



NuSENSOR 50/125 Graded Index Multimode Fiber

Nufern's NuSENSOR graded-index multimode fiber is ideally suited for Raman based distributed temperature sensing. This 0.20 NA fiber features a 50 μm core diameter and a 125 μm clad diameter with a mid-temperature acrylate coating and is also available with a hermetic carbon coating layer. NuSENSOR multimode fiber is manufactured in-house, and every process step is monitored and controlled providing high bandwidth and low attenuation. As with all Nufern fibers, this multimode fiber provides tight tolerance optical and geometrical specifications measured at the application critical wavelengths. The mid-temperature acrylate coating operates up to 150°C and, with the hermetic carbon coating, is ideal for use in H_2 rich environments.

Typical Applications

- Enhanced oil recovery processes
- Hydrothermal well temperature measurements
- Oil reservoir optimization
- Raman distributed temperature sensing

Features & Benefits

- Mid-temperature acrylate coating — For sensing applications up to 150°C
- Exceptional uniformity — Consistent and repeatable performance
- Long unattended deployments or short cycle in-out applications
- Low loss over the wavelengths range critical to DTS
- Available with hermetic carbon coating

Optical Specifications

Operating Wavelength
Core NA
Bandwidth

Core Attenuation

GR-50/125-20MTA

850 – 1300 nm
0.200
 $\geq 400 \text{ MHz-km @ 850 nm}$
 $\geq 400 \text{ MHz-km @ 1300 nm}$
 $\leq 0.70 \text{ dB/km @ 1300 nm}$
 $\leq 1.50 \text{ dB/km @ 1060 nm}$
 $\leq 2.50 \text{ dB/km @ 850 nm}$

GR-50/125-20CMTA

850 – 1300 nm
0.200
 $\geq 400 \text{ MHz-km @ 850 nm}$
 $\geq 400 \text{ MHz-km @ 1300 nm}$
 $\leq 0.70 \text{ dB/km @ 1300 nm}$
 $\leq 1.50 \text{ dB/km @ 1060 nm}$
 $\leq 2.50 \text{ dB/km @ 850 nm}$

Geometrical & Mechanical Specifications

Cladding Diameter
Core Diameter
Coating Diameter
Coating Concentricity
Core/Clad Offset
Core Non-Circularity
Clad Non-Circularity
Core Index Profile
Coating Material

Operating Temperature Range
Proof Test Level

$125.0 \pm 1.0 \mu\text{m}$
 $50.0 \pm 2.5 \mu\text{m}$
 $245.0 \pm 5.0 \mu\text{m}$
 $< 5.0 \mu\text{m}$
 $\leq 1.50 \mu\text{m}$
 $\leq 5 \%$
 $\leq 1.0 \%$
Graded Index
Mid-Temp UV Cured, Dual Acrylate
-40 to 150 °C
 $\geq 100 \text{ kpsi (0.7 GN/m}^2\text{)}$

$125.0 \pm 1.0 \mu\text{m}$
 $50.0 \pm 2.5 \mu\text{m}$
 $245.0 \pm 5.0 \mu\text{m}$
 $< 5.0 \mu\text{m}$
 $\leq 1.50 \mu\text{m}$
 $\leq 5 \%$
 $\leq 1.0 \%$
Graded Index
Carbon / Mid-Temp UV Cured, Dual Acrylate
-40 to 150 °C
 $\geq 100 \text{ kpsi (0.7 GN/m}^2\text{)}$



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Custom developed fiber (FUD) specifications are subject to change without notice. Other configurations such as alternative form factors, optimized cut-off and UV cured color coating may be available. Let us know how Nufern can assist with your requirements.

