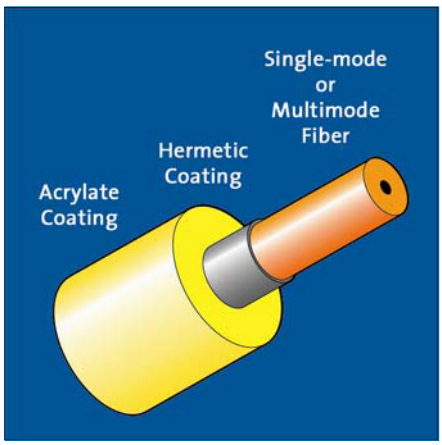
Corning® Hermetic Single-mode and Multimode Specialty Optical Fibers

CORNING



Corning's Hermetic Single-mode and Multimode Fibers are designed for applications requiring improved fatigue resistance, high useable strength and excellent resistance to hydrogen permeation into optical fibers. Corning's specialty designed hermetic layer provides a protective barrier to help shield the glass from exposure to hydrogen, water, and corrosive chemicals while maintaining optical qualities comparable to standard fibers. The properties of the hermetic layer increase the fatigue performance of the fiber five times compared with non-hermetic fibers. Corning's hermetic layer is a thin layer of amorphous carbon that is bonded to the glass surface of the optical fiber. The fiber is manufactured with Corning's patented Outside Vapor Deposition (OVD) process. The Hermetic Single-mode and Multimode Specialty Fibers offer high reliability and consistent performance for a variety of applications.

Applications:

- Hydrogen-rich environments
- Long distance undersea links
- Sensors
- Increased fatigue resistance for tight bend applications

Features:

- No hydrogen aging at room temperature to 85°C
- Low attenuation
- Outstanding consistency and uniformity using Corning's patented Outside Vapor Deposition (OVD) process
- Efficient coupling
- Dual acrylate coating system provides excellent protection from microbend-induced attenuation and superior mechanical robustness
- Fibers include:
  - Single-mode: optimized for 1310 nm and 1550 nm wavelengths
  - Multimode: optimized for 850 nm and 1300 nm wavelengths
  - Inquire for other glasses

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Key Optical Specifications

	SMFHA	MMFHA
Operating Wavelength (nm)	1310, 1550	850, 1300
Fiber Cutoff Wavelength (nm)	≤ 1260	---
Maximum Attenuation (dB/km)	0.4 @ 1310 nm 0.25 @ 1550 nm	2.5 @ 850 nm 0.7 @ 1300 nm
Mode-field Diameter (µm)	9.2 ± 0.4 @ 1310 nm 10.4 ± 0.5 @ 1550 nm	---
Bandwidth (MHz-km)	---	≥ 500

Key Geometric, Mechanical, and Environmental Specifications

Cladding Outside Diameter (µm)	125 ± 0.7	125 ± 2.0
Coating Outside Diameter (µm)	245 ± 10	245 ± 10
Core-to-Cladding Concentricity (µm)	≤ 0.5	≤ 1.5
Core diameter (µm)	8.2 (nominal)	50 ± 2.5
Standard Lengths	500 m, 1 km, 2 km, 5 km, 10 km*	
Proof Test (kpsi)	200	
Operating Temperature (°C)	-60 to +85	
Coating	Dual layer UV curable acrylate and hermetic layer	

* 10 km lengths avaialble for SMFHA only

Performance Characterizations**

Numerical Aperture	0.12	0.20
Refractive Index Difference (%)	0.36	1.0
Fatigue Resistance Parameter (n_d)	> 100	> 100
Effective Group Index of Refraction (N_{eff})	1.4675 @ 1310 nm 1.4681 @ 1550 nm	---

**Values in this table are nomial or calculated values

Hydrogen Resistance (Single-mode only)

Test Condition	Results
21 Day Exposure to Hydrogen @ 11 ATM, 85°C	≤ 0.2 dB/km induced attenuation at 1240 nm

Note: Expected attenuation at 1310 nm and 1550 nm for 30 year life at 5 atmospheres Hydrogen and 10°C is ≤ 0.05 dB/km.

Corning offers fiber stripping and splicing support for Hermetically-coated fibers.
Reference: White Paper "Corning's Hermetically Coated Erbium-doped Specialty Fibers" by Kohli and Glaesemann

For more information about Corning's leadership in Specialty Fiber technology, visit our website at www.corning.com/specialtyfiber
To obtain additional technical information, an engineering sample or to place an order for this product, please contact us at:

Corning Incorporated

Tel: +1-607-974-9974
Fax: +1-607-974-4122
E-mail: specialtyfiber@corning.com

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