# Nitride bonded Silicon carbide Tubes

# PRODUCT INFORMATION

Nitride bonded Silicon Carbide (NB SiC) tubes are an economic choice to Thermocouple sensor OEMs. These tubes can be produced to a large range of OD, ID, with several options for mounting. NB SiC does not contaminate non-ferrous melts, like cast iron tubes.

Discover our three brands and their properties.

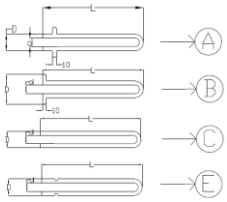
## N-Durance® Tubes

### PROPERTIES

- Chemical inertness, high hot strength and heat shock resistance

### TYPICAL APPLICATIONS

- Temperature Measurement of heat treating furnaces
- Non-ferrous furnaces




Type A has projections part way down from the open end.
Type B has a flange
Type C is without a flange
Type E has a groove

**Standard lengths and diameters of N-Durance® tubes:**

| OD | ID | Length |
|---|---|---|
| 20 – 50 mm | 8 – 26 mm | Up to 1100 mm |

## MATERIAL PROPERTIES: N-Durance®

| Properties | Unit | Spec. | Typical Values |
|---|---|---|---|
| Bulk Density | g/cc | >2.75 | 2.80 |
| Apparent Porosity | % | <12 | 8 |
| Surface Porosity | % | <1 | 0.5 |
| Cold Modulus of Rupture (At room temperature) | MPa | >150 | 160 |
| Hot Modulus of Rupture (At 1400 °C) | MPa | >140 | 180 |
| Modulus of Elasticity | GPa | | 240 |
| Thermal Conductivity (at 1000 °C) | W/m.K | | 20 |
| Co-efficient of thermal Expansion | °C | | $4.4x10^{-6}$ |
| Maximum Service Temperature | °C | | 1450 |

*Apr-20*

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SAINT-GOBAIN

# Nitride bonded Silicon carbide Tubes

# PRODUCT INFORMATION

## Refrax® 20E Tubes

### PROPERTIES

- Cold end of the tube can be flanged, inserted into a threaded metal sleeve and cemented.
- Lower porosity tubes are available to improve oxidation resistance.
- Chemical inertness and heat shock resistance.

### TYPICAL APPLICATIONS

- Non-ferrous furnaces
- Heat Treatment furnaces

**Standard lengths and diameters of Refrax® 20E tubes:**

| OD | ID | Length |
|---|---|---|
| 20 mm – 90 mm | WALL 4 – 10 mm | Up to 1600 mm |

## MATERIAL PROPERTIES: Refrax® 20E

| Properties | Unit | Typical Values |
|---|---|---|
| Bulk Density | $g.cm^{-3}$ | 2.20 |
| Apparent Porosity | % | 28 |
| Modulus of Rupture at 20 °C | $N.mm^{-2}$ | 25 |
| Thermal Conductivity at 1000 °C | $W/m^{-1}.K^{-1}$ | 18.5 |
| Abrasion resistance – BS1902 | $cm^{-3}$ | 80 |

*Aug-00*

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# Nitride bonded Silicon carbide Tubes

# PRODUCT INFORMATION

## CRYSTON® 789A Tubes

### PROPERTIES

- Cold end of the tube can be flanged, inserted into a threaded metal sleeve and cemented.
- Lower porosity tubes are available to improve oxidation resistance.
- High hot strength, heat shock resistance, chemical inertness.

### TYPICAL APPLICATIONS

- Non-ferrous furnaces

**Standard lengths and diameters of CRYSTON® 789A tubes:**

| OD | ID | Length |
|---|---|---|
| 25 mm – 40 mm | 12 - 27 mm | Up to 1500 mm |

## MATERIAL PROPERTIES: CRYSTON® 789A

| Properties | Unit | Typical Values |
|---|---|---|
| Bulk Density | $g.cm^{-3}$ | > 2.62 |
| Apparent Porosity | % | < 16 |
| Modulus of Rupture at 20 °C | $N.mm^{-2}$ | > 165 |
| Thermal Conductivity at 1000 °C | $W/m^{-1}.K^{-1}$ | 15.5 |
| Abrasion resistance – BS1902 | $10^{-6}/°C$ | 5.1 |

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