

CATV Amplifier 6/125 Er/Yb-Doped Double Clad Fibers



Coherent's proprietary rare earth doping technology is used to fabricate Er/Yb co-doped fibers with industry leading tolerances on the key parameters important for fiber based amplifiers. This ensures the essential lot-to-lot reproducibility required for volume manufacturing of high power CATV and telecom optical amplifiers at 1550 nm. Coherent's XP version offers an optimized design for ultra-high efficiency and minimized threshold delivering superior performance. The new -XP fiber is particularly well suited for single-stage amplifiers and lasers requiring high gain factors with limited pump power. Utilizing Coherent's proprietary NuCOAT™ coating technology, these single-mode fibers around 1550 nm offer the best damp and dry heat performance available and ensure extended operating lifetime.

Typical Applications

- CATV and Telecom amplifiers
- Single-mode applications

Features & Benefits

- Optimized XP version — Ultra-high efficiency and minimized threshold
- Single-mode core design — Low splice loss to transmission fiber
- Double clad design — High power performance and high power conversion efficiency
- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme operating and storage conditions
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

Optical Specifications

	SM-EYDF-6/125-XP	SM-EYDF-6/125-HE	PM-EYDF-6/125-HE
Operating Wavelength	1530 – 1625 nm	1530 – 1625 nm	1530 – 1625 nm
Core NA	0.210	0.180	0.180
First Cladding NA (5%)	≥ 0.46	≥ 0.46	≥ 0.46
Mode Field Diameter	6.1 ± 0.5 μm @ 1550 nm 6.1 ± 0.5 μm @ 1550 nm	6.8 ± 0.8 μm @ 1550 nm	6.8 ± 0.8 μm @ 1550 nm
Cutoff	1470 ± 50 nm	1440 ± 80 nm	1440 ± 80 nm
Normalized Cross Talk	N/A	N/A	≤ -25.0 dB at 10 m @ 1300 nm
Cladding Absorption	1.00 ± 0.25 dB/m at 915 nm	0.75 ± 0.15 dB/m at 915 nm	0.75 ± 0.15 dB/m at 915 nm
Core Absorption	1.00 ± 0.25 dB/m at 915 nm 45.0 ± 12.0 dB/m near 1535 nm 45.0 ± 12.0 dB/m near 1535 nm	40.0 ± 10.0 dB/m near 1535 nm	40.0 ± 10.0 dB/m near 1535 nm

Geometrical & Mechanical Specifications

	SM-EYDF-6/125-XP	SM-EYDF-6/125-HE	PM-EYDF-6/125-HE
Cladding Diameter	N/A	125.0 ± 3.0 μm	125.0 ± 1.0 μm
Cladding Diameter (flat-to-flat)	125.0 ± 2.0 μm	N/A	N/A
Core Diameter	5.5 μm	6.0 μm	6.0 μm
Coating Diameter	245.0 ± 15.0 μm	245.0 ± 15.0 μm	245.0 ± 15.0 μm
Coating Concentricity	< 5.0 μm	N/A	N/A
Core/Clad Offset	≤ 1.00 μm	≤ 1.00 μm	≤ 1.00 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.

6/125 Precision Matched Passive Single-Mode 1550-nm Double Clad Fiber



Coherent's precision matched single-mode passive double-clad fibers are available in two-versions — PANDA-style, polarization-maintaining (PM) and non-PM. These fibers feature a 6 μm core diameter and a 125 μm clad diameter optimized to match Coherent's active Er/Yb 6/125 μm fibers. This precise matching allows for the lowest splice loss improving performance for all applications including telecom optical amplifiers at 1550 nm. They utilize the latest fiber design and NuCOAT™ coating technology to ensure excellent preservation of beam quality and extended operating life demanded by today's industrial fiber laser applications.

Typical Applications

- Telecom amplifiers
- Laser delivery/fluorescence

Features & Benefits

- NuCOAT™ fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- Exceptional uniformity and core/clad concentricity — Low connectorization losses
- Bend insensitive — Survives application in tight confines
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability

Optical Specifications

	PM-GDF-6/125-M	SM-GDF-6/125-M
Operating Wavelength	1530 – 1625 nm	1530 – 1625 nm
Core NA	0.180	0.180
First Cladding NA (5%)	≥ 0.46	≥ 0.460
Mode Field Diameter	$6.8 \pm 0.8 \mu\text{m}$ @ 1550 nm	$6.8 \pm 0.8 \mu\text{m}$ @ 1550 nm
Cutoff	1440 ± 80 nm	1440 ± 80 nm
Core Attenuation	≤ 10.0 dB/km @ 1550 nm	≤ 6.00 dB/km @ 1550 nm
Cladding Attenuation	≤ 15.0 dB/km @ 1095 nm	≤ 15.0 dB/km @ 1095 nm
Birefringence	1×10^{-4}	N/A

