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 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	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			
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
Prooftest Level	≥ 100 kpsi (0.7 GN/m²)	≥ 100 kpsi (0.7 GN/m²)	≥ 100 kpsi (0.7 GN/m²)

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RoHS compliant

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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 ± 0.8 µm @ 1550 nm	6.8 ± 0.8 µm @ 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		
Cladding Diameter	125.0 ± 1.0 µm	125.0 ± 1.0 µm
Core Diameter	6 µm	6 µm
Coating Diameter	245.0 ± 10.0 µm	245.0 ± 10.0 µm
Coating Concentricity	< 5.0 µm	< 5.0 µm
Core/Clad Offset	≤ 0.50 µm	≤ 0.50 µm
Prooftest Level	≥ 100 kpsi (0.7 GN/m²)	≥ 100 kpsi (0.7 GN/m²)

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

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