

CORNING

Corning® ER Specialty Optical Fibers

Erbium-Doped Fibers



For Use in Optical Amplifiers and Fiber Lasers

Manufactured with Corning's patented outside vapor deposition (OVD) process, Corning® ER specialty fibers set the world standard for uniformity and reliability. Corning offers Erbium-doped fibers with or without hermetic coating. The hermetic coating offers significant advantage with respect to mechanical reliability and resistance to hydrogen-induced optical attenuation degradation. These Erbium-doped fibers have a proven track record in state-of-the-art optical amplifiers, and exhibit consistently low splice loss when coupled with fibers such as Corning® HI 1060 FLEX, Corning® HI 980, and Corning® SMF-28e+® optical fiber. Erbium-doped fibers designs are available for conventional C-band, L-band, and reduced clad (80 µm) applications.

Applications

- Single and multi-wavelength optical amplifiers (EDFA)
- Digital and analog systems
- CATV amplifiers

Features

- Outstanding consistency and uniformity using Corning's patented OVD process
- OVD manufacturing consistency provides repeatability for gain spectrum allowing for the reduction of lot qualifications in amplifier deployment
- Hermetic coating for increased environmental stability and reliability
- Dual acrylate coating system provides excellent protection from micro-induced attenuation and superior mechanical robustness
- Short and long cutoff wavelength C-band versions available
- Excellent geometry control
- Mode-field diameter designed to match Corning® High-Index specialty fiber, allowing for efficient coupling with an EDFA

C-band Fibers

Key Optical Specifications	ER 1550C3	ER 1550C3 LC	RC ER 1550C3
Peak Absorption Range @ 1530 nm (dB/m)	5.0 to 10.0	5.0 to 10.0	5.0 to 10.0
Peak Absorption Range @ 980 nm (dB/m)	≥ 2.5	≥ 3.0	≥ 2.5
Variation Around Peak Absorption per Batch (%)	≤ ± 1	≤ ± 1	≤ ± 1
Fiber Cutoff Wavelength (nm)	≤ 1300	≤ 980	≤ 1300
Maximum Attenuation @ 1200 nm (dB/km)	≤ 15.0	≤ 15.0	≤ 15.0
Mode-Field Diameter @ 1000 nm (μm)	3.5 ± 0.2	3.6 ± 0.2	3.5 ± 0.2
Mode-Field Diameter @ 1550 nm (μm)	5.4 ± 0.4	5.6 ± 0.4	5.4 ± 0.4
Polarization Mode Dispersion (fs/m)	≤ 4	≤ 4	≤ 4

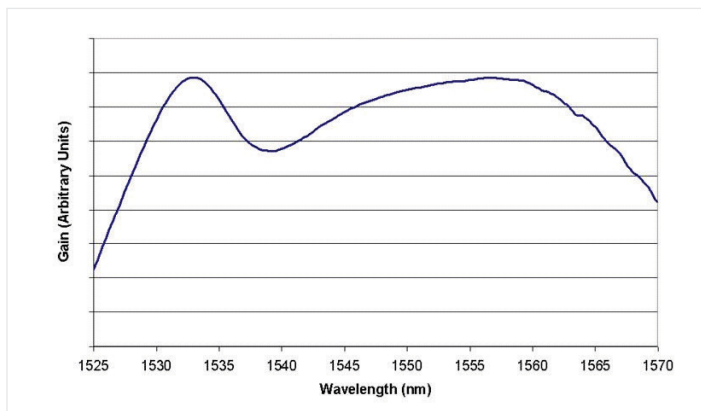
Key Geometric, Mechanical, and Environmental Specifications	ER 1550C3	ER 1550C3 LC	RC ER 1550C3
Cladding Outside Diameter (μm)	125 ± 1	125 ± 1	80 ± 1
Coating Outside Diameter (μm)	245 ± 10	245 ± 10	165 ± 10
Core-to-Cladding Concentricity (μm)	≤ 0.4	≤ 0.4	≤ 0.4
Standard Lengths		100 m, 500 m, 1 km, 2 km, 5 km	
Proof Test (kpsi)		100	
Operating Temperature (°C)	-60 to +85	-60 to +85	-60 to +85

Performance Characterizations*	ER 1550C3	ER 1550C3 LC	RC ER 1550C3
Numerical Aperture	0.23	0.22	0.23
Backscatter (% per meter)	≤ 0.0001	≤ 0.0001	≤ 0.0001

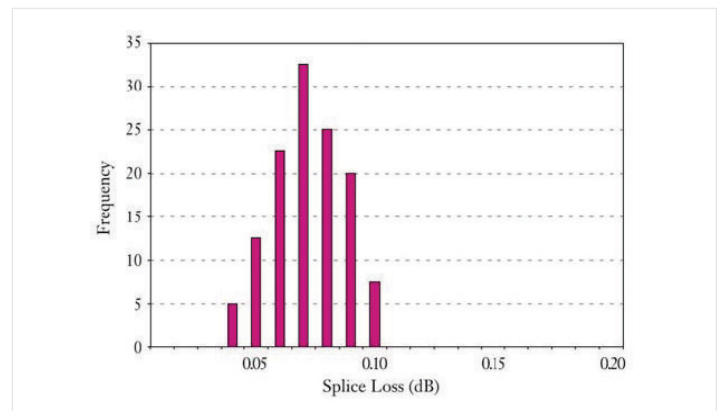
*Values in this table are nominal or calculated values

