

## **Ytterbium-Doped Single-Mode** Single Clad Fiber

Coherent 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 PANDAstyle 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. These High Performance (-HP) versions provide tighter optical and geometric tolerances, improving device performance. system compatibility and manufacturing process control.

## **Typical Applications Features & Benefits** Single-mode output — Compatiable with standard telecom 980/1060 nm fiber-based components with low splice · Low power CW and pulsed fiber lasers loss · Femtosecond fiber lasers PANDA-style stress structure — Linearly polarized output for frequency conversion High Ytterbium concentration — Short fiber lengths to reduce detrimental non-linear effects Pre-amps for high-power, double-clad devices High slope efficiency (typically 75%) — Efficient utilization of pump power Higher Prooftest Yields — Critical for long-term reliability in tight bend applications **PM-YSF-HI-HP SM-YSF-HI-HP PM-YSF-LO-HP** SM-YSF-LO-HP **Optical Specifications Operating Wavelength** 1015 - 1115 nm 1015 - 1115 nm 1015 - 1115 nm 1015 - 1115 nm Core NA 0.110 0.110 0.130 0.130 Mode Field Diameter 7.5 ± 0.7 µm @ 1060 nm 7.5 ± 0.7 µm @ 1060 nm 6.5 ± 0.7 µm @ 1060 nm 6.5 ± 0.7 µm @ 1060 nm Cutoff 860 ± 50 nm 860 ± 50 nm 860 ± 50 nm 860 ± 50 nm Core Attenuation ≤ 10.0 dB/km @ 1200 nm Core Absorption 85.0 ± 10.0 dB/m at 915 nm 85.0 ± 10.0 dB/m at 915 nm 26.0 ± 4.0 dB/m at 915 nm 26.0 ± 4.0 dB/m at 915 nm 250.0 dB/m at 975 nm 250.0 dB/m at 975 nm 80.0 dB/m at 975 nm 80.0 dB/m at 975 nm Birefringence > 2.8 × 10<sup>-4</sup> > 2.8 × 10<sup>-4</sup> N/A N/A **Geometrical & Mechanical Specifications Cladding Diameter** 125.0 ± 1.0 µm 125.0 ± 1.0 µm 125.0 ± 1.0 µm 125.0 ± 1.0 µm Core Diameter 6.0 µm 6.0 µm 5.0 µm 5.0 µm **Coating Diameter** 245.0 ± 10.0 µm $245.0 \pm 10.0 \ \mu m$ $245.0 \pm 10.0 \ \mu m$ $245.0 \pm 10.0 \ \mu m$ 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 Acrylate Acrylate Acrylate Acrylate **Operating Temperature Range** -55 to 85 °C -55 to 85 °C -55 to 85 °C -55 to 85 °C Prooftest Level $\geq$ 200 kpsi (1.4 GN/m<sup>2</sup>) $\geq$ 200 kpsi (1.4 GN/m<sup>2</sup>) $\geq$ 200 kpsi (1.4 GN/m<sup>2</sup>) ≥ 200 kpsi (1.4 GN/m<sup>2</sup>)



The passive version of each fiber is also available (1060-XP, PM980-XP, and photosensitive PS1060, PS-PM980) Estimated 915 nm absorption based on measured absorption curve @ 950 nm and 1010 nm for fibers PM-YSF-HI-HP and SM-YSF-HI-HP

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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 Coherent can assist with your requirements.



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