

Eye Safe 9/125 Thulium-Doped Single-Mode Single Clad Fibers



This single clad, small core diameter fiber is designed specifically for use in core-pumped cavities. As the fiber is polarization maintaining, it is also suitable for applications requiring linearly polarized output.

Typical Applications

- Low/mid power 2 μm CW & pulsed Eye Safe lasers & amplifiers
- Eye Safe industrial & medical lasers
- Military & commercial LIDAR
- 2 μm fiber lasers for pumping crystal lasers

Features & Benefits

- Small diameter Tm-doped core design — Robust single mode beam quality
- May be pumped with 793 nm diodes or resonantly pumped using a fiber laser
- High pump absorption — Short fiber length, efficient lasing in the $\sim 2 \mu\text{m}$ window
- Core pumping facilitates access to shorter lasing wavelengths below 1900 nm

Optical Specifications

	PM-TSF-9/125	SM-TSF-9/125
Operating Wavelength	1900 – 2100 nm	1900 – 2100 nm
Core NA	0.150	0.150
Mode Field Diameter (predicted)	10.5 μm @ 2000 nm (nominal)	10.5 μm @ 2000 nm (nominal)
Cutoff	1750 \pm 100 nm	1750 \pm 100 nm
Core Absorption	9.00 \pm 2.00 dB/m at 1180 nm 27.00 dB/m at 793 nm	9.00 \pm 2.00 dB/m at 1180 nm 27.00 dB/m at 793 nm
Birefringence (predicted)	nominal 2.5×10^{-4}	N/A

Geometrical & Mechanical Specifications

	PM-TSF-9/125	SM-TSF-9/125
Cladding Diameter	125.0 \pm 1.0 μm	125.0 \pm 1.0 μm
Core Diameter	9.0 μm	9.0 μm
Coating Diameter	245.0 \pm 15.0 μm	245.0 \pm 15.0 μm
Coating Concentricity	< 20.0 μm	< 20.0 μm
Core/Clad Offset	\leq 0.50 μm	\leq 0.50 μm
Coating Material	Dual Acrylate	Dual Acrylate
Proof Test Level	\geq 100 kpsi (0.7 GN/m ²)	\geq 100 kpsi (0.7 GN/m ²)

The passive version of each fiber is also available.



7 Airport Park Road, East Granby, CT 06026 • 860.408.5000 • Toll-free 866.466.0214 • Fax 860.844.0210 E-mail info@nufern.com • www.nufern.com • Nufern products are manufactured under an ISO 9001:2008 certified quality management system.



Standard specifications and design parameters are listed above. 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.

EyeSafe Delivery Fibers



Nufern has specifically engineered a unique range of single-mode 2µm beam delivery fibers for the long wavelength EyeSafe window from 1850-2200nm, available in both PM and non-PM versions. By applying our extensive fiber manufacturing expertise, gained in the demanding telecommunications industry, this family of fibers has excellent uniformity and high fatigue failure resistance. These fibers are aimed at emerging fiber applications for the 2µm wavelength, including medical, military/aerospace and industrial fiber laser markets.

Typical Applications

- Pigtailling 2µm components
- Tm-fiber lasers/amplifiers
- 2µm beam delivery

Features & Benefits

- Optimized for 2µm wavelengths — Higher performance
- Low bend loss at 2µm — Tighter packaging
- Tight tolerances — High product yield

Optical Specifications

	SM1950	PM1950
Operating Wavelength	1850 – 2200 nm	1850 – 2200 nm
Core NA	0.200	0.200
Mode Field Diameter	8.0 µm @ 1950 nm (nominal)	8.0 µm @ 1950 nm (nominal)
Cutoff	1720 ± 80 nm	1720 ± 80 nm
Beat Length (nominal)	N/A	5.2 mm @ 1950 nm
Birefringence	N/A	nominal 3.5×10^{-4}

Geometrical & Mechanical Specifications

Cladding Diameter	125.0 ± 1.0 µm	125.0 ± 1.0 µm
Core Diameter	7.0 µm	7.0 µm
Coating Diameter	245.0 ± 15.0 µm	245.0 ± 15.0 µm
Coating Concentricity	< 5.0 µm	< 5.0 µm
Core/Clad Offset	≤ 0.50 µm	≤ 0.50 µm
Coating Material	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate
Operating Temperature Range	-40 to 85 °C	-40 to 85 °C
Proof test Level	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)



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