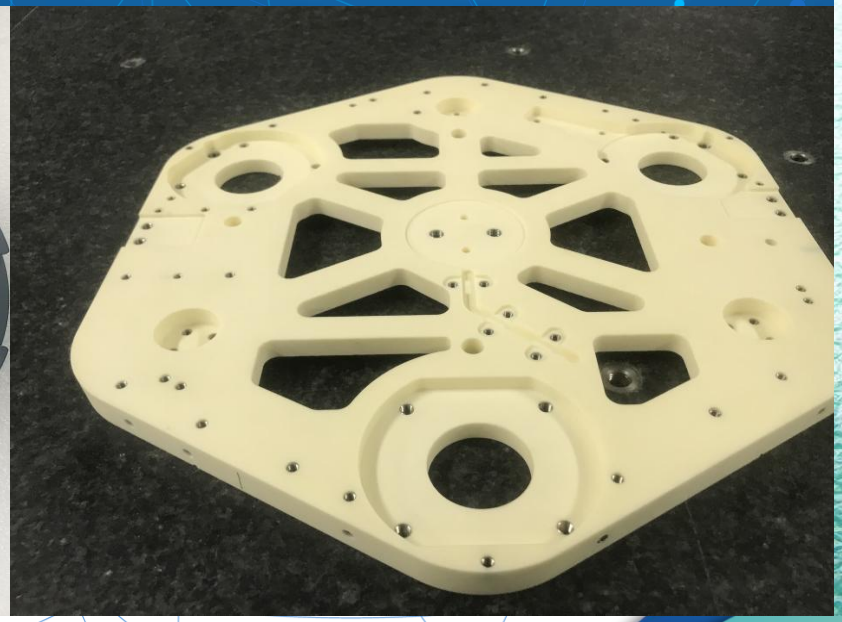
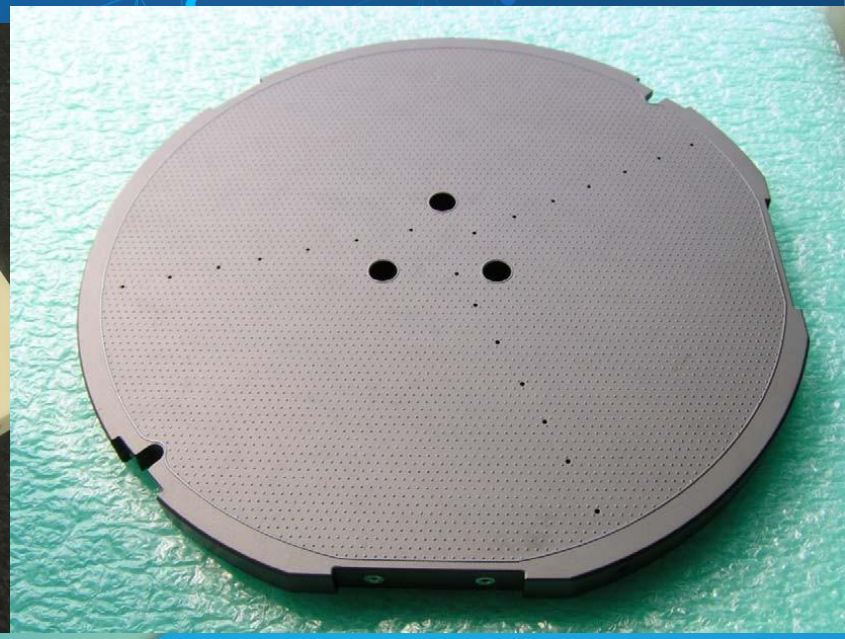
Suzhou Jorinn New Materials Technology Co., Ltd

Precision Ceramic Machining Manufacturer





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Company Introduction

The core team members of Suzhou Jorinn New Materials Co., Ltd. have experience in semiconductor process design and R&D and processing of non-metallic materials. Committed to the design simulation, processing testing, surface treatment and other services of hard and brittle material precision parts.

Today, Jorinn New Materials is moving forward to become a scientific research and innovation enterprise integrating ultra-precision machining and testing; It is our consistent vision to provide customers with first-class ultra-precision products and services.

Products & Services

01 Planar vs. spherical

The maximum diameter is 600mm, the flatness is 0.2-1μm, and the roughness is 5nm.

02 Aspheric and freeform surfaces

Surface accuracy20μm，.....

03 Ceramic and crystalline substrate processing

Ceramic substrates：Up to 6 inch sheets，the thinnest 0.02mm, roughness10nm。

04 Special handling

The unique grinding and surface treatment process can effectively alleviate the generation of Particulate.

