

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



Nufern's proprietary rare earth doping technology is used to deliver 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. Nufern's XP version offers an optimized design for higher efficiency and lower parasitic 1 μ m ASE delivering superior performance. All these fibers demonstrate high efficiency and high power operation without rollover, enabled by the optimized double clad fiber design.

Typical Applications

- CATV and Telecom amplifiers

Features & Benefits

- Optimized XP version — Higher efficiency and lower 1 μ m ASE
- Single-mode core design — Low splice loss to transmission fiber
- 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

	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	$5.9 \pm 0.3 \mu\text{m}$ @ 1550 nm	$6.8 \pm 0.8 \mu\text{m}$ @ 1550 nm	$6.8 \pm 0.8 \mu\text{m}$ @ 1550 nm
Cutoff	1470 ± 50 nm	1440 ± 80 nm	1440 ± 80 nm
Cladding Attenuation	≤ 30.0 dB/km @ 1095 nm	N/A	N/A
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	100.0 ± 20.0 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	N/A	$125.0 \pm 1.0 \mu\text{m}$
Cladding Diameter (flat-to-flat)	$125.0 \pm 2.0 \mu\text{m}$	$125.0 \pm 3.0 \mu\text{m}$	N/A
Core Diameter	$5.5 \mu\text{m}$	$6.0 \mu\text{m}$	$6.0 \mu\text{m}$
Coating Diameter	$245.0 \pm 15.0 \mu\text{m}$	$245.0 \pm 15.0 \mu\text{m}$	$245.0 \pm 15.0 \mu\text{m}$
Coating Concentricity	$< 5.0 \mu\text{m}$	N/A	N/A
Core/Clad Offset	$\leq 1.00 \mu\text{m}$	$\leq 1.00 \mu\text{m}$	$\leq 1.00 \mu\text{m}$
First Cladding Material	N/A	Low Index Polymer	N/A
Coating Material	N/A	N/A	Low Index Polymer
Prooftest Level	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)

Coating Requirements: Low Index Polymer NuCoat-FA.



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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.

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1550-nm Single-Mode Double Clad Fibers



High power 1550 nm amplifiers based on double clad Er/Yb fibers are widely used in CATV and Telecom applications. The 1550 nm passive double clad fiber is ideal for use both as a pump and signal output fiber in combiners and as a laser delivery fiber. The high cut-off, bend insensitive design of this fiber ensures excellent signal confinement, while allowing for low splice loss to Er/Yb doped double clad fibers and industry standard SMF-28™ fiber. They are available in both non-PM design for traditional high power amplifiers and in PANDA-style PM design for high power coherent communications and frequency conversion applications.

Typical Applications

- CATV and Telecom amplifiers
- Laser delivery/fluorescence

Features & Benefits

- NuCOAT™ fluorocrylate 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-1550	SM-GDF-1550
Operating Wavelength	1450 – 1600 nm	1450 – 1600 nm
Core NA	0.120	0.120
First Cladding NA (5%)	≥ 0.46	≥ 0.460
Mode Field Diameter	10.5 ± 0.7 μm @ 1550 nm	10.5 ± 0.7 μm @ 1550 nm
Cutoff	1440 ± 80 nm	1440 ± 80 nm
Core Attenuation	≤ 2.0 dB/km @ 1550 nm	≤ 1.00 dB/km @ 1550 nm
Cladding Attenuation	≤ 15.0 dB/km @ 1095 nm	≤ 15.0 dB/km @ 1095 nm
Birefringence	2.5 × 10 ⁻⁴	N/A

Geometrical & Mechanical Specifications

	PM-GDF-1550	SM-GDF-1550
Cladding Diameter	130.0 ± 1.0 μm	125.0 ± 1.0 μm
Core Diameter	9 μm	9 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
Proof Test Level	≥ 100 kpsi (0.7 GN/m ²)	≥ 100 kpsi (0.7 GN/m ²)



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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 Nufern can assist with your requirements.