

## **NOTICE:**

**Prices and availability are subject to change without notice.**

**Please contact Marlin Manufacturing before ordering for updated pricing.**

# PROTECTING TUBES SMALL DIAMETER SILICON CARBIDE - SA

SA SiC is produced by pressureless sintering sub micron silicon carbide powder. The sintering process results in a self-bonded, fine grain SiC product which is highly resistant to corrosion, erosion, high temperature and thermal shock.

## CORROSION RESISTANCE

SA SiC has superior corrosion resistance than alumina and other refractory materials in environments of hot gases and liquids, including strong acids and bases.

## EROSION RESISTANCE

SA SiC is 50% harder than tungsten carbide. This extreme hardness combined with high purity and fine micro structure makes SA SiC resistant to erosion under abrasive conditions.

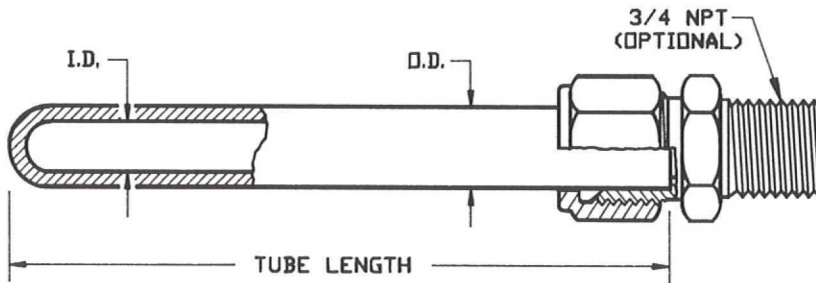
## HIGH TEMPERATURE PROPERTIES

The single phase composition of SA SiC enables it to reliably perform in air up to temperatures of 1650°C (3000°F). It contains no free silicon which makes it highly chemical resistant in both oxidizing and reducing environments.

## THERMAL SHOCK RESISTANCE

Because of its high thermal conductivity and low coefficient of thermal expansion, SA SiC is very resistant to thermal shock and thermal cycling as compared to other refractory materials.

Physical Properties	Units	Typical Values SA
Composition (phases)		SiC
Density	G/cm <sup>3</sup>	3.10
Grain Size	microns	4-6
Hardness (Knoop)		2800
Flexural Strength 4pt @ RT	MPa x10 <sup>3</sup> lb/in <sup>2</sup>	460 60
Compressive Strength @ RT	MPa x10 <sup>3</sup> lb/in <sup>2</sup>	3900 560
Modulus of Elasticity @ RT	GPa x10 <sup>6</sup> lb/in <sup>2</sup>	410 59
Weibull Modulus (2 parameters)		10
Poisson Ratio		0.14
Fracture Toughness @ RT Double Torsion & SENB	MPa/m x10 <sup>3</sup> lb/in <sup>2</sup> /√in	4.60 4.20
Coefficient of Thermal Expansion RT to 700°C	x10 <sup>-6</sup> mm/mm°C x10 <sup>-6</sup> in/in°F	4.02 2.20
Max. Service Temp (air)	°C °F	1650 3000
Mean Specific Heat @ RT	J/gm°C	0.67
Thermal Conductivity @ RT		125.6 72.6
@ 200°C	W/mK Btu/ft h°F	102.6 59.3
@ 400°C		77.5 44.8
Permeability, RT to 1000°C	Impervious to gases over 31 MPa	
Electrical Resistivity @ RT @ 1000°C	ohm-cm	10 <sup>2</sup> -10 <sup>6</sup> 0.01-0.2
Emissivity		0.9



Discount Schedule	
Quantity	Factor
1-5	Net
6-25	.95
26+	.90

Material	Tube Size I.D. x O.D.	Part Number	Price to 24"	Price to 48"
SA SiC	1/4" x 3/8"	SA - 375 - □ - □	\$210.	\$395.
	1/2" x 3/4"	SA - 750 - □ - □	295.	395.
	1/2" x 1"	SA - 1000 - □ - □	385.	590.

A B  
 ↑ length  
 ↑ end option (note A)

- Notes: 1) Standard diameter to tolerance for size variation and out-of-roundness is ±5%.  
 2) Camber tolerance is 1/16" per foot.  
 A) Plain end "A" is 0: i.e. SA-750-0-12"  
 Optional 3/4" NPT steel Ftg. "A" is 1: i.e. SA-750-1-12" - Add \$40 to list