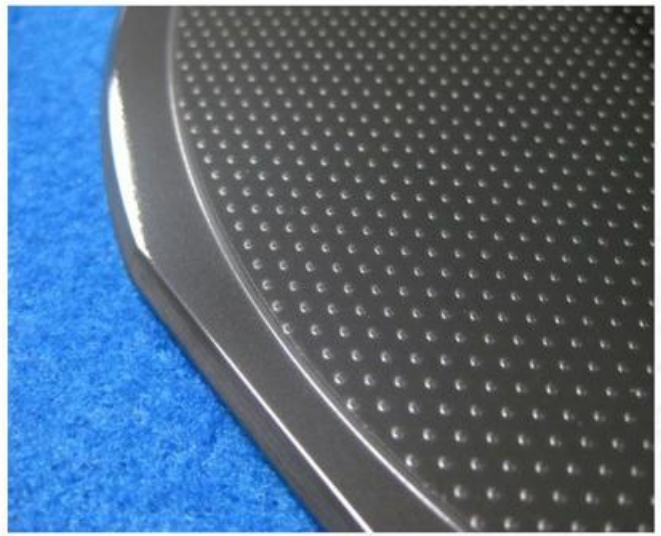
05 Other products

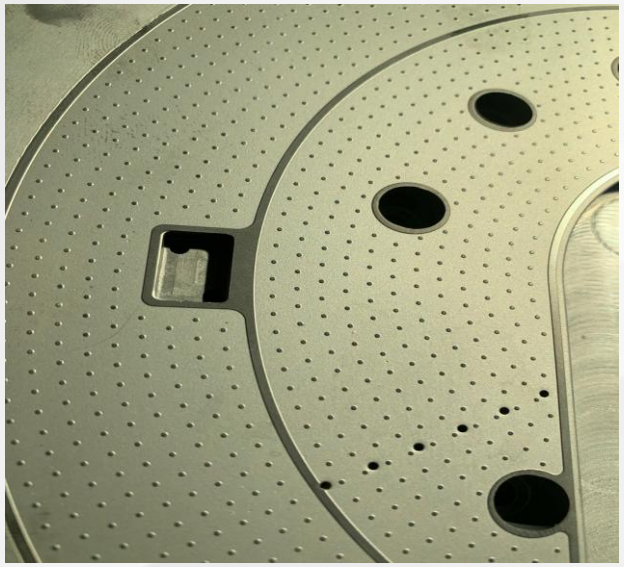
Radial dimensions are achievable0.0015mm，Roundness0.001mm，Concentricity0.0025mm，roughnessRa0.02μm，Maximum outer diameter600mm，Minimum pore size0.02mm。

06 Capacity features

Provide high-end customers with high-precision, small-batch, multi-variety, customized product development, production and service

