

**OPTICAL FIBRE - SINGLE MODE**

# SM G.652.D

**PROPERTIES OF CABLED STANDARD ENHANCED SINGLEMODE FIBRE  
ESMF, LOW WATER PEAK SINGLE MODE FIBRE G.652.D, OS2**
**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 of UV cured acrylate based coating.

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

**Standards and norms**

IEC 60793-2-50 Category B.1.3

ISO/IEC 11801 and ISO/IEC 24702: Cat. OS2 and OS1

AS/NZS 3080

ITU-T Recommendation G.652 D (Including A, B and C)

**Specifications**

Attenuation of cabled fibre			
Attribute	Measurement method	Units	Limits
Maximum attenuation value of cable @ 1310 nm	IEC 60793-1-40	dB/km	0.35
Maximum attenuation value of cable @ 1383 nm		dB/km	0.35
Maximum attenuation value of cable @ 1550 nm		dB/km	0.21
Maximum attenuation value of cable @ 1625 nm		dB/km	0.24
Point discontinuity @ 1310 nm and 1550 nm		dB	Max 0.05

Group index of refraction		
Attribute	Measurement method	Values
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 FIBRE – SINGLE MODE – SM G.652.D****Specifications**

Optical properties			
Attribute	Measurement method	Units	Limits
Mode field diameter at 1310 nm	IEC60793-1-45	µm	9.2 ± 0.4
Mode field diameter at 1550 nm		µm	10.4 ± 0.5
Chromatic dispersion coefficient:			
In the interval between 1285 nm and 1330 nm	IEC60793-1-42	ps/km.nm	≤ 3.5
@ 1550 nm		ps/km.nm	≤ 18
@1625 nm		ps/km.nm	≤ 22
Zero dispersion wavelength $\lambda_0$		nm	1302 to 1322
Zero dispersion slope @ $\lambda_0$		ps/(nm <sup>2</sup> .km)	≤ 0.092
Cut-off wavelength $\lambda_{cc}$	IEC60793-1-44	nm	≤ 1260*
Polarisation mode dispersion (PMD) coefficient	IEC 60793-1-48	ps/√km	≤ 0.1
PMDQ Link value (calculated with Q=0.01%;m=20)	IEC 60794-3	ps/√km	≤ 0.07

\* Guaranteed value according to the ITU-T (ATM G650) method.

Geometrical properties			
Attribute	Measurement method	Units	Limits
Cladding diameter	IEC60793-1-20	µm	125.0±0.7
Cladding non-circularity		%	≤ 0.7
Core (MDF) - cladding concentricity error		µm	≤ 0.5
Primary coating diameter	IEC60793-1-21	µm	242±7
Primary coating non-circularity		%	≤ 5
Primary coating - cladding concentricity error		µm	≤12

Mechanical properties			
Attribute	Measurement method	Units	Limits
Proof stress level	IEC60793-1-30	Gpa	≥ 0.7 (1% strain)
Fibre curl radius	IEC60793-1-34	m	>4
Strip force (peak)	IEC60793-1-32	N	1.2 ≤ F <sub>peakstrip</sub> ≤ 8.9
Dynamic fatigue resistance aged and unaged	IEC60793-1-33	N <sub>d</sub>	≥ 20
Static fatigue resistance	IEC60793-1-33	N <sub>s</sub>	≥ 23

All measurements in accordance with ITU-T G650 recommendations.

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