DATASHEET

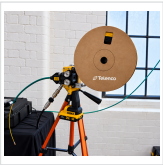
PRE-CONNECTORISED SMOOTH SHEATH ABF
AIR BLOWN FIBRE

Telenco









Non-contractual photos

Pre-connectorised smooth sheath air blown fibre (ABF) for installation by blowing. One or two single-mode fibres (ITU-T G.657A), UV curable acrylate coated, in a yellow HDPE outer sheath with a nominal outer diameter of 1.2 ± 0.3 mm (other unit colours available on request). Supplied connectorised with LC/APC connectors and wound on a disk-type storage pan, in standard lengths in 50 m increments up to 400 m (other lengths available on request).

- **Cable Type:** EPSU
- **Fibre Type:** Single mode, ITU-T G.657.A1 / A2
- **Fibre Count:** 1 or 2
- **Outer Diameter:** 1.2 ± 0.3 mm
- **Connectors:** LC/APC (Type 1 and Type 2)
- **Lengths:** 50 m increments, up to 400 m

CABLE CONSTRUCTION

Number of fibres	1 or 2
Coating material	UV curable acrylate resin
Outer sheath	HDPE
Nom. outer diameter	1.2 ± 0.3 mm
Unit colour	Yellow

* Other unit colours are also available on request.

FIBRE IDENTIFICATION

Colour code of the individual fibres within the smooth sheath ABF:

Fibre 1	RED
Fibre 2	BLUE

CABLE MARKING

The outer surface of the cable is marked with black characters at intervals of one metre with the following information (other marking available on request):

- Cable type (ex. “EPSU”)
- Fibre type and counts (ex. “G.657A1 2F”)
- Name of the manufacturer
- Year of manufacture
- Length marking

Ex. for a single mode 2 fibre cable: 0000M EPSU G.657A1 2F 2026 0001M...

PACKAGE

The standard cable length is in 50-metre increments up to a maximum of 400 metres. Other cable lengths are also available upon customer request.

ABF storage pan

When the pre-connectorised EPSU product has a cable length of 400m or less, it is wound on a disk type storage pan.

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OPTICAL FIBRE

The optical, geometrical, mechanical and environmental performance of the optical fibre is in accordance with the table below.

Performance of the single mode fibre (ITU-T G.657A)

ITEMS	UNITS	G.657.A1	G.657.A2
Attenuation	dB/km	≤ 0.40 at 1310nm ≤ 0.40 at 1383nm ≤ 0.30 at 1550nm	
Chromatic Dispersion	ps/nm.km	≤ 3.5 at 1285nm ~ 1330nm ≤ 18 at 1550nm	
Zero Dispersion Wavelength	nm	1300 ~ 1324	
Zero Dispersion Slope	ps/nm².km	≤ 0.092	
Cable PMD (PMDQ)	ps/√km	≤ 0.2 (20 section link)	
Cut-off Wavelength (lambda cc, cabled fibre)	nm	≤ 1260	
Attenuation vs. Bending (15mm radius x 10 turns)	dB	≤ 0.25 at 1550nm ≤ 1.0 at 1625nm	≤ 0.03 at 1550nm ≤ 0.1 at 1625nm
Attenuation vs. Bending (10mm radius x 1 turn)	dB	≤ 0.75 at 1550nm ≤ 1.5 at 1625nm	≤ 0.1 at 1550nm ≤ 0.2 at 1625nm
Attenuation vs. Bending (7.5mm radius x 1 turn)	dB	-	≤ 0.5 at 1550nm ≤ 1.0 at 1625nm
Mode Field Diameter	µm	8.9 ± 0.4 at 1310nm	8.6 ± 0.4 at 1310nm
Core/Cladding Concentricity Error	µm	≤ 0.5	
Cladding Diameter	µm	125 ± 0.7	
Cladding Non-circularity	%	≤ 1.0	
Coating Diameter	µm	245 ± 10	
Proof Test	GPa	≥ 0.69	

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CABLE PERFORMANCE

The mechanical and environmental performance of the cable is in accordance with the table below. Unless otherwise specified, all attenuation measurements required in this section are performed at 1550nm for single mode fibre (SMF).

The Mechanical and Environmental Performance of the Cable

ITEMS	TEST METHOD AND ACCEPTANCE CRITERIA
Tensile Performance	**Test method : IEC 60794-1-21 E1** - Fixed Mandrel Diameter : ≥ 60mm - Load Mandrel Diameter : ≥ 60mm - Tensile Load : 9.81 X W (W : mass of 1km of component in kg) - Length of specimen : ≥ 10m - Rate of extension : ≥ 20mm/min - Duration Maximum Tension : 1 minute - Selection of fibres to be monitored : All fibres in the unit **Acceptance criteria** - For Max. load : Fibre strain ≤ 0.60% at installation load - Change in attenuation after test : ≤ 0.05dB at residual load - No significant damage to unit component
Crush	**Test method : IEC 60794-1-21 E3** - Maximum load : 100N/10cm - Length of specimen : ≥ 30m - Duration of maximum load : 60 seconds - Selection of fibres to be monitored : All fibres in the unit **Acceptance criteria** - Change in attenuation during the test : to be recorded - Change in attenuation after the test : ≤ 0.05 dB - No significant damage to unit component
Repeated Bending	**Test method : IEC 60794-1-21 method E6** - Bending diameter : 60mm - No. of flexing cycles : 25 cycles **Acceptance criteria** - No significant damage to unit component
Torsion	**Test method : IEC 60794-1-21 E7** - Length of specimen : 300m - Load : adequate to assure test sample is straight at start of test **Acceptance criteria** - Change in attenuation after the test : ≤ 0.05 dB - No significant damage to unit component
Kink	**Test method : IEC 60794-1-2 Method E10** - Minimum diameter : 60mm **Acceptance criteria** - No significant damage to unit component
Bend	**Test method : IEC 60794-1-21 Method E11A** - Diameter of mandrel : 60mm - Length of specimen : ≥ 30m - Selection of fibres to be monitored : All fibres in the unit - No. of turns : 4 - No. of cycles : 3 **Acceptance criteria** - Change in attenuation after the test : ≤ 0.05 dB - No significant damage to unit component

