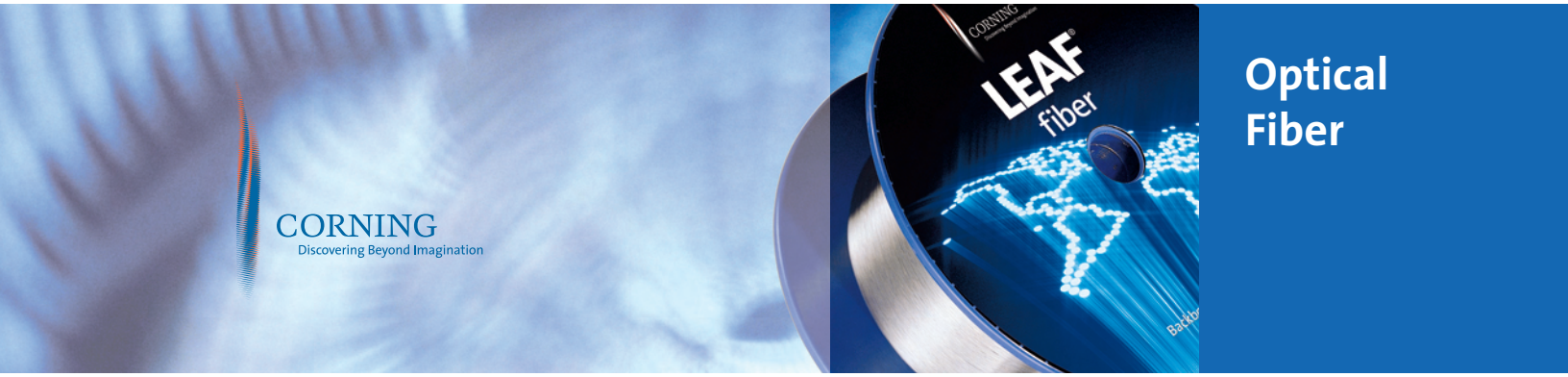
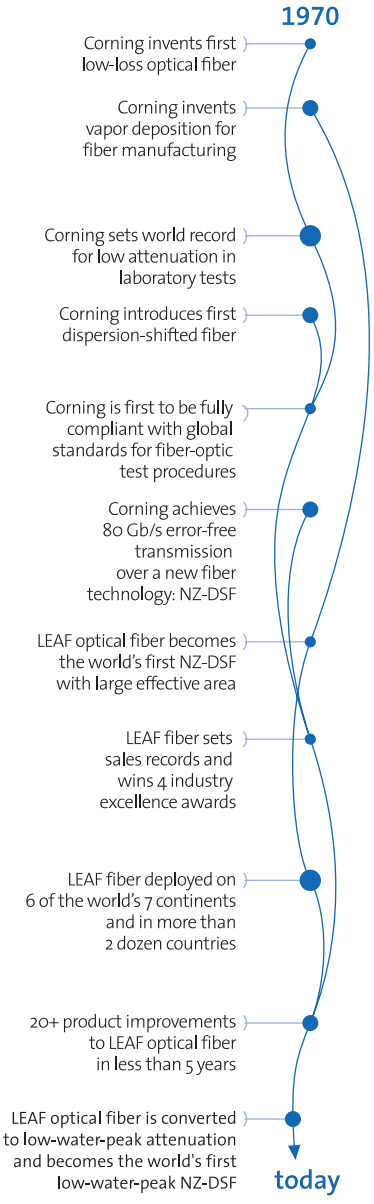
Corning® LEAF® Optical Fiber
Product Information





The Standard for Long-Haul Networks

In the race to satisfy the global demand for telecommunications bandwidth, the need for technically advanced, high-capacity networks is paramount. Since 1998, the world has relied on Corning® LEAF® optical fiber to transmit information at higher bit rates and over longer distances than ever before. Corning LEAF optical fiber is:

