

## Polarization-Maintaining 10P/130 Thulium-Doped Single-Mode Double Clad Fiber

TMPD



### Description

Thorlabs' TMPD fiber, (Nufern PM-TDF-10P/130-HE), is a Thulium-doped double clad fiber utilizing glass composition specifically optimized for highly efficient operation around the important 2  $\mu\text{m}$  wavelength when pumped at  $\sim 793$  nm. This small core low NA fiber facilitates highly efficient single-mode operation while the telecom-like 130  $\mu\text{m}$  cladding diameter makes handling, including cleaving and splicing, as simple as possible. This fiber uses panda-style stress members for PM operation.

The TMPD 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  $\mu\text{m}$  and pulsed lasers and amplifiers as well as industrial and medical lasers. Typical applications include military and commercial LIDAR and 2  $\mu\text{m}$  fiber lasers for pumping crystal lasers.

### Specifications

Geometrical & Mechanical	
First Cladding Diameter	$130 \pm 1.0 \mu\text{m}$
Core Diameter	$10 \pm 1.0 \mu\text{m}$
Second Cladding / Coating Diameter <sup>a</sup>	$215 \pm 10 \mu\text{m}$
Coating Material <sup>a</sup>	Acrylate / Low Index Polymer Mix
Proof Test Level	$\geq 100$ kpsi ( $0.7 \text{ GN/m}^2$ )
Recommended Strip Tool	T06S13 <sup>a</sup>

Optical	
Core Numerical Aperture (nominal)	0.150
Operating Wavelength	1900 - 2100 nm
First Cladding NA (5%)	$\geq 0.46$
Cladding Attenuation	$\leq 15.0$ dB/km @ 860 nm
Cladding Absorption	$1.60 \pm 0.30$ dB/m at 1180 nm $4.70$ dB/m at 793 nm
Birefringence (nominal)	$1.5 \times 10^{-4}$

- a. The second cladding / coating is a single layer of mixed acrylate / low index polymer, which is removed during stripping.

