

Legacy 10, 40, 100 Gb/s Multimode Optical Fibre (OMx = OM2 / OM2+ / OM3 / OM4)



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850 nm Laser-Optimized 50 µm Multimode Fiber for 10, 40 and 100 Gb/s applications

Already for many years Draka multimode fiber have been leading products in the market for enhanced high performance, low-cost, short reach 10 Gb/s applications and beyond. Draka 850 nm laser-optimized 50 µm MaxCap multimode fibers have been developed in quality classes OM2, OM2+, OM3 and OM4 fiber with applications in Local Area Networks (LAN) backbones up to 550 m (10GBASE-SX), Storage Area Networks (SAN), Data Centers up to 150 m at 40G/100G bitrates (40GBASE-SR4 and 100GBASE-SR10) and Central Office connections. The MaxCap multimode fibers are produced by the proprietary Plasma-activated Chemical Vapor Deposition process (PCVD), acknowledged worldwide as offering the best core profile accuracy for multimode fibers.

Application in other LAN systems

Thanks to the outstanding bandwidth performance of the MaxCap-OMx multimode fiber (guaranteed by means of high quality DMD testing), a broad range of legacy and 10, 40 and 100 Gb/s applications can be supported.

Together with other Draka multimode fiber products, this range of multimode products offers end-users the best possible optimization of their networks in the most flexible way.

The MaxCap-OM3 / OM4 multimode fiber entirely comply with or exceed IEC 60793-2-10 type A1a.2 / A1a.3 Optical Fiber Specification, ISO/IEC 11801 OM-3 / OM4 specification, TIA/EIA-492AAAC / 492AAAD detail specifications and Telcordia GR-20-CORE and GR-409-CORE specifications.

Features	Advantages
The MaxCap-OMx product family contains the famous flagship product MaxCap-OM4	MaxCap-OM4 supports under conditions 850 nm (SX) serial 10 Gb/s applications over 550 m; an effective modal bandwidth (EMB) of 4700 MHz.km at 850 nm under laser launch is ensured by means of 850 nm DMD specifications
Overfilled launch (OFL) bandwidth of the MaxCap-OMx Multimode fiber at 850 nm and at 1300 nm	OFL bandwidth performance gives strong support to legacy applications
All MaxCap-OMx fibers fulfill both EMB as well as DMD requirements; also a tighter inner-DMD mask (0 – 18 µm) is used	Compared to the standards (and competitors) Draka's MaxCap-OMx fibers ultimately offer additional robustness in 10Gb/s and beyond systems
Coated with the dual layer UV Acrylate	MaxCap-OMx multimode fibers show excellent micro-bending behavior, which results in easy cabling and installation, supporting a maximum cabled attenuation of 3.0 dB/km at 850 nm

Key Industry Leading Milestones



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Product Type: Legacy MaxCap-OMx Multimode Fibre
Coating Type: Dual Layer Primary Coating (DLPC9)

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Characteristics	Conditions	Specified Values				Units
Optical Specifications (Uncabled fibre)						
Attenuation Coefficient	850 nm	≤ 2.2		≤ 2.3		dB/km
	1300 nm	≤ 0.5		≤ 0.6		
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
		MaxCap-OM2	MaxCap-OM2+	MaxCap-OM3	MaxCap-OM4	
Fibre Capacity ²		≤ 83	≤ 150	≤ 300	≤ 550	m
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	
DMD						
Bending Loss	100 turns, D=75 mm; 850nm / 1300nm	See note 1				
		≤ 0.2				dB
Backscatter Characteristics³						
Point Discontinuity ⁴	850 nm, 1300 nm	≤ 0.1				dB
Irregularities over fibre 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 ± 2.5				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 Other lengths available on request	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	$n_f > 25$				
Coating Strip Force	Average strip force, unaged and aged ⁶	1 to 3				N
	Peak strip force, unaged and aged ⁶	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), TIA-492AAAC (OM3) and 492AAD (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, a maximum total connector loss of 1.0 dB and VCSELs using a maximum RMS spectral width of 0.29 nm (according to the IEEE 10GbE model: http://grouper.ieee.org/groups/802/3/ae/public/adhoc/serial_pmd/documents/10GEPBud3_1_16a.xls).
- 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 at 23°C, 0°C and 45°C; 30 days at 85°C and 85% RH; 14 days water immersion at 23°C.