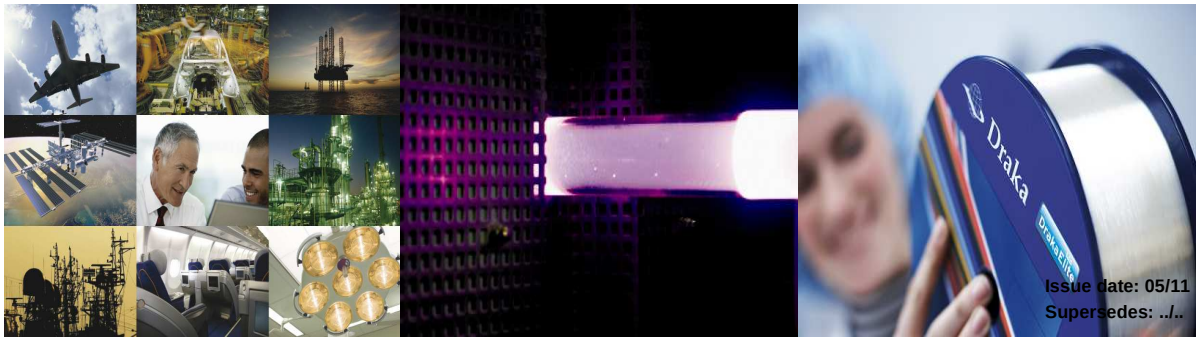
Draka

Specialty Fiber

Graded-Index Multimode Fiber for opto-electronic applications

Highest bandwidths available in the market

DrakaElite



Draka has developed a full range of Graded-Index Multimode Optical Fiber (GI-MMF) to cope with the rising requests concerning dense integration of optical links inside or between electronic devices. Core sizes of 50 µm, 62.5 µm and 80 µm are available. The fibers are available in standard with a 125 µm regular glass diameter and 242 µm coating diameter. Depending on core diameter other dimensions are available.

Because of the nature of the Plasma-activated Chemical Vapor Deposition (PCVD and APVD™) manufacturing process, DrakaElite GI-MMFs for opto-electronic applications offer the highest bandwidths available in the market. These fibers have been specifically designed to offer a low bending sensitivity. With their very low bend losses, DrakaElite GI-MMFs for opto-electronic applications offer unmatched value to customers that need to reduce the size of their components or to those who wants to introduce the fiber in consumer's home.

50 µm core diameter DrakaElite GI-MMFs for opto-electronic applications could be made compliant to ISO/IEC 11801 OM3 or OM4 specification, upon customer request.

Features	Advantages
Produced by the PCVD and APVD™ processes, the ultimate processes for graded- index multimode fibers	• Superior geometry, uniformity and purity of glass • PCVD and APVD™ produced multimode fibers show excellent modal bandwidth performance
Low bending sensitivity	• Allows use of smaller, high density fiber management systems, as key issue in limited space data centers and computer rooms • Copes with the limited foot-print of modern electronic devices • Resistance to mis-handling in professional or home environments.

Key Industry Leading Milestones

1999	2003	2006	2010
First shipments of what in 2002 became OM3 fiber	First OM3 type fiber with 10 Gb/s extended reach over 550 m: MaxCap-OM4 fiber	First Bend-Insensitive single-mode fiber: BendBright-XS	Introduction of Bend-Insensitive OM2 / OM2+ / OM3 / OM4 fiber: MaxCap-BB-OMx

VALUE INNOVATION

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Coating Type: Dual Layer Primary Coating (DLPC9)

