



Multimode Fiber

MaxCap-BB-OMx – Bend-Insensitive Multimode Optical Fiber OMx = OM2 / OM2⁺ / OM3 / OM4



Issue date: 07/10
Supersedes: 01/10

850 nm Laser-Optimized 50 µm Bend-Insensitive Multimode Fiber for 10 Gb/s applications

Draka has designed a new robust 850 nm laser-optimized 50 µm bend-insensitive multimode fiber: MaxCap-BB-OM2 / OM2⁺ / OM3 / OM4 fiber. The outstanding bending performance of this fiber combines improved fiber management with high bandwidth 10G – 40G – 100G system requirements. The eminent bending performance of MaxCap-BB-OM2 / OM2⁺ / OM3 / OM4 fibers is based on the large know-how Draka built up developing its Bend-Insensitive single-mode fibers BendBright-XS and BendBright-Elite, added on top of successful MaxCap multimode fibers for premium bandwidth.

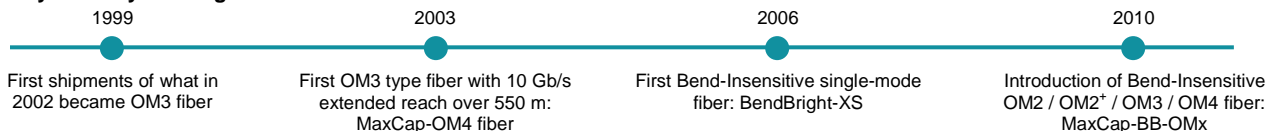
MaxCap-BB-OM2 / OM2⁺ / OM3 / OM4 fibers support compact cable management and allow more easily MACs (Moves, Adds, Changes) applied in Local Area Networks (LAN) backbones up to 550 m (10GBASE-SX), in Data Centers up to 150 m at 40G/100G speeds (40GBASE-SR4 and 100GBASE-SR10). The MaxCap-BB-OMx multimode fibers are produced by the proprietary Plasma-activated Chemical Vapor Deposition process (PCVD), acknowledged worldwide as offering the best core profile accuracy in multimode fiber.

Application in other LAN systems

The MaxCap-BB-OM3 / OM4 multimode fibers types entirely comply with or exceed IEC 60793-2-10 type A1a.2 and A1a.3 Optical Fiber Specification (in preparation), ISO/IEC 11801 OM3 / OM4 specification, TIA/EIA-492AAAC / 492AAD detail specification and Telcordia GR-20-CORE and GR-409-CORE specifications.

Features	Advantages
MaxCap-BB-OM2 / OM2 ⁺ / OM3 / OM4 high bandwidth capability is combined with extreme low bending sensitivity	10 G (and up) system margins, supported by high bandwidth OM2 / OM2 ⁺ / OM3 / OM4 are further improved by additional low bending loss, offering more relaxed and easier installations and MACs (Moves, Adds, Changes)
MaxCap-BB-OM2 / OM2 ⁺ / OM3 / OM4 low bending sensitivity	Allows use of smaller, high density fiber management systems, as key issue in limited space data centers, computer rooms and LANs. Overall system network reliability (uptime) is improved because of dramatic lower impact of human errors introducing tight bends
MaxCap-BB-OM2 ⁺ / OM3 / OM4 fulfill EMB as well as DMD req's.; Draka also applies a tightened inner DMD mask (0 – 18 µm)	Compared to the standards, Draka's MaxCap-BB-OM2 ⁺ / OM3 / OM4 fibers offer additional robustness in 10Gb/s systems
Coated with the dual layer UV Acrylate DLPC9	MaxCap-BB-OM2 / OM2 ⁺ / OM3 / OM4 multimode fibers show excellent micro-bending behavior, which results in easy cabling and installation, supporting max. cabled attenuation at 850 nm of 3.0 dB/km

Key Industry Leading Milestones



MaxCap-BB-OMx – Bend-Insensitive Multimode Optical Fiber

OMx = OM2 / OM2⁺ / OM3 / OM4

Product Type: 50 / 125 / 242 μm Bend-Insensitive Multimode Fiber
Coating Type: Dual Layer Primary Coating (DLPC9)

