

Dispersion tailored fibers for 2 micron pulsed applications



Coherent introduces a single-mode (SM2000D) fiber and a polarization maintaining (PM2000D) fiber designed for dispersion compensation in the 2 μm wavelength range. The core composition, (main driver for the material dispersion) and the waveguide design (driver for the waveguide dispersion) of both fibers were specifically tailored to enable the total dispersion to be negative around 2 μm . Both fibers are designed with a core diameter of $\sim 2 \mu\text{m}$, an NA of ~ 0.4 and a mode-field diameter of 4 μm at 2 μm . The 125 μm cladding diameter allows for high compatibility with active and passive fibers used in pre-amplifier stage(s) and easy handling with conventional cleaving and splicing equipment. The dispersion tailored fiber is also available in polarization maintaining design (PM2000D), suitable for 2 μm PM lasers and amplifier systems.

Typical Applications

- 2 μm pulsed lasers
- Remote sensing & LIDAR
- Dermatology and surgical lasers

Features & Benefits

- Advanced waveguide design – temporal pulse shaping from 1.6 to 2.1 μm
- PANDA fiber design – polarized laser applications
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

Optical Specifications

	SM2000D	PM2000D
Operating Wavelength	1500 – 2100 nm	1500 – 2100 nm
Core NA	0.370	0.370
Mode Field Diameter (predicted)	3.5 \pm 0.3 μm @ 1550 nm 4.0 μm @ 2000 nm (nominal)	3.5 \pm 0.3 μm @ 1550 nm 4.0 μm @ 2000 nm (nominal)
Cutoff Dispersion	1110 \pm 50 nm -50 \pm 10 ps/(nm-km) @ 1550 nm -55 \pm 10 ps/(nm-km) @ 2000 nm	1110 \pm 50 nm -50 \pm 10 ps/(nm-km) @ 1550 nm -55 \pm 10 ps/(nm-km) @ 2000 nm
Dispersion Slope	\sim ps/(nm ² -km) @ 2000 nm	\sim ps/(nm ² -km) @ 2000 nm
Normalized Cross Talk	N/A	≤ -20.0 dB at 2 m @ 1550 nm

Geometrical & Mechanical Specifications

	SM2000D	PM2000D
Cladding Diameter	125.0 \pm 1.0 μm	125.0 \pm 2.0 μm
Core Diameter	2.1 μm	2.1 μm
Coating Diameter	245.0 \pm 15.0 μm	245.0 \pm 15.0 μm
Core/Clad Offset	$\leq 0.50 \mu\text{m}$	$\leq 0.50 \mu\text{m}$
Coating Material	Acrylate	Acrylate
Proof test Level	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)



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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.