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

- NuCOAT_{FA}™ 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			
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
Prooftest Level	≥ 100 kpsi (0.7 GN/m²)	≥ 100 kpsi (0.7 GN/m²)	≥ 100 kpsi (0.7 GN/m²)

COHERENT

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.

RoHS compliant

NU0161- 11/12/2020