DATA SHEET

Silicon Nitride

Hot Isostatic Pressed Silicon Nitride, low additive

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Material
Material description Hot e.g. Hot Isostatic pressed silicon nitride Al/Y

Microstructure
Bulk density [g/cm³] 3.20
Open Porosity [%] 0
Grain spectrum [µm] 1-10

Mechanical Properties
Hardness [2] [HV1] 1.650
Compressive strength [MPa] 3.000
Bending Strength [MPa] 850
Weibull-Modulus m 15
Fracture toughness KIC [MPam²] 6
Youngs Modulus E [GPa] 320
Poisson ratio 0.28

Thermal Properties
Max. Working temperature
- inert gas [°C] 1.500
- air [°C] 1.350
Thermal conductivity (20°C) [W/mK] 30
Thermal expansion RT 1000°C [10⁻⁶K⁻¹] 3.2
RT- 250°C [10⁻⁶K⁻¹] 1.6
Specific heat J/kgK 720
Thermal shock parameter R₁ [4] [K] 598
Thermal shock parameter R₂ [5] [W/mK] 17.930

Chemical Composition
- Si₃N₄ [%] 96
Sintering additives: Al₂O₃/Y₂O₃ mixture [%] 4

Please note that all values quoted are based on test pieces and may vary according to component design. These values are not guaranteed in any way whatsoever and should only be treated as indicative and for guidance only.