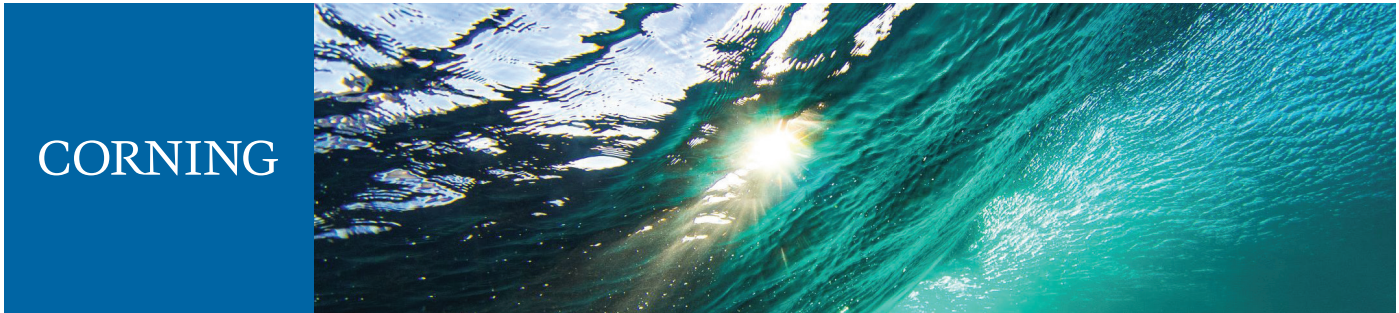


Corning® SMF-28® ULL S+ Optical Fiber

Product Information



Corning® SMF-28® ULL S+ optical fiber is an ultra-low-loss optical fiber designed for cost-optimized undersea SDM systems operating in or near the linear power regime. It has a nominal fiber attenuation of 0.156 dB/km at 1550 nm with an 82 μm^2 effective area (nominal) and is available in large-scale volumes to service the global subsea industry. SMF-28 ULL S+ fiber complies with Recommendation ITU-T G.654.C.

To enable higher fiber density within existing and emerging cable designs, SMF-28 ULL S+ fiber is also available in a smaller 200 μm nominal coating diameter.

Optical Performance

Attenuation

Wavelength (nm)	Maximum Value* (dB/km)
1550	≤ 0.17
1625	≤ 0.19

*Alternate attenuation offerings available upon request.

Attenuation vs. Wavelength

Range (nm)	Ref. λ (nm)	Max. α Difference (dB/km)
1525 - 1575	1550	0.02
1550 - 1625	1550	0.03

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 Radius (mm)	Number of Turns	Wavelength (nm)	Induced Attenuation* (dB)
16	1	1550	≤ 0.1
25	100	1550	≤ 0.05
30	100	1625	≤ 0.05

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

Point Discontinuity

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

Cable Cutoff Wavelength (λ_{cc})

$\lambda_{cc} \leq 1520$ nm

Mode Field Diameter

Wavelength (nm)	Mode Field Diameter (μm)
1550	10.5 ± 0.5

Dispersion

Wavelength (nm)	Dispersion Value [ps/(nm·km)]
1550	≤ 18
1625	≤ 22

Polarization Mode Dispersion

	Value (ps/ $\sqrt{\text{km}}$)
PMD Link Design Value	$\leq 0.04^*$
Maximum Individual Fiber PMD	≤ 0.1

*Complies with IEC 60794-3 (m = 20, Q = 0.01%)

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.

ColorPro® Identification Technology

SMF-28 ULL S+ fiber is also available in colored variants, enabled by ColorPro® identification technology. Corning fibers with ColorPro® identification technology deliver better efficiency in cable manufacturing, simplify inventory management, and leverage an enhanced fiber product offering.

How to Order

Contact your sales representative, or call the Optical Fiber Customer Service Department:
 Ph: 1-607-248-2000 (U.S./Can.)
 +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	≤ 0.8 μm
Cladding Non-Circularity	$\leq 0.7\%$

Coating Geometry	Standard Offering	Smaller Coating Diameter Option
Coating Diameter	242 ± 5 μm	200 ± 5 μm
Coating-Cladding Concentricity	< 12 μm	< 10 μm

Environmental Specifications

Environmental Test	Test Condition	Induced Attenuation 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

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

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

Mechanical Specifications

Proof Test

The entire fiber length is subjected to a tensile stress ≥ 200 kpsi.

Length

Constituent fiber lengths available up to 50.4 km/spool. Spliced span configurations up to 100 km/spool.

Performance Characterizations

Characterized parameters are typical values.

Effective Group Index of Refraction (n_{eff})	1550 nm: 1.4620
Fatigue Resistance Parameter (n_d)	20
Coating Strip Force	3 N
Rayleigh Backscatter Coefficient (for 1 ns Pulse Width)	1550 nm: -83 dB