Temperature Controls Pty Ltd

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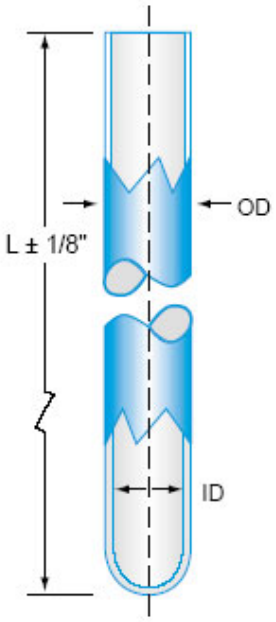
THERMOCOUPLES * RTD SENSORS * THERMOWELLS * EXTENSION CABLES * LEVEL SWITCHES

Thermocouple Tubes

Hexoloy® sintered alpha silicon carbide from Saint-Gobain Ceramics, Structural Ceramics, is an ideal material for high performance thermowell/ thermocouple protection tubes. The hardest commercially available material, Hexoloy SiC provides a wide range of superior properties Including:

- High temperature strength - won't slump at 1650°C even under load.
- Excellent thermal shock resistance.
- Universal corrosion resistance.
- High thermal conductivity equal to stainless steel and 5 times that of alumina.
- Exceptional wear resistance - 50% harder than tungsten carbide.



Standard Tube Dimensions

HEXOLOY SHEATHS— MAXIMUM TEMPERATURE 1600°C—NOT SUITABLE FOR FLUORINE	
PART NUMBER	DESCRIPTION
TCHEX16X400COE	HEXOLOY SHEATH 16mm x 9.5mm x 406mm LONG COE
TCHEX254X510COE	HEXOLOY SHEATH 25.4mm x 12.5mm ID x 510mm LONG COE
TCHEX254X915COE	HEXOLOY SHEATH 25.4mm OD x 12.7mm ID x 915mm LONG COE
	HEXOLOY SHEATH 'SPECIAL SIZE'

Temperature °Controls

Hexoloy SA Physical Properties

Property	Units	Typical Value
Composition*	–	SiC
Grain Size	µm	4-10
Density	g/cm³	3.10
Hardness (Knoop)**	kg/mm²	2800
Flexural Strength 4 pt @ RT***	MPa x10³ lb/in²	380 55
Flexural Strength 3 pt @ RT***	MPa x10³ lb/in²	550 80
Compressive Strength @ RT	MPa x10³ lb/in²	3900 560
Modulus of Elasticity @ RT	GPa x10⁶ lb/in²	410 59
Weibull Modulus (2 parameter)		8
Poisson Ratio		0.14
Fracture Toughness @ RT Double Torsion & SENB	MPa x m$^{1/2}$ x10³ lb/in² x in$^{1/2}$	4.60 4.20
Coefficient of Thermal Expansion RT to 700°C	x10⁻⁶ mm/mmK x10⁻⁶ in/in °F	4.02 2.20
Maximum Service Temp. Air	°C °F	1900 3450
Mean Specific Heat @ RT	J/gmK	0.67
Thermal Conductivity @ RT @ 200°C @ 400°C	W/mK Btu/ft h °F W/mK Btu/ft h °F W/m°K Btu/ft h °F	125.6 72.6 102.6 59.3 77.5 44.8
Permeability @ RT to 1000°C	Impervious to gases over 31 MPa	
Electrical Resistivity @ RT**** @ 1000°C	ohm-cm ohm-cm	10^2-10^{11} 0.01-0.2
Emissivity		0.9

*** Composition code: Si = free silicon metal; C = free graphite; SiC = silicon carbide**
**** Knoop 0.1 kg load**
***** Test Bar Size: 3 x 4 x 45 mm (0.118" x 0.157" x 1.772")**
****** Dependent upond dopants in Hexoloy SA SiC which will decrease electical resistivity**