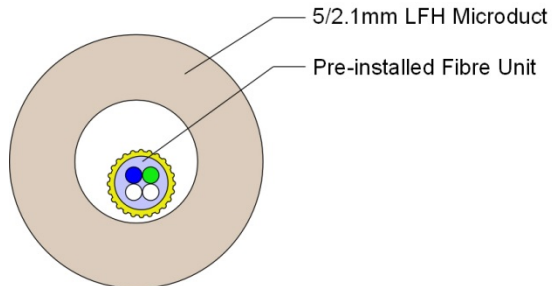


**FibreFlow™
PIFU**

Microduct and fibre colours for illustration only


NOTES:

1. *Diameters and thicknesses are measured to the nearest 0.1mm*
2. *'Nominal' data is based on mid-spec, and is for information only, not for inspection purposes.*
3. *It is IMPORTANT to follow the installation guidance given in this proposal*

DESCRIPTION:

A single Low Fire Hazard microduct (m/d) used as an indoor fibre pathway. This m/d has low flammability, low smoke and low fume performance as defined below. The m/d may be used with care in this form, as a 1-way fibre route, although it does not have a cable sheath, and so must only be used in areas where physical abuse is unlikely. During installation, do not exceed the low pulling tension limit; it could be preferentially laid directly. It is not suitable for outdoor use, or for burial. This m/d can be pre-installed with a 2 or 4 fibre optical fibre unit.

M/D MATERIAL, LFH

1. Extruded from 100% virgin material (no re-used compound content) with these characteristics:
2. Tensile strength 11MPa min, and 11MPa after 7 days at 100°C
3. Elongation at break 130% minimum, and 100% min after 7 days at 100°C
4. Cold impact at -20°C, no cracks
5. Cold elongation at -20°C; minimum 50%
6. No halogen content (chlorine, bromine, fluorine)
7. Temperature Index minimum 270°C

MICRODUCT, LFH

1. M/d mass, 24g/m appr
2. Outer diameter $5.0 \pm 0.1\text{mm}$ (fits designated push connectors)
3. Inner diameter $2.1 \pm 0.1\text{mm}$ (measured by plug gauge)
4. Minimum wall thickness at any point: 1.2mm
5. All m/d shall be a correct push-fit into standard 5mm connectors.
6. Max installation pull force: Up to 30N (3kg) only. Pull by hand only. Take care with this low force.
7. Min bend radius 50mm. See separate recommendations for MBR of fibre products.
8. Blowing Pressure: Maximum is 16bar during blowing.
9. Crush Withstand: 600N on 100mm. See test below.
10. Cable Ties: Do not use ratchet-type ties. Consult Emtelle for recommended type
11. Temperatures:

Transport & Storage:	-10°C to +50°C
During Installation:	-10°C to +50°C
In service / use:	-20°C to +60°C

12. Print: To customer specification

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13. Fibre specification is based on MHT1201 (G652D), MHT2185 (G657A1, G657A2).

TESTS (MICRODUCT ONLY)

1. Pass Flammability Test IEC 60332 Part 1
2. Pass Flammability Test IEC 60332 Part 3
3. Smoke Emission to BS 7622 not exceeding $A_o = 0.25$
4. Flexibility: Use test method IEC 60794-1-2 E11. (10 turns) around a mandrel of 50mm diameter for 30 minutes. There shall be no damage, and no reduction of outer diameter greater than 0.4mm
5. Pressure: M/d shall withstand at 21°C, under water, 17bar air pressure for 2 hours, without leaks.
6. Crush: Use test method IEC 60794-1-2 E3: A load of 600N (60kg) shall be applied for 60 seconds, then removed. There shall be no splitting nor permanent damage. Any permanent residual deformation shall not exceed 15%.

DEPLOYMENT and INSTALLATION INSTRUCTIONS

Remember with PIFU that the 1LFH product now DOES have fibre inside it, and precautions must be taken NOT to over-stretch the fibre unit when pulling the microduct. The following guidelines should be observed.

1. Pay-off must be tension-free, so assist drum movement and minimise tension on the microduct / fibre.
2. During installation, tension must be confined to the microduct, and there must be NO TENSION on the fibre. Do not fix the fibre unit to the microduct at the pulling end. It must be free to move inside the microduct.
3. Pull by hand only. Tension must not exceed 3kg. Check early pulls with a spring balance or similar. Do not use a pulling winch. Excess tension will cause the fibres to disappear inside the stretched microduct, although this should not adversely affect the fibres.
4. Cut microduct to length including excess length to permit fibre splicing (eg 3m). Fit end caps until splicing is imminent.
5. There maybe an excess length of fibre unit inside the microduct due to the manufacturing process. It is recommended that any excess fibre unit is gently pulled by hand from the microduct before splicing.