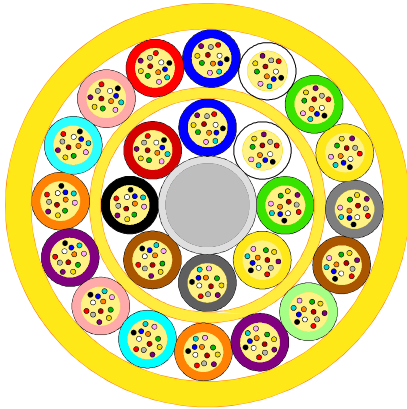


## stranded loose tube micro cables for use in ducts

### Cable Design



- not to scale -

- **Optical fibre:** see specification CFS099011 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 water blocking swellable yarns.
- Cable core:** The required number of tubes (and dummy elements) are stranded (SZ method) around the central element.
- **Inner Sheath:** Special plastic compound.
  - **Strength members:** Under the inner and outer sheath aramid yarns are applied, serving as ripcord and as strengthening yarns.
  - **Outer sheath:** HDPE (Yellow).

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		288
Design		8 x 12 + 16x12
Loose Tube- Ø	mm	1.35
Inner sheath thickness	mm	0.4
Diameter over the inner sheath	mm	5.8
Outer sheath thickness	mm	0.4
Cable diameter	mm	9.5
Cable Weight	kg / km	75

### Main characteristics

Test	Standard	Specified value	Acceptance Criteria**
Tensile performance	IEC 60794-1-2-E1	650N	$\Delta\alpha \leq 0.05$ 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 C17 for G.657.A1 and C06e for G.652D.

### 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
	13	14	15	16	17	18	19	20	21	22	23	24
	Red	Blue	White	Green	Yellow	Grey	Brown	Light Green	Violet	Orange	Turquoise	Pink

Tube 13 – 24 are marked with one black ring.

#### Sheath Marking:

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

RALA DRAKA(DL) JN-SM-Versa XS95/GRHLDV 288 x G657A1 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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