# Corning® Multimode Optical Fiber

## InfiniCor CL™ 2000 Fiber

## Product Information

CORNING

PI1241
Issued: 10/99
ISO 9001 Registered

### High Performance Over Longer Distances. Guaranteed.

The InfiniCor CL™ series of multimode fiber revolutionizes the performance of today's multimode fiber local area networks (LANs). With superior technology and profile control, InfiniCor CL fiber provides performance previously available only with single-mode fiber, while allowing network managers the use of low-cost, multimode fiber based electronics. Whether your LAN operates with low-cost 850 nm VCSELs, 1300 nm single-mode fiber lasers, or low-cost 1300 nm multimode fiber lasers of the future, InfiniCor CL fiber will optimize laser performance.

InfiniCor CL™ 2000 fiber is guaranteed(1) for transmission distances up to 600 meters at 850 nm and up to 2,000 meters at 1300 nm for Gigabit Ethernet (IEEE 802.3z) compliant systems, exceeding the Gigabit Ethernet standard by as much as 250%. InfiniCor CL 2000 fiber also can operate at these long distances (up to 2,000 meters) at less demanding protocols such as Fast Ethernet, FDDI, and 155 Mbps ATM.

### On-Center Launch With Laser Performance You Can Measure

InfiniCor CL fiber is the first multimode fiber to eliminate the need for a mode-conditioning patch cord in the 1300 nm window for Gigabit Ethernet. Corning has pioneered innovative manufacturing and measurement techniques that verify the performance of each fiber to provide unmatched ease of installation and use. With its InfiniCor™ product line, Corning is the first and only multimode fiber manufacturer to use actual process and product measurements to guarantee(1) performance in laser-based systems. Rather than relying on just modeling or characterization, Corning bases InfiniCor CL fiber's performance on actual laser bandwidth measurements.

### The Capability To Take Your LAN Into The Future

Network planners need solutions that will work not only at Gigabit Ethernet speeds being adopted today but at the speeds of tomorrow as well. Unmatched in the industry, the InfiniCor CL series will support performance at 2.5 Gbps and even 10 Gbps. Because the standards for these data rates have yet to be defined, specific lengths cannot be guaranteed, but the InfiniCor CL series will support speeds well in excess of 1 Gbps over distances of hundreds of meters.

### Ultimate Compatibility

InfiniCor CL 2000 fiber is fully compatible with legacy LANs and is standards-compliant with all major published standards. Its nominal 50/125 µm graded-index multimode fiber design is guaranteed to be system-compatible with the installed base of standard 62.5/125 µm fiber, with standard 50/125 µm fiber, and with the entire high-performance InfiniCor product line for all standards-compliant links(2).

## Perfect For High-Speed Laser-Based Applications

InfiniCor CL 2000 fiber serves all premises applications in the campus backbone, building riser and horizontal. Typical applications are local area and campus-wide networks carrying data, voice, and/or video services using LEDs, 850 nm VCSELs, 780 nm CD lasers, and 1300 nm Fabry-Perot lasers. InfiniCor CL 2000 fiber exceeds industry standards for fiber-optic network protocols, including Ethernet, Token Ring, FDDI, ATM, and Fibre Channel.

Perfect for Gigabit Ethernet and other high-speed laser protocols, InfiniCor CL 2000 fiber is the clear choice for all LANs that use high-speed laser protocols today or in the future.

## The InfiniCor CL 2000 Fiber Advantage

- *On-center launch*
- *Laser bandwidth measurement*
- *Longer transmission distances*
- *2.5 and 10 Gbps capability*
- *Guaranteed transmission performance*
- *Network upgradeability*
- *Compatibility*

(1) Corning guarantees, under associated cabler warranty programs, that InfiniCor CL fiber will perform up to its guaranteed link length for Gigabit Ethernet (IEEE 802.3z) speeds. This guarantee applies only to links that are covered by a Corning-approved warranty program. The warranty program is implemented and serviced through various cable manufacturers. Actual warranty terms may vary from cabler to cabler.

(2) 10 Mbps Ethernet link lengths are limited to 1,000 meters when mixing 50 µm and 62.5 µm fiber. Other standards-based link lengths are unaffected. See cabler warranty for specific compatibility guarantee.

