Machinable Glass Ceramic

Machinable Glass Ceramic have high mechanical strength, excellent dielectric properties and thermal properties, and good chemical stability. The most outstanding feature of machinable ceramics lies in its machinability, which can meet high-precision technical requirements, without making molds, and directly process and shape, which greatly reduces the design and processing cycle.

Features Of Machinable Glass Ceramic

- Machinability;
- High-temperature performance;
- Electrical insulation;
- Thermal insulation;
- Chemical resistance;
- Dimensional stability;
- Non-porous.

Typical Applications

- Precision coil former;
- High voltage insulator;
- Spacers, cavities and reflectors in laser components;
- Thermal fracture in high temperature processing equipment.;
- Coil support and vacuum feedthrough;
- Aircraft hinges, fixing rings on windows and doors;
- Supports and components;
- Fixing device and reference block in power generation device.

Great Ceramic are experts in the production of technical ceramics, we offer ceramic processing, ceramic materials, ceramic casting, ceramic metal packaging and surface metallization services. Contact us for more information!

Machinable Glass Ceramic Properties

- Machinable Glass Ceramics (MGC);
- Corning Macor Ceramics (Macor);

MECHANICAL

Properties	Unit	MGC	Macor
Colour	——	White	White
Density	g/cm³	2.5	2.52
Hardness	GPa	4~5	2.5
Compressive Strength	MPa	508	345
Flexural Strength	MPa	108	94
Fracture Toughness	MPa · m1/2	——	1.53
Modulus of Elasticity	GPa	65	66.9
Poissons Ratio	——	——	0.29

THERMAL

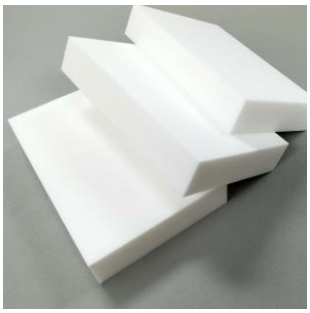
Properties	Unit	MGC	Macor
Maximum Use Temperature	℃(No load)	800	800
Thermal Conductivity	20℃, W/(m · K)	1.71	1.46
Thermal Expansion	25 – 200℃, × 10^-6/℃	7.2	9.3
Specific Heat	J/(kg · K)	——	0.79

ELECTRICAL

Properties	Unit	MGC	Macor
Dielectric Constant	1MHz	6~7	6.03
Dielectric Strength	KV/mm	> 40	45
Volume Resistivity	25℃, Ω · cm	> 10^16	> 10^17

***The values are typical material properties and may vary according to products configuration and manufacturing process.**

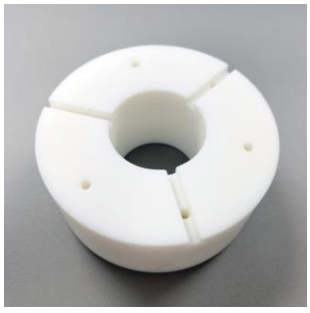
Machinable Glass Ceramics Product Introduction



MGC Ceramic Plates
MGC ceramic plates can be processed like metal, but have high heat resistance, electrical insulation and dimensional stability, making them suitable for a variety of applications.
Learn More

MGC Ceramics Tubes
Machinable Glass Ceramics tubes offer high thermal resistance, excellent machinability, chemical inertness, and low thermal conductivity, making them ideal for applications requiring precise dimensional control and thermal stability.
Learn More

MGC Ceramic Insulators
Machinable glass ceramic insulators have the advantages of high mechanical strength, excellent electrical insulation properties, thermal shock resistance, and the ability to be accurately processed into complex shapes.

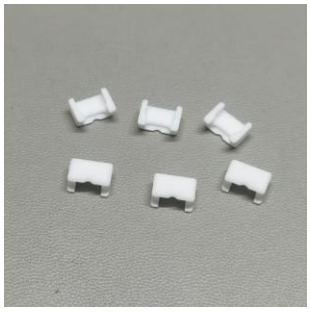


MGC Ceramic Bases
Machinable glass ceramic bases offer excellent thermal stability, high mechanical strength, chemical resistance and precise dimensional control.

Custom Machining
Great Ceramic has a wide range of grinding and machining equipment to provide customers with efficient ceramic machining solutions.
Learn More

OEM
Great Ceramic can custom-process machinable glass ceramics according to drawings and create complex shapes, making them suitable for a variety of applications.
Learn More

MGC Gaskets
MGC gaskets offer the combined benefits of easy machining with conventional tools, high-temperature resistance, electrical insulation, and excellent chemical resistance, making them a versatile choice for demanding sealing applications.



CNC Machining
At Great Ceramic, we will CNC machine precision ceramic parts. Use automated equipment to provide efficient products and services.

Instructions For Using Machinable Ceramics

Machinable ceramics are easily affected by halogen acids such as HCl (hydrochloric acid). Tests showed that 2.52 grams (1cc) of the glass ceramic sample was exposed to hydrochloric acid with a pH of 0.1 and lost 100 mg (3.96%) within 24 hours. When exposed to sodium hydroxide with a pH of 13.2, it lost 0.396% in 6 hours. When it exceeds 600°C (in a vacuum), fluorine will precipitate, which is manifested as boron trifluoride or hydrofluoric acid.

The Composition Of Machinable Ceramics

Machinable ceramic is a composite material made of fluorophlogopite in a borosilicate glass matrix at a ratio of 45/55, respectively. Its ingredients are as follows:

- 46% silicon dioxide (SiO2)Machinable ceramic microstructure
- 17% Magnesium Oxide (MgO)
- 16% alumina (Al2O3)
- 10% potassium (K2O)
- 7% boron (B2O3)
- 4% fluorine (F)

Shenzhen Great Precision Ceramic CO.,LTD
Shenzhen City, Guangdong Province, China
Email: sales@great-ceramic.com
Website: www.great-ceramic.com