

Ytterbium-Doped Single-Mode Single Clad Fiber



Nufern single-mode Yb-doped fibers are designed to support low power fiber lasers and amplifiers based on single-mode diode pump technology, rather than the multimode pumps used in high-power applications. For applications where high efficiency and very short device lengths are critical, these single-mode fibers are compatible with standard "telecom" fiber technology ensuring low splice loss to numerous fiber pigtailed components. The PM variety is designed with the PANDA-style stress structure which delivers linearly polarized light suitable for frequency conversion. These fibers make the ideal gain medium for low average power femtosecond fiber lasers and pre-amplifiers for higher power double-clad amplifiers.

Typical Applications

- Low power CW and pulsed fiber lasers
- Femtosecond fiber lasers
- Pre-amps for high-power, double-clad devices

Features & Benefits

- Single-mode output — Compatible with standard telecom 980/1060 nm fiber-based components
- PANDA-style stress structure — Linearly polarized output for frequency conversion
- High Ytterbium concentration — Short fiber lengths to reduce detrimental non-linear effects
- High slope efficiency (typically 75%) — Efficient utilization of pump power

Optical Specifications

	PM-YSF-LO	SM-YSF-LO	PM-YSF-HI	SM-YSF-HI
Operating Wavelength	1060 – 1115 nm	1060 – 1115 nm	1060 – 1115 nm	1060 – 1115 nm
Core NA	0.130	0.130	0.110	0.110
Mode Field Diameter	6.5 ± 1.0 μm @ 1060 nm	6.5 ± 1.0 μm @ 1060 nm	7.5 ± 1.0 μm @ 1060 nm	7.5 ± 1.0 μm @ 1060 nm
Cutoff	860 ± 70 nm	860 ± 70 nm	860 ± 70 nm	870 ± 60 nm
Core Attenuation	N/A	N/A	≤ 15.0 dB/km @ 1200 nm	≤ 15.0 dB/km @ 1200 nm
Core Absorption	25.0 ± 5.0 dB/m at 915 nm 80.0 dB/m at 975 nm	25.0 ± 5.0 dB/m at 915 nm 80.0 dB/m at 975 nm	85.0 ± 10.0 dB/m at 915 nm 250.0 dB/m at 975 nm	85.0 ± 10.0 dB/m at 915 nm 250.0 dB/m at 975 nm
Birefringence	2.5 × 10 ⁻⁴	N/A	2.5 × 10 ⁻⁴	N/A

Geometrical & Mechanical Specifications

	PM-YSF-LO	SM-YSF-LO	PM-YSF-HI	SM-YSF-HI
Cladding Diameter	125.0 ± 1.0 μm	125.0 ± 1.0 μm	125.0 ± 1.0 μm	125.0 ± 1.0 μm
Core Diameter	5.0 μm	5.0 μm	6.0 μm	6.0 μm
Coating Diameter	245.0 ± 15.0 μm	245.0 ± 15.0 μm	245.0 ± 15.0 μm	245.0 ± 15.0 μm
Coating Concentricity	< 5.0 μm	< 5.0 μm	< 5.0 μm	< 5.0 μm
Core/Clad Offset	≤ 0.50 μm	≤ 0.50 μm	≤ 0.50 μm	≤ 0.50 μm
Coating Material	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate
Operating Temperature Range	-55 to 85 °C	-55 to 85 °C	-55 to 85 °C	-55 to 85 °C
Proofstress Level	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)

The passive version of each fiber is also available.
Estimated value based on measured absorption @ 950 nm and 1010 nm for fibers PM-YSF-HI and SM-TSF-HI.



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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.