HiCap Graded-Index Multimode Optical Fibre.
Type: 50 / 125 µm or 62.5 / 125 µm

Draka Comteq

Dual Layer Primary Coating (DLPC7)
Issue date: 11/01
Supersedes: 05/99

Enhanced Gigabit Ethernet quality performance.

The HiCap multimode fibres of Draka Fibre Technology, trading under the marketing label '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.

Features of HiCap multimode fibres.

- In Gigabit Ethernet (1000BASE-LX/SX) systems, HiCap multimode fibres can operate at significantly longer distances than the conservative distances described in the Gigabit Ethernet Standard (IEEE 802.3:1998), see table 1. This development offers users major economic and operational benefits, both now and in the longer term.
- HiCap multimode fibres eliminate the need to use expensive LX (1300 nm) mode-conditioning patch cords, as prescribed in the Gigabit Ethernet standard.
- HiCap multimode fibres offer the major advantage of upgradebility to future higher bit-rate systems over hundreds of metres.
- All HiCap multimode fibre types are designed to be used in laser-based systems at Gb/s-speeds in all segments of local area networks from the fibre-to-the-desk, the riser cabling up to the campus backbone.

Table 1. Gigabit Ethernet and HiCap MMF maximum link distances

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

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, 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. Needless to say, HiCap multimode fibres comply with all international standards and are perfectly compatible with installed base standard 50 µm and 62.5 µm fibre.

Metres instead of MHz.km.

The transmission capacity is defined in terms of Gigabit Ethernet link distance (in metres at 1.25 Gb/s) and not in terms of bandwidth (MHz.km). Traditional overfilled launch (OFL) bandwidth does not entirely describe the fibre behaviour under laser launch conditions. The effective bandwidth under laser launch has proved to be highly dependent on the profile accuracy in the centre of the core, whereas the overfilled launch bandwidth is determined by the accuracy of the entire core profile. HiCap multimode fibres are checked by dedicated DMD tests in order to guarantee the laser launch performance. In addition, HiCap multimode fibres are selected with the highest class of overfilled bandwidth.

Draka Fibre Technology BV, PO Box 1442, 5602 BK Eindhoven, The Netherlands.
Telephone (+31) 40 295 87 00, Fax (+31) 40 295 87 10, E-mail: sales@drakafibre.com, www.drakacomteq.com.

Specifications
HiCap Graded-Index Multimode Optical Fibre.
Type: 50 / 125 µm or 62.5 / 125 µm

Dual Layer Primary Coating (DLPC7)
Issue date: 11/01
Supersedes: 05/99

Characteristics	Conditions	Specified Values 50 µm	62.5 µm	50 and 62.5 µm	Units
Optical Characteristics					
Attenuation Coefficient	850 nm	≤ 2.5	≤ 3.0		[dB/km]
	1300 nm	≤ 0.7	≤ 0.7		[dB/km]
Fibre Capacity					

Gigabit Ethernet Maximum Link Distance	SX (850 nm)	LX (1300 nm)
HiCap 62.5 µm	500 m	1000 m
HiCap 50 µm	750 m	2000 m

Numerical Aperture		0.200 ± 0.015	0275 ± 0.015		
Chromatic Dispersion				FDDI Spec	
Backscatter Characteristics [1]	1300 nm				
Step [2]				≤ 0.1	[dB]
Irregularities over fibre length				≤ 0.1	[dB]
Reflections				Not allowed	
Group Index of Refraction	850 nm	1.482	1.496		
(Typical)	1300 nm	1.477	1.491		
Geometrical Characteristics					
Core Diameter		50 ± 2.5	62.5 ± 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	850 nm, 1300 nm				
Induced Attenuation	-60°C to +85°C			≤ 0.1	[dB/km]
Temperature and Humidity Cycling	850 nm, 1300 nm				
Induced Attenuation	-10°C to +85°C, 90% R.H.			≤ 0.2	[dB/km]
Watersoak Dependence	850 nm, 1300 nm				
Induced Attenuation	20°C for 30 days			≤ 0.2	[dB/km]
Damp Heat Dependence	850 nm, 1300 nm				
Induced Attenuation	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	850 nm, 1300 nm				
Induced Attenuation	100 turns, 75 mm diameter			≤ 0.5	[dB]
Dynamic Stress Corrosion Susceptibility Parameter (Typical)				≥ 27	
Coating Strip Force	Typical average force			1.4	[N]
	Peak force			1.3 ≤ F ≤ 8.9	[N]

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