product quality index. If you need, please contact us to get the latest data.



氧化锆磨介相对其它磨介的优势:
Advantages:

- 极低的磨耗, 可防止物料污染。
Low wear loss that can prevent material from being polluted.
- 磨介密度高, 从而得到高的研磨效率。
High density that can promote grinding efficiency.
- 使用寿命长, 其综合运行成本低。
Service life is long. The operating cost is very low.

产品等级、密度、磨耗和外观指标见下表 The product grades, density, abrasion and appearance index see the following table

产品类别 Descriptions	性能指标 Performance Index			
	质量等级 Quality Grades	密度 Density(g/cm ³) Density(g/cm ³)	磨耗率(ppm/hr) abrasion rate	外观 Appearance
φ3 φ10等静压成型球形磨介 Sphere grinding media from Dia3 to Dia10mm with isostatic pressing method	优等品 Superior	≥6.03	≤1	无裂纹、无棱、无杂色、无吸红现象 No cracks, without edges, without noise, without absorbing red appearance.
	合格品 Qualified	≥6.0	≤8	无裂纹、棱不明显、允许少量杂色、无吸红现象 No cracks edges are not obvious, allow a small noise, without absorbing red appearance.
φ3以下滚动成型磨介 Sphere grinding media small than Dia3mm with rolling forming method	优等品 Superior	≥6.05	≤1	无裂纹、较圆、无杂色、无吸红现象 No cracks, rounder, without noise, without absorbing red appearance.
	合格品 Qualified	≥6.0	≤8	无裂纹、圆度一般、允许少量杂色、无吸红现象 No cracks, general roundness, allow a small noise, without absorbing red appearance.
柱形磨介 Cylinder	优等品 Superior	≥6.0	≤5	无裂纹、无崩口、无杂色、棱角过渡圆滑、无吸红现象 No cracks, no collapses, without noise, edges transition smoothly, without absorbing red appearance.
	合格品 Qualified	≥6.0	≤20	无裂纹和崩口、允许少量杂色、无吸红现象 No cracks, no collapses, allow a small noise, without absorbing red appearance.

磨耗率指加清水自磨的磨耗值, 不同的测试设备此值不同。
Abrasion rate refers to add water since the abrasion of grinding values, different test equipment this value is different

TZP磨介强度指标如下 TZP material and conversion performance index

压碎强度 (KN) Crushing Load	等静压球形磨介规格 Isostatic pressing sphere grinding media specification				
	φ3	φ3	φ6.5	φ8.5	φ10
	φ3	15.0	25	35	50

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标准规格 Standard specification

磨介规格(mm) Grinding media Specification		备注Note
球形 Sphere	φ0-0.5, φ0.5-0.8, φ0.8-1.0, φ1.0-1.2, φ1.2-1.4 φ1.4-1.6, φ1.6-1.8, φ1.8-2.0, φ2.0-2.5	滚出成型 Rolling
	φ2, φ3, φ4.5, φ5.0, φ6.5, φ7, φ8.5, φ10, φ12, φ15, φ20	干式等静压成型 Dry press
	φ25, φ30, φ40, φ50	干式+湿式等静压成型 Dry press+wet press molding
柱形 cylinder	φ7×7, φ7.5×7.5, φ9.7×9.7, φ12.7×12.7, φ15×15, φ20×20,	钢模干压+湿式等静压成型 Steel mould dry press+wet press molding

其它非标规格需新开模具
Other special not standard specification ones need to open the mould to produce



沁阳市华贝尔科技有限公司
Qinyang China bell technology Co.,Ltd

专业从事研究和开发高性能陶瓷的生产商
Specialized is engaged in the research and development of high performance ceramic manufacturers



系列氧化锆粉

Series zirconia oxide powder



公司采用湿化学法生产钇稳定的超细氧化锆粉，保证了钇的分散。严格的质量控制程序，保证了粉料批与批之间的稳定，而这正是成品制造中最关键的环节。公司在超细氧化锆粉料行业以稳定、高品质而著称，其粉料系列包括单斜氧化锆粉和多种不同钇含量的钇稳定氧化锆粉，分别适用于干压成型、等静压成型、注射成型、热压注成型、注浆成型、流延成型等多种成型方式。

