



MaxCap 300 - 10 Gb/s GIMM Optical Fibre. Type: 50 / 125 μ m

Product code: 107
Dual Layer Primary Coating (DLPC7)
Issue date: 11/01
Supersedes: -

850 nm Laser-Optimised 50 μ m Multimode Fibre for 10 Gb/s Application over 300 m.

To support low-cost, short reach 10 Gb/s connectivity, Draka Fibre Technology, trading under the marketing label 'Draka Comteq', has developed a new 850 nm laser-optimised 50 μ m multimode fibre for 300 metre applications: MaxCap 300 multimode fibre. These applications are in particular Local Area Networks (LAN) backbones (e.g. 10GBASE-SX), Storage Area Networks (SAN) and Central Office connections. The new MaxCap multimode fibres are produced by the proprietary Plasma-activated Chemical Vapour Deposition process (PCVD), acknowledged worldwide as offering the best core profile accuracy in multimode fibre.

Features of MaxCap 300 multimode fibres.

- As OM-3 type MMF, the MaxCap 300 fully supports 850 nm (SX) serial 10 Gb/s applications over 300 metres. An effective modal bandwidth of 2000 MHz.km at 850 nm under laser launch is ensured by means of 850 nm DMD specification.
- The overfilled launch (OFL) bandwidth of the MaxCap 300 multimode fibre at 850 nm is ≥ 1500 MHz.km; at 1300 nm the OFL bandwidth is ≥ 500 MHz.km. This OFL bandwidth performance gives strong support to legacy applications. The MaxCap 300 multimode fibre offers a smooth, low-cost migration path for premises backbone cabling from 10 Mb/s up to 10 Gb/s over 300 m.
- MaxCap 300 multimode fibres offer another cost-saving advantage by eliminating the need to use expensive mode-conditioning patch cords for 1300 nm laser based systems such as 1000BASE-LX.
- MaxCap 300 multimode fibres are equipped with an excellent microbending sensitivity-reducing coating, which results in easy cabling and installation.

Application in other LAN systems.

Thanks to the special bandwidth performance of the MaxCap 300 multimode fibre, a broad range of legacy and new 10 Gb/s applications can be supported. Together with other multimode fibre products produced by Draka Comteq (e.g. the 1 Gb/s HiCap class), this range of multimode products offers end users the best possible optimisation of their networks in the most flexible way. For an overview of all Draka Comteq's multimode products and the applications supported, reference is made to our Application Note Five.

The MaxCap 300 multimode fibre fulfils the requirements of TIA/EIA-492AAAC, ISO/IEC 11801 OM-3 type and type A1a.2 of IEC 60793-2-10 (in preparation).

Specifications

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Characteristics	Conditions	Specified Values	Units																			
Optical Characteristics																						
Attenuation Coefficient	850 nm	≤ 2.5	[dB/km]																			
	1300 nm	≤ 0.7	[dB/km]																			
Overfilled Modal Bandwidth	850 nm	≥ 1500	[MHz.km]																			
	1300 nm	≥ 500	[MHz.km]																			
Differential Mode Delay	850 nm	Any one for the following templates:																				
		<table border="1"> <thead> <tr> <th>DMD Templates</th> <th>DMD Inner Mask (Radius 5 to 18 μm)</th> <th>DMD Outer Mask (Radius 0 to 23 μm)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>≤ 0.33</td> <td>≤ 0.33</td> </tr> <tr> <td>2</td> <td>≤ 0.27</td> <td>≤ 0.35</td> </tr> <tr> <td>3</td> <td>≤ 0.26</td> <td>≤ 0.40</td> </tr> <tr> <td>4</td> <td>≤ 0.25</td> <td>≤ 0.50</td> </tr> <tr> <td>5</td> <td>≤ 0.24</td> <td>≤ 0.60</td> </tr> <tr> <td>6</td> <td>≤ 0.23</td> <td>≤ 0.70</td> </tr> </tbody> </table>		DMD Templates	DMD Inner Mask (Radius 5 to 18 μm)	DMD Outer Mask (Radius 0 to 23 μm)	1	≤ 0.33	≤ 0.33	2	≤ 0.27	≤ 0.35	3	≤ 0.26	≤ 0.40	4	≤ 0.25	≤ 0.50	5	≤ 0.24	≤ 0.60	6
DMD Templates	DMD Inner Mask (Radius 5 to 18 μm)	DMD Outer Mask (Radius 0 to 23 μm)																				
1	≤ 0.33	≤ 0.33																				
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4	≤ 0.25	≤ 0.50																				
5	≤ 0.24	≤ 0.60																				
6	≤ 0.23	≤ 0.70																				
<p>Note: A minimum effective system modal bandwidth-length product of 2000 MHz.km is achieved when combining this 50 μm fibre with transmitters meeting the following transmitter power distribution (per FOTP-203): Encircled Flux at radius 4.5 μm: $\leq 30\%$ and Encircled Flux at radius 19 μm: $\geq 86\%$. (Ref.: TIA/EIA-492AAAC)</p>																						
Numerical Aperture		0.200 ± 0.015																				
Chromatic Dispersion																						
Zero-Dispersion Wavelength		≥ 1295	[nm]																			
Zero-Dispersion Slope	1295 - 1300 nm 1300 - 1320 nm	≤ 1320 $\leq 0.001 (\lambda_0 - 1190)$ ≤ 0.11	[ps/(nm ² .km)] [ps/(nm ² .km)]																			
Backscatter Characteristics [1]	1300 nm																					
Step [2]		≤ 0.1	[dB]																			
Irregularities over fibre length		≤ 0.1	[dB]																			
Reflections		Not allowed																				
Group Index of Refraction (Typical)	850 nm	1.482																				
	1300 nm	1.477																				
Geometrical Characteristics																						
Core		50 ± 2.5	[μm]																			
Core Non-Circularity		≤ 6.0	[%]																			
Core / Cladding Concentricity Error		≤ 1.5	[μm]																			
Cladding Diameter		125.0 ± 2.0	[μm]																			
Cladding Non-Circularity		≤ 1.0	[%]																			
Coating Diameter		245 ± 10	[μm]																			
Coating Non-Circularity		≤ 6	[%]																			
Coating Concentricity Error		≤ 12.5	[μm]																			
Length		Standard lengths up to 8.8	[km]																			
Environmental Characteristics																						
Temperature Dependence Induced Attenuation	850 nm, 1300 nm -60°C to +85°C	≤ 0.1	[dB/km]																			
Temperature and Humidity Cycling Induced Attenuation	850 nm, 1300 nm -10°C to +85°C, 90% R.H.	≤ 0.2	[dB/km]																			
Watersoak Dependence Induced Attenuation	850 nm, 1300 nm 20°C for 30 days	≤ 0.2	[dB/km]																			
Damp Heat Dependence Induced Attenuation	850 nm, 1300 nm 85°C, 85% R.H., 30 days	≤ 0.2	[dB/km]																			
Mechanical Characteristics																						
Proof Test	off line	≥ 8.8	[N]																			
		≥ 1.0	[%]																			
		≥ 100	[KPSI]																			
		≥ 0.7	[GPa]																			
Bending Dependence Induced Attenuation	850 nm, 1300 nm 100 turns, 75 mm diameter	≤ 0.5	[dB]																			
Dynamic Stress Corrosion Susceptibility Parameter (Typical)		≥ 27																				
Coating Strip Force	Typical average force Peak force	1.4	[N]																			
		≥ 1.3 ≤ 8.9	[N]																			

1. OTDR measurement with 0.5 μs pulse width.
 2. Mean of bi-directional measurement.