

Data Sheet

SSN Sintered Silicon Nitride (Mac-SSNS)

Description

An advanced synthetic ceramic with a nominal Si³N⁴ content of 99%. The sintered silicon nitride (SSN) technique produces a material with excellent physical properties that is ideally suited to components that operate under thermally demanding conditions.

Prime Features:

- Outstanding resistance to thermal downshock
- Extremely hard and wear resistant
- Exceptional compressive strength
- Excellent resistance to attack from molten non-ferrous alloys containing aluminium, magnesium, copper, zinc and lead
- Spatter resistant
- Low thermal conductivity
- High electrical resistivity

Typical Applications:

- Shrouds for TIG/MIG welding torches
- Shrouds for plasma cutting torches
- Heat treatment jigs and fixtures
- Bearing balls and rollers

Production Capabilities:

- Manufacture to close engineering tolerances
- Prototype, batch and volume production

Specifications

- Quality Assurance to ISO 9002

Physical Properties

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

Colour	Gray	Black (reduced form)
Bulk Density (fired)	3.2 Mg/m ³	
Porosity (apparent)	0 (fully dense) % nominal	
Vickers Hardness @Hv 0.5kg	16 GPa	
Compressive Strength	>3000 MPa	
Flexural Strength (3-point)	650 MPa @20C	
Young's modulus	280 Gpa @20C	
Thermal Conductivity @20C	5.0 W/m.K	
Thermal Expansion Coefficient 10 ⁻⁶ /C (20-1000C)	8.8	
Volume resistivity @20C	>10 ¹² (pure form)	

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We design and manufacture products for demanding applications in a variety of markets using a comprehensive range of advanced ceramic, glass, precious metal, piezoelectric and dielectric materials. We utilise core competences of applications engineering and superior materials technology, together with state of the art fully integrated manufacturing processes to offer precision ceramic components, ceramic-to-metal assemblies and special coatings for use in a variety of applications.