The company produces yttria stabilized zirconium oxide powder by wet chemical process which ensures an uniform dispersion of yttria. The strict quality control system ensures consistent quality from batch to batch. This is the critical point for finished products manufacture. Our zirconium powder is famous for its consistent stability and quality. Our product series include monoclinic powder, tetragonal powder, cubic powder with yttria stabilized. They are suitable for dry pressing, CIP, injection, tape casting and so on.

系列氧化锆粉

Series Zirconia Ceramic Powder

氧化锆粉纯度指标 Zirconia powder purity index

成分Component	ZrO ₂ (wt%)	Y ₂ O ₃ (wt%)	Fe ₂ O ₃	SiO ₂	Na ₂ O	K ₂ O	MgO	CL
指标Properties	94.80±0.50	5.20±0.50	< 150ppm	< 450ppm	< 200ppm	< 100ppm	< 100ppm	< 800ppm

主要粉料种类 The main kinds of powder

序号 No.	产品类别 Products Name	粉料编号 Description	说明 Specification	用途 Usage	备注 Note
1	单斜气流粉 Monoclinic powder	H-0Y-Q	单斜粉 Monoclinic powder		高纯超细氧化锆粉 High-purity ultrafine zirconium oxide powder
2	四方气流粉 Tetragonal ultra-line powder	H-3Y-Q	3mol%钇稳定, 未加成型剂, 经气流粉碎处理 3mol% yttria stabilized, without forming agent, gas flow crushing		
3	四方造粒粉 Tetrahonal spray dried powder	H-3Y-Z1	3mol%钇稳定, 添加成型剂 3mol% yttria stabilized, binder	适用于制造研磨球结构件刀具等 Applicable to the manufacture of grinding ball structure tool etc.	适用于干压和等静压成型 High-purity ultrafine zirconium oxide powder
4		H-3Y-Z2	3mol%钇稳定, 添加硬脂酸镁成型剂 3mol% yttria stabilized, adding magnesium stearate forming agent		适用于干压和等静压成型 High-purity ultrafine zirconium oxide powder
5		H-3Y-Z3	3mol%钇稳定, 添加成型剂和新型润滑剂 3mol% yttria stabilized, forming agent and lubricant additive		适用于干压和等静压成型, 制品气孔少 Suitable for dry pressing and isostatic pressing forming Product type, low porosity
6		H-5Y-Z1	5mol%钇稳定, 造粒粉 5mol% yttria stabilized, granulation powder		喷涂, 氧传感器 Spraying, oxygen sensor
7	立方造粒粉 Cubic granulation powder	H-8Y-Z2	8mol%钇稳定, 造粒粉 8mol% yttria stabilized, granulation powder	适用于制造敏感元件和固体燃料电池等 Used in the manufacture of batteries and solid fuel such as sensitive element	
8	氧化锆增韧氧化铝粉 Zirconia toughening alumina powder	H-ZTA-Z1	按氧化锆含量的多少有以下几种 15%ZTA (15L)、20%ZTA (20L)、30%ZTA (30L)、40% (40L) According to the content of zirconium oxide, have the following kinds of powder: 15%ZTA (15L)、20%ZTA (20L)、30%ZTA (30L)、40% (40L)	复合结构陶瓷 Composite ceramic	

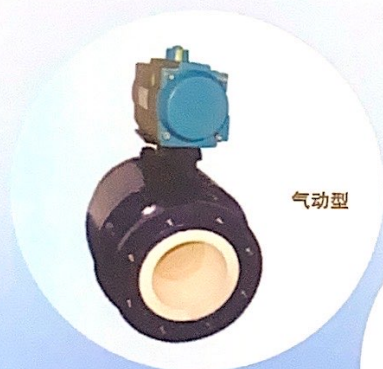
备注: 可根据客户要求, 提供标准产品。

Note: according to customer requirements, provide standard products.



