Straight and flanged boron nitride insulating sleeves.

Boron Nitride Insulators

Product ID / SKU: FWM/BN-INS-001

Material: Boron Nitride Ceramic Family

Product type: Boron Nitride Ceramics Component

Machined boron nitride electrical insulators for high-temperature assemblies and equipment interfaces.

Hot-Pressed BN (AX05 / ZSBN) Properties

Property / condition	AX05 - parallel / perpendicular to pressing	ZSBN - parallel / perpendicular to pressing
Crystalline phase	>99.5% hBN	>45% hBN; <45% ZrO_2; <10% borosilicate
Binder / bond	Self bonded	Borosilicate glass
Density (g/cm³)	1.9	2.9
Open porosity (%)	19.3	1.1
Flexural strength (MPa) - 25°C	22 / 21	144 / 107
Young’s modulus (GPa) - 25°C	17 / 71	71 / 71
Compressive strength (MPa) - 25°C	25 / -	219 / 254
Knoop hardness (kg/mm²)	4	100
Thermal conductivity (W/(m·K)) - 25°C	78 / 130	24 / 34
Linear thermal expansion (10^{-6}/K) - 25-400°C	-2.3 / -0.7	4.1 / 3.4
Linear thermal expansion (10^{-6}/K) - 400-800°C	-2.5 / 1.1	5.6 / 4.3
Specific heat (J/(g·K)) - 25°C	0.81	0.64
Typical maximum material temperature, oxidizing (°C)	850	850
Typical maximum material temperature, inert (°C)	2000	1600
Relative permittivity - 1 MHz	4.0 / 4.0	18 / 19
Dielectric loss tangent - 1 MHz	0.0012 / 0.0003	0.045 / 0.067

Property / condition	AX05 - parallel / perpendicular to pressing	ZSBN - parallel / perpendicular to pressing
Dielectric strength (kV/mm)	79	3.5
Volume resistivity (Ω·cm) - 25°C	$>10^{13}$ / $>10^{14}$	$>10^{13}$ / $>10^{12}$

Product Geometry & Configuration

Product parameter	Configuration	Basis
Material system	Boron Nitride Ceramic Family	Material family; grade selected for the application
Component forms	Insulating rings and washers; Sleeves and spacers; Custom insulating bodies	Drawing-defined configurations
Geometry and dimensions	Custom sizes available	Part drawing and mating interfaces
Functional surfaces	Contact, locating, joining or insulating surfaces as applicable	Surface finish and acceptance criteria on the drawing