



# Eye Safe 25P/250 Thulium-Doped LMA Double Clad Fiber

The first true LMA fiber featuring a unique low NA (0.1) high concentration Tm-doped core design. It is fully optimized for high slope efficiency (composition has demonstrated >130% quantum efficiency) when pumped at 793nm. This extraordinary efficiency is due to composition enabled cross relaxation of Thulium ions in the core. The high Tm-concentration allows short device lengths and high pump conversion efficiency while the low NA (few moded) core design is ideal for applications where robust single-mode beam quality is critical. The high NA (0.46) 250µm pump cladding waveguide allows for efficient coupling of high pump powers. The large core diameter (25µm) maintains a large mode field diameter and short device length thereby minimizing non-linear effects such as SBS and SRS.

## Typical Applications

- Eye Safe 2µm lasers & amplifiers
- Military and commercial lidar
- 2µm output TEM<sub>00</sub> fiber lasers for pumping solid state crystal lasers
- High peak power pulsed fiber amplifiers

## Features & Benefits

- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- Unique low NA Tm-doped core design — Robust single-mode beam quality
- Optimized composition for 793nm pumping — Very high conversion efficiency
- High pump absorption — Short fiber length, efficient lasing in the ~2µm  $\lambda$  window
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

## Optical Specifications

Operating Wavelength (nominal)	2000 nm
Core NA	0.090
First Cladding NA (5%)	≥ 0.460
Cladding Attenuation	≤ 15 dB/km @ 860 nm
Cladding Absorption	1.90 ± 0.20 dB/m at 1180 nm
	9.50 dB/m at 793 nm

## LMA-TDF-25P/250-HE

## Geometrical & Mechanical Specifications

Cladding Diameter (flat-to-flat)	250.0 ± 8.0 µm
Core Diameter	25.0 ± 2.5 µm
Coating Diameter	395.0 ± 15.0 µm
Coating Material	Low Index Polymer
Proof test Level	≥ 100 kpsi (0.7 GN/m <sup>2</sup> )

The passive version of each fiber is also available.



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Standard specifications and design parameters are listed above. 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 Nufern can assist with your requirements.

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