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 Advanced Technical Ceramic Solutions

Boron Nitride PCBN4000

General Properties

PCBN4000 is a unique hot-pressed boron nitride, engineered to work in the most demanding applications. This stronger, harder Boron Nitride grade exhibits low thermal expansion with superb thermal shock properties.

PCBN4000 is the economical workhorse grade of hexagonal Boron Nitride. It is easily machinable to very tight tolerances, has good thermal conductivity, very low thermal cycling behavior and chemical resistivity to molten metals to over 1000C. The lubricity of the material enables low frictional values.

The properties of PCBN4000 are ideal for where the strength of the calcium borate glass binder is needed. It can be machined in large shapes from billets up to 490 x 490 x 400mm.

PCBN4000 is also an electrical insulator with outstanding properties, retaining high dielectric strength and electrical resistivity up to 1000C.

Applications

- Setter plates for furnaces
- Crucibles for non-oxide ceramics, phosphors, and metals
- Electrical insulation for high temperatures and high voltages
- Components exposed to molten salts
- Hall Effect Thruster insulators
- Nozzles for non-ferrous metals and alloys
- Thermocouple protection tubes and sheaths

Typical Properties

Properties	Unit	PCBN4000
Temperature	°C	850, Air 1000-1200C vacuum N ₂ , Inert
Density	g/cm ³	1.85 - 2.05
CTE, RT to 1000°C	10 ⁻⁶ /K	<1
Flexural Strength (para)	MPa at 25°C	50
Dielectric Constant	k	4.0
Dielectric Strength	KV/mm	>40
Thermal Conductivity	W/mk	>25
Calcium borate glass	%	4-6

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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