

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



Nufern's proprietary rare earth doping technology is used to deliver Er:Yb co-doped fibers with industry leading tolerances on the key spectroscopic parameters. This ensures the essential lot-to-lot reproducibility required for volume manufacturing of high power CATV and telecom optical amplifiers at 1550 nm. With a core composition optimized for all pump wavelengths (915–976 nm), 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

- Single-mode core design – Low splice loss to transmission fiber
- Double clad design – High power performance and high power conversion efficiency
- Optimized core composition – High 915–976 nm pump efficiency
- All fiber proof tested to  $\geq 100$  kpsi – Critical for ensuring long term reliability when coiling
- Tight mechanical and optical tolerances – High yield and uniformity in device manufacturing

### Optical Specifications

Operating Wavelength	1530 - 1625 nm
Mode Field Diameter	$6.75 \pm 0.75 \mu\text{m}$ @ 1550 nm
Second Mode Cutoff	$1440 \pm 80$ nm
Peak Cladding Absorption @ 915 nm	$0.75 \pm 0.15$ dB/m
Peak Core Absorption near 1535 nm	$40 \pm 10$ dB/m
10 m Cross Talk @ 1300 nm	-
Core Numerical Aperture (nominal)	0.18
Cladding Numerical Aperture (5%)	$\geq 0.46$
Cross Talk @ 1300 nm per 10 meters	-

### SM-EYDF-6/125-HE

Operating Wavelength	1530 - 1625 nm
Mode Field Diameter	$6.75 \pm 0.75 \mu\text{m}$ @ 1550 nm
Second Mode Cutoff	$1440 \pm 80$ nm
Peak Cladding Absorption @ 915 nm	$0.75 \pm 0.15$ dB/m
Peak Core Absorption near 1535 nm	$40 \pm 10$ dB/m
10 m Cross Talk @ 1300 nm	-
Core Numerical Aperture (nominal)	0.18
Cladding Numerical Aperture (5%)	$\geq 0.46$

### PM-EYDF-6/125-HE

Operating Wavelength	1530 - 1625 nm
Mode Field Diameter	$6.75 \pm 0.75 \mu\text{m}$ @ 1550 nm
Second Mode Cutoff	$1440 \pm 80$ nm
Peak Cladding Absorption @ 915 nm	$0.75 \pm 0.15$ dB/m
Peak Core Absorption near 1535 nm	$40 \pm 10$ dB/m
10 m Cross Talk @ 1300 nm	$\leq -25$ dB
Core Numerical Aperture (nominal)	0.18
Cladding Numerical Aperture (5%)	$\geq 0.46$
Cross Talk @ 1300 nm per 10 meters	$-37.5 \pm 12.5$ dB

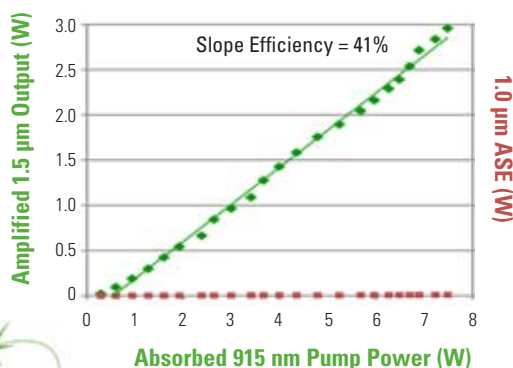
### Geometrical & Mechanical Specifications

Clad Diameter	$125 \pm 3 \mu\text{m}$ (flat to flat)
Coating Diameter	$245 \pm 15 \mu\text{m}$
Core-Clad Concentricity	$\leq 1.0 \mu\text{m}$
Outer Cladding Material	Low Index Polymer
Proof Test Level	$\geq 100$ kpsi ( $0.7 \text{ GN/m}^2$ )

Clad Diameter	$125 \pm 1 \mu\text{m}$
Coating Diameter	$245 \pm 15 \mu\text{m}$
Core-Clad Concentricity	$\leq 1.0 \mu\text{m}$
Outer Cladding Material	Low Index Polymer
Proof Test Level	$\geq 100$ kpsi ( $0.7 \text{ GN/m}^2$ )

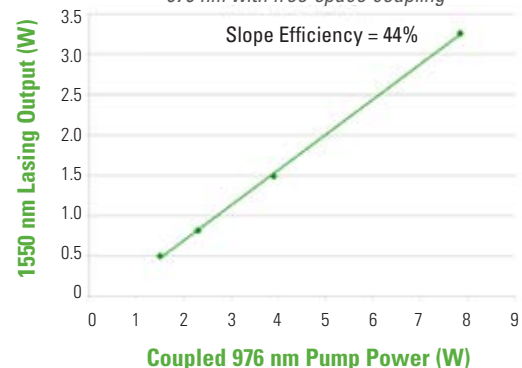
## Amplifier Slope Efficiency & ASE

915 nm pumped 10 dB absorption length with 50 mW seed



## Laser Slope Efficiency

976 nm with free-space coupling



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Nufern products are manufactured under an ISO 9001:2000 certified quality management system.



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.