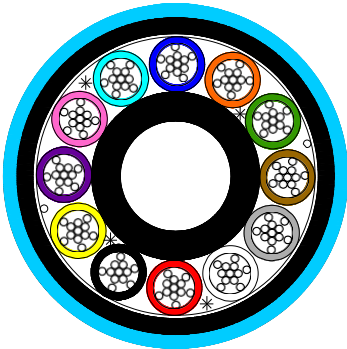


MINISM@RT LOOSETUBE 2-144F

External Mini Loose Tube Optical Cable for use in micro ducts

Cable Design



- Drawing not to scale -

- **Multi-loose tube construction** – Single layer 2 to 144 fibres
- **Central strength member (CSM):** Glass fibre reinforced plastic material (GRP) with or without over-sheathing
- **Tube:** Thermoplastic material, containing up to 12 optical fibres filled with a low viscosity, thixotropic, non-melting gel fully compatible with fibre coating and tube material
- **Stranding:** The required numbers of elements (tubes and fillers) are SZ stranded around the central strength member
- **Longitudinal watertightness:** Waterswellable elements (dry-core)
- **Sheath:** UV stabilised polyethylene in compliance with AS 1049. Two ripcords provided beneath the sheath for easy removal
- **Outer jacket:** UV stabilised polyamide (Nylon) in compliance with AS 1049 integrally bonded to PE sheath
- **IEC 60794-5**

This loose tube dielectric optical cable is designed for external underground installations in (micro) ducts by pulling, blowing or floating techniques. Polyamide provides anti-termite protection. Optimised for blowing in mini ducts of 10mm diameter (internal).

Technical data

Number of Fibres	2 to 72		96	144
Number of elements	6		8	12
Tube / Filler diameter	mm	1.55		1.35
Cable nominal diameter	mm	6.3	7.4	8.4
Cable nominal weight	kg/km	33	49	62
Max. installation tension	kN	1.0	2.0	2.0
Max. crush resistance	kN/100mm	2.0	2.0	2.0
Min. bending radius				
At full load		130	220	220
At no load	mm	65	110	110
Temperature range	°C	Installation -0 -> +50	Transport & Storage -20 -> +70	Operation -10 -> +70

Sheath Colour:

The outer sheath colour is blue.

Identification Fibre and Tube Colour

No.	1	2	3	4	5	6	7	8	9	10	11	12
Colour	blue	orange	green	brown	grey	white	red	black	yellow	violet	pink	aqua

Fillers are either natural (opaque) or black.

MINISM@RT LOOSETUBE 2-144F

External Mini Loose Tube Optical Cable for use in micro ducts

Main mechanical characteristics

Parameter	Test method	Test conditions	Acceptance criteria*
Tensile strength	IEC 60794-1-21-E1	Load: As per cable maximum installation tension in technical data table above	Fibre strain \leq 0.6%. No physical damage and no change in attenuation after test.
Crush	IEC 60794-1-21-E3	Load: As per maximum crush resistance in technical data table above	No physical damage. No change in attenuation after test.
Impact	IEC 60794-1-21-E4	Duration: 10 min Impact energy: 1 J Anvil radius: 300 mm	No physical damage. No change in attenuation after test.
Torsion	IEC 60794-1-21-E7	Sample length: 1 m Rotation: +/-180 degree, 10 cycles	No physical damage. No change in attenuation after test.
Bend	IEC 60794-1-21-E11	Mandrel radius: As per Min. bending radius at no load in technical data table above No. of turns/helix: 4, No. of cycles: 3	No physical damage. No change in attenuation after test.
Bend under tension	Concurrent to tensile test	Mandrel radius: As per Min. bending radius at full load in technical data table above Bend: 360°, 1 turn	No physical damage. No change in attenuation after test.
Temperature cycling	IEC 60794-1-22-F1	Sample length: 1000 m (minimum) Temperature range: As per Operation temperature range in technical data table above	No change in attenuation between 10°C & 30°C. Max. change in attenuation \leq 0.15dB/km between Min. & Max. operation temperatures.
Cable aging	IEC 60794-1-22-F9	85°C for 168 h followed by Temperature cycling	Max. change in attenuation \leq 0.10dB/km after test
Water penetration	IEC 60794-1-22-F5C	Sample length=3m, Water height=1m	No water leakage after 24 hours

* All optical measurements for singlemode fibres performed at 1550 nm.