



Draka

Single-Mode Fiber

BendBright Single-Mode Optical Fiber

Low macro-bending sensitive, low water peak fiber



Issue date: 08/10
Supersedes: 12/09

Draka BendBright fiber encompasses all the feature of Enhanced Single-Mode ESMF fiber and provides high resistance to additional losses due to macro-bending, particularly in the 1600 nm wavelength region.

This fiber can be used in all cable constructions, including loose tube, tight buffered, ribbon, and central tube designs. It supports long-haul, metropolitan and in particular access and premises (FTTH) applications in telecommunications, CATV, utility and intelligent traffic networks.

Opening the transmission window up to the highest wavelength region in the L-band has challenged traditional fiber macro-bending performance. BendBright meets and exceeds the challenge.

Draka fibers are further enhanced with the proprietary ColorLock-XS coating. This coating enables optimum fiber performance, reliability and durability, even in harsh environments.

The fiber complies with or exceeds the ITU-T Recommendation G.652.D and G.657.A1, the IEC International Standard 60793-2-50 type B.1.3 and B.6.A Optical Fiber Specification, Telcordia GR-20-CORE, INSI/ICEA S-87-640 and RUS 7CFR 1755.900.

Features	Advantages
Lower PMD of 0.06 ps/√km link design value	Extends the PMD distance performance, reducing regeneration costs
Improved geometrical parameters	Low splice loss and high splice yield
Proprietary APVD™ manufacturing process	Superior geometry, uniformity and purity
Revolutionary ColorLock-XS coating process	Increased reliability, durability, and superior aging performance, resulting in lower maintenance and replacement costs. Makes color a component of the coating, thus enhancing fiber identification and colored fiber reliability. Consistent, vibrant color for easy-of-use and flexibility

Key Industry Leading Milestones



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Product Type: G.652.D, G.657.A1 (2009 editions)
Coating Type: ColorLock-XS and Natural

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Optical Specifications

Attenuation	
Attenuation at 1310 nm	0.33 – 0.35 dB/km
Attenuation at 1383 nm*	0.32 – 0.35 dB/km
Attenuation at 1460 nm	0.25 dB/km
Attenuation at 1550 nm	0.19 – 0.21 dB/km
Attenuation at 1625 nm	0.20 – 0.23 dB/km

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

Other values available on request

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)
1	10	1550	≤ 0.75
1	10	1625	≤ 1.5
10	15	1550	≤ 0.25
10	15	1625	≤ 1.0

Cutoff Wavelength	
Cable Cutoff wavelength (Accf)	≤ 1260 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	$\leq 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 $\sqrt{\text{km}}$)	≤ 0.06
Max. Individual Fiber (ps $\sqrt{\text{km}}$)	≤ 0.1

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

Geometrical Specifications

Glass Geometry	
Cladding Diameter	125.0 ± 0.7 μm
Core/Cladding Concentricity Error	≤ 0.5 μm
Cladding Non-Circularity	≤ 0.7 %
Fiber Curl (Radius)	≥ 4 m

Coating Geometry	
Coating Diameter	242 ± 7 μm
Coating/Cladding Concentricity Error	≤ 12 μm
Coating Non-Circularity	≤ 5 %
Length	Standard lengths up to 50.4 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)	