Products & Applications - Semiconductors-SIC Chuck



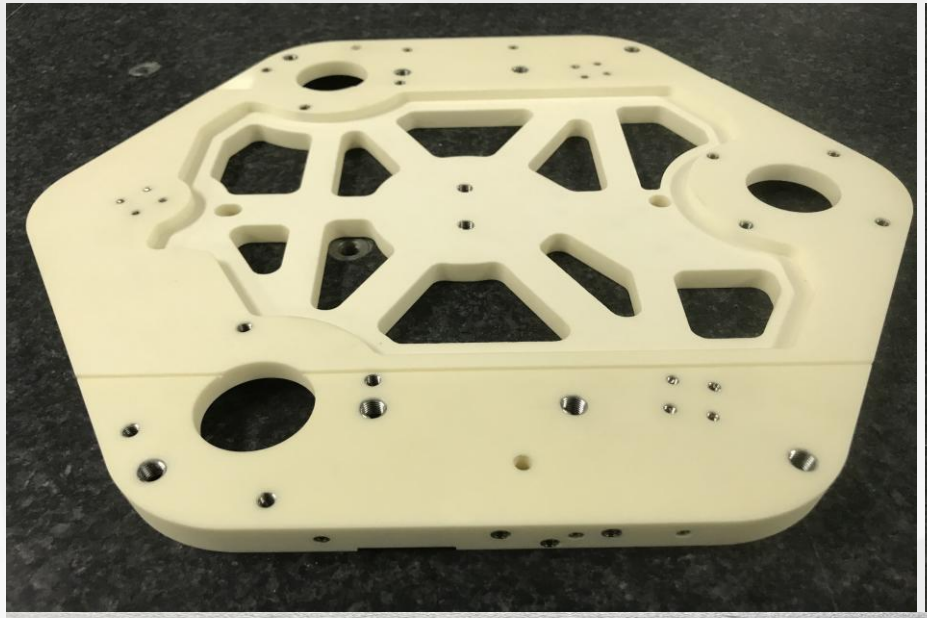


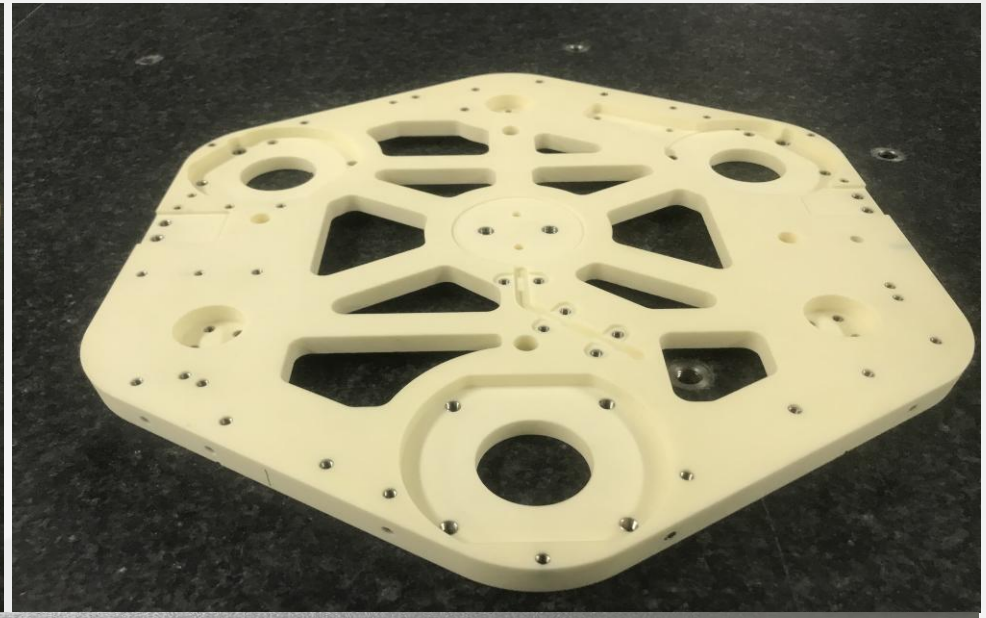
parameter	Index
Flatness	0.3μm
Applicable Specifications:	6” 8” 6/8 “ 12” 8/12 “
Surface features	Bump type, groove type
Pinheight	0.1-0.2mm
Pin Diameter (Min)	Ø0.2mm
Pin Spacing (minimum)	3mm
Ring Width (Min)	0.3mm
Surface roughness	Ra 0.02
Thickness tolerances	±0.01 mm
Diameter Tolerance	± 0.01 mm
Parallelism tolerance	≤ 3 μm

SIC grinding disc features

- High thermal conductivity; Low coefficient of expansion
- Uniform heat resistance
- High stiffness, better wear resistance
- Excellent chemical corrosion resistance; Lightweight

