

## Data Sheet

# Nilcra<sup>®</sup> SSN E – Sintered Silicon Nitride

### Description

- A Sintered Silicon Nitride with exceptional strength and toughness.
- Contains interlocking grains of beta phase silicon nitride.
- Designed for applications requiring high strength, toughness and wear resistance.

### Prime Features

- High Strength at ambient & high temperature
- Excellent fracture toughness
- Extremely high hardness & wear resistance
- Low coefficient of thermal expansion
- Good thermal shock resistance
- Excellent corrosion resistance
- Non-wetting in molten metal
- Low oxidation at elevated temperatures

### Physical Properties

Colour		Black/Grey
Density g/cm <sup>3</sup>	20°C	3.24
Porosity %	20°C	< 0.1
Flexural Strength MPa	20°C	850
	1000°C	630
Weibull Modulus	20°C	10
Compressive Strength MPa	20°C	3500
Modulus of Elasticity GPa	20°C	290
Poisson's Ratio	20°C	0.25
Hardness HV <sub>0.3</sub> kg/mm <sup>2</sup>	20°C	1500
Fracture Toughness MPa√m	20°C	8
Average Grain Size μm		1-10
Electrical Resistivity Ohm.cm	20°C	>10 <sup>12</sup>
Thermal Conductivity W/m.K	20°C	28
Specific Heat Capacity J/g.K	20°C	0.65
Thermal Shock Resistance, ΔT °C		900
Maximum Use Temperature °C		1200
Coefficient Thermal Expansion x10 <sup>-6</sup> mm/mm/°C	25-1000°C	3.0

### Specifications

- Quality Assurance to ISO 9001

### Typical Applications:

- Excellent for combating wear and corrosion in valves, pumps and liners used in chemical processing and refining environments
- Successfully used for a wide variety of tooling used in metal forming and dry cell battery production

### Production Capabilities

- Sintered components
- Precision ground components
- Ceramic / Metal assemblies
- Ceramic design assistance
- Prototyping, batch and volume production

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.