Prysmian Group

Multimode Fibre

PRYSMIAN Draka

Bend-Insensitive 10, 40, 100 Gb/s Graded-Index Multimode Fibre

MaxCap-BB-OM2 /OM2+ / OM3 / OM4

Product Type:	MaxCap-BB-OM2 / OM2+ / OM3 / OM4 Multimode Fibre	**Issue date:**	03-2013
Coating Type:	Dual Layer Primary Coating (DLPC9)	*Supersedes:*	*09-2012*

Bend-Insensitive 850 nm Laser-Optimized 50 µm **MaxCap-BB-OM2 / OM2+ / OM3 / OM4** Multimode Fibre for 40 and 100 Gb/s applications.

Draka 850 nm laser-optimized 50 µm bend-insensitive multimode fibre (**MaxCap-BB-OMx**) has been designed in quality classes OM2, OM2+, OM3 and OM4 fibre. The outstanding bending performance of this fibre combines improved fibre and cable management with superior bandwidth (low DMD) for 10, 40 and 100 Gb/s system applications. The eminent bending performance of robust **MaxCap-BB-OMx** fibres is based on the large know-how built up developing Draka world-acclaimed Bend-Insensitive single-mode fibres BendBright-XS and BendBright-Elite. This BendBright technology is referred to in the title of this product by the abbreviation BB.

MaxCap-BB-OMx fibres 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) and in Data Centres up to 150 m at 40G/100G bitrates (40GBASE-SR4 and 100GBASE-SR10). The **MaxCap-BB-OMx** multimode fibres are produced by the proprietary Plasma-activated Chemical Vapour Deposition process (PCVD), acknowledged worldwide as offering the best core profile accuracy for multimode fibres.

Standards references

The **MaxCap-BB-OM2 and OM2+** and **MaxCap-BB-OM3 / OM4** multimode fibres types entirely comply with or exceed IEC 60793-2-10 type A1a.1 / A1a.2 / A1a.3 Optical Fiber Specification, ISO/IEC 11801 OM2 / OM3 / OM4 specification, TIA/EIA-492AAAB / 492AAAC / 492AAAD 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 extremely low bending sensitivity	Margins in 10 Gb/s (and beyond) systems, 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 fibre management systems, as key issue in limited space data centres, computer rooms and LANs. Overall system network reliability (uptime) is improved thanks to the reduction of system impairments due to tight bends introduced by humane mistakes
MaxCap-BB-OM2+ / OM3 / OM4 fulfill both EMB and DMD requirements; also a tighter inner-DMD mask (0 – 18 µm) is used	Compared to the standards (and competitors) Draka's **MaxCap-BB-OMx** fibres ultimately offer additional robustness in 10Gb/s and beyond systems
Coated with the dual layer UV Acrylate	**MaxCap-BB-OMx** multimode fibres show excellent micro-bending behaviour, resulting in easy cabling and installation, supporting a max. cabled attenuation of 3.0 dB/km at 850 nm

Key Industry Leading Milestones

1999	2003	2006	2010	2012
First shipments of what in 2002 became OM3 fibre	**First OM3 fibre with 10Gb/s over 550m: MaxCap-OM4 fibre**	**First Bend-Insensitive single-mode fibre: BendBright-XS**	**Bend-Insensitive OM2 / OM2+ / OM3 / OM4 fibre: MaxCap-BB-OMx**	**Bend-Insensitive Chromatic Dispersion Compensating fibre: MaxCap-BB-OM4+**

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Coating Type: Dual Layer Primary Coating (DLPC9)

Issue date: 03-2013
Supersedes: *09-2012*

Characteristics	Conditions	Specified Values	Units
OPTICAL SPECIFICATIONS (Uncabled fibre)			
Attenuation Coefficient	850 nm 1300 nm	≤ 2.3 ≤ 2.4 ≤ 0.5 ≤ 0.6	dB/km
Numerical Aperture		0.200 ± 0.015	
Chromatic Dispersion			
Zero Dispersion Wavelength, λ_0		$1295 \leq \lambda_0 \leq 1340$	nm
Zero Dispersion Slope, S_0	$1295\ nm \leq \lambda_0 \leq 1310\ nm$ $1310\ nm \leq \lambda_0 \leq 1340\ nm$	≤ 0.105 $\leq 0.000375\ (1590 - \lambda_0)$	ps/nm².km
Fibre Capacity	 40GBASE-SR4 / 100GBASE-SR10 10GBASE-SR 1GBASE-SR	OM2 OM2+ OM3 OM4 - - 140[1] 170[1] 83 150 300 550[1] 600 750 1000 1100	m
Overfilled Modal Bandwidth (min.)	850 nm 1300 nm	500 700 1500 3500 500 500 500 500	MHz.km
Effective Modal Bandwidth (EMB) (min.)	850 nm	- 950 2000 4700	MHz.km
DMD		See note 2	
Bending Loss	2 turns, Radius=7.5 mm; 850nm / 1300nm 2 turns, Radius=15 mm; 850nm / 1300nm	≤ 0.2 / ≤ 0.5 ≤ 0.1 / ≤ 0.3	dB
Backscatter Characteristics[3]			
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 1300 nm	1.482 1,477	
GEOMERICAL 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		≤ 10	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]	$n_d > 25$	
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). Maximum cabled fibre attenuation 3.0 dB/km at 850 nm, maximum total connector loss of 1.0 dB and VCSELs maximum RMS spectral width of 0.29 nm (according to IEEE 10GbE model: http://grouper.ieee.org/groups/802/3/ae/public/adhoc/serial_pmd/documents/10GEPBud3_1_16a.xls).
2). 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 492AAAD (OM4).
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.

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