Other products-Stage





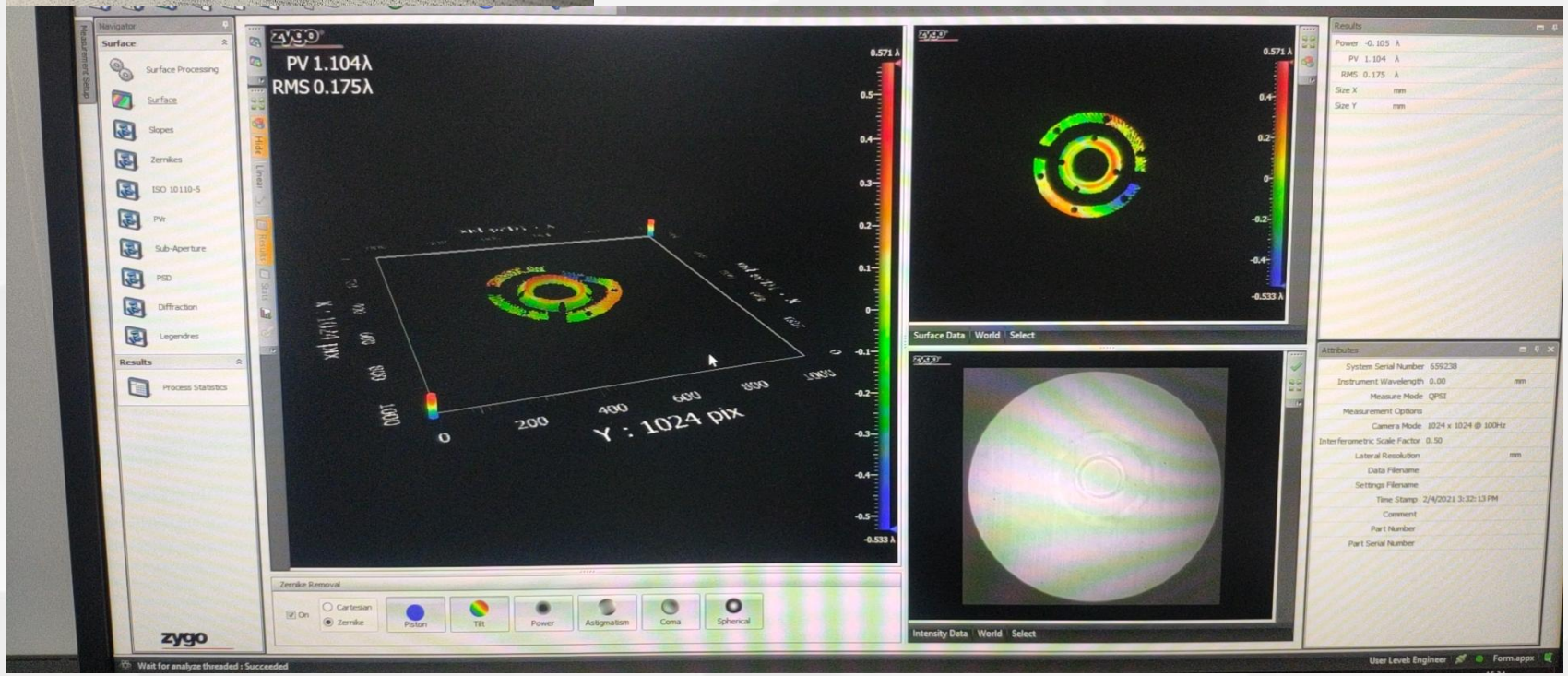
Other products-Ceramic Ring

Product Introduction

Material: Aluminum nitride ≥180W/mk

Surface accuracy: 1μm

Parallelism: 1μm



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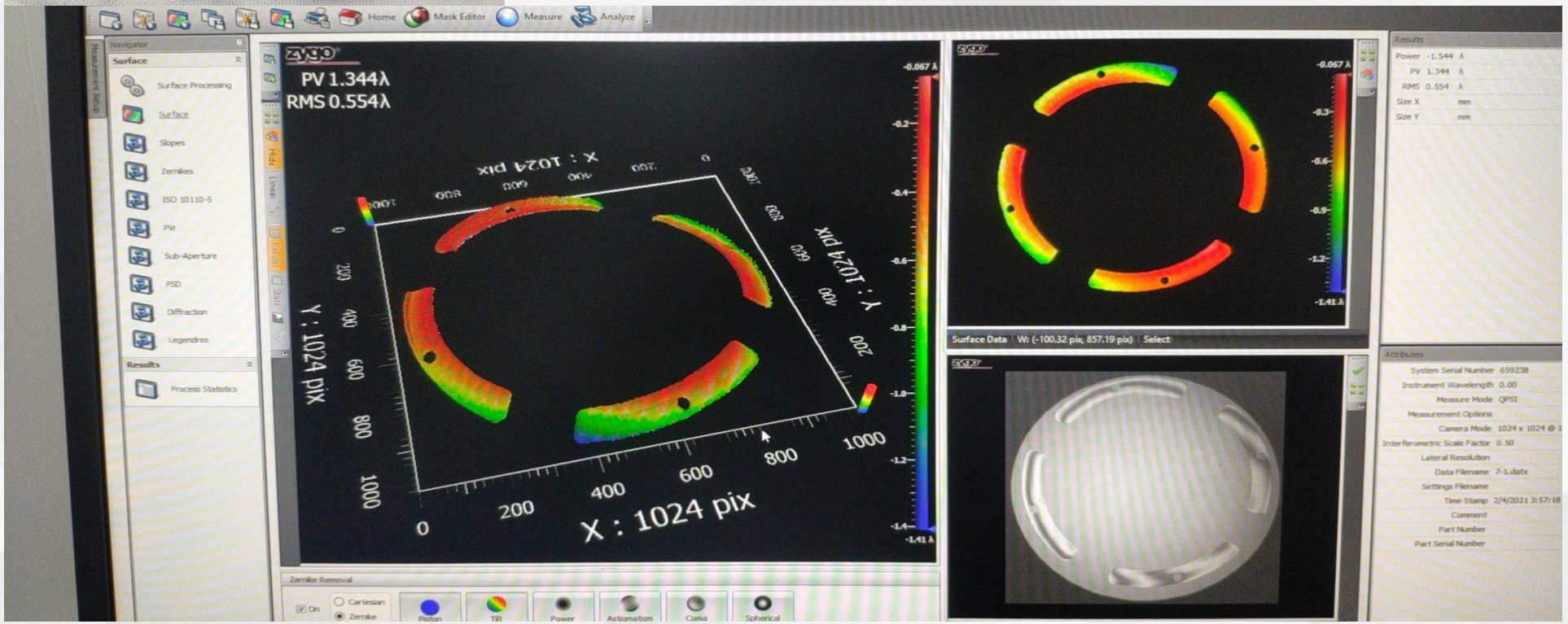

