Eye Safe 10P/130 Thulium-Doped Single-Mode Double Clad Fibers

Nufern Thulium-doped double clad fiber utilizes a glass composition specifically optimized for highly efficient operation around the important 2 µm wavelength when pumped at ~793 nm. These small core low NA fibers facilitate highly efficient single-mode operation while the telecom-like 130 µm cladding diameter makes handling, including cleaving and splicing, as simple as possible.

Typical Applications

- Low to mid power CW and pulsed Eye Safe 2 µm lasers & amplifiers
- Eye Safe industrial & medical lasers
- Military and commercial LIDAR
- 2 µm output TEM_{00} fiber lasers for pumping solid state crystal lasers

Features & Benefits

- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- LMA single mode core design and short amplifier length — Useful for generating high peak powers
- Easy to maintain single-mode LP01 beam through fiber & components
- PANDA-style stress structure for increased birefringence — Superior optical performance and uniformity
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

Optical Specifications	**SM-TDF-10P/130-HE**	**PM-TDF-10P/130-HE**
Operating Wavelength	1900 – 2100 nm	1900 – 2100 nm
Core NA	0.150	0.150
First Cladding NA (5%)	≥ 0.46	≥ 0.46
Cladding Attenuation	≤ 15.0 dB/km @ 860 nm	≤ 15 dB/km @ 860 nm
Cladding Absorption	1.00 ± 0.30 dB/m at 1180 nm 3.00 dB/m at 793 nm	1.60 ± 0.30 dB/m at 1180 nm 4.70 dB/m at 793 nm
Birefringence	N/A	nominal 1.5×10^{-4}
Geometrical & Mechanical Specifications		
Cladding Diameter	N/A	130.0 ± 1.0 µm
Cladding Diameter (flat-to-flat)	130.0 ± 2.0 µm	N/A
Core Diameter	10.0 ± 1.0 µm	10.0 ± 1.0 µm
Coating Diameter	215.0 ± 10.0 µm	215.0 ± 10.0 µm
Coating Material	Low Index Polymer	Low Index Polymer
Prooftest Level	≥ 100 kpsi (0.7 GN/m²)	≥ 100 kpsi (0.7 GN/m²)

The passive version of each fiber is also available.

7 Airport Park Road, East Granby, CT 06026 • 860.408.5000 • Toll-free 866.466.0214 • Fax 860.844.0210 E-mail info @ nufern.com • www.nufern.com Nufern products are manufactured under an ISO 9001:2008 certified quality management system.

RoHS

FUD-4070, Revision: A SM-GDF-10/130-15FA Optical Fiber

You have selected an application designed fiber, not fully released which may have a longer lead time than our standard products.

Parameter	Min	Nom	Max	Unit	Compliance
Operating Wavelength	1060		2100	nm	Design
Core NA Predicted from Preform	0.14		0.16		Measured
Cladding NA (5%)	0.46				Design
Core Diameter	9		11	µm	Measured
Clad Diameter	129		131	µm	Measured
Core/Clad Offset	0		0.5	µm	Measured
Coating Diameter	230		260	µm	Measured
Prooftest Level	100		120	kpsi	Measured
Comments	Coating Requirements: Low index Polymer coating. Other Requirements: Round Fiber.				

7 Airport Park Road, East Granby, CT 06026 • 860.408.5000 • Toll-free 866.466.0214 • Fax 860.844.0210 • E-mail info @ nufern.com • www.nufern.com •
Nufern products are manufactured under an ISO 9001:2008 certified quality management system.

RoHS

10/130 Polarization Maintaining Precision Matched Passive 2000-nm Double Clad Fiber

This Nufern precision matched polarization maintaining passive double-clad fiber features a 10 µm core diameter and a 130 µm clad diameter. It is optimized to match Nufern's active Tm-doped 10P/130 µm polarization maintaining fiber. This precise matching allows for the lowest splice loss improving performance for all applications including low to mid-power CW and pulsed fiber lasers and amplifiers operating in the 2 µm wavelength range. The small core low NA fiber facilitates highly efficient single-mode operation while the telecom-like 130 µm cladding diameter makes handling, including cleaving and splicing, as simple as possible.

Typical Applications

- Low to mid power CW and pulsed Eye Safe 2 µm lasers & amplifiers
- Eye Safe industrial & medical lasers
- Military and commercial LIDAR

Features & Benefits

- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- Easy to maintain single-mode LP01 beam through fiber & components
- PANDA-style stress structure for increased birefringence — Superior optical performance and uniformity
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

Optical Specifications	**PM-GDF-10/130-2000-M**
Operating Wavelength	1900 – 2100 nm
Core NA	0.150
First Cladding NA (5%)	≥ 0.460
Cladding Attenuation	≤ 15.0 dB/km @ 1095 nm
Birefringence	nominal 1.5×10^{-4}
Geometrical & Mechanical Specifications	
Cladding Diameter	130.0 ± 1.0 µm
Core Diameter	10.0 ± 1.0 µm
Coating Diameter	245.0 ± 10.0 µm
Coating Concentricity	< 5.0 µm
Core/Clad Offset	≤ 0.70 µm
Prooftest Level	≥ 100 kpsi (0.7 GN/m²)

Coating Requirements: Low index Polymer coating.
Other Requirements: Round Fiber. Polarization Maintaining fiber with dual circular stress elements.

NUFERN

RoHS

7 Airport Park Road, East Granby, CT 06026 • 860.408.5000 • Toll-free 866.466.0214 • Fax 860.844.0210 E-mail info @ nufern.com • www.nufern.com •
Nufern products are manufactured under an ISO 9001:2008 certified quality management system.