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Characteristics	Conditions	Specified Values				Units
Optical Specifications (Uncabled fiber)						
Attenuation Coefficient	850 nm	≤ 2.1	≤ 2.2	≤ 2.3		dB/km
	1300 nm	≤ 0.4	≤ 0.5	≤ 0.6		dB/km
Numerical Aperture		0.200 ± 0.015				
Chromatic Dispersion						
Zero Dispersion Wavelength, λ ₀		1295 ≤ λ ₀ ≤ 1340				nm
Zero Dispersion Slope, S ₀	1295 nm ≤ λ ₀ ≤ 1310 nm	≤ 0.105				ps/nm ² .km
	1310 nm ≤ λ ₀ ≤ 1340 nm	≤ 0.000375 (1590 - λ ₀)				ps/nm ² .km
Fiber Capacity ²	850 nm; 10GBASE-SX	MaxCap-BB-OM2	MaxCap-BB-OM2 ⁺	MaxCap-BB-OM3	MaxCap-BB-OM4	m
		≤ 83	≤ 150	≤ 300	≤ 550	
Overfilled Modal Bandwidth	850 nm	≥ 500	≥ 700	≥ 1500	≥ 3500	MHz.km
	1300 nm	≥ 500	≥ 500	≥ 500	≥ 500	MHz.km
Effective Modal Bandwidth	850 nm	-	≥ 950	≥ 2000	≥ 4700	MHz.km
DMD						
See note 1						
Bending Loss	2 turns, R=7.5 mm; 850nm / 1300nm	≤ 0.2	/	≤ 0.5		dB
	2 turns, R=15 mm; 850nm / 1300nm	≤ 0.1	/	≤ 0.3		dB
Backscatter Characteristics ³						
Point Discontinuity ⁴	850 nm, 1300 nm	≤ 0.1				dB
Irregularities over fiber length	850 nm, 1300 nm	≤ 0.1				dB
Reflections		Not Allowed				
Group Index of Refraction (Typ.)	850 nm	1.482				
	1300 nm	1.477				
Geometrical Specifications						
Core Diameter		50 ± 2				μm
Core Non-Circularity		≤ 5				%
Core/Cladding Concentricity Error		≤ 1				μm
Cladding Diameter		125.0 ± 1.0				μm
Cladding Non-Circularity		≤ 0.7				%
Coating Diameter		242 ± 5				μm
Coating Non-Circularity		≤ 5				%
Coating/Cladding Concentricity Error		≤ 6				μm
Length	Standard lengths up to	8.8				km
Mechanical Specifications						
Proof Test	Off line	> 0.7 (100)				GPa (kpsi)
Dynamic Tensile Strength (median value)	0.5 meter gauge length unaged and aged ⁵	> 3.8 (550)				GPa (kpsi)
Fatigue Parameter (Typical)	Dynamic fatigue, unaged and aged ⁵	n _d > 25				
Coating Strip Force	Average strip force, unaged and aged ⁵	1 to 3				N
	Peak strip force, unaged and aged ⁵	1.3 to 8.9				N
Environmental Specifications						
Temperature Cycling	850 nm, 1300 nm; -60°C to +85°C	≤ 0.1				dB/km
Temperature-Humidity Cycling	850 nm, 1300 nm; -10°C to +85°C, 4-98% RH	≤ 0.1				dB/km
Water Immersion	850 nm, 1300 nm; 23°C, 30 days	≤ 0.1				dB/km
Dry Heat	850 nm, 1300 nm; 85°C, 30 days	≤ 0.1				dB/km
Damp Heat	850 nm, 1300 nm; 85°C; 85% RH, 30 days	≤ 0.1				dB/km

1). DMD specifications are compliant with and more stringent than the requirements of IEC 60793-2-10 (type A1a.2 for OM3 and type A1a.3 for OM4 [under development]) and TIA-492AAAC OM3) and 492AAAD (OM4).

2). 10 Gb/s distance of 550 meters is offered using a maximum cabled fiber attenuation of 3.0 dB/km at 850 nm and a maximum total connector loss of 1 dB.

3). OTDR measurement with 0.5 μs pulse width.

4). Mean of bi-directional measurement.

5). Aging at 85°C, 85% RH, 30 days

6). Aging:

- 23°C, 0°C and 45°C
- 30 days at 85°C and 85% RH
- 14 days water immersion at 23°C