

# 10/400 Ytterbium-Doped LMA Double Clad Fibers



Coherent's Large Mode Area (LMA) Ytterbium-Doped Double Clad Fiber is ideal for high power fiber lasers and amplifiers used in military, industrial, and medical applications. LMA Yb-doped fibers enable efficient, compact, diode pumped fiber sources that are an attractive alternative to traditional solid-state lasers. This fiber features a 10/400 core/cladding size with a low NA (0.075) core, > 77% slope efficiency, > 100W CW output power and is suitable for use in single-mode applications.

## Typical Applications

- High power fiber lasers
- CW amplifiers
- Military, industrial and medical
- Single-mode applications

## Features & Benefits

- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage condition
- 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-10/400-VIII	LMA-YDF-10/400-VIII
Operating Wavelength	1060 – 1115 nm	1060 – 1115 nm
Core NA	0.077 ± 0.007	0.077 ± 0.007
First Cladding NA (5%)	≥ 0.46	≥ 0.46
Core Attenuation	≤ 20.0 dB/km @ 1200 nm	≤ 30.0 dB/km @ 1300 nm
Cladding Attenuation	≤ 15.0 dB/km @ 1095 nm	≤ 15.0 dB/km @ 1095 nm
Cladding Absorption	0.20 ± 0.04 dB/m at 915 nm 0.60 dB/m near 975 nm	0.20 ± 0.04 dB/m at 915 nm 0.60 dB/m near 975 nm
Birefringence	nominal $3 \times 10^{-4}$	N/A

## Geometrical & Mechanical Specifications

	PLMA-YDF-10/400-VIII	LMA-YDF-10/400-VIII
Cladding Diameter	400.0 ± 10.0 μm	N/A
Cladding Diameter (flat-to-flat)	N/A	400.0 ± 10.0 μm
Core Diameter	11.5 ± 1.0 μm	11.5 ± 1.0 μm
Coating Diameter	550.0 ± 15.0 μm	550.0 ± 15.0 μm
Core/Clad Offset	≤ 2.50 μm	≤ 2.50 μm
Proof test Level	≥ 100 kpsi (0.7 GN/m <sup>2</sup> )	≥ 100 kpsi (0.7 GN/m <sup>2</sup> )



The passive version of each fiber is also available - see PLMA GDF-10/400 and LMA GDF-10/400

Nufern • 7 Airport Park Road, East Granby, CT 06026 • 860.408.5000 • Toll-free 866.466.0214 • Fax 860.844.0210 • Email: tech.sales@coherent.com  
www.coherent.com ; www.shop.coherent.com • Coherent products are manufactured under an ISO 9001:2008 certified quality management system.



Custom developed fiber (FUD) 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 Coherent can assist with your requirements.

# 10/400 Passive LMA Double Clad Fiber



Coherent's passive series of Large Mode Area (LMA) double clad fibers are ideal for high power monolithic fiber lasers and amplifiers. These passive fibers are based on a 10 micron diameter core and 400 micron diameter clad size with a low NA (0.08) core and are designed to work well with the active Yb-doped 10/400 LMA fibers. These fibers 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 fibers are available in both non-PM and PANDA-style PM fibers.

## Typical Applications

- Pulsed fiber lasers and amplifiers
- Material processing
- LIDAR
- Non-linear optics / frequency doubling

## Features & Benefits

- Designed for compatibility with 10/400 active fibers
- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- Optimized LMA core design — Easy to maintain single mode LP01 beam through fiber & components at high power
- 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%)  
Cladding Attenuation  
Birefringence

### PLMA-GDF-10/400

1060 – 1600 nm  
0.077 ± 0.007  
≥ 0.46  
≤ 15.0 dB/km @ 1095 nm  
nominal  $3 \times 10^{-4}$

### LMA-GDF-10/400

1060 – 1600 nm  
0.077 ± 0.007  
≥ 0.46  
≤ 15.0 dB/km @ 1095 nm  
N/A

## Geometrical & Mechanical Specifications

Cladding Diameter  
Core Diameter  
Coating Diameter  
Proof test Level

400.0 ± 10.0 μm  
11.5 ± 1.0 μm  
550.0 ± 15.0 μm  
≥ 100 kpsi (0.7 GN/m<sup>2</sup>)

400.0 ± 10.0 μm  
11.5 ± 1.0 μm  
550.0 ± 15.0 μm  
≥ 100 kpsi (0.7 GN/m<sup>2</sup>)



Designed to work with 10/400 LMA Yb-doped active fibers.

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