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 Advanced Technical Ceramic Solutions



Boron Nitride PCBN1000

General Properties

PCBN1000 is a hot-pressed boron nitride, engineered to work in the most demanding applications. This high purity material is designed to exhibit low thermal expansion while having superb thermal shock properties.

PCBN1000 is easily machinable, has an excellent thermal conductance, very low thermal cycling behavior in use and has good chemical resistivity to molten metal and glass. The lubricity of the material enables low frictional values even at elevated temperatures.

PCBN1000 is also an electrical insulator with outstanding properties, high dielectric strength and electrical resistivity.

The properties of PCBN1000 are ideal for high temperature applications where the only alternative is using a boron nitride with no binder. It can be made up to 300mm in diameter and 300mm in length.

Applications

- Electric propulsion discharge channels for Hall Effect Thrusters
- Setter plates for high temperature furnaces
- Crucibles for molten glass and metals
- Electrical insulators for high temperatures and high voltages
- Vacuum feedthroughs
- Plasma chamber lining and fittings
- Nozzles for non-ferrous metals and alloys
- Thermocouple protection tubes and sheaths
- Laser supports

Typical Properties

Properties	Unit	PCBN1000
Temperature	°C	850, Air 2000, Inert
Density	g/cm ³	>=1.9
CTE, RT to 1000°C (para)	10 ⁻⁶ /K	5.5
CTE, RT to 1000°C (perp)	10 ⁻⁶ /K	1
Flexural Strength (para)	MPa at 25°C	14
Flexural Strength (perp)	MPa at 25°C	30
Dielectric Strength	KV/mm	>40
Thermal Conductivity	W/mk	21
Al	%	0.01
Si	%	0.01
Ca	%	0.04
O	%	1

The values presented are mean and typical of those resulted from test samples. They are provided as an indication only to serve as guidance in the design of ceramic components and are not guaranteed in any way. The actual values can vary according to the shape and size of the designed component.

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