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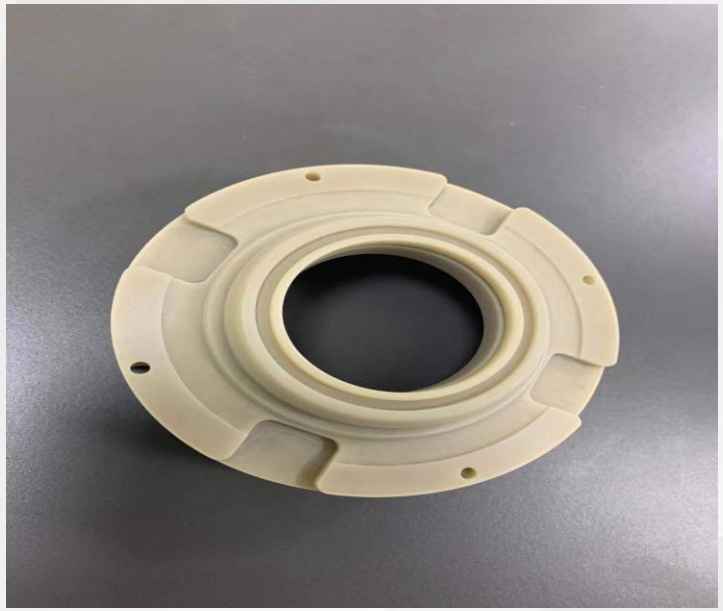
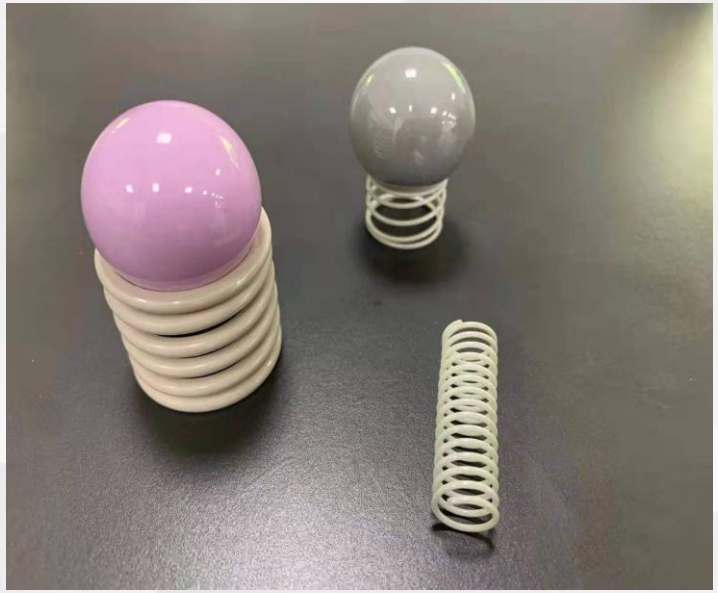
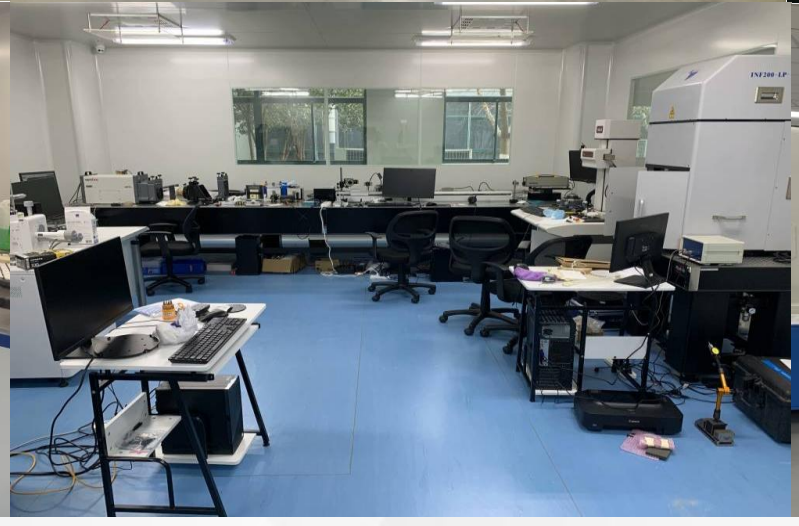




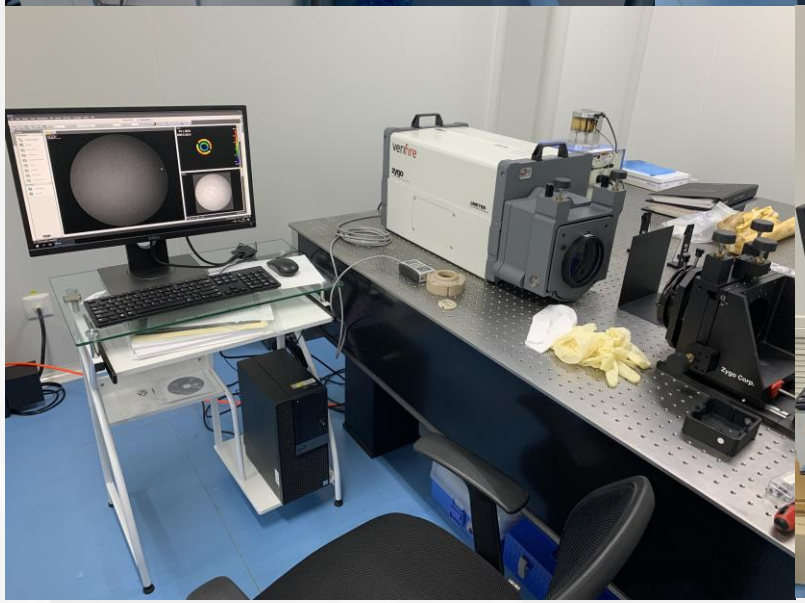
Production capacity - a corner of production








