

Corning® SMF-28e+® LL Optical Fiber

Product Information



Corning® SMF-28e+® LL optical fiber is an ITU-T Recommendation G.652.D compliant optical fiber which builds on Corning's low-loss fiber technology to enable extended networking distances for long-haul, metro, and access applications. SMF-28e+ LL fiber offers industry-leading specifications for attenuation and polarization mode dispersion values; these values provide a solid foundation for new network deployments as well as upgrades to existing networks.

Optical Specifications

Maximum Attenuation

Wavelength (nm)	Maximum Value* (dB/km)
1310	≤ 0.32
1383**	≤ 0.32
1490	≤ 0.21
1550	≤ 0.18
1625	≤ 0.20

* Alternate attenuation offerings available upon request.

** Attenuation values at this wavelength represent post-hydrogen aging performance.

Attenuation vs. Wavelength

Range (nm)	Ref. λ (nm)	Max. α Difference (dB/km)
1285 – 1330	1310	0.03
1525 – 1575	1550	0.02

The attenuation in a given wavelength range does not exceed the attenuation of the reference wavelength (λ) by more than the value α.

Macrobend Loss

Mandrel Diameter (mm)	Number of Turns	Wavelength (nm)	Induced Attenuation* (dB)
32	1	1550	≤ 0.03
50	100	1310	≤ 0.03
50	100	1550	≤ 0.03
60	100	1625	≤ 0.03

*The induced attenuation due to fiber wrapped around a mandrel of a specified diameter.

Point Discontinuity

Wavelength (nm)	Point Discontinuity (dB)
1310	≤ 0.05
1550	≤ 0.05

Cable Cutoff Wavelength (λ_{cc})

λ_{cc} ≤ 1260 nm

Mode-Field Diameter

Wavelength (nm)	MFD (μm)
1310	9.2 ± 0.4
1550	10.4 ± 0.5

Dispersion

Wavelength (nm)	Dispersion Value [ps/(nm·km)]
1550	≤ 18.0
1625	≤ 22.0

Zero Dispersion Wavelength (λ₀): 1304 nm ≤ λ₀ ≤ 1324 nm

Zero Dispersion Slope (S₀): ≤ 0.092 ps/(nm²·km)

Polarization Mode Dispersion (PMD)

	Value (ps/√km)
PMD Link Design Value	≤ 0.04*
Maximum Individual Fiber PMD	≤ 0.1

*Complies with IEC 60794-3: 2001, Section 5.5, Method 1, (m = 20, Q = 0.01%), September 2001.

The PMD link design value is a term used to describe the PMD of concatenated lengths of fiber (also known as PMD₀). This value represents a statistical upper limit for total link PMD. Individual PMD values may change when fiber is cabled.

How to Order

Contact your sales representative, or call the Optical Fiber Customer Service Department:

Ph: 1-607-248-2000 (U.S. and Canada)
+44-1244-525-320 (Europe)

Email: cofic@corning.com

Please specify the fiber type, attenuation, and quantity when ordering.



Dimensional Specifications

Glass Geometry

Fiber Curl	≥ 4.0 m radius of curvature
Cladding Diameter	125.0 ± 0.7 μm
Core-Clad Concentricity	≤ 0.5 μm
Cladding Non-Circularity	$\leq 0.7\%$

Coating Geometry

Coating Diameter	242 ± 5 μm
Coating-Cladding Concentricity	< 12 μm

Environmental Specifications

Environmental Test	Test Condition	Induced Attenuation 1310 nm, 1550 nm, and 1625 nm (dB/km)
Temperature Dependence	-60°C to $+85^{\circ}\text{C}^*$	≤ 0.05
Temperature Humidity Cycling	-10°C to $+85^{\circ}\text{C}$ up to 98% RH	≤ 0.05
Water Immersion	$23^{\circ}\text{C} \pm 2^{\circ}\text{C}$	≤ 0.05
Heat Aging	$85^{\circ}\text{C} \pm 2^{\circ}\text{C}$	≤ 0.05
Damp Heat	85°C at 85% RH	≤ 0.05

*Reference temperature = $+23^{\circ}\text{C}$

Operating Temperature Range: -60°C to $+85^{\circ}\text{C}$

Mechanical Specifications

Proof Test

The entire fiber length is subjected to a tensile stress ≥ 100 kpsi (0.69 GPa).*

*Higher proof test levels available.

Length

Fiber lengths available up to 50.4 km/spool.

Performance Characterizations

Characterized parameters are typical values.

Core Diameter	8.2 μm
Numerical Aperture	0.14 NA is measured at the one percent power level of a one-dimensional far-field scan at 1310 nm.
Effective Group Index of Refraction (N_{eff})	1310 nm: 1.4676 1550 nm: 1.4682
Fatigue Resistance Parameter (N_d)	20
Coating Strip Force	Dry: 0.6 lbs. (3N) Wet, 14-day room temperature: 0.6 lbs. (3N)
Rayleigh Backscatter Coefficient (for 1 ns Pulse Width)	1310 nm: -77 dB 1550 nm: -82 dB