Corning® ClearCurve® OM3/OM4 Multimode Optical Fiber

Product Information

CORNING

Bend Performance and Compatibility

Corning® ClearCurve® ultra-bendable laser–optimized™ multimode optical fiber delivers the best macrobending performance in the industry while maintaining compatibility with current optical fibers, equipment, practices and procedures. ClearCurve OM3 (and OM4*) multimode fiber is designed to withstand tight bends and challenging cabling routes with substantially less signal loss than conventional multimode fiber. This new multimode optical fiber allows designers, installers and operators of enterprise networks (including local area networks, data centers and industrial networks) to use multimode optical fiber in a package that is easier to handle and install. With greater signal protection when subjected to tight bending, ClearCurve offers greater system security and reliability meaning less system downtime and lower costs.

Building on the proven bandwidth capability of Corning's InfiniCor® fibers, the world's first laser-optimized™ multimode fibers, ClearCurve OM3/OM4 fibers increase your capacity to succeed:

- Industry leading macrobending performance below 10 mm radius
- High performance minEMBc certified bandwidth to support 850 nm transmission at data rates of 10 Gb/s and beyond
- Higher data aggregation in the backbone, riser and high-speed parallel interconnects (HSPIs)
- Fully backwards compatible and ideally suited to current and future broad range of laser-based protocols and applications
- Superior measurement technology and manufacturing control
- Industry-leading CPC® coatings for superior microbend and environmental performance

	ClearCurve® OM4* fiber	**ClearCurve® OM3 fiber**
Optimized Data Rate over Distance	10 Gb/s over 550 m 1 Gb/s over 1100 m	10 Gb/s over 300 m 1 Gb/s over 1000 m
Standards Compliance		
ISO/IEC 11801	type OM3 fiber	type OM3 fiber
IEC 60793-2-10	type A1a.2 fiber	type A1a.2 fiber
TIA/EIA	492AAAC-A	492AAAC-A

*Until the OM4 standard is finalized, Corning will offer ClearCurve "OM3+" multimode fiber (EMB = 4700 MHz.km and other parameters as specified in this product information sheet which is consistent with current OM4 proposals.) Upon publication of the OM4 standard, there will be a Corning® ClearCurve® OM4 multimode fiber.

The Smart, Reliable, Cost-Effective Network Choice

No one can match Corning's superior measurement technology and manufacturing control of the refractive index profile. Consequently, ClearCurve multimode optical fibers deliver exceptional high bandwidth and superior transmission performance for the most demanding applications, while allowing the use of low-cost, high-speed 850 nm vertical cavity surface-emitting lasers (VCSELs).

High Bandwidth Performance You Can Rely On

Corning is a world leader in developing and using the most advanced measurement techniques for laser-optimized multimode fibers. ClearCurve multimode fibers are more thoroughly measured than any other multimode fiber on the market. Corning uses direct manufacturing process control and integrated measurement techniques for all ClearCurve fibers to ensure robust performance in laser-based systems.

We ensure EMB via calculated effective modal bandwidth (minEMBc) for all our ClearCurve multimode optical fibers. minEMBc is a differential mode delay (DMD) - based bandwidth value that best predicts multimode system performance in high-bandwidth laser-based 1 and 10 Gb/s as well as the future 40 and 100 Gb/s systems. Corning is the first optical fiber manufacturer to offer minEMBc measurements for its laser-optimized multimode fibers.

Optical Specifications

Bandwidth

	High Performance EMB* (MHz.km)	Legacy Performance EMB** (MHz.km)	
Corning Optical Fiber	**850 nm only**	**850 nm**	**1300 nm**
ClearCurve® OM4 fiber	4700	1500	500
ClearCurve® OM3 fiber	2000	1500	500

*Ensured via minEMBc, per TIA/EIA 455-220A and IEC 60793-1-49, for high performance laser-based systems (up to 10 Gb/s).
**OFL BW, per TIA/EIA 455-204 and IEC 60793-1-41, for legacy and LED-based systems (typically up to 100 MB/s).

Attenuation

Wavelength (nm)	Maximum Value (dB/km)
850	≤ 2.3
1300	≤ 0.6

No point discontinuity greater than 0.2 dB.Attenuation at 1380 nm does not exceed the attenuation at 1300 nm by more than 3.0 dB/km.

Macrobend Loss

Mandrel Radius (mm)	Number of Turns	Induced Attenuation (dB) 850 nm	1300 nm
37.5	100	≤ 0.05	≤ 0.15
15	2	≤ 0.1	≤ 0.3
7.5	2	≤ 0.2	≤ 0.5

Numerical Aperture

0.200 ± 0.015

Dimensional Specifications

Glass Geometry

Core Diameter	50.0 ± 2.5 µm
Cladding Diameter	125.0 ± 1.0 µm
Core-Clad Concentricity	≤ 1.5 µm
Cladding Non-Circularity	≤ 1.0%
Core Non-Circularity	≤ 5%

Coating Geometry

Coating Diameter	242 ± 5 µm
Coating-Cladding Concentricity	< 12 µm

Environmental

Environmental Test	Test Condition	Induced Attenuation 850 nm & 1300 nm (dB/km)
Temperature Dependence	-60°C to +85°C	≤ 0.10
Temperature Humidity Cycling	-10°C to +85°C and 4% to 98% RH	≤ 0.10
Water Immersion	23°C ± 2°C	≤ 0.20
Heat Aging	85°C ± 2°C	≤ 0.20
Damp Heat	85°C at 85% RH	≤ 0.20

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 GN/m^2)*.
* Higher proof test levels available.

