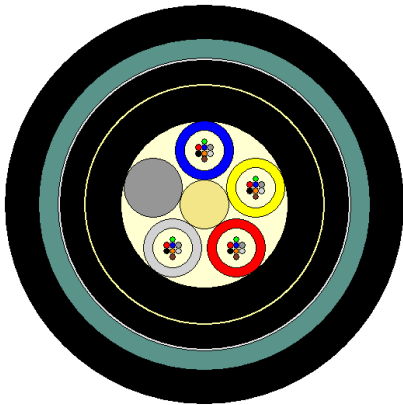


Optical Fibre Underground Cables

Cable Design

IEC/EN 60794



- not to scale -

- **Central Strength Member (CSM):** glass fibre reinforced plastic rod (FRP), with plastic oversheathing when needed.
- **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:** the cable core is flooded with filling compound.
- **Inner Sheath:** PE, 2 ripcords beneath.
- **Peripheral Strength Elements:** aramid yarns.
- **Intermediate Sheath:** PE, 2 ripcords beneath.
- **Armour:** both sides copolymer coated corrugated steel tape with overlap. Steel thickness: 0.15 mm. 2 ripcords beneath the tape.
- **Outer Sheath:** HDPE with graphite coating.

Technical data

No. of Fibres		4	8	12	24	32	48
Design		1 x 4	1 x 8	1 x 12	4 x 6	4 x 8	6 x 8
Loose Tube / Filler - Ø	mm	2.5					
CSM - Ø	mm	2.1					
CSM-Oversheathing - Ø	mm	-					
Inner Sheath Thickness	mm	1.5					
Intermediate Sheath Thickness	mm	1.0					
Outer Sheath Thickness	mm	1.6					
Cable Diameter	mm	17.5					
Cable Weight	kg / km	275					
Minimum Bending Radius	mm	Without Tension 15 x Cable-Ø			Under Maximum Tension 20 x Cable-Ø		
Temperature Range	°C	Installation - 20 to + 60		Transport & Storage - 20 to + 70		Operation - 20 to + 70	

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

Main characteristics

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	1500 N	no fibre strain, $\Delta\alpha \leq 0.05$ dB
Crush	IEC 60794-1-2-E3	2500 N / 100 mm, max. 15 min	$\Delta\alpha \leq 0.05$ dB, no damage
Impact	IEC 60794-1-2-E4	10 Nm, 3 impacts, R= 300 mm	$\Delta\alpha \leq 0.05$ dB after the test
Cable Bend	IEC 60794-1-2-E11	R=20x D, 4 turns, 3 cycles	$\Delta\alpha \leq 0.05$ dB, no damage
Temperature Cycling	IEC 60794-1-2-F1	-20°C to +70°C	$\Delta\alpha \leq 0.1$ 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 (SM) and 1300 nm (MM). Acceptance criteria for MM fibres ≤ 0.2 dB for all mechanical test 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	blue	yellow	red	white	green	violet	orange	grey	aqua	black	brown	pink

Buffer Tube Colours

No.	1	2	3	4	5	6
Colour	blue	yellow	red	white	green	violet

Filler Elements Colours:

All filler elements are uncoloured (natural).

Sheath Colour:

The inner, intermediate and outer sheath colour is black.

Sheath Marking:

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

**<name of manufacturer> <year of manufacture> FIBRE OPTICAL CABLE
PROPERTY OF <company name> <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%

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All sizes and values without tolerances are reference values. Specifications are for product as supplied by PrysmianGroup: any modification or alteration afterwards of product may give different result.

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