

# 20/400 Ultra Matched+ Yb-doped LMA Double Clad Fibers



Coherent's Ultra Matched (M+) Large Mode Area (LMA) active double clad fibers are ideal for high power fiber lasers and amplifiers used in defense, industrial, and medical applications. These fibers feature a 20 micron diameter core and 400 micron diameter clad size with a low NA (0.065) core. These M+ fibers represent the next generation of matched fibers. They are matched with ultra-high precision to their passive 20/400 LMA M+ counterparts to ensure excellent splice compatibility and low loss. As with all Coherent standard LMA fibers, these fibers are proof tested to 100 kpsi, an industry requirement for long term reliability. The M+ fibers are specified to the tightest specifications including the MFD, and use NuCOAT-FA coating technology ensuring excellent preservation of beam quality and extending operating life at the high power levels demanded by today's industrial fiber laser applications. These ultra matched fibers are available in non-PM (LMA) and PM (PLMA) versions.

## Typical Applications

- Monolithic high power lasers & amplifiers
- Material processing
- Non-linear optics/frequency doubling
- Defense, industrial and medical

## Features & Benefits

- Ultra Matched (M+) — Providing the lowest possible splice loss
- NuCOAT-FA 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%)  
Mode Field Diameter  
Core Attenuation  
  
Cladding Attenuation  
Cladding Absorption  
  
Birefringence  
Slope Efficiency

## PLMA-YDF-20/400-M+

1015 – 1115 nm  
0.065 ± 0.005  
≥ 0.46  
16.70 ± 1.00 μm @ 1060 nm  
≤ 30.0 dB/km @ 1300 nm  
≤ 15.0 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  $4 \times 10^{-4}$   
> 70.0% @ 915 nm

## LMA-YDF-20/400-M+

1060 – 1115 nm  
0.065 ± 0.005  
≥ 0.46  
16.7 ± 1.0 μm @ 1060 nm  
≤ 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 ± 7.0 μm  
N/A  
20.0 ± 1.5 μm  
550.0 ± 15.0 μm  
≤ 1.20 μm  
≥ 100 kpsi (0.7 GN/m<sup>2</sup>)

N/A  
400.0 ± 7.0 μm  
20.0 ± 1.5 μm  
550.0 ± 15.0 μm  
≤ 1.20 μm  
≥ 100 kpsi (0.7 GN/m<sup>2</sup>)



The ultra matched passive fibers are also available.  
Coating Requirements: Low Index Polymer NuCOAT-FA.

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.