

# 20/130 Precision Matched Active LMA Double Clad Fiber



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 20/130 fiber components required to make monolithic fiber lasers. This matched fiber series is based on a 20 micron diameter core and 130 micron diameter clad size with a low NA (0.08) core and consists of Yb-doped fiber and passive beam delivery fibers all made to highest tolerances in the industry. All fibers utilize the latest glass composition and NuCOAT™ 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.

## Typical Applications

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

## Features & Benefits

- Matched fiber series – ensure splice compatibility across the 20/130 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
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

## Optical Specifications

|                        |                            |
|------------------------|----------------------------|
| Operating Wavelength   | 1060 – 1115 nm             |
| Core NA                | 0.080 ± 0.005              |
| First Cladding NA (5%) | ≥ 0.46                     |
| Cladding Attenuation   | ≤ 15.0 dB/km @ 1095 nm     |
| Cladding Absorption    | 2.80 ± 0.30 dB/m at 915 nm |

## LMA-YDF-20/130-M

## Geometrical & Mechanical Specifications

|                                  |                                     |
|----------------------------------|-------------------------------------|
| Cladding Diameter (flat-to-flat) | 130.0 ± 1.5 μm                      |
| Core Diameter                    | 20.0 ± 1.5 μm                       |
| Coating Diameter                 | 245.0 ± 10.0 μm                     |
| Coating Concentricity            | < 5.0 μm                            |
| Core/Clad Offset                 | ≤ 0.70 μm                           |
| Proof test Level                 | ≥ 100 kpsi (0.7 GN/m <sup>2</sup> ) |

The passive version is also available - see LMA GDF-20/130-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.

# 20/130 Passive LMA Double Clad Fiber



Nuferm'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<br>≤ 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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Standard specifications and design parameters are listed above. 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 Nuferm can assist with your requirements.