

Erbium/Ytterbium Co-doped LMA Double Clad Fibers



Coherent's Large Mode Area (LMA) and Polarization Maintaining LMA (PLMA) Er/Yb co-doped fibers feature a unique low NA (0.09) core design, achieved without sacrificing high pump conversion efficiency and developed for applications where robustly single-mode output beam quality is critical. The high NA (0.46) cladding waveguide (250 and 300 μm) allows for efficient coupling of high pump powers, while the large core diameters (25 and 30 μm) maintain a large mode field diameter and short device length thereby minimizing deleterious nonlinear effects such as SBS and SRS. The design of these LMA products has been finely tuned to achieve ultra-high efficiencies while suppressing parasitic effects at 1 μm , offering unmatched stability when operating at high powers. Utilizing the NuCOATFA™ coating technology, these LMA fibers provide excellent preservation of beam quality and extended operating life at the high power levels demanded by today's industrial fiber laser applications.

Typical Applications

- High power lasers and amplifiers emitting around 1.5 μm
- Single frequency systems
- Military and commercial LIDAR
- High peak power, pulsed fiber amplifiers

Features & Benefits

- NuCOATFA™ fluoroacrylate coating — Greater fiber durability in extreme environmental conditions
- Unique low NA Er/Yb co-doped core design — Few moded core, for robust single-mode beam quality
- Large mode field diameter — Increased threshold for non-linearities
- Optimized, high efficiency core glass composition — Suitable for high power operation
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

Optical Specifications

	PLMA-EYDF-25P/300-HE	LMA-EYDF-25P/300-HE	LMA-EYDF-30P/250-HE
Operating Wavelength	1530 – 1625 nm	1530 – 1625 nm	1530 – 1625 nm
Core NA	0.090	0.090	0.090
First Cladding NA (5%)	≥ 0.46	≥ 0.46	≥ 0.46
Cladding Attenuation	≤ 30.0 dB/km @ 1095 nm	≤ 30.0 dB/km @ 1095 nm	≤ 30.0 dB/km @ 1095 nm
Cladding Absorption	2.90 ± 0.50 dB/m at 915 nm	2.60 ± 0.50 dB/m at 915 nm	6.00 ± 1.00 dB/m at 915 nm
Core Absorption	85.0 ± 15.0 dB/m near 1535 nm	85.0 ± 15.0 dB/m near 1535 nm	100.0 ± 20.0 dB/m near 1530 nm
Birefringence	nominal 1.5×10^{-4}	N/A	N/A

Geometrical & Mechanical Specifications

	PLMA-EYDF-25P/300-HE	LMA-EYDF-25P/300-HE	LMA-EYDF-30P/250-HE
Cladding Diameter	300.0 ± 8.0 μm	N/A	N/A
Cladding Diameter (flat-to-flat)	N/A	300.0 ± 8.0 μm	250.0 ± 8.0 μm
Core Diameter	25.0 ± 2.0 μm	25.0 ± 2.0 μm	30.0 ± 3.0 μm
Coating Diameter	450.0 ± 15.0 μm	450.0 ± 15.0 μm	350.0 ± 10.0 μm
Core/Clad Offset	≤ 2.00 μm	≤ 2.00 μm	≤ 3.00 μm
Coating Material	Low Index Acrylate	Low Index Acrylate	Low Index Acrylate
Proof test Level	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)



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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.

30/250 with 0.09 NA Matched 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. This passive fiber is based on a 30 μm diameter core and 250 μm diameter clad size with a low NA (0.09) core. It is precision matched to its active Er/Yb co-doped 30P/250 LMA matched counterpart to ensure excellent splice compatibility and low loss. As with all Coherent standard LMA fibers, this fiber is proof-tested to 100 kpsi, an industry requirement for long term reliability. They utilize the latest fiber design and NuCOAT-FA™ 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.

Typical Applications

- Eye safe (1.5 μm) lasers and amplifiers
- High peak power, pulsed fiber amplifiers
- Ultra-short pulse fiber amplifiers
- Military and commercial lidar

Features & Benefits

- NuCOAT-FA™ fluoroacrylate coating — Greater fiber durability in extreme operating & storage conditions
- Unique LMA core design — Useful for transmitting high peak powers
- "Few" moded core design — Easy to maintain single mode LP01 beam through fiber & components
- Tight geometric tolerances — Superior optical performance and uniformity
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

Optical Specifications

Operating Wavelength	800 – 2100 nm
Core NA	0.0900 \pm 0.0100
First Cladding NA (5%)	\geq 0.46
Cladding Attenuation	\leq 15.0 dB/km @ 1095 nm

LMA-GDF-30/250-09M

Geometrical & Mechanical Specifications

Cladding Diameter	247.0 \pm 3.0 μm
Core Diameter	30.0 \pm 2.0 μm
Coating Diameter	350.0 \pm 10.0 μm
Core/Clad Offset	\leq 2.00 μm
Clad Non-Circularity	\leq 0.5 %
Coating Material	Low Index Acrylate
Proof test Level	\geq 100 kpsi (0.7 GN/m ²)



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