

fibreflow™ Blown Fibre Fibre Units, G652d



Product Description

Fibre Unit (FU) with up to twelve fibres set in an encapsulating layer providing excellent dimensional and thermal stability. An outer thermoplastic layer provides a high level of protection and excellent installation properties. The FU is designed for blowing into fibreflow™ microducts and tube bundles. The fibres are dry, not coated with gel, thus permitting fast and contamination –free connections.

The FU contain ‘low water peak’ single mode fibres meeting the ITU-T recommendation G.652D.

Features

- Designed to be installed by blowing
- Low weight
- Small diameter
- All dielectric design
- Ultra low friction sheath
- Best in class blowing performance
- Low coil set

Fibre Unit Properties

Construction 1: Optical Fibre 2: Filler (mechanical fibre) 3: Encapsulation 4: Low friction sheath	Fibre Unit FU				
	2f	4f	6f	8f	12f
Outer diameter (nominal)	1.1 mm	1.1 mm	1.3 mm	1.5 mm	1.6 mm
Mass (nominal)	1.0 g/m	1.0 g/m	1.6 g/m	1.8 g/m	2.2 g/m
Min bend radius	50 mm	50 mm	65 mm	80 mm	80mm
Fibre type	Singlemode compliant with G652d (ITU-T) and MHT 1401				
Temperatures	-20°C to +70°C				
Storage	-10°C to +50°C				
Installation	-20°C to +60°C				
Lifetime					
Attenuation at 20°C (dB/km)	0.40 dB/km max at 1310nm to 1625nm 0.30 dB/km max at 1550nm 0.34 dB/km max at 1383nm waterpeak				
PMD _Q (M= 20, Q=0.01%)	≤0.2 ps / (km) ^{0.5}				
Macrobending Performance (individual stripped out fibres)	50 mm radius (100 turns) ≤ 0.1 dB at 1550 nm and 1625 nm 32 mm radius (1 turn) ≤ 0.5 dB at 1550 nm and 1625 nm				

OFNP RATED (USA): The 2, 4, 8 and 12^(see note) fibre units described here are UL approved for use in plenum zones when deployed inside plenum-rated tube bundles to Emtelle specification MHT 1748.

Note: Approved 12fu has a reduced mass of 2.0g/m

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Mechanical Performance (all optical measurements at 1550 nm)

Test	Test Method	Test Parameters	Product Specification
Tensile Performance	EN 187000 A1/ 501 IEC60 794-12-E1	Load is 1km mass (1W) Duration 10 min	Fibre strain $\leq 0.4\%$ at max. force Attenuation increment $\leq 0.05\text{dB}$ and fibre strain $\leq 0.05\%$ after test.
Tensile Service Load		Maximum W/3 Duration of product lifetime	Given tensile performance above, product lifetime loading as per industry best practice.
Flexing	IEC 60794-1-2-E11A Change @ 1550nm	Diam 40mm x 3 turns 5 cycles at 20°C	Attenuation $\leq 0.05\text{dB}$ increment after test.
Crush I	IEC 60794-1-2-E3 Change @ 1550nm	100 mm plate, 100N, 1 min, 3 tests at different places	$\leq 0.05\text{dB}$ increment after test.
Crush II	IEC 60794-1-2-E3 Change @ 1550nm	100 mm plate, 500N, 15 min, 3 tests at different places	No fibres broken.

Environmental Performance (all optical measurements at 1310nm and 1550nm)

Test	Test Method	Test Parameters	Product Specification
Water Soak	IEC 60794-5	1000 hours in water, 18°C/22°C	Test after temp cycle ≤ 0.07 dB/km change during and after test
Temperature Cycle	IEC 60794-1-2-F1 (3 cycles)	+20°C, -40°C, +60°C	Attenuation to be $\leq 0.5\text{dB/km}$ during test $\leq 0.1\text{dB/km}$ change during and after test
Damp Heat Cycle	IEC 60068-2-38 (10 cycles)	25°C, 65°C, 25°C, 65°C, 25°C, -10°C, 25°C	Attenuation to be $\leq 0.5\text{dB/km}$ during test $\leq 0.1\text{dB/km}$ change during and after test

Identification

Sheath Colour: Yellow with black print every 1 metre
 Fibre colours: blue, orange, green, red, grey, yellow, brown, violet, black, aqua, pink, white
 Fillers: natural (mechanical fibre)

Installation and Handling

Store FUs in supplied containers under dry and damp free conditions, until time of deployment.

Designed for installation into microducts, internal diameter from 3.0mm upwards (2.1mm upwards for 2 and 4 fibre counts). Standard installation equipment may be used (eg Emtelle Fusion, Plummett EM25, PRM-196, and BT 2A).

Breakout: remove outer sheath using a tool with pre-set blade depth to suit (eg. Microcable FU Stripper (code 9719). Remove a short length of inner sheath using a stripping tool (eg. 7562) to enable removal of fibres by peeling apart in groups.

Follow up-to-date installation and handling recommendations as defined in MHT2380 (a copy is provided with every pan of fibre).