

DCF-TM-10/130-14-PM

Polarization-maintaining thulium-doped fiber

Designed for high-power 2 μm laser systems, this polarization-maintaining (PM) double-clad thulium-doped fiber features a non-pedestal core architecture, high birefringence, and optimized 790 nm cladding absorption for outstanding efficiency and reliability. The non-pedestal design eliminates parasitic mode guidance, reduces splice sensitivity, and enhances polarization stability, delivering excellent beam quality and a high polarization extinction ratio (PER). Its optimized core composition maximizes cross-relaxation efficiency while supporting robust power scaling.

Features & Benefits

- Single-mode operation at 1940 nm.
- No-pedestal design prevents parasitic modes .
- Easier integration and lower splice losses compared to pedestal-based designs.
- Superior polarization maintenance and higher polarization extinction ratio (PER).
- Optimized core enables efficient two-for-one cross-relaxation at 2 μm .

Applications

- High-power PM CW and pulsed fiber lasers
- Narrow-linewidth and single-frequency lasers
- Coherent beam combining (CBC)
- Coherent Doppler/FMCW LIDAR
- Pump source for PM Ho-doped fibers
- Telecom and coherent optical communications
- Medical laser systems

Specifications

Optical

Birefringence (x10E-04)	≥ 2
Cladding Absorption @ 790nm (dB/m)	4.5 ± 0.5
Cutoff Wavelength (nm)	≤ 1920
Numerical Aperture - Cladding	Min 0.45
Numerical Aperture - Core	Typ. 0.14

Geometrical & Mechanical

Cladding diameter (μm)	130 ± 2
Cladding geometry	Circ.
Coating Diameter (μm)	245 ± 15
Core Diameter (μm)	10 ± 1
Core/Cladding Concentricity Error (μm)	≤ 1.5
Proof Test (kpsi)	≤ 100

Environmental

Storage Temperature ($^{\circ}\text{C}$)	-40 to +85
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