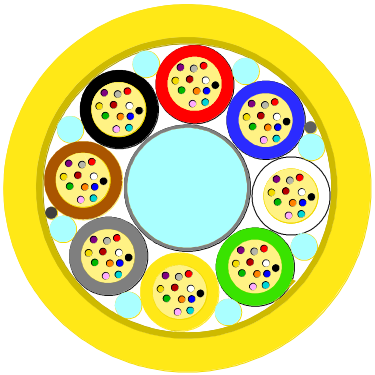
Stranded loose tube mini cables for use in ducts

Cable Design

In line with 1056-TOLA 10408 rev 4.0



- not to scale -

- **Optical fibre:** see specification CFS09002 for G.652.D, CFS090011 for G.657.A1 and CFS09003 for G.657.A2.
- **Secondary coating:** The fibres are, uniquely identified by a different colour, placed inside 'loose tubes' made of high tensile strength thermoplastic compound.
- **Gel compound:** The tubes are fully filled with a non-toxic and dermatological safe gel compound.
- **Central Strength Member (CSM):** The central element consists of FRP (Fibre Reinforced Plastic), with a water-swellable layer.
- **Cable core:** The required number of tubes (and dummy elements) are stranded (SZ method) around the central element.
- **Strength members:** Under the outer sheath 2 aramid yarns are applied, serving as ripcord and as strengthening yarns
- **Fillers**: between stranded tubes and sheath to improve mechanical characteristics.
- **Outer sheath:** HDPE.

This loose tube dielectric optical cable is designed for outdoor installation in ducts and micro ducts by blowing or pulling techniques.

Technical data

No. of Fibres		**96**
Design		8 x 12
Loose Tube- Ø	mm	1.35
Sheath thickness	mm	0.4
Cable Diameter	mm	5.8
Cable Weight	kg / km	31
Tensile performance	N	600

Main characteristics

Test	**Standard**	**Specified value**	**Acceptance Criteria**
Tensile performance	IEC 60794-1-2-E1	See table above	$\Delta\alpha \leq 0.05$ dB, fibre strain ≤ 0.33%
Crush	IEC 60794-1-2-E3	500N, 100mm plate/plate 1min. 1000N, 100mm plate/plate 5min.	$\Delta\alpha \leq 0.05$ dB, during test,no damage $\Delta\alpha \leq 0.05$ dB, after test, no damage
Impact	IEC 60794-1-2-E4	3 Nm, R=300mm, 3 impacts	No damage
Torsion	IEC 60794-1-2-E7	±180°, L=1m, 10 cycles, 40N	No damage
Kink	IEC 60794-1-2-E10	Min diameter=100mm	$\Delta\alpha \leq 0.05$ dB, no damage
Repeated bending	IEC 60794-1-2-E6	R= 15x cable Ø,100 cycles, 20N	No damage
Cable bend	IEC 60794-1-2-E11	D=250mm, 5 turns,3 cycles,-10°C	$\Delta\alpha \leq 0.05$ dB, no damage
Temperature range	IEC 60794-1-2-F1	-30 to +60°C -40 to +70°C	$\Delta\alpha \leq 0.05$ dB $\Delta\alpha \leq 0.15$ dB
Water Penetration	IEC 60794-1-2-F5B	sample=3m, water=1m	No water leakage after 24 hour

Min. bending radius	mm	Without Tension 15 x Cable-Ø	Under Maximum Tension 25 x Cable-Ø	
Temperature range	°C	Installation -15 to +40	Transport. & Storage -40 to +70	Operation -40 to +60

All optical measurements at 1550 nm.

Optical Characteristics

See the attached cabled optical fibre data sheet.

Identification

Fibre Colours

No.	1	2	3	4	5	6	7	8	9	10	11	12
Colour	Red	Blue	White	Green	Yellow	Grey	Brown	Black	Violet	Orange	Turquoise	Pink

Tube Colours

No.	1	2	3	4	5	6	7	8
Colour	Red	Blue	White	Green	Yellow	Grey	Brown	Black

Sheath Marking:
The outer sheath is marked in 1 meter intervals as follows:

Logistic

Packing:
Plastic or Plywood Drums with protection.

Delivery Lengths:
Standard delivery length is 4km, 6 km with a tolerance of - 1% / + 3%