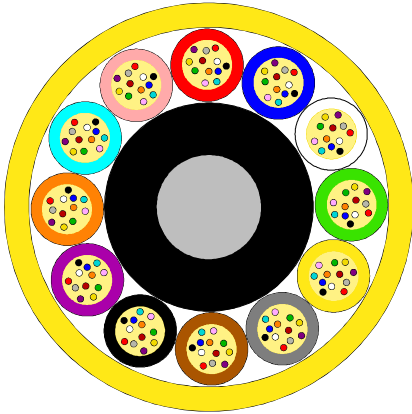


Stranded loose tube micro cables for use in ducts

Cable Design



- not to scale -

- **Optical fibre:** see specification CFS090011 for G.657.A1
- **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.
- **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 | | 144 |
| Design | | 12 x 12 |
| Loose Tube- Ø | mm | 1.35 |
| Sheath thickness | mm | 0.4 |
| Cable Diameter | mm | 7.8 |
| Cable Weight | kg / km | 52 |
| Tensile performance | N | 1250 |

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 $\leq 0.33\%$ |
| Crush | IEC 60794-1-2-E3 | 500N, 100mm plate/plate 1min. 1000N, 100mm plate/plate 1min. | $\Delta\alpha \leq 0.05$ dB, during test, no damage $\Delta\alpha \leq 0.05$ dB, after test, no damage |
| Impact | IEC 60794-1-2-E4 | 5 Nm, R=300mm, 3 impacts | no damage |
| Torsion | IEC 60794-1-2-E7 | $\pm 180^\circ$, L=1m, 10 cycles | $\Delta\alpha \leq 0.05$ dB, no damage |
| Kink | IEC 60794-1-2-E10 | Min diameter=100mm | 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=1m, water=1m | No water leakage after 24 hour |

** values for single-mode fibres, all optical measurements performed at 1550 nm.

| | | | |
|---------------------|----|---------------------------------|---------------------------------------|
| Min. bending radius | mm | Without Tension 10 x Cable-Ø | Under Maximum Tension 20 x Cable-Ø |
|---------------------|----|---------------------------------|---------------------------------------|

| | | | | |
|-------------------|----|----------------------------|------------------------------------|-------------------------|
| Temperature range | °C | Installation -15 to +50 | Transport. & Storage -40 to +70 | Operation -40 to +70 |
|-------------------|----|----------------------------|------------------------------------|-------------------------|

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 | 9 | 10 | 11 | 12 |
|--------|-----|------|-------|-------|--------|------|-------|-------|--------|--------|-----------|------|
| Colour | Red | Blue | White | Green | Yellow | Grey | Brown | Black | Violet | Orange | Turquoise | Pink |

Sheath Colour

The colour is yellow for single mode fibres.

Sheath Marking:

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

RALA DRAKA(DL) JN-SM-LRE xs78 / GAGLDV [fibre count] x [fibre type] S12 Idno.[xxxxxx] [Year] [length marking]m

Logistic

Packing:

Plastic or Plywood Drums with protection.

Delivery Lengths:

Standard delivery length is 4km with a tolerance of - 1% / + 3%

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