

# 20/130 Ytterbium-Doped LMA Double Clad Fibers



Coherent's polarization maintaining, Large Mode Area (LMA), Ytterbium-doped double clad fiber is ideal for linearly polarized 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 large core/cladding ratio with a low NA (0.08) and is ideally suited for pulsed laser applications.

## Typical Applications

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

## Features & Benefits

- 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
- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

## Optical Specifications

	PLMA-YDF-20/130-VIII	LMA-YDF-20/130-VIII
Operating Wavelength	1060 – 1115 nm	1060 – 1115 nm
Core NA	0.080 ± 0.005	0.080 ± 0.005
First Cladding NA (5%)	≥ 0.46	≥ 0.46
Cladding Attenuation	≤ 15.0 dB/km @ 1095 nm	≤ 15.0 dB/km @ 1095 nm
Cladding Absorption	3.40 ± 0.30 dB/m at 915 nm 10.20 dB/m near 976 nm	2.90 ± 0.30 dB/m at 915 nm 8.70 dB/m near 976 nm
Birefringence	nominal $2 \times 10^{-4}$	N/A

## Geometrical & Mechanical Specifications

	PLMA-YDF-20/130-VIII	LMA-YDF-20/130-VIII
Cladding Diameter	130.0 ± 1.0 μm	N/A
Cladding Diameter (flat-to-flat)	N/A	130.0 ± 2.0 μm
Core Diameter	20.0 ± 2.0 μm	20.0 ± 2.0 μm
Coating Diameter	245.0 ± 10.0 μm	245.0 ± 10.0 μm
Coating Concentricity	< 5.0 μm	< 5.0 μm
Core/Clad Offset	≤ 1.00 μm	≤ 1.00 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-20/130 and LMA GDF-20/130



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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 Coherent can assist with your requirements.

# 20/130 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 20 micron diameter core and 130 micron diameter clad size with a low NA (0.08) core and are designed to work well with the active Yb-doped 20/130 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 20/130 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

	PLMA-GDF-20/130	LMA-GDF-20/130-M
Operating Wavelength	1060 – 1600 nm	1060 – 1600 nm
Core NA	0.080 ± 0.005	0.080 ± 0.005
First Cladding NA (5%)	≥ 0.46	≥ 0.46
Core Attenuation	N/A	≤ 40.0 dB/km @ 1300 nm ≤ 20.0 dB/km @ 1200 nm
Cladding Attenuation	≤ 15.0 dB/km @ 1095 nm	≤ 15.0 dB/km @ 1095 nm
Birefringence	nominal $2 \times 10^{-4}$	N/A

## Geometrical & Mechanical Specifications

	PLMA-GDF-20/130	LMA-GDF-20/130-M
Cladding Diameter	130.0 ± 1.0 μm	130.0 ± 1.0 μm
Core Diameter	20.0 ± 2.0 μm	20.0 ± 1.5 μm
Coating Diameter	245.0 ± 10.0 μm	245.0 ± 10.0 μm
Coating Concentricity	< 5.0 μm	< 5.0 μm
Core/Clad Offset	N/A	≤ 0.70 μm
Clad Non-Circularity	N/A	≤ 0.5 %
Proof test Level	≥ 100 kpsi (0.7 GN/m <sup>2</sup> )	≥ 100 kpsi (0.7 GN/m <sup>2</sup> )



Designed to work with 20/130 LMA Yb-doped active fibers.

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NU0143- 11/12/2020