

25/250 Ytterbium-Doped LMA Double Clad Fibers



Nufern's 25/250 Ytterbium-doped double clad fiber is ideally suited for high peak power pulsed fiber amplifier applications. Based on a waveguide structure that supports less modes than the 30/250 fiber, this fiber is incorporated into components and monolithic designs where maintaining beam quality can be more difficult. Both non-PM and PANDA-style PM fibers are available, as are a range of support fibers for component and pigtail development efforts. As with all Nufern standard Large Mode Area (LMA) fibers, these fibers are proof-tested to 100 kpsi, an industry requirement for long term reliability when coiling for mode filtering.

Typical Applications

- High peak power amplifiers
- LIDAR
- Material processing
- Non-linear optics/frequency doubling

Features & Benefits

- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- LMA core design and short amplifier length — Useful for generating high peak powers
- “Few” moded core design — 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

	PLMA-YDF-25/250-VIII	LMA-YDF-25/250-VIII
Operating Wavelength	1060 – 1115 nm	1060 – 1115 nm
Core NA	0.060 ± 0.010	0.060 ± 0.010
First Cladding NA (5%)	≥ 0.46	≥ 0.46
Cladding Attenuation	≤ 15.0 dB/km @ 1095 nm	≤ 15.0 dB/km @ 1095 nm
Cladding Absorption	1.70 ± 0.20 dB/m at 915 nm 5.10 dB/m near 975 nm	1.60 ± 0.20 dB/m at 915 nm 4.80 dB/m near 975 nm
Birefringence	nominal 2×10^{-4}	N/A

Geometrical & Mechanical Specifications

	PLMA-YDF-25/250-VIII	LMA-YDF-25/250-VIII
Cladding Diameter	250.0 ± 10.0 μm	N/A
Cladding Diameter (flat-to-flat)	N/A	250.0 ± 10.0 μm
Core Diameter	25.0 ± 2.5 μm	25.0 ± 2.5 μm
Coating Diameter	400.0 ± 20.0 μm	400.0 ± 20.0 μm
Coating Material	Low Index Polymer	Low Index Polymer
Proof-test Level	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)

The passive version of each fiber is also available.
Precision matched fiber sets are also available - see PLMA-YDF-25/250-M; LMA-YDF-25/250-M; PLMA-GDF-25/250-M and LMA-GDF-25/250-M



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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.



25/250 Precision Matched Passive LMA Double Clad Fibers

Nufern's Large Mode Area (LMA) and Polarization Maintaining LMA (PLMA) passive double clad fiber are ideal for high power fiber lasers and amplifiers used in military, industrial, and medical applications. These fibers feature a 25 micron diameter core and 250 micron diameter clad size with a low NA (0.065) core. They are precision matched to their active Yb-doped 25/250 LMA and PLMA matched counterparts to ensure excellent splice compatibility and low loss. As with all Nufern standard Large Mode Area (LMA) fibers, these fibers are proof-tested to 100 kpsi, an industry requirement for long term reliability. They utilize the latest fiber design and NuCOAT™ coating technology to ensure excellent preservation of beam quality and extended operating life at the high power levels demanded by today's industrial fiber laser applications. These precision matched fibers are available in both non-PM and PANDA-style PM fibers.

Typical Applications

- High peak power amplifiers
- LIDAR
- Material processing
- Non-linear optics/frequency doubling

Features & Benefits

- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- LMA core design and short amplifier length — Useful for transmitting high peak powers
- "Few" moded core design — 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

Operating Wavelength
Core NA
First Cladding NA (5%)
Core Attenuation
Cladding Attenuation
Birefringence

PLMA-GDF-25/250-M

1060 – 1600 nm
0.065 ± 0.005
≥ 0.46
≤ 45.0 dB/km @ 1300 nm
≤ 30.0 dB/km @ 1200 nm
≤ 15.0 dB/km @ 1095 nm
nominal 2×10^{-4}

LMA-GDF-25/250-M

1060 – 1600 nm
0.065 ± 0.005
≥ 0.46
≤ 45.0 dB/km @ 1300 nm
≤ 30.0 dB/km @ 1200 nm
≤ 15.0 dB/km @ 1095 nm
N/A

Geometrical & Mechanical Specifications

Cladding Diameter
Core Diameter
Coating Diameter
Core/Clad Offset
Clad Non-Circularity
Proof-test Level

247.0 ± 5.0 μm
25.0 ± 1.5 μm
395.0 ± 15.0 μm
≤ 2.00 μm
N/A
≥ 100 kpsi (0.7 GN/m²)

247.0 ± 3.0 μm
25.0 ± 1.5 μm
395.0 ± 15.0 μm
≤ 2.00 μm
≤ 0.5 %
≥ 100 kpsi (0.7 GN/m²)

These precision matched fibers are included in our precision matched sets - see PLMA-YDF-25/250-M and LMA YDF-25/250-M



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