* The world's first large effective area, non-zero dispersion-shifted fiber (NZ-DSF)
* Optimized for long-haul and high-data-rate metro networks
* The world's most widely deployed NZ-DSF
* The industry leader in polarization mode dispersion (PMD) specifications, enabling evolution from today's 10 Gb/s networks to the 40 Gb/s systems of the future
* The world's first low-water-peak NZ-DSF
* In compliance with the industry's most stringent requirements, including:
  - ITU-T G.655 (Tables A, B, C, D)
  - IEC Specifications 60793-2-50 Type B4
  - TIA/EIA 492-EA00
  - Telcordia's GR-20

Telecommunications networks require high capacity and broad system flexibility in order to compete today and to meet the challenges of tomorrow. The technological strength of Corning LEAF optical fiber provides an advanced foundation for today's sophisticated networks and those of the future.

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Fiber for Today and Tomorrow

With more NZ-DSF in the ground than any other fiber manufacturer in the world, Corning and Corning LEAF fiber set the standard for long-haul networks. Corning places a strong emphasis on system performance and is committed to delivering products that enable superior networks now and in the future. This commitment has led system manufacturers to develop design rules optimized specifically for LEAF fiber. Low-water-peak attenuation, exceptional transmission capability, moderate dispersion, outstanding geometry, large A_{eff} and unique fiber characteristics give LEAF fiber the advanced functionality and quality required to enable 10 Gb/s, Raman and 40 Gb/s networks. LEAF fiber's characteristics also enable extended transmission reach in analog CATV networks.

Over the years, Corning has adapted its fiber product offerings in conjunction with evolving market needs and industry trends. In addition to being the lowest cost-per-bit solution in digital networks, LEAF fiber now provides this same advantage to analog networks. This capability is enabled by LEAF fiber characteristics that allow for a higher stimulated Brillioun scattering (SBS) threshold than standard single-mode fiber and other ITU-T G.655 fibers with smaller effective area. The SBS threshold is commonly approached in applications such as analog video transmission. In these applications, LEAF fiber's elevated SBS threshold enables higher relative optical powers. Along with the higher SBS, LEAF fiber's low chromatic dispersion in the C-band mitigates analog signal intermodulation distortions and eases the requirements on emerging digital baseband applications. This combination allows LEAF fiber to support longer distances, improved signal quality and higher signal distribution densities.

The Next Generation

Corning continually pursues innovative methods for integrating LEAF optical fiber's revolutionary technology into next-generation solutions. Enriched by unmatched network performance that advances transmission systems to the next level, LEAF fiber prevails as the world's most sophisticated NZ-DSF. Furthermore, LEAF fiber's consistent uniformity, excellent splicing and longer uncompensated reach capabilities are backed by the quality, service and support our customers expect.

Built upon Corning's reputation for reliability and groundbreaking innovation, LEAF fiber delivers proven performance today and a bright future in emerging networks.

Corning® Optical Fiber – The Measure of Trust

Corning's Service Advantage

Corning Optical Fiber delivers the world's most comprehensive package of innovative products and services, including:

* Worldwide sales support and door-to-door customer service
* Full range of fibers and special order capabilities
* Specialized support from technical experts
* Extensive fiber delivery capabilities with proven success rates
* Real-time, Web-based customer information
* Dedicated account support for our long-term supply customers
* Fiber support services and technical information for end-customers

At Corning Optical Fiber, we strive to provide the best possible customer service and technical support – before, during and after the sale. As a customer, you'll benefit from our established and extensive support infrastructure that's ready to meet your specific needs.

Corning's Product Advantage

Our enhanced, dual acrylate CPC® coatings provide excellent protection. Designed to be mechanically stripped, with an outside diameter of 245 µm, they are optimized for many single- and multi-fiber cable designs, including loose tube, ribbon, slotted core and tight buffer cables.