全衬陶瓷球阀

产品特点



气动型



手动型



电动型

1 所有与介质接触的部分均为结构陶瓷，其化学稳定性及硬度极高，因此本阀具有极高的耐磨损、耐腐蚀、耐冲刷性能，且隔热性能好，热膨胀小。

2 球体采用先进的研磨设备及工艺制造，球圆度精度高，表面光滑，与阀座对研后，利用结构陶瓷的自润滑性，可取得极好的密封性能，彻底改变了金属硬密封球阀易泄漏、扭矩大、密封面不耐腐蚀的缺点。

3 用于高硬度的颗粒介质或有软颗粒但又有腐蚀的介质中，本阀门具有无可比拟的优势，也是唯一适合此类介质的阀门。目前已广泛用于电厂、钢厂的烟气脱硫、除渣、燃烧等系统，碱厂的盐水、蒸馏等工序，造纸厂纸浆控制系统等。

双闸板陶瓷干灰阀

应用举例

- ◆ 电厂-除灰系统
- ◆ 选矿厂、洗煤厂-干粉状物料的选择、输送
- ◆ 水泥行业-干粉料输送、放料
- ◆ 面粉厂-面粉输送管道

技术参数

- ◆ 公称通径: DN50-DN300
- ◆ 公称压力: 1.0MPa-2.5MPa
- ◆ 适用温度: $\leq 250^{\circ}\text{C}$
- ◆ 连接形式: 法兰
- ◆ 驱动方式: 气动



产品特点

双闸板陶瓷干灰阀主要适用于干粉物料的进料、出料及输送管道，它不仅采用了结构陶瓷作为关断及抗冲刷材料，而且设计了以弹簧双向柔性预紧压力自密封及闸板运行自转的结构形式，使得处于干粉料介质中的阀门密封面在频繁启闭过程中得到均匀磨损，从而保证了该类介质管道阀门的较高的关闭密封性能及超长使用寿命。该系列阀门设计有清积灰吹灰口，以方便内清扫或检修阀门时使用。

薄型单闸板陶瓷排渣浆液阀

产品特点

薄型单闸板陶瓷排渣浆液阀是专门针对固液两相流工况介质管道而设计制造的，在采用耐磨结构陶瓷制作密封面的同时设计有抗冲刷结构形式，阀门轻便、便于安装以及适应在不同排布管道上任意角度安装，能承受高速流体中颗粒介质的磨损、腐蚀，使用寿命长，性价比是普通阀门的数倍。加装电动、气动、电液动执行机构后可以有效地实现远程控制，阀门若节流或调节使用，开度远程调整误差可控制在1.0mm之内，运行时自锁性能好。



手动型



电动型

应用举例

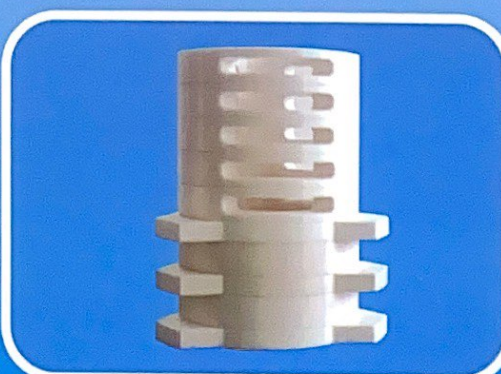
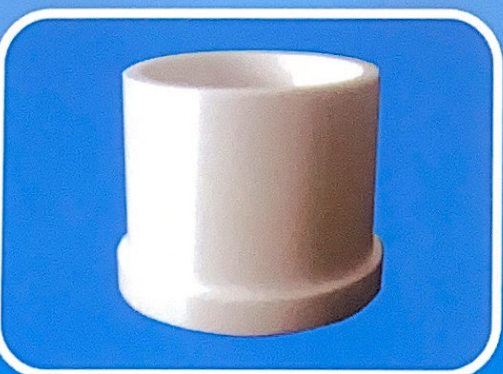
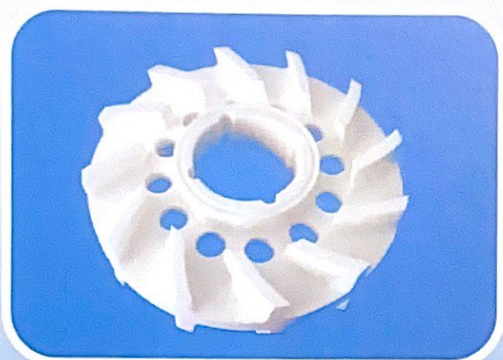
- ◆ 采矿、钢铁工业-煤炭、过滤渣浆等
- ◆ 净化装置-废水、泥浆、污物及带有悬浮物的水
- ◆ 造纸工业-任何浓度纸浆、料水混合物
- ◆ 电厂除灰-灰渣、浆液