## Optical Specifications

*Performance*

- LED-based sources: ≥ 500/500 MHz•km @ 850/1300 nm based on overfilled launch conditions
- Laser-based sources: Laser performance is guaranteed to achieve 600/2,000 meters @ 850/1300 nm for Gigabit Ethernet (IEEE 802.3z) standard-compliant links

*Attenuation*

≤ 2.5/0.8 dB/km @ 850/1300 nm

- No point discontinuity greater than 0.2 dB
- The attenuation at 1380 nm does not exceed the attenuation at 1300 nm by more than 3.0 dB/km
- The induced attenuation caused by wrapping the fiber 100 turns around a 75 mm mandrel shall not exceed 0.5 dB at 850 nm and 1300 nm

*Chromatic Dispersion*

- Zero Dispersion Wavelength ($\lambda_0$): $1297 \text{ nm} \le \lambda_0 \le 1316 \text{ nm}$
- Zero Dispersion Slope ($S_0$): $\le 0.101 \text{ ps/(nm}^2\text{•km)}$

$$\text{Dispersion} = D(\lambda) \approx \frac{S_0}{4}\left[\lambda - \frac{\lambda_0^4}{\lambda^3}\right] \text{ps/(nm•km)}$$

For $750 \text{ nm} < \lambda < 1450 \text{ nm}$, $\lambda$ = Operating Wavelength

*Core Diameter*

- 50.0 ± 3.0 µm

*Numerical Aperture*

- 0.200 ± 0.015

## Environmental Specifications

| Environmental Test Condition | Induced Attenuation (dB/km) | |
|---|---|---|
| | 850 nm | 1300 nm |
| Temperature Dependence -60°C to +85°C | ≤ 0.20 | ≤ 0.20 |
| Temperature - Humidity Cycling -10°C to +85°C and 4% to 98% RH | ≤ 0.20 | ≤ 0.20 |

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

## Dimensional Specifications

*Standard Length (km/reel)*

- 1.1 - 4.4
  Special lengths available upon request.

*Glass Geometry*

- Cladding Diameter: 125.0 ± 2.0 µm
- Core-Clad Concentricity: ≤ 3.0 µm
- Cladding Non-Circularity: < 2.0%
- Core Non-Circularity: ≤ 5%
  *Non-Circularity is defined as:*

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

*Coating Geometry*

- Coating Diameter: 245 ± 5 µm
- Coating-Cladding Concentricity: < 12 µm

## Mechanical Specifications

*Proof Test*

- The entire length of fiber is subjected to a tensile proof stress ≥ 100 kpsi (0.7 GN/m²).

## Performance Characterizations

*Characterized parameters are typical values.*

*Effective Group Index of Refraction ($N_{eff}$)*

- 1.490 at 850 nm
- 1.486 at 1300 nm

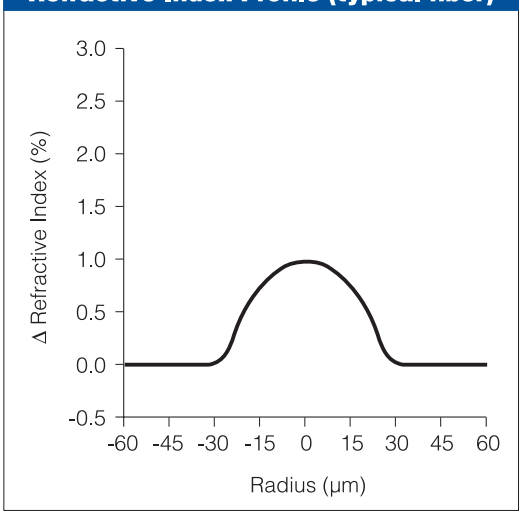
$N_{eff}$ was empirically derived to the third decimal place using a specific commercially available OTDR.

*Fatigue Resistance Parameter ($n_d$): 20*

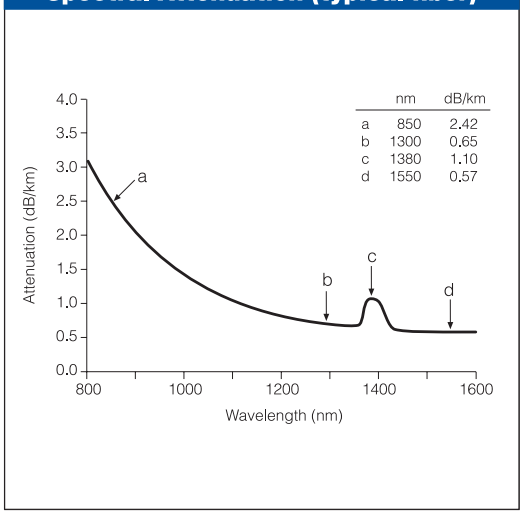
*Coating Strip Force*

- Dry: 0.7 lbs (3.2 N)
- Wet: 14 days in 23°C water soak: 0.7 lbs (3.2 N)

**Refractive Index Profile (typical fiber)**




**Spectral Attenuation (typical fiber)**



## Ordering Information

To order Corning® InfiniCor CL™ 2000 optical fiber, contact your sales representative, or call the Telecommunications Products Division Customer Service Department at **910-395-7659** (North America) and **+1 607-974-7174** (International). Please specify the following parameters when ordering:

**Fiber Type:** Corning® InfiniCor CL™ 2000

**Reel Lengths:** 1.1, 1.7, 2.2, 3.3, and 4.4 kms

**Fiber Quantity:** kms

**Proof Test:** 100 kpsi (0.7 GN/m$^2$)

**Other:** (Requested ship date, etc.)

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