

## C26 : Properties of cabled Low Loss Enhanced SM fibre

### ESMF : Low Loss Low waterpeak G652D, OS2 fibre for long haul networks

#### General and application

The optical fibres are made of a high grade doped silica core surrounded by a doped silica cladding;

They are coated with a dual layer, UV cured acrylate based coating.

This low attenuation optimized SMF is dedicated to use in long haul networks and 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 / EN 60793-2-50 Category B.1.3 and B.6.A.	EN 50 173-1:2007, cat. OS2 and OS1
ITU-T Recommendation G.652.D and C, B, A	ISO / IEC 11801:2002, cat. OS1
IEEE 802.3 – 2002 incl. 802.3ae	ISO / IEC 24702: 2006, cat. OS2 and OS1

#### Attenuation (of cable with fibres)

**IEC 60793-1-40**

1310 nm	≤ 0.34 dB/km
1383 nm	≤ 0.34 dB/km
1460 nm	≤ 0.22 dB/km
1550 nm	≤ 0.19 dB/km
1625 nm	≤ 0.21 dB/km
Max. attenuation change in the interval 1285 - 1330 nm (ref. 1310 nm)	≤ 0.03 dB/km
Max. attenuation change in the interval 1525 - 1575 nm (ref. 1550 nm)	≤ 0.01 dB/km
Point discontinuity at 1310 and 1550 nm	≤ ± 0.05 dB

#### Group index of refraction

**IEC 60793-1-22**

Effective group index at 1310 nm	1.467
Effective group index at 1550 and 1625 nm	1.468

#### Fibre properties according to IEC

**IEC 60793-1**

Mode field diameter at 1310 nm	IEC / EN 60793-1-45	µm	9.0 ± 0.4
Mode field diameter at 1550 nm		µm	10.1 ± 0.5
Cladding diameter	IEC / EN 60793-1-20	µm	125.0 ± 0.7
Cladding non-circularity	IEC / EN 60793-1-20	%	≤ 0.7
Core - cladding concentricity error	IEC / EN 60793-1-20	µm	≤ 0.5
Primary coating diameter – ColorLock™ coloured	IEC / EN 60793-1-21	µm	242 ± 7
Primary coating non-circularity	IEC / EN 60793-1-21	%	≤ 5
Primary coating - cladding concentricity error	IEC / EN 60793-1-21	µm	≤ 12
Chromatic dispersion coefficient:	IEC / EN 60793-1-42		
Zero dispersion wavelength, $\lambda_0$		nm	1300 - 1324
Zero dispersion slope		ps/(nm <sup>2</sup> · km)	≤ 0.092
Cut-off wavelength	IEC / EN 60793-1-44	$\lambda_{cc}$ nm	≤ 1260 *
Macro bending loss	IEC / EN 60793-1-47	dB	
100 turns on a R = 25 mm mandrel at 1550 nm			≤ 0.05
100 turns on a R = 30 mm mandrel at 1625 nm			≤ 0.05
1 turn on a R = 16 mm mandrel at 1550 nm			≤ 0.1
Polarisation mode dispersion (PMD) coefficient, max. uncabled	IEC / EN 60793-1-48	ps/√km	≤ 0.1
PMD <sub>0</sub> Link Design Value (calculated with Q=0.01%, N=20)	IEC / EN 60794-3	ps/√km	≤ 0.04
Proof stress level	IEC / EN 60793-1-30	Gpa	≥ 0.7 (≈ 1 % strain)
Fibre curl radius	IEC / EN 60793-1-34	m	> 4
Strip force (peak)	IEC / EN 60793-1-32	N	1.2 ≤ F <sub>peak.strip</sub> ≤ 8.9
Dynamic fatigue resistance aged and unaged (N <sub>d</sub> )	IEC / EN 60793-1-33		≥ 20
Static fatigue resistance (N <sub>s</sub> )	IEC / EN 60793-1-33		≥ 23

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