



# Graded-Index Multimode Optical Fibre.

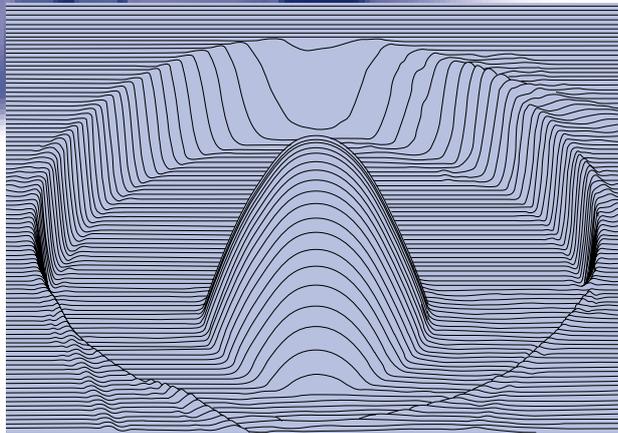
Type: 50 / 125  $\mu\text{m}$

Product code: 407

Dual Layer Primary Coating (DLPC7)

Issue date: 11/01

Supersedes: 06/00



## Fibre.

This graded-index 50/125  $\mu\text{m}$  multimode fibre, product code 407, has a 50  $\mu\text{m}$  core diameter and a 125  $\mu\text{m}$  cladding diameter. The fibre is designed for use at 850 nm and/or 1300 nm.

This 50/125  $\mu\text{m}$  fibre is suitable for use in premises wiring applications, like Local Area Networks (including backbone, riser and horizontal) with video, data and/or voice services

using LED, VCSEL and Fabry-Perot laser sources at 850 nm or 1300 nm. This multimode fibre assures full compatibility with legacy systems, like Ethernet, FDDI, ATM and Fibre Channel. Because of the nature of the Plasma-activated Chemical Vapour Deposition (PCVD) manufacturing process, this fibre offers the highest bandwidth available in the market.

The fibre complies with or exceeds the ITU Recommendation G.651 or the IEC 60793-2-10 type A1a Optical Fibre Specification.

## Coating.

The multimode fibre is coated with a dual layer UV curable acrylate, type DLPC7. Designed for more stringent tight-buffer cable applications, the fibre also performs perfectly in loose tube buffer constructions and demonstrates a high resistance to microbending.

The coating offers an excellent stable coating strip force over a wide range of environmental conditions and coating stripping leaves no residues on the bare glass fibre. In tight buffer applications the entire coating construction (tight buffer and primary coating) can in general very easily be stripped off.

The DLPC7 coated fibres show unique high and stable values for the dynamic stress corrosion susceptibility parameter ( $n_a$ ), which offers a greatly improved mechanical protection to the optical fibre when used in harsh environments.

## Process.

This multimode fibre is manufactured using the PCVD process. Because of the inherent high quality of the graded refractive index profile, multimode fibres, manufactured with the PCVD process, show excellent modal bandwidth performance.

# Specifications Graded-Index Multimode Optical Fibre. Type: 50 / 125 $\mu\text{m}$

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Characteristics	Conditions	Specified Values			Units
<b>Optical Characteristics</b>					
Attenuation Coefficient	850 nm	$\leq 2.3$	$\leq 2.4$	$\leq 2.5$	[dB/km]
	1300 nm	$\leq 0.5$	$\leq 0.6$	$\leq 0.7$	[dB/km]
Minimum Modal Bandwidth [1, 2]	850 nm	400 to > 1000			[MHz.km]
	1300 nm	400 to > 1500			[MHz.km]
Numerical Aperture		0.200 $\pm$ 0.015			
Chromatic Dispersion		FDDI Spec			
Backscatter Characteristics [3] Step [4]	1300 nm	$\leq 0.1$			[dB]
		$\leq 0.1$			[dB]
Irregularities over fibre length Reflections		Not allowed			
Group Index of Refraction (Typical)	850 nm	1.482			
	1300 nm	1.477			
<b>Geometrical Characteristics</b>					
Core Diameter		50 $\pm$ 2.5			[ $\mu\text{m}$ ]
Core Non-Circularity		$\leq 6.0$			[%]
Core / Cladding Concentricity Error		$\leq 1.5$			[ $\mu\text{m}$ ]
Cladding Diameter		125.0 $\pm$ 2.0			[ $\mu\text{m}$ ]
Cladding Non-Circularity		$\leq 1.0$			[%]
Coating Diameter		245 $\pm$ 10			[ $\mu\text{m}$ ]
Coating Non-Circularity		$\leq 6$			[%]
Coating Concentricity Error		$\leq 12.5$			[ $\mu\text{m}$ ]
Length		Standard lengths up to 8.8			[km]
<b>Environmental Characteristics</b>					
Temperature Dependence Induced Attenuation	850 nm, 1300 nm	$\leq 0.1$			[dB/km]
	-60°C to +85°C				
Temperature and Humidity Cycling Induced Attenuation	850 nm, 1300 nm	$\leq 0.2$			[dB/km]
	-10°C to +85°C, 90% R.H.				
Watersoak Dependence Induced Attenuation	850 nm, 1300 nm	$\leq 0.2$			[dB/km]
	20°C for 30 days				
Damp Heat Dependence Induced Attenuation	850 nm, 1300 nm	$\leq 0.2$			[dB/km]
	85°C, 85% R.H., 30 days				
<b>Mechanical Characteristics</b>					
Proof Test	off line	$\geq 8.8$			[N]
		$\geq 1.0$			[%]
		$\geq 100$			[KPSI]
		$\geq 0.7$			[GPa]
Bending Dependence Induced Attenuation	850 nm, 1300 nm	$\leq 0.5$			[dB]
	100 turns, 75 mm diameter				
Dynamic Stress Corrosion Susceptibility Parameter (Typical)		$\geq 27$			
Coating Strip Force	Typical average force	1.4			[N]
	Peak force	$\geq 1.3$	$\leq 8.9$		[N]

1. The modal bandwidth is linearly normalised to 1 km, according to IEC 60793-2-10.

2. Dual window bandwidth specifications are selectable; possibilities are:

850 nm	1300 nm
400	2000 MHz.km
600	1200 MHz.km
800	800 MHz.km

3. OTDR measurement with 0.5  $\mu\text{s}$  pulse width.

4. Mean of bi-directional measurement.