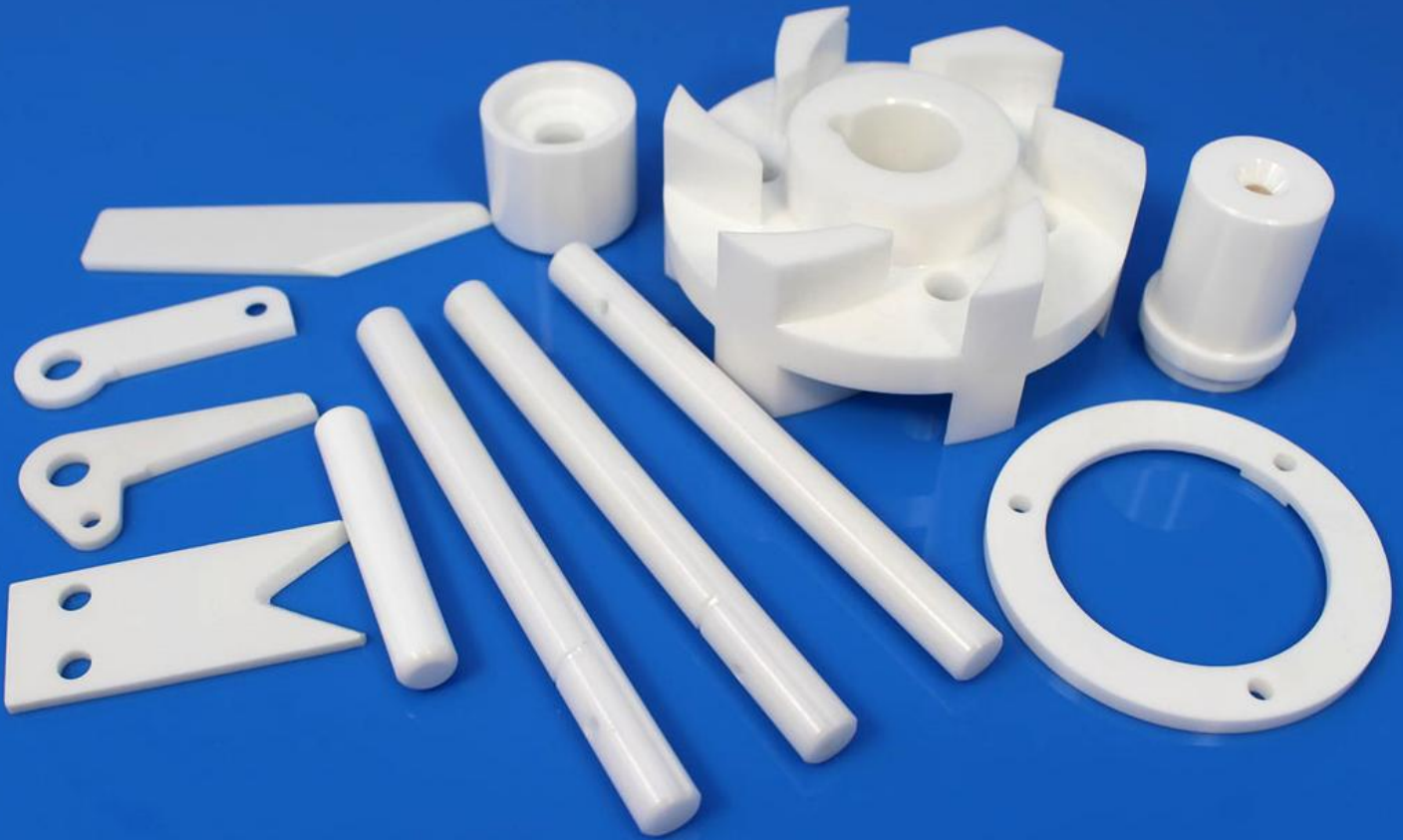




# Zirconia Ceramic

## ■ Zirconia Ceramic



Zirconia is a very strong industrial ceramic with excellent properties in terms of hardness, fracture toughness and corrosion resistance; it solves the most common characteristic of ceramics-high brittleness. Its unique crack propagation resistance and high thermal expansion make it an excellent material for joining ceramics and metals such as steel. Due to the unique properties of zirconia, it is sometimes referred to as “ceramic steel” .