Corning is committed to product excellence and meeting the evolving needs of our customers. As updates to fiber characteristics or performance specifications become available, they will be posted on the Corning Optical Fiber website at www.corning.com/opticalfiber

Optical Specifications

Fiber Attenuation

Maximum Attenuation

Wavelength (nm)	Maximum Value (dB/km)
1383 ± 3*	≤ 0.4
1410	≤ 0.32
1450	≤ 0.26
1550	≤ 0.22
1625	≤ 0.24

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

Attenuation vs. Wavelength

Range (nm)	Ref. λ (nm)	Max. α Difference (dB/km)
1525 – 1575	1550	0.02
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 Diameter (mm)	Number of Turns	Wavelength (nm)	Induced Attenuation* (dB)
32	1	1550 & 1625	≤ 0.50
60	100	1550 & 1625	≤ 0.05

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

Point Discontinuity

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

Mode-Field Diameter

Wavelength (nm)	MFD (µm)
1550	9.6 ± 0.4

Dispersion

Wavelength (nm)	Dispersion Value [ps/(nm•km)]
1530 – 1565	2.0 – 6.0
1565 – 1625	4.5 – 11.2

Polarization Mode Dispersion (PMD)

	Value (ps/√km)
PMD Link Design Value	≤ 0.04*
Maximum Individual Fiber	≤ 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 PMD_Q). This value represents a statistical upper limit for total link PMD. Individual PMD values may change when fiber is cabled. Corning's fiber specification supports emerging network design requirements for high-data-rate systems operating at 10 Gb/s rates and higher.

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	245 ± 5 µm
Coating-Cladding Concentricity	< 12 µm

Environmental Specifications

Environmental Test	Test Condition	Induced Attenuation 1550 nm & 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
Damp Heat	85°C at 85% RH	≤ 0.05

*Reference temperature = +23°C

Operating Temperature Range: -60°C to +85°C

How to Order

Contact your sales representative, or call the Optical Fiber Customer Service Department:
Ph: 607-248-2000 (U.S. and Canada)
+44-1244-287-437 (Europe)
Email: opticalfibcs@corning.com
Please specify the fiber type, attenuation and quantity when ordering.

Mechanical Specifications

Proof Test

The entire fiber length is subjected to a tensile stress ≥100 kpsi (0.7 GPa)*.

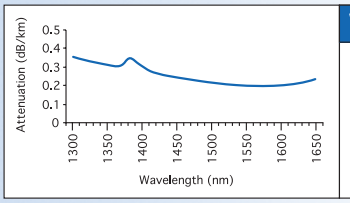
*Higher proof test levels available.

Performance Characterizations

Characterized parameters are typical values.

Numerical Aperture	0.14 *NA is measured at the one percent power level of a one-dimensional far-field scan at 1550 nm.*
Effective Area (A_{eff})	1550 nm: 72 µm²
Effective Group Index of Refraction (N_{eff})	1550 nm: 1.468 1625 nm: 1.469
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)	1550 nm: -81 dB 1625 nm: -82 dB
Chromatic Dispersion	1550 nm at 4 ps/(nm•km) 1625 nm at 10 ps/(nm•km)

Spectral Attenuation (Typical Fiber)



Wavelength (nm)	Attenuation (dB/km)
1383	0.34
1410	0.28
1450	0.24
1550	0.20
1625	0.21

Formulas

Dispersion

$$\text{Dispersion} = D(\lambda): = \left(\frac{D(1565\text{ nm}) - D(1530\text{ nm})}{35} * (\lambda - 1565)\right) + D(1565\text{ nm})$$

λ = Operating Wavelength up to 1565 nm

$$\text{Dispersion} = D(\lambda): = \left(\frac{D(1625\text{ nm}) - D(1565\text{ nm})}{60} * (\lambda - 1625)\right) + D(1625\text{ nm})$$

λ = Operating Wavelength from 1565 nm – 1625 nm

Cladding Non-Circularity

$$\text{Cladding Non-Circularity} = \left[1 - \frac{\text{Min. Cladding Diameter}}{\text{Max. Cladding Diameter}}\right] \times 100$$

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