Characteristics	Conditions	Specified Values			Units
		50/125/242	62.5/125/242 regular | superior	80/125/242	µm
Optical Specifications (Uncabled fiber)					
Attenuation Coefficient	850 nm	≤ 2.3	≤ 2.8	≤ 5.0	dB/km
Numerical Aperture		0.200 ± 0.015	0.275 ± 0.015	0.29 ± 0.02	
Overfilled Modal Bandwidth	850 nm	up to ≥ 3500 [1]	≥ 160 to ≥ 300	≥ 160 to ≥ 300	MHz.km
Effective Modal Bandwidth	850 nm	up to 4700	na	na	
Bending Loss[2]	2 turns, R=7.5 mm; 850nm	≤ 0.2	≤ 0.6 | ≤ 0.3	≤ 1.0	dB
	2 turns, R=15 mm; 850nm	≤ 0.1	≤ 0.2 | ≤ 0.1	≤ 0.5	dB
Backscatter Characteristics[3]					
Point Discontinuity[4]	850 nm	≤ 0.1	≤ 0.1	≤ 0.1	dB
Irregularities over fiber length	850 nm	≤ 0.1	≤ 0.1	≤ 0.1	dB
Reflections		Not Allowed	Not Allowed	Not Allowed	
Group Index of Refraction (Typical)	850 nm	1.482	1.496	upon request	
Geometrical Specifications					
Core Diameter		50 ± 2	62.5 ± 2	80 ± 3	µm
Core Non-Circularity		≤ 5	≤ 5	≤ 5	%
Core/Cladding Concentricity Error		≤ 1	≤ 1	≤ 1	µm
Cladding Diameter		125.0 ± 1.0	125.0 ± 1.0	125.0 ± 1.0	µm
Cladding Non-Circularity		≤ 0.7	≤ 0.7	≤ 0.7	%
Coating Diameter		242 ± 5	242 ± 5	242 ± 5	µm
Coating Non-Circularity		≤ 5	≤ 5	≤ 5	%
Coating/Cladding Concentricity Error		≤ 6	≤ 6	≤ 6	µm
Length		Standard length up to 8.8 km	Standard length up to 8.8 km	upon request	km
Mechanical Specifications					
Proof Test	Off line	> 0.7 (100)	> 0.7 (100)	> 0.7 (100)	GPa (kpsi)
Dynamic Tensile Strength (median value)	0.5 meter gauge length unaged and aged[5]	> 3.8 (550)	> 3.8 (550)	> 3.8 (550)	GPa (kpsi)
Fatigue Parameter (Typical)	Dynamic fatigue, unaged and aged[5]	n_d > 25	n_d > 25	n_d > 25	
Coating Strip Force	Average strip force, unaged and aged[6]	1 to 3	1 to 3	1 to 3	N
	Peak strip force, unaged and aged[6]	1.3 to 8.9	1.3 to 8.9	1.3 to 8.9	N
Environmental Specifications					
Temperature Cycling	850 nm, 1300 nm; -60℃ to +85℃	≤ 0.1	≤ 0.1	upon request	dB/km
Temperature-Humidity Cycling	850 nm, 1300 nm; -10℃ to +85℃, 4-98% RH	≤ 0.1	≤ 0.1	upon request	dB/km
Water Immersion	850 nm, 1300 nm; 23℃, 30 days	≤ 0.1	≤ 0.1	upon request	dB/km
Dry Heat	850 nm, 1300 nm; 85℃, 30 days	≤ 0.1	≤ 0.1	upon request	dB/km
Damp Heat	850 nm, 1300 nm; 85℃; 85% RH, 30 days	≤ 0.1	≤ 0.1	upon request	dB/km

1). The modal bandwidth is linearly normalized to 1 km, according to IEC 60793-2-10.
2). For 50 um and 62.5 um bending losses are specified using IEC 61280-4-1 launch conditions
For 80 um bending losses are specified using OFL conditions (worst case approach).
3). OTDR measurement with 0.5 µs pulse width.
4). Mean of bi-directional measurement.
5). Aging at 85℃, 85% RH, 30 days
6). Aging: • 23℃, 0℃ and 45℃
• 30 days at 85℃ and 85% RH
• 14 days water immersion at 23℃

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