Production capacity - testing equipment



Testing equipment
Coordinate measuring machine
Φ200 mmCaliber plane interferometer
Φ1000 mmCaliber plane interferometer
Profiler
Thermal imager
Phase-shifted spherical interferometer
High-frequency microscopic camera analysis system
Scanning electron microscopy
High-frequency oscilloscope
Optical vibration isolation platform
CNC systems from Beckhoff, Germany
German LTI drive control system (5 axes)

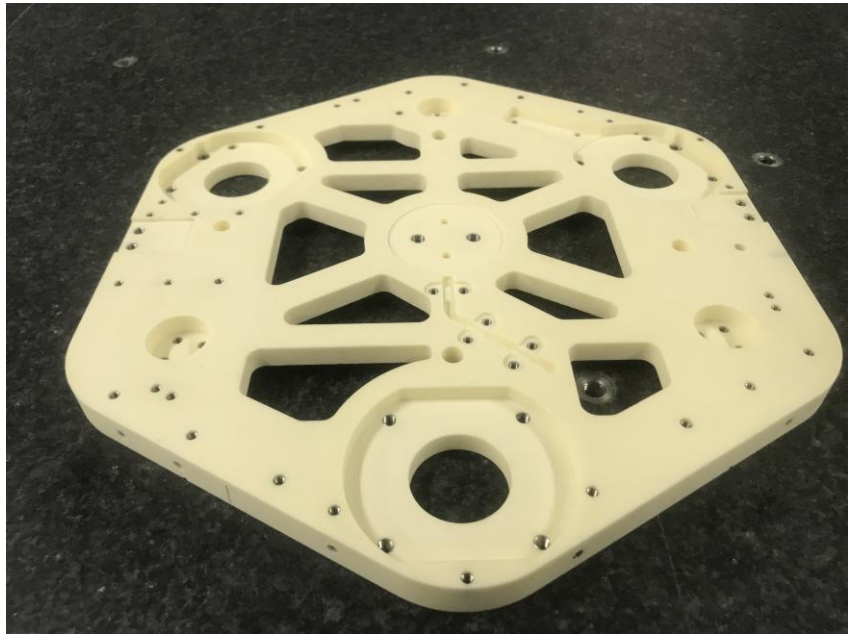
Material introduction - alumina ceramic AL_2O_3

Key features:

- Insulation
- Heat resistance
- Abrasion resistance
- Corrosion resistance

Main Applications:

- Electrical/electronic components
- Insulators
- Wear-resistant parts
- Pan-semiconductor equipment
- General mechanical and hydraulic components

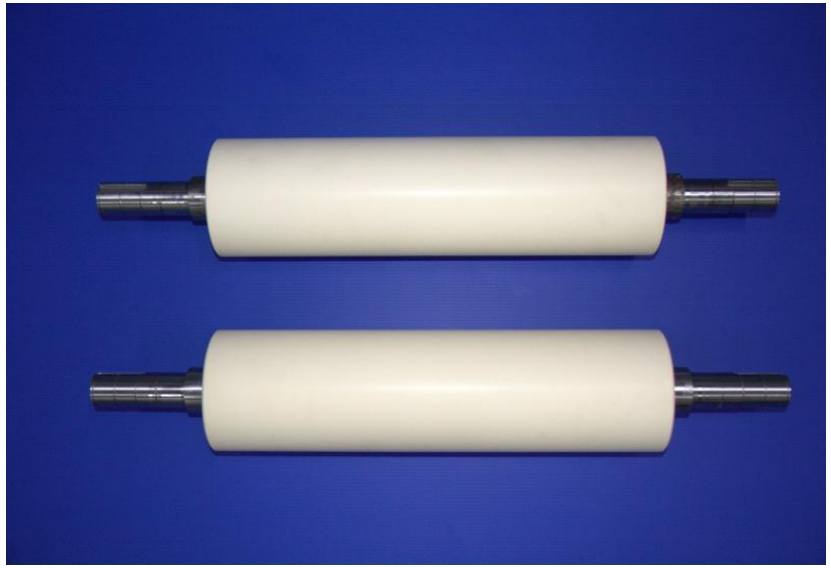


Material Introduction - Zirconia Ceramic ZrO_2

Zirconia ceramics use ZrO2 as the main component, and according to the added stabilizers, there are mainly yttrium-stabilized zirconia, magnesium-stabilized zirconia and cerium-stabilized zirconia. Zirconia ceramics usually have high mechanical strength and fracture toughness, and have good corrosion resistance. Magnesium-stabilized zirconia retains good mechanical properties at higher temperatures (600 °C).

