

Polarization-Maintaining 9/125 Thulium-Doped Single- Mode Single-Clad Fiber

TMPS



Description

Thorlabs' TMPS fiber, (Nufern PM-TSF-9/125), has a small diameter Tm-doped core design to provide robust single mode beam quality. This fiber, designed specifically for use in core-pumped cavities, is fully optimized for high slope efficiency and features high pump absorption and may be pumped with 793 nm diodes or resonantly pumped using a fiber laser. The high Tm concentration allows short device lengths and high pump conversion efficiency while the low NA core design is ideal for applications where robust single-mode beam quality is critical. This fiber uses "panda"-style stress members for PM operation.

The TMPS is polarization maintaining and provides extended efficiency when lasing in the $\sim 2 \mu\text{m}$ window. It is commonly used in low- to mid-power $2 \mu\text{m}$ CW and pulsed lasers and amplifiers as well as industrial and medical lasers. Typical applications include lidar and $2 \mu\text{m}$ fiber lasers for pumping crystal lasers.

Specifications

Geometrical & Mechanical	
Cladding Diameter	$125 \pm 1 \mu\text{m}$
Core Diameter	$9 \mu\text{m}$
Coating Diameter	$245 \pm 15 \mu\text{m}$
Coating Concentricity	$< 20 \mu\text{m}$
Core-Clad Offset	$\leq 0.50 \mu\text{m}$
Coating Material	Dual Acrylate
Proof Test Level	$\geq 100 \text{ kpsi}$ (0.7 GN/m^2)

Optical	
Core Numerical Aperture (nominal)	0.150
Operating Wavelength	1900 - 2100 nm
Cut-Off Wavelength	$1750 \pm 100 \text{ nm}$
Core Absorption	$9.0 \pm 2.0 \text{ dB/m @ } 1180 \text{ nm}$ $27.0 \text{ dB/m @ } 793 \text{ nm}$
Birefringence (predicted)	2.5×10^{-4}
Mode Field Diameter (predicted, nominal)	$10.5 \mu\text{m @ } 2000 \text{ nm}$

