

Properties of cable with BendBright®XS fibre

BendBright®XS, Enhanced bend insensitive, low water peak G657B/G657A

General and application

The optical fibres are made of a high grade doped silica core surrounded by a silica cladding; They are coated with a dual layer, UV cured acrylate based coating.

This enhanced low macro bending sensitive, low water peak fibre, gives unsurpassed bending performance. The preferred use of the BendBright®XS fibre is in office installations, for patch cords, interconnection cables and for Fibre-to-the-Home networks. The BendBright®XS offers reduced bending radii for many cables types. The fibre fulfils the new ITU G.657 A and B specification, as well as G.652.D. The low macro bending sensitivity further guarantees that the 1625 nm window (L-band) will be available for future use in this bandwidth hungry environment.

Standards and Norms

IEC / EN 60793-2-50 Category B6_a and B6_b	EN 50 173-1:2007, cat. OS2
ITU-T Recommendation G.657.A and G.657.B	ISO / IEC 11801:2002, cat. OS2 and OS1
ITU-T Recommendation G.652.D	ISO / IEC 24702: 2006, cat. OS2 and OS1
ITU designations A, B and C are also fulfilled.	IEEE 802.3 – 2002 incl. 802.3ae

Optical properties

Attribute	Measurement method	Units	Limits
Mode field diameter at 1310 nm	IEC/EN 60793-1-45	µm	8.5 – 9.3
Mode field diameter at 1550 nm		µm	9.4 – 10.4
Chromatic dispersion coefficient:	IEC/EN 60793-1-42		
In the interval 1260 nm – 1360 nm		ps/km • nm	≤ 6
In the interval 1480 nm – 1580 nm		ps/km • nm	≤ 20
In the interval 1570 nm – 1625 nm		ps/km • nm	≤ 23
Zero dispersion wavelength, λ ₀		nm	1300 – 1324
Zero dispersion slope		ps/(nm ² • km)	≤ 0.093
Cut-off wavelength	IEC/EN 60793-1-44	λ _{cc} nm	≤ 1260 *
Polarisation mode dispersion (PMD) coefficient	IEC/EN 60793-1-48	ps/√km	≤ 0.2, uncabled

* guaranteed value according to the ITU-T (ATM G650) method

Attenuation

Attribute	Measurement method	Units	Limits
			max average / individual
in the range 1285-1330 nm	IEC/EN 60793-1-40	dB/km	≤ 0.37 / ≤ 0.40
at 1383 nm			≤ 0.37 / ≤ 0.40
in the range 1530-1570 nm	IEC/EN 60793-1-40	dB/km	≤ 0.22 / ≤ 0.28
in the range 1570-1625 nm			≤ 0.30 / ≤ 0.40
Local discontinuity at 1310 and 1550 nm	IEC/EN 60793-1-40	dB	≤ 0.1

Attenuation variation vs Bending

Attribute	Measurement method	Units	Limits
10 turns on a mandrel R = 15 mm, @1550nm	IEC/EN 60793-1-47	dB	≤ 0.03
10 turns on a mandrel R = 15 mm, @1625nm	IEC/EN 60793-1-47	dB	≤ 0.1
1 turn on a mandrel R = 10 mm, @1550nm	IEC/EN 60793-1-47	dB	≤ 0.1
1 turn on a mandrel R = 10 mm, @1625nm	IEC/EN 60793-1-47	dB	≤ 0.2
1 turn on a mandrel R = 7.5 mm, @1550nm	IEC/EN 60793-1-47	dB	≤ 0.5
1 turn on a mandrel R = 7.5 mm, @1625nm	IEC/EN 60793-1-47	dB	≤ 1.0

Group index of refraction

Attribute	Measurement method	Units	Values
1310 nm	IEC/EN 60793-1-22	-	1.467
1550 nm	IEC/EN 60793-1-22	-	1.467
1625 nm	IEC/EN 60793-1-22	-	1.468

Geometrical properties

Attribute	Measurement method	Units	Limits
Cladding diameter	IEC/EN 60793-1-20	µm	125.0 ± 1.0
Cladding non-circularity	IEC/EN 60793-1-20	%	≤ 1.0
Core (MDF) -cladding concentricity error	IEC/EN 60793-1-20	µm	≤ 0.6
Primary coating diameter – ColorLock ^{XS} and natural	IEC/EN 60793-1-21	µm	245 ± 10
Primary coating non-circularity	IEC/EN 60793-1-21	%	≤ 5
Primary coating-cladding concentricity error	IEC/EN 60793-1-21	µm	≤ 12.5

Mechanical properties

Attribute	Measurement method	Units	Limits
Proof stress level	IEC/EN 60793-1-30	GPa	≥ 0.7 (≈ 1 %)
Strip force (peak)	IEC/EN 60793-1-32	N	1.2 ≤ F _{peak.strip} ≤ 8.9
Dynamic fatigue resistance aged and unaged	IEC / EN 60793-1-33	(N _d)	≥ 20
Static fatigue, aged	IEC / EN 60793-1-33	(N _s)	≥ 23

All measurements in accordance with ITU-T G650 recommendations

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