Key features:

- High strength, high fracture toughness (room temperature)
- Wear-resistant parts
- Coefficient of thermal expansion similar to that of metal



Main applications:

- Tooling tool
- Abrasion resistance
- Thermal insulation
- Thermal insulation

Material introduction - toughened alumina ceramic ZTA

Compared with traditional alumina ceramics, toughened alumina has the characteristics of high mechanical strength, wear resistance and corrosion resistance.

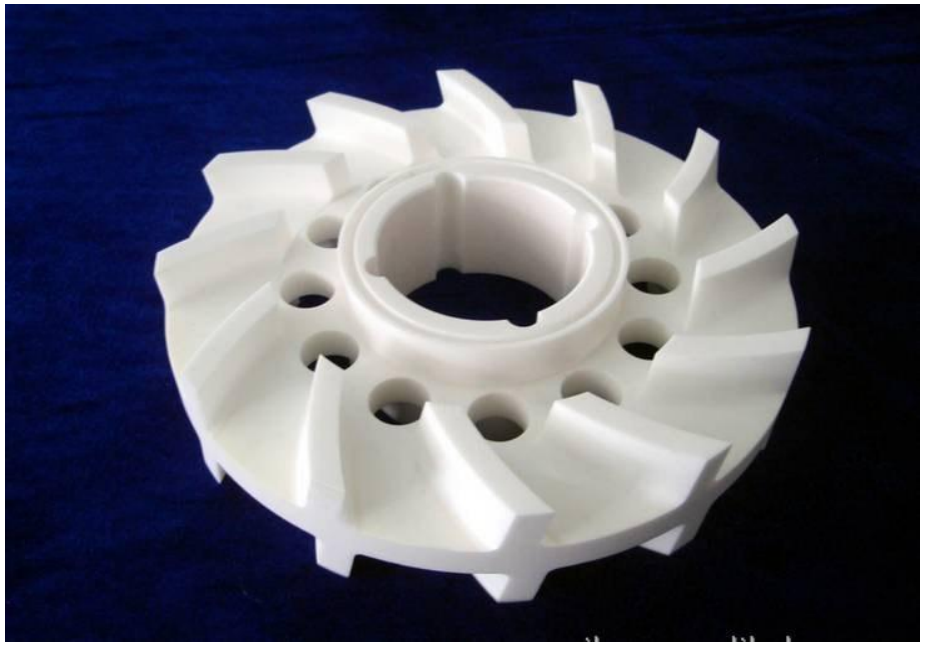
The focus is on strengthening the toughness of the material. It has a very attractive application prospect in terms of wear-resistant parts and knives of equipment.

Key features:

- Enhanced toughness
- Wear-resistant parts
- Good mechanical properties

Main applications:

- General mechanical parts
- Corrosion resistance



Material Introduction-Silicon nitride ceramic Si_3N_4

Compared with silicon carbide, silicon nitride has better mechanical strength and thermal shock resistance, and has good insulation, wear resistance and corrosion resistance.

Key features:

- Abrasion resistance
- Corrosion resistance
- Insulation
- High mechanical strength
- Resistant to thermal shock

Main Applications:

- Wear parts
- Spare parts for LCD equipment
- Parts for high-temperature applications
- Imaging insulated skeletons

Material Introduction-Silicon Carbide Ceramic SiC

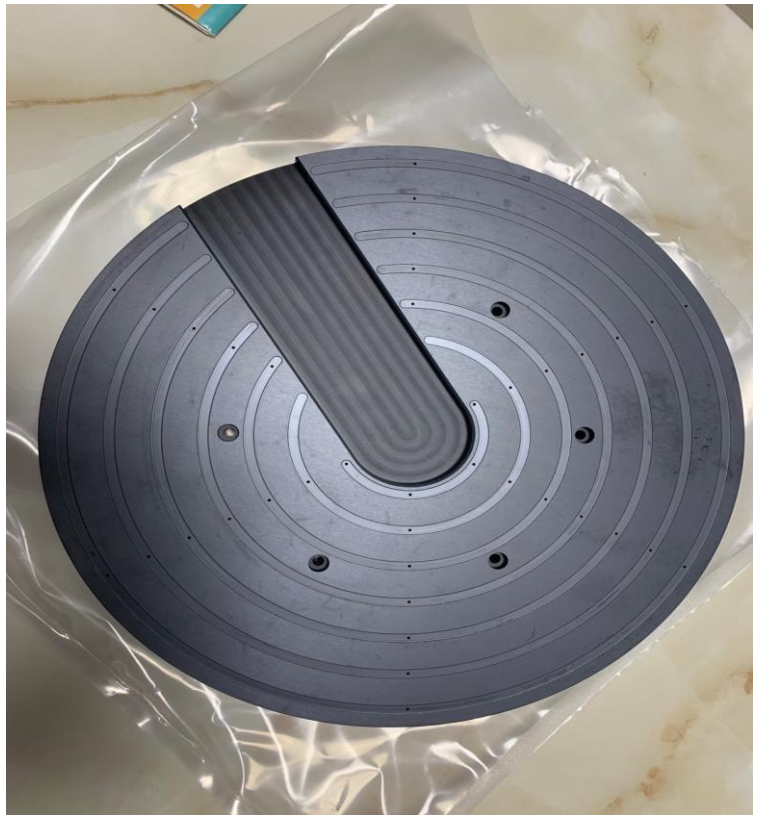
Silicon carbide materials have high hardness, high wear resistance and chemical resistance. The thermal conductivity is good, and the performance is stable at high temperatures. High-temperature structural materials.

