

# 20/400 Precision Matched Active LMA Double Clad Fibers



Nufern's matched series of Large Mode Area (LMA) double clad fibers are ideal for high power monolithic fiber lasers and amplifiers. Featuring a matching set of LMA fibers, this series of fibers ensure splice compatibility across the entire chain of 20/400 fiber components, such as fiber Bragg gratings and couplers, required to make monolithic fiber lasers. This matched fiber series is based on a 20 micron diameter core and 400 micron diameter clad size with a low NA (0.065) core and consists of Yb-doped fiber, photosensitive fiber and passive beam delivery fibers all made to highest tolerances in the industry. All fibers utilize the latest glass composition and NuCOAT fluoroacrylate coating technology to ensure high slope efficiency, extended operating life and excellent beam quality at the high power levels demanded by today's industrial fiber laser applications. These precision matched LMA fiber sets are available in non-PM (LMA) and PM (PLMA) versions.

## Typical Applications

- Monolithic high power lasers & amplifiers
- LMA fiber couplers, pump combiners & FBG
- High power pump & signal pigtails
- Military, industrial and medical

## Features & Benefits

- Matched fiber series – Ensures splice compatibility across the 20/400 matched series of fibers
- NuCOAT fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- State of the art Yb-doped glass — Useful for generating high CW powers
- 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  
Cladding Absorption  
Birefringence  
Slope Efficiency

## PLMA-YDF-20/400-M

1060 – 1115 nm  
0.065 ± 0.005  
≥ 0.46  
≤ 50.0 dB/km @ 1300 nm  
≤ 25.0 dB/km @ 1200 nm  
≤ 15.0 dB/km @ 1095 nm  
1.5 dB/m at 975 nm  
0.5 ± 0.1 dB/m at 915 nm  
nominal  $4 \times 10^{-4}$   
N/A

## LMA-YDF-20/400-M

1060 – 1115 nm  
0.065 ± 0.005  
≥ 0.46  
≤ 30.0 dB/km @ 1300 nm  
≤ 15.0 dB/km @ 1200 nm  
≤ 15.0 dB/km @ 1095 nm  
0.40 ± 0.05 dB/m at 915 nm  
N/A  
> 70.0% @ 915 nm

## Geometrical & Mechanical Specifications

Cladding Diameter  
Cladding Diameter (flat-to-flat)  
Core Diameter  
Coating Diameter  
Core/Clad Offset  
Proof test Level

405.0 ± 10.0 μm  
N/A  
20.0 ± 1.5 μm  
550.0 ± 15.0 μm  
≤ 2.00 μm  
≥ 100 kpsi (0.7 GN/m<sup>2</sup>)

N/A  
400.0 ± 10.0 μm  
20.0 ± 1.5 μm  
550.0 ± 15.0 μm  
≤ 2.00 μm  
≥ 100 kpsi (0.7 GN/m<sup>2</sup>)

Coating Requirements: Low index polymer coating. The precision matched passive fibers are also available- see PLMA-GDF-20/400-M and LMA-GDF-20/400-M



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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 Nufern can assist with your requirements.