Double Armored Cable for Indoor/Outdoor Installation
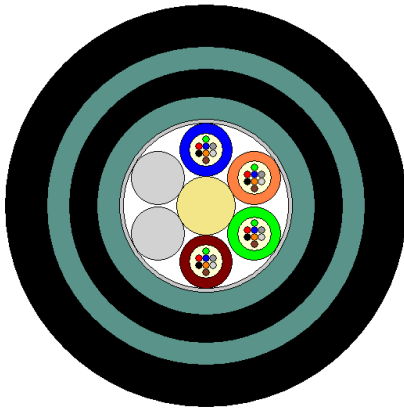
Cable Design
<div align="right">**IEC/EN 60794**</div>

- **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
- **Armour:** both sides copolymer coated corrugated steel tape with overlap. Steel thickness: 0.15 mm. 1 ripcord beneath the tape.
- **Inner Sheath:** LSZH.
- **Armour:** both sides copolymer coated corrugated steel tape with overlap. Steel thickness: 0.15 mm. 1 ripcord beneath the tape.
- **Outer Sheath:** LSZH.

32 fo- not to scale -

Technical data

No. of Fibres		8	12	16	24	32	48	64
Design		1 x 8	3 x 4	2 x 8	3 x 8	4 x 8	6 x 8	8 x 8
Loose Tube / Filler - Ø	mm	2.3						
CSM – Ø / Oversheathing - Ø	mm	2.4 / -						3.0 / 3.9
Inner / Outer Sheath Thickness	mm	1.0 / 1.5						
Cable Diameter	mm	15.7						17.2
Cable Weight	kg / km	290						340

Minimum Bending Radius	mm	Without Tension 15 x Cable-Ø		Under Maximum Tension 20 x Cable-Ø	
Temperature Range	ºC	Installation -10 to +50	Transport & Storage -40 to +70	Operation -40 to +70	

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

Main characteristics and related tests

Test	Test Standard	Specified Value	Acceptance Criteria
Max. Installation Tension	IEC 60794–1–2-E1	3000 N	$\Delta\alpha$ reversible, fibre strain $\leq$ 0.33%
Max. Operation Tension	IEC 60794–1–2-E1	1000 N	no fibre strain, $\Delta\alpha \leq$ 0.05 dB
Crush	IEC 60794–1–2-E3	4000 N / 100 mm, max. 15 min	$\Delta\alpha \leq$ 0.05 dB after the test, no damage
Impact	IEC 60794–1–2-E4	20 Nm, 3 impacts, R= 300 mm	$\Delta\alpha \leq$ 0.05 dB after the test, no damage
Torsion	IEC 60794–1–2-E7	100N, +/- 180°, 10 cycles	$\Delta\alpha \leq$ 0.1 dB, no damage
Repeated Bending	IEC 60794–1–2-E6	R=20x D, 100 N, 35 cycles	no damage
Temperature Cycling	IEC 60794–1–2-F1	-40°C to +70°C	$\Delta\alpha \leq$ 0.05 dB/km
Water Penetration	IEC 60794–1–2-F5B	Sample=3m, water column=1m	no water leakage in 24h under 1st sheath

All optical measurements at 1550 nm

Optical Characteristics

See the attached cabled optical fibre data sheet.

Loose Tube

Fire Performance

Test	Test Standard	Specified Value	Acceptance Criteria
Single Cable Test	IEC 60332-1	unburnt cable length	> 50 mm
Smoke Density	IEC 61034	transmission of light	> 60 %
Halogen Content	IEC 60754-1	halogen content	< 0.5 %
Corrosivity of Smoke Gases	IEC 60754-2	pH-value	≥ 4.3
Conductivity of Smoke Gases	IEC 60754-2	conductivity	$\leq 10\ \mu S/mm$

Identification

Fibre Colours

No.	1	2	3	4	5	6	7	8
Colour	blue	orange	green	brown	grey	white	red	black

Buffer Tube Colours

No.	1	2	3	4	5	6	7	8
Colour	blue	orange	green	brown	grey	white	red	black

Filler Elements Colours:

All filler elements are uncoloured (natural).

Sheath Colour:

The inner and outer sheath colour is black.

Sheath Marking:

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

<Manufacturer>   <year of manufacture>   <no. and type of fibre>   <length marking in meter>

Logistic

Packing:

Wooden drums with protection.

Delivery Length:

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