Draka

Draka Comteq | Optical Fibre

Issue date: 11/05
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HiCap Graded-Index Multimode Optical Fibre

Product Type: 50 / 125 µm or 62.5 / 125 µm (OM1$^+$ / OM2$^+$)
Coating Type: Dual Layer Primary Coating (DLPC9)

The HiCap multimode fibres of Draka Comteq are developed and characterised for enhanced link performance in laser-based Gigabit Ethernet applications, in particular the backbone and riser. These fibres are produced by the proprietary Plasma-activated Chemical Vapour Deposition process (PCVD), acknowledged world-wide as offering the best core profile accuracy in multimode fibre. HiCap quality is available in 50 µm and 62.5 µm core diameter fibres.

Application in other LAN systems.

HiCap multimode fibres are selected for the highest overfilled bandwidth classes, well above values stated in premises cabling standards, such as IEC/ISO 11801 (type OM1 and OM2), EN 50173 and EIA/TIA 568-B.
As well, HiCap multimode fibres exceed the requirements specified in 10 - 100 Mb/s datacom standards, including Ethernet, Token Ring, FDDI, Fast Ethernet, ATM and Fibre Channel. A wide variety of light sources can be used in combination with HiCap fibres, such as LEDs, 850 nm VCSELs, 780 nm CD laser diodes and 1300 nm Fabry Perot laser diodes. The fibre complies with or exceeds the IEC 60793-2-10 type A1a.1 and A1b Optical Fibre Specification.

Features	Benefits
• In Gigabit Ethernet 1000BASE-LX / SX systems, HiCap multimode fibres offer significantly longer distances than described in IEEE 802.3, see table 1	• HiCap fibre offers the users major economic and operational benefits
• HiCap fibre do not require the use of expensive LX (1300 nm) mode-conditioning patch cords	• Reduced system costs
• HiCap multimode fibres offer upgradeability to higher bit-ratesystems for intermediate distances, see table 2	• Future proof installation for intermediate distances
• HiCap multimode fibres are available in lengths up to 17.6 km	• Offering more efficient cabling
• Coated with the dual layer UV acrylate DLPC9	• Optimized performance in tight-buffer cable applications • High resistance to microbending • Stable performance over a wide range of environmental conditions • Improves easy stripping of tight buffer coatings

Table 1. HiCap MMF maximum link distances for 1000BASE GbE

1000BASE	SX (850 nm)	LX (1300 nm)
GbE 62.5 µm	220 m	550 m
GbE 50 µm	550 m	550 m
HiCap 62.5 µm	500 m	1000 m
HiCap 50 µm	750 m	2000 m

Table 2. HiCap MMF maximum link distance for 10GBASE GbE

10GBASE	SX (850 nm)
GbE 62.5 µm	33 m
GbE 50 µm	82 m
HiCap 62.5 µm	65 m
HiCap 50 µm	110 m

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Characteristics	Conditions	Specified Values		Units
		50 µm	62.5 µm	
Optical Characteristics				
Attenuation Coefficient	850 nm	≤ 2.4	≤ 3.0	[dB/km]
	1300 nm	≤ 0.6	≤ 0.7	[dB/km]
1000BASE GbE Max. Link Distance				
850 nm (SX)		750	500	[m]
1300 nm (LX)		2000	1000	[m]
Numerical Aperture		0.200 ± 0.015	0.275 ± 0.015	
Chromatic Dispersion		FDDI Spec	FDDI Spec	
Backscatter Characteristics[1)]	1300 nm			
Step[2)]		≤ 0.1	≤ 0.1	[dB]
Irregularities over fibre length		≤ 0.1	≤ 0.1	[dB]
Reflections		Not allowed	Not allowed	
Group Index of Refraction (Typical)	850 nm	1.482	1.496	
	1300 nm	1.477	1.491	
Geometrical Characteristics				
Core Diameter		50 ± 2.5	62.5 ± 2.5	[µm]
Core Non-Circularity		≤ 5	≤ 5	[%]
Core / Cladding Concentricity Error		≤ 1.5	≤ 1.5	[µm]
Cladding Diameter		125.0 ± 1.0	125.0 ± 1.0	[µm]
Cladding Non-Circularity		≤ 1.0	≤ 1.0	[%]
Coating Diameter		242 ± 7	242 ± 7	[µm]
Coating Non-Circularity		≤ 5	≤ 5	[%]
Coating Concentricity Error		≤ 10	≤ 10	[µm]
Length	Standard lengths up to	17.6	17.6	[km]
Environmental Characteristics				
Temperature Dependence	850 nm, 1300 nm / -60°C to +85°C	≤ 0.1	≤ 0.1	[dB/km]
Temperature and Humidity Cycling	850 nm, 1300 nm / -10°C to +85°C, 90% R.H.	≤ 0.1	≤ 0.1	[dB/km]
Watersoak Dependence	850 nm, 1300 nm / 20°C for 30 days	≤ 0.1	≤ 0.1	[dB/km]
Damp Heat Dependence	850 nm, 1300 nm / 85 °C, 85% R.H., 30 days	≤ 0.1	≤ 0.1	[dB/km]
Mechanical Characteristics				
Proof Test	off line	≥ 0.7 GPa (100 kpsi); 1% strain equivalent		
Bending Dependence	850 nm, 1300 nm			
Induced Attenuation	100 turns, 75 mm diameter	≤ 0.5	≤ 0.5	[dB]
Dynamic Stress Corrosion				
Susceptibility Parameter n_d (Typical)		≥ 27	≥ 27	
Coating Strip Force	Typical average force	1.7	1.7	[N]
	Peak force	≥ 1.3 F ≤ 8.9	≥ 1.3 F ≤ 8.9	[N]

[1)] *OTDR measurement with 0.5 µs pulse width.*
[2)] *Mean of bi-directional measurement.*