

# 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. $\lambda$ (nm)	Max. $\alpha$ 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 ( $\lambda$ ) by more than the value  $\alpha$ .

#### Macrobend Loss

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

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

#### Point Discontinuity

Wavelength (nm)	Point Discontinuity (dB)
1310	$\leq 0.05$
1550	$\leq 0.05$

#### Cable Cutoff Wavelength ( $\lambda_{cc}$ )

$\lambda_{cc} \leq 1260$  nm

#### Mode-Field Diameter

Wavelength (nm)	MFD ( $\mu$ m)
1310	$9.2 \pm 0.4$
1550	$10.4 \pm 0.5$

#### Dispersion

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

Zero Dispersion Wavelength ( $\lambda_0$ ):

$1310 \text{ nm} \leq \lambda_0 \leq 1324 \text{ nm}$

Zero Dispersion Slope ( $S_0$ ):  $\leq 0.092 \text{ ps}/(\text{nm}^2 \cdot \text{km})$

#### Polarization Mode Dispersion (PMD)

	Value (ps/ $\sqrt{\text{km}}$ )
PMD Link Design Value	$\leq 0.06^*$
Maximum Individual Fiber PMD	$\leq 0.1$

\*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](mailto: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	≤ 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°C*	≤ 0.05
Temperature Humidity Cycling	-10°C to +85°C* up to 98% RH	≤ 0.05
Water Immersion	23° ± 2°C	≤ 0.05
Heat Aging	85° ± 2°C*	≤ 0.05

\*Reference temperature = +23°C

Operating Temperature Range: -60°C to +85°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.
Zero Dispersion Wavelength ( $\lambda_0$ )	1317 nm
Zero Dispersion Slope ( $S_0$ )	0.088 ps/(nm <sup>2</sup> •km)
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