Draka

Draka Comteq | Optical Fibre

Issue date: 11/05
Supersedes: 01/05

HiCap^{XS} Graded-Index Multimode Optical Fibre

Product Type: 50 / 125 µm
Coating Type: Dual Layer Primary Coating (DLPC9)

The HiCap^{XS} fibres of Draka Comteq are developed and characterised for enhanced link performance in laser-based Gigabit Ethernet applications. In particular the various access network architectures applying a single mode or multimode feeder, an active distribution point and a LAN-like first mile network can benefit from the low cost features offered by the HiCap^{XS} graded-index multimode fibre. The 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.

Features
• HiCap^{XS} multimode fibres support cheap Gigabit Ethernet (1000BASE-LX) systems in three distance categories up to a superior 2000 m, specially aiming for access networks.
• In addition an extended wavelength range is offered from 1240 - 1550 nm. This is considerably wider than the 1260 -1360 nm range as stated in the IEEE 802.3ah EFM (Ethernet in the First Mile) standard. The wider operational wavelength range offers relaxed requirements for the laser spectral characteristics, ample potential for opening additional OAM service channels and huge potential for future up-grade of the network.
• The overfilled launch bandwidth of 500 MHz.km as defined in the IEEE 802.3ah EFM in general does not describe the fibre modal dispersion behaviour sufficiently under laser launch conditions. The effective bandwidth under laser launch conditions 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 averaged accuracy of the entire core profile. HiCap^{XS} fibres are checked by dedicated DMD tests in order to guarantee the laser launch performance.
• HiCap^{XS} multimode fibres can be operated at ALL wavelengths in the range 1240 - 1550 nm, i.e. also in the traditional 1385 nm water-peak region.
• HiCap^{XS} multimode fibres eliminate the need to use expensive mode-conditioning patch cords, as prescribed in the Gigabit Ethernet standard.
• The HiCap^{XS} multimode fibre is coated with a dual layer UV curable acrylate, type DLPC9. Designed for more stringent tight-buffer cable applications, the fibre also performs perfectly in loose tube constructions and demonstrates high resistance to micro-bending.

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Characteristics	Conditions	Specified Values			Units
Optical Characteristics					
		Quality A	**Quality B**	**Quality C**	
Modal Bandwidth[1)]	1240-1550 nm	≥ 2000	≥ 1000	≥ 500	[MHz.km]
Link lenght	1240-1550 nm	2000	1000	550	[m]
Attenuation Coefficient	1240-1550 nm	≤ 0.7			[dB/km]
Numerical Aperture		0.200 ± 0.015			
Chromatic Dispersion		FDDI Spec			
Backscatter Characteristics[2)]	1300 nm				
Step[3)]		≤ 0.1			[dB]
Irregularities over fibre length		≤ 0.1			[dB]
Reflections		Not allowed			
Group Index of Refraction (Typical)	1300 nm	1.477			
Geometrical Characteristics					
Core		50 ± 2.5			[µm]
Core Non-Circularity		≤ 5			[%]
Core / Cladding Concentricity Error		≤ 1.5			[µm]
Cladding Diameter		125.0 ± 1.0			[µm]
Cladding Non-Circularity		≤ 1.0			[%]
Coating Diameter		242 ± 7			[µm]
Coating Non-Circularity		≤ 5			[%]
Coating Concentricity Error		≤ 10			[µm]
Length		Standard lengths up to 8.8			[km]
Environmental Characteristics					
Temperature Dependence	@ 1300 nm / -60°C to +85°C	≤ 0.1			[dB/km]
Temperature and Humidity Cycling	@ 1300 nm / -10°C to +85°C, 90% R.H.	≤ 0.1			[dB/km]
Watersoak Dependence	@ 1300 nm / 20°C for 30 days	≤ 0.1			[dB/km]
Damp Heat Dependence	@ 1300 nm / 85 °C, 85% R.H., 30 days	≤ 0.1			[dB/km]
Mechanical Characteristics					
Proof Test	off line	≥ 0.7 GPa (100 kpsi); 1% strain equivalent			
Bending Dependence	@ 1300 nm				
Induced Attenuation	100 turns, 50 mm diameter	≤ 0.5			[dB]
Dynamic Stress Corrosion					
Susceptibility Parameter n_d (Typical)		≥ 27			
Coating Strip Force	Typical average force	1.7			[N]
	Peak force	1.3 ≤ Fs ≤ 8.9			[N]

1) The modal bandwidth is linearly normalized to 1 km, according to IEC 60793-2-10
2) OTDR measurements with 0.5 µs pulse width
3) Mean of bi-directional measurement