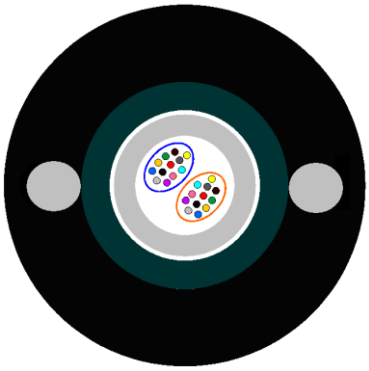
Optical Fibre Cables for Direct Buried Installation

Cable Design

IEC/EN 60794



- not to scale -

- **Central Loose Tube:** thermoplastic material, containing optical fibres and filled with a suitable water tightness compound.
- **Longitudinal Water Tightness:** dry core with water swellable tape.
- **Armour:** both sides copolymer coated corrugated steel tape with overlap. Steel thickness: 0.15 mm. 1 ripcord beneath the tape.
- **Strength Elements:** 2 steel wires, diametrically opposed, longitudinally applied in the outer sheath. Nominal wire diameter: 1.6 mm.
- **Outer Sheath:** PE.

Technical data

No. of Fibres		**4**	**6**	**12**	**16**	**24**	**48**
No. of fibres per group		4	6	12	4	12	12
No. of groups		1	1	1	4	2	4
Loose Tube - Ø	mm	5					6
Outer Sheath Thickness	mm	2.7					
Cable Diameter	mm	12.5					13.5
Cable Weight	kg / km	170					195

Minimum Bending Radius	mm	Without Tension 20 x Cable-Ø		Under Maximum Tension 25 x Cable-Ø
Temperature Range	ºC	Installation -15 to +40	Transport & Storage -45 to +60	Operation -45 to +60

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

Main characteristics

Test	**Test Standard**	**Specified Value**	**Acceptance Criteria[1]**
Max. Installation Tension	IEC 60794–1–2-E1	5000 N	$\Delta\alpha$ reversible, fibre strain ≤ 0.33%
Crush	IEC 60794–1–2-E3	6000 N / 100 mm, max. 15 min	$\Delta\alpha \leq 0.05$ dB, no damage
		2000 N / 25 mm ϕ, max. 15 min	$\Delta\alpha \leq 0.05$ dB, no damage
Impact	IEC 60794–1–2-E4	30 Nm, 3 impacts, R= 300 mm	$\Delta\alpha \leq 0.05$ dB after the test
Torsion	IEC 60794–1–2-E7	100N, +/- 1 turn, 5 cycles	$\Delta\alpha \leq 0.10$ dB, no damage
Repeated Bending	IEC 60794–1–2-E6	R=15x D, 100 N, 35 cycles	no damage
Cable Bend	IEC 60794–1–2-E11	R=20x D, 5 turns, 3 cycles	$\Delta\alpha \leq 0.05$ dB, no damage
Temperature Cycling	IEC 60794–1–2-F1	-15ºC to +30ºC	$\Delta\alpha \leq 0.05$ dB/km
		-15°C to -45ºC and 30°C to +60ºC	$\Delta\alpha \leq 0.10$ dB/km, $\Delta\alpha$ reversible
Water Penetration	IEC 60794–1–2-F5B	sample=3 m, water column=1 m	no water leakage in 24 h

[1] *All optical measurements at 1550 nm (SMF) and 1300 nm (MMF). Acceptance criteria for MM fibres ≤ 0.2 dB for all mechanical tests and ≤ 0.5 dB/km for temperature cycling.*

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	aqua	pink

Group Yarn Colours

No.	1	2	3	4
Colour	red	blue	white	green

Buffer Tube Colour

The central loose tube is uncoloured (natural).

Sheath Colour

The outer sheath colour is black.

Sheath Marking

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

<Cable code> <Brand name> <Cable type> <Week/year of manufacture>
<Cable ID number> <length marking in meter>

Logistic

Packing

Wooden drums with protection.

Delivery Length

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