Key features:

- High hardness
- High thermal conductivity
- Chemical resistance
- Stable mechanical properties at high temperatures

Main applications:

- Wear-resistant parts
- Seals
- High-temperature components



Material Introduction-Aluminum nitride ceramic ALN

Aluminum nitride has good thermal conductivity and thermal shock resistance, and also has good insulation. The crystal structure is very dense and has good resistance to plasma corrosion.

Key features:

- High thermal conductivity
- Thermal shock resistance
- Insulation:
- Plasma etching resistance

Main applications:

- Spare parts for LCD equipment
- Insulators
- Thermally conductive insulating filler material
- Ceramic substrates

材料特性

Ceramic Materials Datasheet

Ceramic Properties Standard				Alumina			Zirconia			Silicon nitride	Silicon carbide	Aluminum nitride	Aluminium titanate
				A-95	A-99	A-997	ZTA	Mg-PSZ	3Y-TZP	Si_3N_4	SIC		
Properties*		Units	Test standard	Nom.95% Al_2O_3	Nom.99% Al_2O_3	Nom.99.7% Al_2O_3	Zirconid-Toughened Alumina	MgO Partially Stabilized Zirconia	Y_2O_3 Partially Stabilized Zirconia	G.P.S	SSIC	ALN	Al_2TiO_5
Density		gm/cc	ASTM-C20	3.65	3.8	3.9	4.1	5.72	6.02	3.23	3.1-3.15	3.2-3.25	3.2
Water Absorption		%	ASTM-373	0	0	0	0	0	0	0	0	0	15
Color		-	-	WHITE	IVORY	WHITE /IVORY	WHITE	YELLOW	IVORY/YELLOW/BLUE/BLACK	BLACK GRAY	Black	Milky white	Gray
Flexual Strength(MOR)	20℃	Mpa	ASTM-F417	300	310	370	550	500	1200	720	≧390	350	40
Elastic Modulus	20℃	Gpa	ASTM-C848	320	340	390	360	250	210	300	400	320	20
Poisson's Ratio	20℃	-	ASTM-C848	0.21	0.21	0.22	0.23	0.30	0.23	0.26	0.16	0.24	
Compressive Strength	20℃	Mpa	ASTM-C773	2100	2200	2500	2900	2500	3000	3800	1600		80
Hardness		HV	KNOOP 1000gm	1400	1600	1800	1600	1100	1300	1700	2600	1200	300
Tensile Strength	25℃	Mpa（psix10^3）	ACMA TEST #4	193	221	262	290	352	-				
Fracture Toughness	K(Ic)	Mpa $m^{1/2}$	NOTCHED BEAM	3-4	3-4	4-5	5-6	8	13	6.7	5		
Thermal Conductivity	20℃	W/m K	ASTM-C408	22	25	30.0	27.0	3	2.2	21.0	110.0	170.0	1.5
Coefficient of Thermal Expansion		1x10^{-6}/℃	ASTM-C372	8	8.2	8.2	8.3	10.2	10.3	3	4	4.6	≦1
Thermal Shock Resistance	ΔTc	℃	NOTE3	250	200	280	300	450	300	750	900	NO Data	1300
Maximum Use Temperature		℃	NO-LOAD COND.	1500	1600	1700	1500	2100	1000	1300	1600		1600
Dielectric strength		V/m	ASTM-D116	$15*10^6$	$15*10^6$	$15*10^6$	$9*10^6$	$13*10^5$	$11*10^6$	$20*10^6$		$20*10^6$	$50*10^8$
Dielectric Constant	1MHz	εr 25℃	ASTM-D150	9	9	9.9	10.6	28.0	33.0			9	
Dielectric Loss(tan delta)	1MHz	25℃	ASTM-D150	0.0004	0.0002	0.0001	0.0005	0.0017	0.0016			0.0004	
Volume Resistivity	25℃	ohm-cm	ASTM-D1829	$>10^{14}$	$>10^{14}$	$>10^{14}$	$>10^{14}$	$>10^{13}$	$>10^{13}$				
	500℃	ohm-cm	ASTM-D1829	$4x10^9$	$4x10^9$	$2x10^{10}$	$2x10^9$	$2x10^5$	$2x10^4$				
	1000℃	ohm-cm	ASTM-D1829	$5x10^5$	1x106	$2x10^6$	$3x10^6$	$<10^3$	$<10^3$				

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