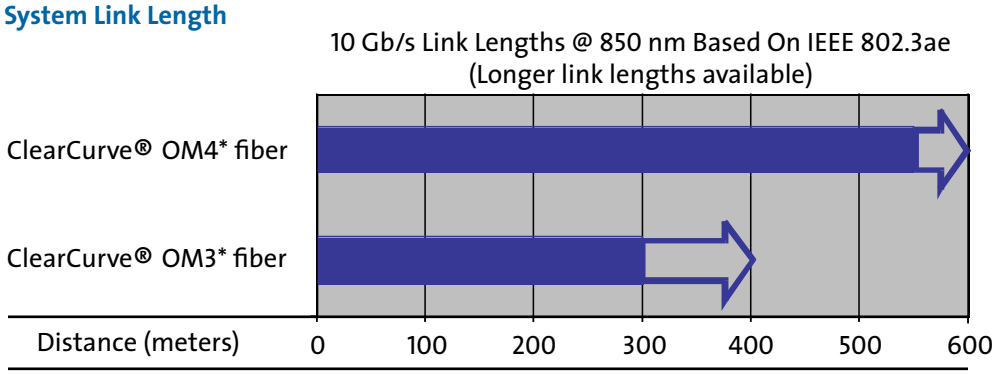
Length

Fiber lengths available up to 17.6 km/spool.

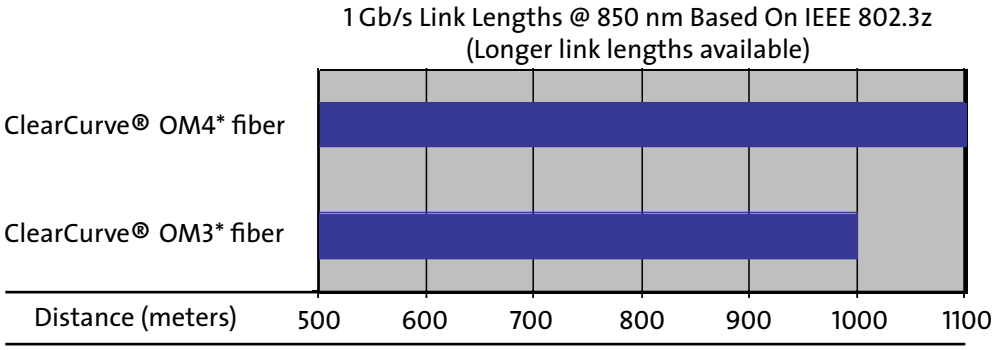
Performance Characterizations

Characterized parameters are typical values.

System Link Length



*Additional system reach capable with ClearCurve OM3/OM4 fiber reel-specific bandwidth metric and values as provided by Corning (subject to availability)



Link lengths as characterized in IEEE 802.3z (Gigabit Ethernet) and IEEE 802.3ae (10 Gigabit Ethernet) for ClearCurve multimode fiber-specific bandwidth metrics and standards compliant components. 1 Gb/s and 10 Gb/s link lengths shown for ClearCurve OM4 fiber and 1 Gb/s shown for ClearCurve OM3 fiber systems require cable attenuation ≤ 3.0 dB/km and total connector loss ≤ 1.0 dB.

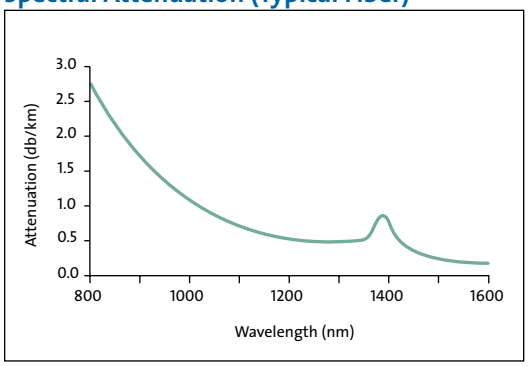
Refractive Index Difference	1%
Effective Group Index of Refraction (N_{eff})	850 nm: 1.480 1300 nm: 1.479

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: 0.6 lbs (2.7N) Wet, 14 days in 23°C water soak: 0.6 lbs (2.7N)

Chromatic Dispersion
Zero Dispersion Wavelength (λ_0): 1295 nm ≤ λ_0 ≤ 1315 nm
Zero Dispersion Slope (S_0): ≤ 0.101 ps/(nm²•km)

Spectral Attenuation (Typical Fiber)



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