

Geo50 SA

50 μm Carbon Silicone Acrylate



Product Description

This fiber is designed for distributed temperature sensing applications in the mid-temperature range and can perform up to 125°C for up to 20 years. The hermetic carbon layer protects against moisture and hydrogen ingress across the temperature range; and the silicone high-temperature acrylate coating system cushions and protects the fiber during deployment and service in harsh environments and is resistant to water and chemicals.

OFS has manufactured millions of meters of 50 μm glass fiber with acrylate coating for the telecommunications market. This same high-quality hydrogen resistant glass is the base for this fiber and is made with the highest level of process control.

Carbon is applied to the fiber in a very thin layer (300 to 400Å) during the draw process to create a hermetic seal along the fiber surface. This layer extends fiber lifetime by stopping fatigue, the slow crack growth activated by water vapor. The n-value—or measure of a fiber’s resistance to fatigue—is raised from 20 to greater than 100 by the addition of carbon.

A silicone primary coating, followed by a high-temperature acrylate secondary coating, allows the fiber to perform up to 125°C for 20 years with excursions to 150°C for several hours. This coating combination brings the fiber OD to a standard 250 μm. It can be stripped mechanically with standard tools, leaving the carbon in place, and it is resistant to chemicals and moisture.

Typical Applications

- Distributed temperature sensing
- Datacom in harsh environments
- Local area networks where temperature requirements are elevated

Features and Benefits

- Industry-standard 50 μm graded index glass
- Hydrogen resistant to minimize H₂ ingress
- Carbon for hermeticity and resistance to hydrogen ingress
- Continuous temperature performance to 125°C

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Additional Coatings**
- Other Upgrades**

To order items on this spec sheet, please contact our facility in:

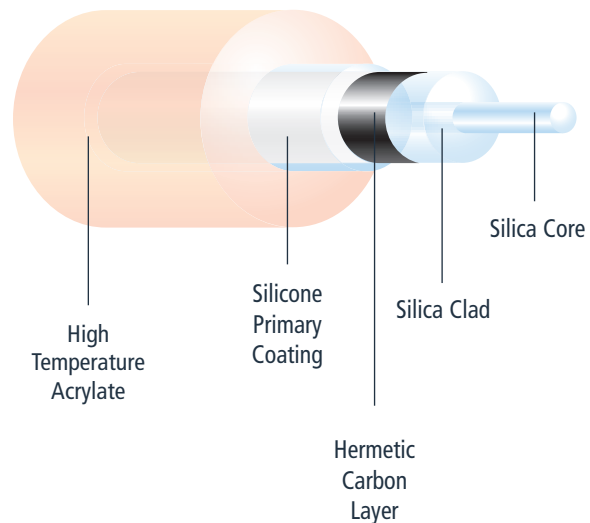
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Info@SpecialtyPhotonics.com



OFS Specialty Photonics Division

55 Darling Drive, Avon, CT 06001
25 Schoolhouse Road, Somerset, NJ 08873
Priorparken 680 DK-2605 Broendby, Denmark

www.SpecialtyPhotonics.com



Fiber Specifications

Optical Properties	Geo50 SA
Numerical aperture	0.20
Bandwidth @ 850 nm	≥400 MHz-km
Bandwidth @ 1310 nm	≥400 MHz-km
Attenuation @ 850 nm	≤4 dB/km
Attenuation @ 1310 nm	≤2 dB/km
Dimensions/Geometric Properties	
Core diameter	50 ± 3 μm
Cladding diameter	125 ± 2 μm
Hermetic carbon layer	dimension negligible
Primary coating -- Silicone	195 ± 5 μm
Secondary coating -- High-Temperature Acrylate	250 ± 10 μm
Core/coating offset	≤3 μm
Mechanical and Testing Data	
Short-term bend radius	> 9 mm
Long-term bend radius	>15 mm
Operating temperature	-45 to +125°C
Proof test level	100 kpsi (1.38 GPa)
Order by Part Number	F18961-02

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