

NuSENSOR 1550 nm Bend-Insensitive Single-Mode Fibers



Coherent's NuSENSOR bend-insensitive single-mode fibers are highly engineered to be micro and macro bend resistant for Raman, Brillouin and FBG based temperature and strain measurements at 1550 nm. These 0.12 NA, bend-insensitive single-mode fibers provide tight tolerance optical and geometrical specifications measured at the application critical wavelengths. The fiber comes with either a polyimide or mid-temperature acrylate coating and are also available with a hermetic carbon layer. The hermetically carbon-coated layer is immune to the damaging effects of hydrogen ingress, enabling distributed temperature and strain sensing in harsh environments where high H₂ partial pressure and elevated temperatures up to 300°C are present.

Typical Applications

- Enhanced oil recovery processes
- Hydrothermal well temperature measurements
- Oil reservoir optimization
- Brillouin distributed temperature & strain sensing

Features & Benefits

- Bend-Insensitive core design — Minimizing micro and macro bend loss
- Exceptional uniformity — Consistent and repeatable performance
- Long unattended deployments or short cycle in-out applications
- Low loss over the wavelengths range critical to DTSS & FBG sensors
- Available with hermetic carbon coating — Enabling resistance to H₂ ingress, low cost and long life deployment

Optical Specifications

	R1550XB-P	R1550XB-CP	R1550XB-MTA	R1550XB-CMTA
Operating Wavelength	1500 – 1700 nm			
Core NA	0.120	0.120	0.120	0.120
Mode Field Diameter	10.4 ± 0.4 μm @ 1550 nm			
Cable Cutoff	N/A	1430 ± 50 nm	1430.0 ± 50.0 nm	1430 ± 50 nm
Core Attenuation	≤ 0.60 dB/km @ 1550 nm	≤ 0.60 dB/km @ 1550 nm	≤ 0.24 dB/km @ 1550 nm	≤ 0.25 dB/km @ 1550 nm

Geometrical & Mechanical Specifications

Cladding Diameter	125.0 ± 1.0 μm			
Core Diameter	9.0 μm	9.0 μm	9.0 μm	9.0 μm
Coating Diameter	150.0 ± 5.0 μm	150.0 ± 5.0 μm	245.0 ± 5.0 μm	245.0 ± 5.0 μm
Coating Concentricity	< 1.5 μm	< 1.5 μm	< 5.0 μm	< 5.0 μm
Core/Clad Offset	≤ 0.50 μm	≤ 0.50 μm	≤ 0.50 μm	≤ 0.50 μm
Coating Material	Polyimide	Polyimide	Mid Temperature Acrylate	Mid Temperature Acrylate
Operating Temperature Range	-65 to 300 °C	-65 to 300 °C	-40 to 150 °C	-40 to 150 °C
Short Term Bend Radius	≥ 12 mm	≥ 12 mm	≥ 12 mm	≥ 12 mm
Long Term Bend Radius	≥ 25 mm	≥ 25 mm	≥ 25 mm	≥ 25 mm
Proofstress Level	≥ 100 kpsi (0.7 GN/m ²)			



Cutoff measured and reported as Cable Cutoff

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www.coherent.com ; www.shop.coherent.com • Coherent products are manufactured under an ISO 9001:2008 certified quality management system.



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 Coherent can assist with your requirements.

NU0307- 11/12/2020