Corning® ER Specialty Optical Fibers

Erbium-Doped Fibers

CORNING

For use in Optical Amplifies 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 resisitance 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 Outside Vapor Deposition (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

M200012
Issued: June 2018
Supersedes: March 2010

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

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	100m, 500m, 1 km, 2 km, 5 km		
Proof Test (kpsi)	100		
Operating Temperature (°C)	-60 to +85	-60 to +85	-60 to +85

Performance Characterizations*

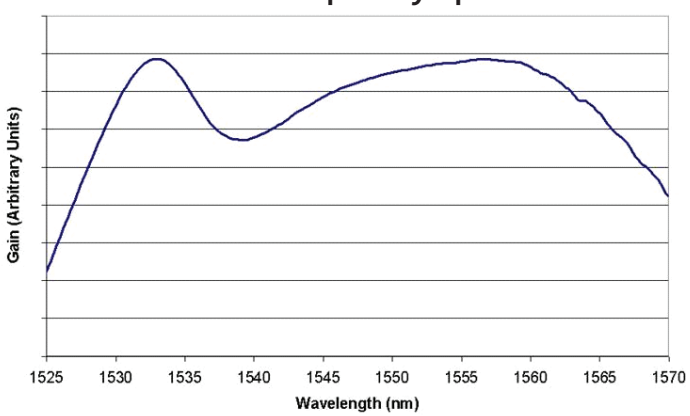
Numerical Aperture	0.23	0.22	0.23
Backscatter (% per meter)	≤0.0001	≤0.0001	≤0.0001

*Values in this table are nominal or calculated values

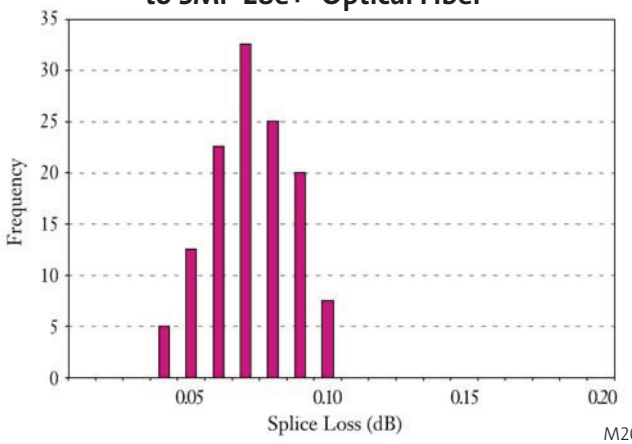
Typical Splicing Loss

To 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



M200012
Issued: June 2018
Supersedes: March 2010

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 (%)	≤ ± 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	100m, 500m, 1 km, 2 km, 5 km	
Proof Test (kpsi)	100	
Operating Temperature (°C)	-60 to +85	

Performance Characterizations*

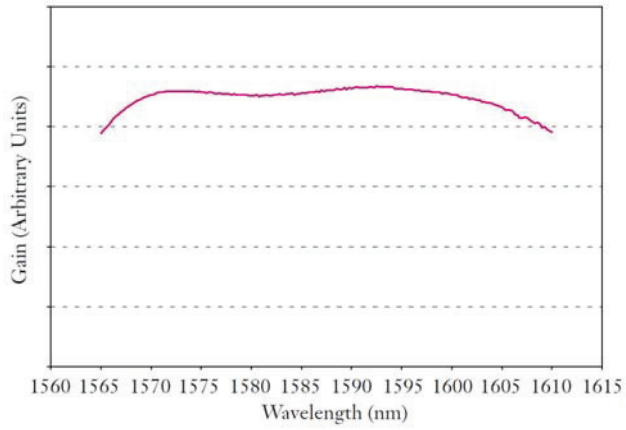
Numerical Aperture	0.23
Backscatter (% per meter)	≤0.0002
Non-linear Index of Refraction (n_2) (m^2/W)	$\leq 3.5 \times 10^{-20}$
Effective Area (A_{eff}) (μm^2)	22.5 ± 2.5

*Values in this table are nominal or calculated values

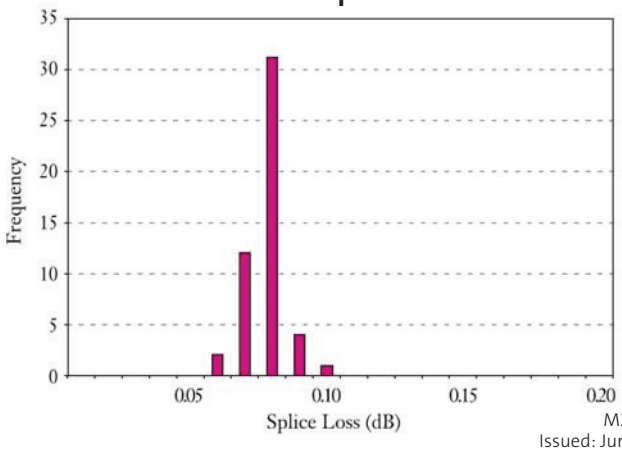
Typical Splicing Loss

To 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



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For more information about Corning's leadership in Specialty Fiber technology, visit our website at 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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M200012
Issued: June 2018
Supersedes: March 2010