

## Properties of cabled Standard Enhanced Singlemode fibre for **FLEXTUBE<sup>®</sup>**

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

#### General and application

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

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. OS2 and OS1
ITU-T Recommendation G.652.D (Including A, B and C)	

#### Attenuation of cabled fibre

Attribute	Measurement method	Units	Limits
Maximum attenuation value of cable @ 1310 nm	IEC 60793-1-40	dB/km	0.36
Maximum attenuation value of cable @ 1383 nm		dB/km	0.36
Maximum attenuation value of cable @ 1550 nm		dB/km	0.23
Maximum attenuation value of cable @ 1625 nm		dB/km	0.26

#### Group index of refraction

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

#### Optical properties

Attribute	Measurement method	Units	Limits
Mode field diameter @ 1310 nm	IEC 60793-1-45	$\mu\text{m}$	$9.0 \pm 0.4$
@ 1550 nm		$\mu\text{m}$	$10.1 \pm 0.5$
Chromatic dispersion coefficient: In the interval between 1285 and 1330 nm	IEC 60793-1-42	ps/km.nm	$\leq  3.5 $
@ 1550 nm		ps/km.nm	$\leq 18$
@ 1625 nm		ps/km.nm	$\leq 22$
Zero dispersion wavelength $\lambda_0$		nm	1302 to 1322
Zero dispersion slope @ $\lambda_0$		ps/(nm <sup>2</sup> .km)	$\leq 0.092$
Cut-off wavelength $\lambda_{cc}$	IEC 60793-1-44	nm	$\leq 1260^*$
Polarisation mode dispersion (PMD) coefficient	IEC 60793-1-48	ps/ $\sqrt{\text{km}}$	$\leq 0.1$
PMDQ Link value (calculated with Q=0.01%, m=20)	IEC 60794-3	ps/ $\sqrt{\text{km}}$	$\leq 0.06$

*\* guaranteed value according to the ITU-T (ATM 650) method*

#### Geometrical properties

Attribute	Measurement method	Units	Limits
Cladding diameter	IEC 60793-1-20	$\mu\text{m}$	$125.0 \pm 0.7$
Cladding non-circularity		%	$\leq 0.7$
Core (MDF) - cladding concentricity error		$\mu\text{m}$	$\leq 0.5$
Primary coating diameter (nominal)	IEC 60793-1-21	$\mu\text{m}$	242
Primary coating non-circularity		%	$\leq 5$
Primary coating-cladding concentricity error		$\mu\text{m}$	$\leq 12$

### Macrobending Loss

Attribute	Measurement method	Units	Limits
100 turns on a R=25 mm mandrel @ 1550 nm	IEC 60793-1-47	dB	≤ 0.05
100 turns on a R=30 mm mandrel @ 1625 nm		dB	≤ 0.05

### Mechanical properties

Attribute	Measurement method	Units	Limits
Proof stress level	IEC 60793-1-30	GPa	≥ 0.7 (≈ 1 %)
Fibre curl radius	IEC 60793-1-34	m	> 4
Strip force (peak)	IEC 60793-1-32	N	1.2 ≤ F <sub>peak</sub> ≤ 8.9
Dynamic fatigue resistance aged and unaged	IEC 60793-1-33	N <sub>d</sub>	≥ 20
Static fatigue resistance		N <sub>s</sub>	≥ 23

*All measurements in accordance with ITU-T G650 recommendations*

© PrysmianGroup 2020, All Rights Reserved

All sizes and values without tolerances are reference values. Specifications are for product as supplied by PrysmianGroup: any modification or alteration afterwards of product may give different result.

The information contained within this document must not be copied, reprinted or reproduced in any form, either wholly or in part, without the written consent of PrysmianGroup. The information is believed to be correct at the time of issue. PrysmianGroup reserves the right to amend this specification without prior notice. This specification is not contractually valid unless specifically authorised by PrysmianGroup.