



Zirconia Balls and Mill Jars

■ Feature

1. Good roundness, smooth surface, brightness, high density, high strength inertia and hardness, perfect grinding medium.
2. With very low wear rate, grinding media can prevent the material from.
3. Very long service life which can decrease its comprehensive operating cost.
4. Good stability, strong acid resistance and alkali proof.



■ Main Technical Data

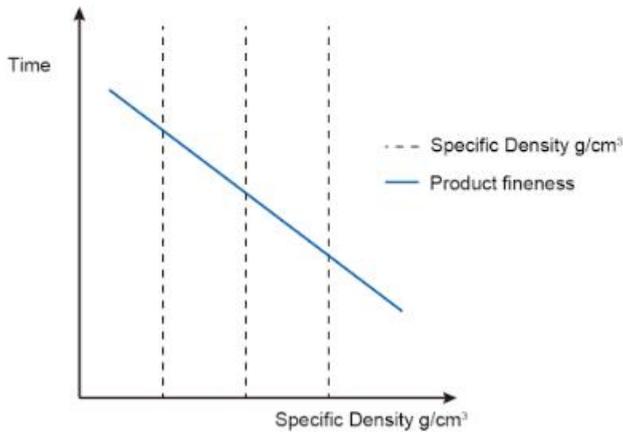
ZrO ₂	94.6%
Color	White
Specific Density	≥6.0 g/cm ³
Hardness	>10 GPa
Elastic Modulus	205 GPa
Fracture Toughness	7-10 MPa·m ^{1/2}
Bending Strength	1150 MPa
Grain Size	<0.5 μm
Thermal Conductivity	2.5 W/(m.k)
Bulk Density	-
Thermal Expansion Coefficient	9.6x10 ⁻⁶ (20-400°C)(K)



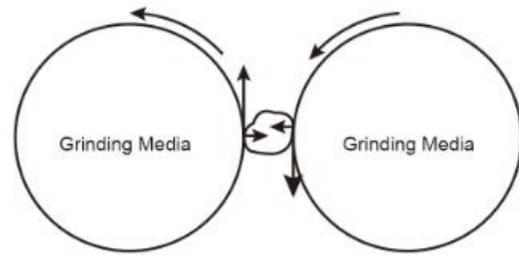
■ Applications

- Electronic ceramic
- Ink, paint, pigments, coating, dyes
- Food
- Cosmetic
- Pharmaceutical industry



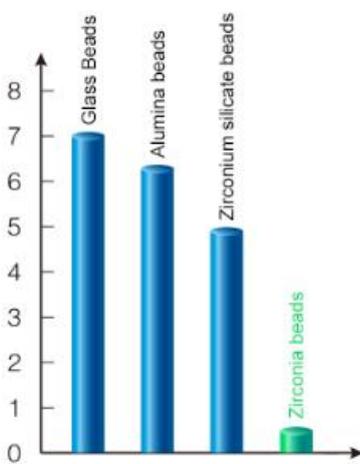


Correlation between grinding efficiency and bead density

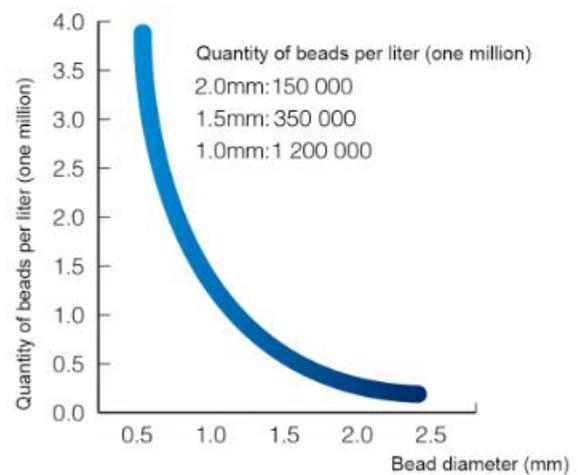


$$T = 1/2MV^2 + 1/2J\omega^2$$

Schematic diagram of dispersion



Grinding media wear level (% / t)



Quantity of beads per unit volume

Standard Sizes (ømm)

Beads

ø0.05-0.1	ø0.1-0.15	ø0.1-0.2	ø0.2-0.3	ø0.2-0.4	ø0.3-0.4
ø0.4-0.5	ø0.4-0.6	ø0.5-0.7	ø0.6-0.8	ø0.7-0.8	ø0.7-0.9
ø0.8-1.0	ø0.9-1.0	ø0.9-1.1	ø1.0-1.2	ø1.2-1.4	ø1.4-1.6
ø1.6-1.8	ø1.8-2.0	ø2.0-2.2	ø2.2-2.5	ø2.5-2.8	ø2.8-3.2
ø3.2-3.5	ø4	ø5			

Balls

ø6	ø7	ø8	ø10	ø15	ø20
ø30					

* Support customization.

■ Description

Zirconia Mill jars 60 times the hardness of regular steel, highly wear-resistant and resistant to acid and solvents. The grinding jars are extensively applied to in the fields of Paint, Ink, Geology, Metallurgy, Electronics, Construction Material, Ceramics, Chemical Engineering, Light Industry, Medicine, Environmental Protection and so on. Each jar set includes grinding jar, jar lid, rubber sealing gasket and different sizes of mixed zirconium oxide grinding balls.

■ Features

1. High cost-effective, low wear and long lifetime.
2. High specific gravity, high efficiency.
3. Highly wear resistant to acid and solvents.
4. Highly polished, smooth, easy to clean, low abrasion to the equipment.
5. High mechanical strength, good toughness, impact resistance, no broken beads.
6. Mainly used for lab planetary ball mill machines.



■ Description

Material	ZrO ₂
Jar Volume	100ml to 3000ml
Max Loading Capacity	2/3 capacity of the grinding jar
Density	6.0 g/cm ³
Color	White
Suitable for	Fibrous, abrasive samples
Max Working Temperature	320°C

We can customize various types of vacuum jar according to customer's needs.

■ Physical Parameters

Composition (%)	Specific Gravity (g/cm ³)	Bulk Density (g/cm ³)	Hardness (Mho's)
ZrO ₂ : 95±0.2	≥6.0	≥3.7	9



■ Specification Parameters

Volume of Jar (ml)	External Diameter (mm)	Inner Diameter (mm)	Height of Without Lid (mm)
50	56	40	50
100	70	50	60
250	90	70	80
500	100	84	108
1000	128	108	138
1500	132	112	165
2000	158	138	150
2500	158	138	180
3000	158	138	208

* Remarks: Size deviation within ±2mm; Weight deviation within ±0.2kg.



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