技术参数

- ◆ 公称通径: DN50-DN600
- ◆ 公称压力: 1.0MPa-2.5MPa
- ◆ 适用温度: $-40^{\circ}\text{C} \sim 300^{\circ}\text{C}$
- ◆ 连接形式: 对夹
- ◆ 驱动方式: 手动、气动、电动、电液动



气动型





结构陶瓷，又称为工程陶瓷，精细陶瓷，与电子陶瓷、功能陶瓷等合称为工业陶瓷。它具有高硬度、高绝缘性、热传导、耐高温、抗氧化、耐腐蚀、耐磨耗、高温强度等特色，因此，在苛刻的工业应用条件下，所展现的高稳定性与优异的机械性能，在材料工业上已倍受瞩目，其使用范围也在不断扩大。结构陶瓷的发展，被称为第三次“材料革命”。

Structural ceramics, also known as the engineering ceramics, fine ceramics, electronic ceramics, functional ceramics and as industrial ceramics. It has superior strength, hardness, thermal conductivity, insulation, high temperature resistance, oxidation resistance, corrosion resistance, abrasion resistance, high strength and other characteristics, therefore, in the condition of environmental and engineering application is very harsh, showed high stability and excellent mechanical properties of materials, in the industry has been paid more attention, the scope of its application is expanding. The development of structural ceramics, known as the third "material revolution".

结构陶瓷材料的特性: Characteristics of structural ceramic materials

- 高强度，高断裂韧性
- 高硬度，大比重
- 稳定，耐磨损，抗腐蚀
- 超平滑表面，低摩擦系数
- 与钢相似的弹性模量和膨胀系数
- High strength, high fracture toughness
- High hardness, high proportion
- Stability, wear resistance, corrosion resistance
- Super smooth surface, low coefficient of friction
- The elastic modulus and thermal expansion coefficient of steel and similar

TZP结构陶瓷材料性能指标 Performance of TZP ceramic material

性能	Items	单位 Unit	参数 Typical Values
成分	Component	Wt%	94.8%ZrO ₂ 5.2%Y ₂ O ₃
硬度	Hardness	kgf/mm ²	1250
密度	Density	g/cm ³	6.0
抗弯强度	Bending Strength	Mpa	900
弹性模量	Modulus of Elasticity	Gpa	200

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铈锆陶瓷材料性能指标 Ce-TZP Structural ceramic material

性能	Items	单位 Unit	参数 Typical Values
硬度	Hardness (HV5)	kgf/mm ²	1000
密度	Density	g/cm ³	5.5
压碎强度	Crushing Losd	KN	15 (φ7)
抗弯强度	Bending Strength	Mpa	500
弹性模量	Modulus of Elasticity	Gpa	200

20%ZTA陶瓷材料性能指标 Performance of 20%ZTA ceramic material

性能	Items	单位 Unit	参数 Typical Values
硬度		kgf/mm ²	1400
密度		g/cm ³	4.2
压碎强度		KN	10 (φ7)
抗弯强度	Bending Strength	Mpa	500
弹性模量		Gpa	250

铈锆及ZTA的弹性模量均为参考值。The elastic modulus of ceria zirconia and ZTA are reference value.

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