Geometrical & Mechanical Specifications

	PM-GDF-6/125-M	SM-GDF-6/125-M
Cladding Diameter	$125.0 \pm 1.0 \mu\text{m}$	$125.0 \pm 1.0 \mu\text{m}$
Core Diameter	6 μm	6 μm
Coating Diameter	$245.0 \pm 10.0 \mu\text{m}$	$245.0 \pm 10.0 \mu\text{m}$
Coating Concentricity	< 5.0 μm	< 5.0 μm
Core/Clad Offset	$\leq 0.50 \mu\text{m}$	$\leq 0.50 \mu\text{m}$
Proof test Level	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)



Coating Requirements: Low Index Polymer Coating.
Other Requirements: Round Fiber

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NU0166- 11/12/2020

20P/250 Erbium/Ytterbium-Doped LMA Double Clad PM Fiber



Coherent | Coherent's proprietary rare earth doping technology is used to deliver Er/Yb co-doped fibers with industry leading performance and reliability. This fiber feature a 20 micron diameter core and a 250 micron diameter cladding with a 0.09 NA. The fiber design has been finely optimized to deliver the best performance. PLMA-EYDF-20P/250-XPB is optimized to achieve tens of Watts of output power with high efficiency and suppressed 1 μm parasitic ASE, offering unmatched stability. The large core of the fiber allows for shorter fiber lengths in amplifier and laser systems to reduce the impact of non-linear effects. The fiber utilizes the latest fiber design and NuCOAT-FA coating technology to ensure excellent preservation of beam quality and extended operating light at the high power levels demanded by today's industrial fiber laser applications.

Typical Applications

- Laser and amplifiers
- Military and commercial LIDAR
- High peak power, pulsed fiber amplifiers

Features & Benefits

- Optimized XPH design — High efficiency and low parasitic 1 μm ASE
- Large core — Enables shorter fiber length for high-power pulsed amplifiers
- Double clad design — High power performance and high power conversion efficiency
- NuCOAT-FA fluoroacrylate coating — Greater fiber durability in extreme operating and storage conditions
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

Optical Specifications

Operating Wavelength	1530 – 1625 nm
Core NA	0.090 \pm 0.010
First Cladding NA (5%)	\geq 0.46
Cladding Attenuation	\leq 30.0 dB/km @ 1095 nm
Cladding Absorption	3.70 \pm 0.60 dB/m at 915 nm
Core Absorption	90.0 \pm 20.0 dB/m near 1535 nm
Birefringence	nominal 1.5×10^{-4}

PLMA-EYDF-20P/250-XPB 1363747

Geometrical & Mechanical Specifications

Cladding Diameter	250.0 \pm 5.0 μm
Core Diameter	20.0 \pm 2.0 μm
Coating Diameter	350.0 \pm 10.0 μm
Core/Clad Offset	\leq 2.50 μm
Clad Non-Circularity	\leq 2.0 %
Coating Material	Low Index Acrylate
Proof test Level	\geq 100 kpsi (0.7 GN/m ²)



Matched passive delivery fiber PLMA-GDF-20/250-09M

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NU0321- 11/12/2020

20/250 Precision Matched Passive LMA Double Clad PM Fiber



Coherent | Coherent's Polarization Maintaining LMA (PLMA) passive double clad fiber is ideal for high power fiber lasers and amplifiers used in military, industrial, and medical applications. This fiber features a 20 micron diameter core and 250 micron diameter clad size with a low NA (0.09) core. It is precision matched to its active ErYb-doped 20P/250 PLMA matched counterpart to ensure excellent splice compatibility and low loss. As with all Coherent | Coherent standard Large Mode Area (LMA) fibers, this fiber is proof-tested to 100 kpsi, an industry requirement for long term reliability. The fiber utilizes 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

- High peak power amplifiers
- LIDAR
- Material processing
- Non-linear optics/frequency doubling

Features & Benefits

- NuCOAT-FA 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
- 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%)
Cladding Attenuation
Birefringence

PLMA-GDF-20/250-09M 1363793

800 – 1650 nm
0.090 ± 0.007
≥ 0.46
≤ 15.0 dB/km @ 1095 nm
nominal 1.5×10^{-4}

Geometrical & Mechanical Specifications

Cladding Diameter
Core Diameter
Coating Diameter
Core/Clad Offset
Clad Non-Circularity
Coating Material
Proof-test Level

250.0 ± 5.0 μm
20.0 ± 1.5 μm
350.0 ± 10.0 μm
≤ 2.00 μm
≤ 2.0 %
Low Index Acrylate
≥ 100 kpsi (0.7 GN/m²)



Active fiber PLMA-EYDF-20P/250-XPB

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