Properties of tight buffered singlemode fibre Ø900 µm

ESMF, low water peak single mode fibre G.652.D, OS2

General and application

Tight buffered fibre consist of a 1% proof tested fibre, a dual acrylate primary coating to nominally 245µm and a secondary buffer to 900µm. The buffer is extruded around the primary buffer in order to make a versatile, and robust buffering system.

The buffer material consists of a low smoke and fumes, zero halogen flame retardant compounds. The buffer material fulfils or exceeds the requirements of IEC 60290-2-27 as well as is complies with the EU RoHS requirements. It contains a high amount of advanced flame retardant fillers giving the buffer very good properties in case of burning.

Where required to facilitate splicing or termination, all fibre coatings may be easily removed simultaneously to a length of at least 60mm, typically using three stripping actions 15 – 25 mm each, with commercially available mechanical stripping tools.

The intended use of this tightly buffed fibre is pigtails. The buffered fibre may also be manufactured to patch-cords and be used as an element in cables (Riser and Breakout). The buffer may be coloured to any colour of IEC 60304.

This enhanced single mode fibre also provides improved performance across the entire 1260nm to 1625nm wavelength spectrum due to its low attenuation in 1383nm, the water-peak region.

Standards and Norms

IEC 60793-2-50 Category B.1.3		ISO/IEC 11801 and ISO / IEC 24702: Cat. 0S2 and OS1
AS/NZS 3080	IEC 60290-2-27	ITU-T Recommendation G.652 D

Attenuation of cabled fibre

Attribute	Measurement method	Units	Limits
Maximum attenuation value of cable @ 1310 nm	IEC 60793-1-40	dB/km	0.4
Maximum attenuation value of cable @ 1383 nm		dB/km	0.4
Maximum attenuation value of cable @ 1550 nm		dB/km	0.3
Maximum attenuation value of cable @ 1625 nm		dB/km	0.3

Group index of refraction

Attribute	Measurement method		Limits
Effective group index at 1310 and 1383 nm	IEC 60793-1-22		1.467
Effective group index at 1550 and 1625 nm			1.468

Optical properties

Attribute	Measurement method	Units	Limits
Mode field diameter at 1310 nm	IEC 60793-1-45	µm	9.2 ± 0.4
at 1550 nm		µm	10.4 ± 0.5
Chromatic dispersion coefficient:			
In the interval between 1285 nm and 1330 nm		ps/km.nm	≤ 3.5
@1550 nm	IEC 60793-1-42	ps/km.nm	≤ 18
@1625 nm		ps/km.nm	≤ 22
Zero dispersion wavelength λ_0		nm	1302 to 1322
Zero dispersion slope @ λ_0		ps/(nm^2.km)	≤ 0.092
Cut-off wavelength λ_{CC}	IEC 60793-1-44	nm	≤ 1260*

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

Geometrical properties

Attribute	Measurement method	Units	Limits
Cladding diameter	IEC 60793-1-20	µm	125.0 ± 0.7
Cladding non-circularity		%	≤ 0.7
Core (MDF) - cladding concentricity error		µm	≤ 0.5
Primary coating diameter	IEC 60793-1-21	µm	242 ± 7
Primary coating non–circularity		%	≤ 5
Primary coating – cladding concentricity error		µm	≤12
Secondary coating diameter		µm	900 ± 50

Mechanical properties

Attribute	Measurement method	Units	Limits
Proof stress level	IEC 60793-1-30	Gpa	≥ 0.7 (1% strain)
Fibre curl radius	IEC 60793-1-34	m	> 4
Strip force (peak)	IEC 60793-1-32	N	$1.2 \leq F_{peak\ strip} \leq 8.9$
Dynamic fatigue resistance aged and unaged	IEC 60793-1-33	N_d	≥ 20
Static fatigue resistance		N_S	≥ 23

All measurements in accordance with ITU-T G650 recommendations