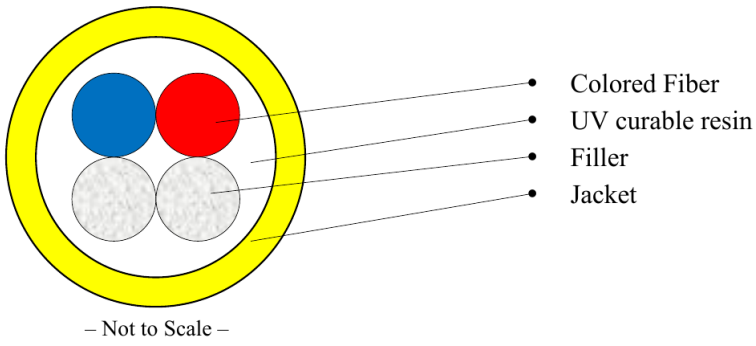
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ITEMS	TEST METHOD AND ACCEPTANCE CRITERIA (continued)
Temperature Cycling	**Test method : IEC 60794-1-22 F1** - Length of specimen : ≥ 1km - Temperature condition Operation (1): Low (A) TA1 : -40°C | High (B) TB1 : 60°C Storage (2): Low (A) TA2 : -40°C | High (B) TB2 : 70°C - Temperature cycle sequence (2 cycles) 1st cycle : TA2 to TB2 2nd cycle : TA1 to TA2 to TB1 to TB2 to 23°C - Soak time at each temperature : ≥ 24 hours **Acceptance criteria** - Attenuation variation during and after the test : ≤ 0.15dB/km
Water Immersion	**Test method : IEC 60793-1-53** - Length of specimen : ≥ 1km - Temperature of the water solution : +20°C ± 2.0°C - Water : Distilled, demineralised or de-ionised water (pH 5.0~8.0) - Dwell time : ≥ 30 days **Acceptance criteria** - Attenuation variation : ≤ 0.05 dB

(1) Operation temperature. (2) Storage temperature.

CROSS-SECTIONAL DRAWING OF CABLE

Ex. 2F smooth sheath ABF



Cable Type	Fibre counts	Cable dia. [mm]	Approx. cable weight [kg/km]	Min. bending radius [mm] (Handling)
EPSU	1~2	1.2 ± 0.3	1.4 ± 0.1	40

* Actual values may deviate from the calculated values given in the table above.

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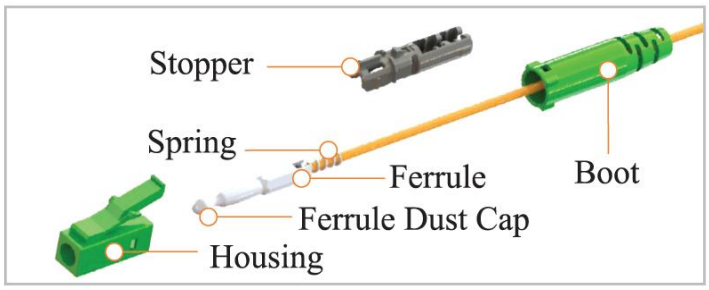
CONNECTORISING

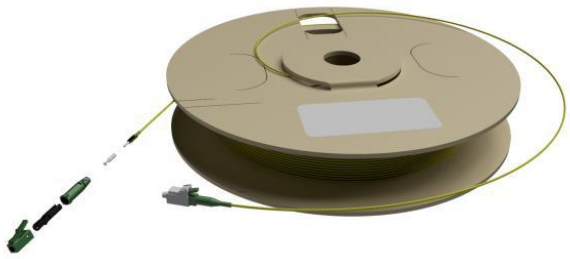
The construction of the connectorised cable is in accordance with the table below.

Connectorised cable type

	Connector for air blowing part	Connector
Type 1	1 x LC/APC	1 x LC/APC
Type 2	Open end	1 x LC/APC

Diagram: pre-connectorised EPSU set for blowing part and package





CONNECTOR PERFORMANCE

The performance of the connector is in accordance with the table below.

Specification of connector

ITEMS	UNIT	SPECIFICATION
Insertion Loss (1)	dB	Grade B ≤ 0.12 (Mean) ≤ 0.25 (Max. ≥ 97% of the connections)
Return Loss	dB	≥ 60 for APC
Durability	dB	Adaptor repeat combination No. of cycle : 500 Insertion Loss Increment : ≤ 0.20 Return Loss : ≥ 60 for APC
Retention Force	dB	1.0kgf/10s Insertion Loss Increment : ≤ 0.20 Return Loss : ≥ 60 for APC
Temperature	°C	-40 ~ 75°C Insertion Loss Increment : ≤ 0.5dB Return Loss : ≥ 35dB Return Loss : ≥ 60 for APC

(1) Random mating test according to IEC 61300-3-24.

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