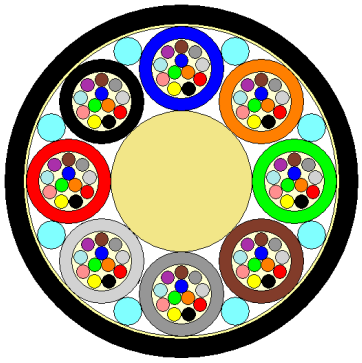
Loose Tube Optical Minicables for use in Ducts

Cable Design



- not to scale -

- **Central Strength Member (CSM):** glass fibre reinforced plastic rod (FRP).
- **Loose Tube:** thermoplastic material, containing optical fibres and filled with a suitable water tightness compound.
- **Filler Elements:** thermoplastic rods, where needed.
- **Stranding:** loose tubes (and fillers), SZ stranded around the CSM.
- **Longitudinal Water Tightness:** dry core with water swellable elements.
- **Peripheral Strength Elements:** aramid yarns.
- **Outer Sheath:** PE, one ripcord beneath.

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

Technical data

No. of Fibres		**12**	**24**	**48**	**72**	**96**	**144**	**192**
Design		1 x 12	2 x 12	4 x 12	6 x 12	8 x 12	12 x 12	8 x 24
Cable Diameter	mm	4.9				5.8	7.8	7.9
Cable Weight	kg / km	22				31	52	56
Tensile Strength	N	500				1000	1000	1000

Minimum Bending Radius	mm	Without Tension 15 x Cable-Ø		Under Maximum Tension 25 x Cable-Ø
Temperature Range	ºC	Installation -15 to +50	Transport & Storage -40 to +70	Operation -40 to +60

Please refer to our General Installation, Safety & Handling recommendations before handling.

Main characteristics

Test	**Test Standard**	**Specified Value**	**Acceptance Criteria**
Tensile strength	IEC 60794–1–2-E1	See table above	$\Delta\alpha$ reversible
Crush	IEC 60794–1–2-E3	1000 N / 100 mm, 1 min.	$\Delta\alpha \leq 0.05$ dB after test, no damage
Impact	IEC 60794–1–2-E4	5 Nm, 3 impacts, R= 300 mm	no damage
Repeated Bending	IEC 60794–1–2-E6	R=20xD, 20 N, 100 cycles	no damage
Torsion	IEC 60794–1–2-E7	±180°, L=1m, 10 cycles	no damage
Kink	IEC 60794–1–2-E10	Min. diameter = 100mm	$\Delta\alpha \leq 0.05$ dB, no damage
Cable Bend	IEC 60794–1–2-E11	R=20xD, 5 turns, 3 cycles	$\Delta\alpha \leq 0.1$ dB
Temperature Cycling	IEC 60794–1–2-F1	-30°C to +60°C	$\Delta\alpha \leq 0.05$ dB/km
		-40°C to +70°C	$\Delta\alpha \leq 0.15$ dB/km
Water Penetration	IEC 60794–1–2-F5B	sample=3m, water column=1m	no water leakage in 24h

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	blue	orange	green	brown	grey	white	red	black	yellow	violet	pink	aqua

No.	13	14	15	16	17	18	19	20	21	22	23	24
Colour	blue[1]	orange[1]	green[1]	brown[1]	grey[1]	white[1]	red[1]	white[2]	yellow[1]	violet[1]	pink[1]	aqua[1]

<colour>[1] with evenly spaced black ring marks

<colour>[2] with evenly spaced double black ring marks

Buffer Tube Colours

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

Sheath Colour:

The outer sheath colour is black.

Sheath Marking:

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

<Optional: customer name> <Manufacturer> <year of manufacture>
JN-SM-LRE XS <no. and type of fibre> <length marking in meter>

Logistic

Packing:

Plastic or plywood drums with protection.

Delivery Length:

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