## ■ Forming Technology

Dry Pressing

Hydrous Gel-casting

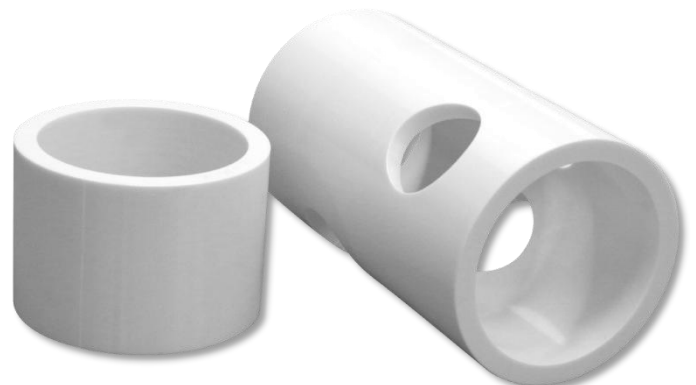
Tape Casting

Injection

Cold Isostatic Pressing

## ■ Properties and Advantages

- Chemical Resistance
- Wear Resistance
- High-Precision Machining
- Deep, Rich Appearance
- No Metal Allergy
- Electrical Insulation



## ■ Material Properties

Property	Zirconia
General	
Chemical Formula	ZrO <sub>2</sub>
Mechanical	
Density	6 gm/cc
Volume Resistivity	13 GPa
Modulus of Elasticity	220 GPa
Flexural Strength	1000 MPa
Compressive Strength	5690 MPa
Poisson's Ratio	0.31
Fracture Toughness	4 MPa m <sup>1/2</sup>
Electrical	
Dielectric Strength	11 ac V/mm
Dielectric Constant	33 (@ 1 MHz)
Volume Resistivity	10 <sup>13</sup> ohm-cm
Thermal	
Coefficient of Thermal Expansion	9.5 x 10 <sup>-6</sup> /°C
Thermal Conductivity	3 W/(m·K)
Specific Heat	0.46 x10 <sup>3</sup> J/(Kg·K)
Shock Resistance	300 °C Diff.
Maximum Working Temperature	1000 °C
Optical	
Index of Refraction	-
Birefringence	-
Transmission Band	-
<p>All properties are at room temperature unless otherwise noted.</p> <p>Engineering data are representative, and are not intended as absolute nor warrantable. Manufacturer's Data shown is blended from multiple sources and therefore illustrates the marketplace.</p>	

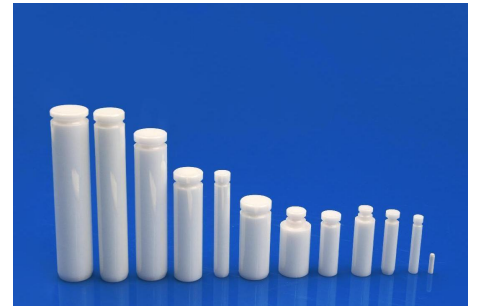
## ■ Products Made from Zirconia



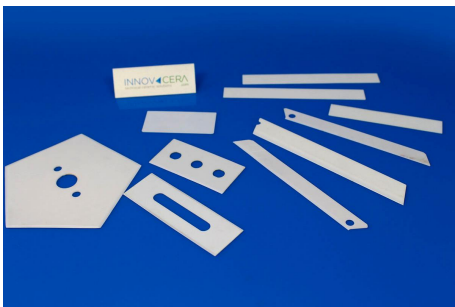
Ceramic Valve components



Bearings



Ceramic Plunger, Pistons and liners



Ceramic Cutters



Tools for Wire Drawing



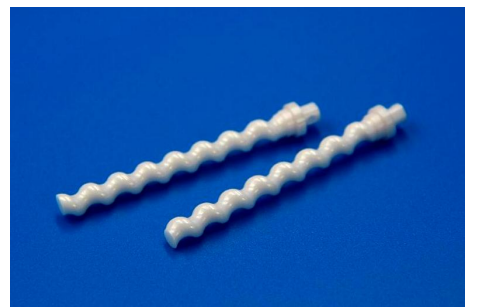
Ceramic Dies



Medical Assemblies



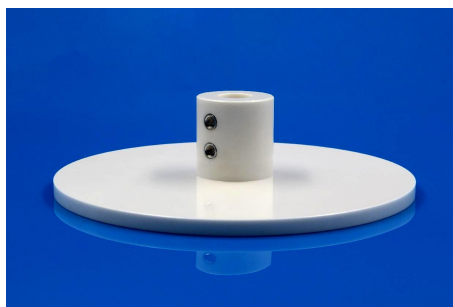
Pipes and tubes



Customized Parts



Customized Parts



Customized Parts



Customized Parts





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