Typical Splicing Loss	ER 1550C3	ER 1550C3 LC	RC ER 1550C3
To Corning® SMF-28e+® Optical Fiber (dB)	0.10	0.10	0.13
To Corning® HI 1060 FLEX Specialty Fiber (dB)	0.05	0.05	0.10
To Corning® HI 980 Specialty Fiber (dB)	0.10	0.10	0.10
To Corning HI 1060 Specialty Fiber (dB)	0.10	0.10	0.10

Typical Gain Shape for Corning ER 1550C3 and ER 1550C3 LC Specialty Optical Fibers



Splice Loss of Corning ER 1550C3 Specialty Fiber to SMF-28e+ Optical Fiber



L-band Fibers

Key Optical Specifications	ER 1600L3 and RC ER 1600L3
Peak Absorption Range @ 1530 nm (dB/m)	18.0 to 29.0
Variation Around Peak Absorption per Batch (%)	$\leq \pm 1$
Fiber Cutoff Wavelength (nm)	≤ 1400
Maximum Attenuation @ 1200 nm (dB/km)	≤ 15.0
Mode-Field Diameter @ 1000 nm (μm)	5.5 ± 0.3
Polarization Mode Dispersion (fs/m)	≤ 5

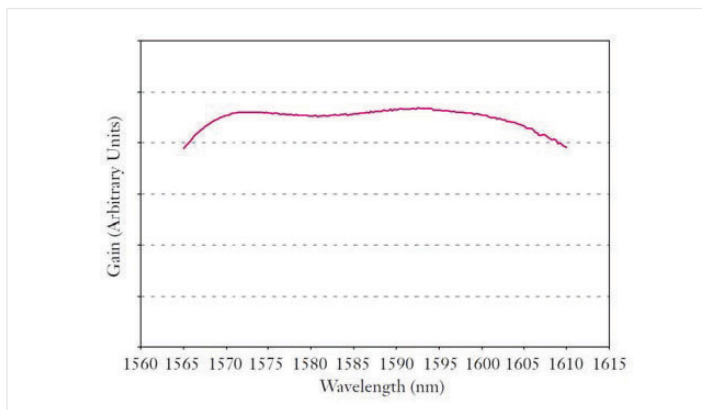
Key Geometric, Mechanical, and Environmental Specifications	ER 1600L3	RC ER 1600L3
Cladding Outside Diameter (μm)	125 ± 1	80 ± 1
Coating Outside Diameter (μm)	245 ± 10	165 ± 10
Core-to-Cladding Concentricity (μm)	≤ 0.4	
Standard Lengths	100 m, 500 m, 1 km, 2 km, 5 km	
Proof Test (kpsi)	100	
Operating Temperature ($^{\circ}\text{C}$)	-60 to +85	

Performance Characterizations*	ER 1600L3 and RC ER 1600L3
Numerical Aperture	0.23
Backscatter (% per meter)	≤ 0.0002
Non-linear Index of Refraction (n_2) (m^2/W)	$\leq 3.5 \times 10^{-20}$
Effective Area (A_{eff}) (μm^2)	22.5 ± 2.5

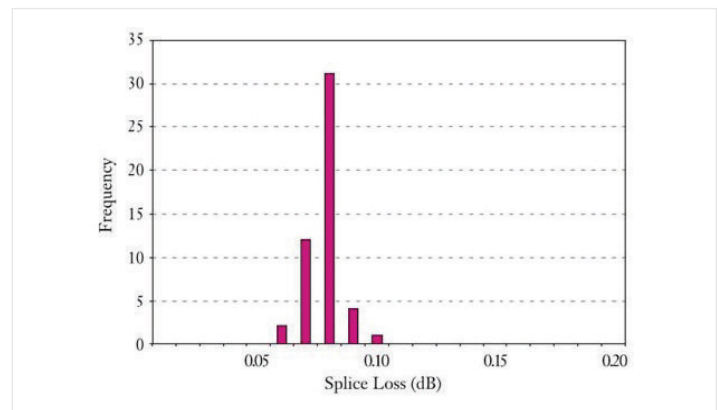
*Values in this table are nominal or calculated values

Typical Splicing Loss	ER 1600L3 and RC ER 1600L3
To Corning® SMF-28e+® Optical Fiber (dB)	0.10
To Corning® HI 980 Specialty Fiber (dB)	0.10
To Corning® HI 1060 Specialty Fiber (dB)	0.10

Typical Gain Shape for Corning ER 1600L3 Specialty Fiber



Splice Loss of Corning ER 1600L3 Specialty Fiber to SMF-28e+ Optical Fiber



For more information about Corning's leadership in specialty fiber technology, visit our website at [corning.com/specialtyfiber](https://www.corning.com/specialtyfiber)
To obtain additional technical information, an engineering sample, or to place an order for this product, please contact us at:

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The Corning logo consists of the word "CORNING" in a white, serif, all-caps font, centered within a solid blue square.

CORNING

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