Specialty Fiber

DrakaElite™ Single-Mode Optical Fiber for Patch Cord

SMF with high precision glass geometry, easy stripability and low microbending

Issue date: 08/10
Supersedes: 12/09

Draka's premium grade Single-Mode Patch Cord are designed to be utilized in all types of connectorized assemblies like patch cord and pigtails. These fibers exceed standard grade fibers with high precision glass geometry, while the use of DLPC9 ensures easy stripability and reduced micro-bending.

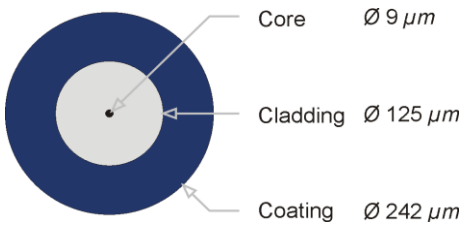
Precision glass geometry

Based on a special in-line geometry measurement during the drawing process, a tight geometry specification can be guaranteed over the entire length of the fiber, a pre-requisite for automated connectorisation practices.

Coating

Draka Communications Patch Cord Fibers are coated with a dual layer UV curable Acrylate, type DLPC9. The coating is designed for tight-buffer cable applications, demonstrating a high resistance to micro-bending. 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 fiber. In tight buffer applications the entire coating construction (tight buffer and primary coating) can, in general, very easily be stripped off. The fiber complies with or exceeds the ITU-T Recommendation G.652.B or D, and the IEC 60793-2-50 type B.1.1 or B.1.3 Optical Fiber Specification, Telcordia GR-20-CORE.

Features	Advantages
Tight cladding diameter 125.0 ± 0.4 µm	Guaranteeing easy, fully automated connectorisation
Tight cladding non-circularity ≤ 0.3 %	Guaranteeing easy connectorisation
Tight core/cladding concentricity ≤ 0.3 µm	Offering low connector loss
DLPC9 coating	Guaranteeing easy stripability



Draka Communications
fibersales@draka.com
www.draka.com/communications

Netherlands: Tel: +31 (0)40 29 58 700 Fax: +31 (0)40 29 58 710
France: Tel: +33 (0)3 21 79 49 00 Fax: +33 (0)3 21 79 49 33
USA: Toll free: 800-879-9862 Outside US: +1.828.459.9787 Fax: +1.828.459.8267

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Product Type: G.652.B and G.652.D
Coating Type: Dual Layer Primary Coating (DLPC9)

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Optical Specifications

Attenuation	G.652.D	G.652.B
Attenuation at 1310 nm	0.33 - 0.35 dB/km	0.33 - 0.35 dB/km
Attenuation at 1383 nm*	0.32 - 0.35 dB/km	1.00 dB/km
Attenuation at 1460 nm	0.25 dB/km	----
Attenuation at 1550 nm	0.19 - 0.21 dB/km	0.19 - 0.22 dB/km
Attenuation at 1625 nm	0.20 - 0.23 dB/km	0.21 - 0.24 dB/km

** Including H2-aging according to IEC 60793-2-50, type B.1.3*

Attenuation vs. Wavelength

Maximum attenuation change over the window from reference

Wavelength range (nm)	Reference λ (nm)	(dB/km)
1285 – 1330	1310	≤ 0.03
1525 - 1575	1550	≤ 0.02
1460 - 1625	1550	≤ 0.04

Point discontinuities

No point discontinuity greater than 0.05 dB at 1310 nm and 1550 nm.

Attenuation with Bending

Number of Turns	Mandrel Radius (mm)	Wavelength (nm)	Induced Attenuation (dB)
100	25	1310	≤ 0.05
100	25	1550	≤ 0.05
100	30	1625	≤ 0.05

Cutoff Wavelength

Fiber Cutoff wavelength (λccf)	≤ 1280 nm

Mode Field Diameter

Wavelength (nm)	MFD (µm)
1310	9.0 ± 0.4
1550	10.1 ± 0.5

Chromatic Dispersion

Wavelength (nm)	Chromatic Dispersion (ps/[nm.km])
1285 – 1330	≤ |3|
1550	≤ 18.0
1625	≤ 22.0
Zero Dispersion Wavelength (λ_0):	1300 - 1322 nm
Slope (S_0) at λ_0:	≤ 0.090 ps/(nm^2.km)

Polarization Mode Dispersion (PMD)

PMD Link Design Value** (ps√km)	≤ 0.08
Max. Individual Fiber (ps√km)	≤ 0.15

*** According to IEC 60794 –3, Ed 3 (Q=0.01%)*

Geometrical Specifications

Glass Geometry

Cladding Diameter	125.0 ± 0.4 µm
Core/Cladding Concentricity Error	≤ 0.3 µm
Cladding Non-Circularity	≤ 0.3 %
Fiber Curl (Radius)	≥ 4 m

Coating Geometry

Coating Diameter	242 ± 5 µm
Coating/Cladding Concentricity Error	≤ 12 µm
Coating Non-Circularity	≤ 5.0 %
Length	Standard lengths up to 25.2 km

Mechanical Specifications

Proof Test

The entire length is subjected to a tensile proof stress ≥ 0.7 GPa (100 kpsi); 1% strain equivalent

Tensile Strength

Dynamic tensile strength (0.5 meter gauge length):

Aged*** and unaged:	median > 3.8 GPa (550 kpsi)

**** Aging at 85°C, 85% RH, 30 days*

Dynamic and Static Fatigue

Dynamic fatigue, unaged and aged***	$n_d \geq 20$
Static fatigue, aged***	$n_s \geq 23$

Coating Performance

Coating strip force unaged and aged****:

- Average strip force:	1 N to 3 N
- Peak strip force:	1.2 N to 8.9 N

***** Aging:*

- *0°C and 45°C*
- *30 days at 85°C and 85% RH*
- *14 days water immersion at 23°C*
- *Wasp spray exposure (Telcordia)*

Environmental Specifications

Attenuation

Environmental Test	Test Conditions	Induced Attenuation at 1310, 1550 nm (dB/km)
Temperature cycling	- 60°C to 85°C	≤ 0.05
Temperature-Humidity cycling	- 10°C to 85°C, 4-98% RH	≤ 0.05
Water Immersion	14 days; 23°C	≤ 0.05
Dry Heat	30 days; 85°C	≤ 0.05
Damp Heat	30 days; 85°C; 85% RH	≤ 0.05

Typical Values

Miscellaneous

Nominal Zero Dispersion Slope	0.085 ps/(nm^2.km)
Effective group index @ 1310 nm	1.467
Effective group index @ 1550 nm	1.468
Effective group index @ 1625 nm	1.468
Rayleigh Backscatter Coefficient for 1 ns pulse width:	
@ 1310 nm	- 79.4 dB
@ 1550 nm	- 81.7 dB
@ 1625 nm	- 82.5 dB
Median Dynamic Tensile Strength	5.3 GPa (750 kpsi)
(Aged at 85°C, 85% RH, 30 days; 0,5 m gauge length)	

Draka Communications
fibersales@draka.com
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