

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 4×10^{-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/m²)

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/m²)



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

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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.

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20/400 Ultra Matched+ Passive LMA Double Clad Fiber



Nufern's Ultra Matched+ (M+) Large Mode Area (LMA) passive double clad fibers are ideal for high power fiber lasers and amplifiers used in military, 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 active Yb-doped 20/400 LMA M+ counterparts to ensure excellent splice compatibility and low loss. As with all Nufern 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™ 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.

Typical Applications

- High power fiber lasers
- CW and pulsed amplifiers
- LMA fiber couplers & pump combiners
- Military, industrial and medical

Features & Benefits

- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- LMA core design — Useful for transmitting high CW powers
- “Few” moded core design — Easy to maintain single mode LP01 beam through fiber & components
- Ultra Matched (M+) — Providing the lowest possible splice loss
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

Optical Specifications

Operating Wavelength	1060 – 1600 nm
Core NA	0.065 ± 0.005
First Cladding NA (5%)	≥ 0.46
Mode Field Diameter	16.7 ± 1.0 μm @ 1060 nm
Core Attenuation	≤ 30.0 dB/km @ 1300 nm ≤ 15.0 dB/km @ 1200 nm
Cladding Attenuation	≤ 15.0 dB/km @ 1095 nm

LMA-GDF-20/400-M+

Geometrical & Mechanical Specifications

Cladding Diameter	395.0 ± 3.0 μm
Core Diameter	20.0 ± 1.5 μm
Coating Diameter	550.0 ± 15.0 μm
Core/Clad Offset	≤ 1.20 μm
Clad Non-Circularity	≤ 0.50 %
Proof test Level	≥ 100 kpsi (0.7 GN/m ²)

The precision matched (M) fibers are also available - see PLMA-YDF-20/400-M and LMA-YDF-20/400-M



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