

Corning® SMF-28e+® Optical Fiber

Product Information



Corning's SMF-28e+® optical fiber is the industry leader in comprehensive single-mode fiber performance for metro and access networks. It is ITU-T G.652.D-compliant and fully backward compatible with legacy standard single-mode fibers. SMF-28e+ fiber is built on Corning's solid foundation of quality and proven performance. Since we brought the first fiber to market more than 40 years ago, our demonstrated leadership in single-mode fiber innovation is unparalleled.

Optical Specifications

Maximum Attenuation

Wavelength (nm)	Maximum Value* (dB/km)
1310	0.33 – 0.35
1383±3**	0.31 – 0.35
1490	0.21 – 0.24
1550	0.19 – 0.20
1625	0.20 – 0.23

*Maximum specified attenuation value available within the stated ranges.

**Attenuation post-hydrogen aging according to IEC 60793-2-50 Section C.5 for B.1.3 fibers.

Alternate attenuation offerings available upon request.

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})

$\lambda_{cc} \leq 1260$ nm

Mode-Field Diameter

Wavelength (nm)	MFD (μ m)
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 (λ_0):

$$1304 \text{ nm} \leq \lambda_0 \leq 1324 \text{ nm}$$

Zero Dispersion Slope (S_0): ≤ 0.092 ps/(nm²·km)

Polarization Mode Dispersion (PMD)

	Value (ps/ \sqrt km)
PMD Link Design Value	$\leq 0.06^*$
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 PMDQ). 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	$23^{\circ} \pm 2^{\circ}\text{C}$	≤ 0.05
Heat Aging	$85^{\circ} \pm 2^{\circ}\text{C}^*$	≤ 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 (0.7 GPa)*.

*Higher proof test levels available.

Length

Fiber lengths available up to 63.0 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_f)	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