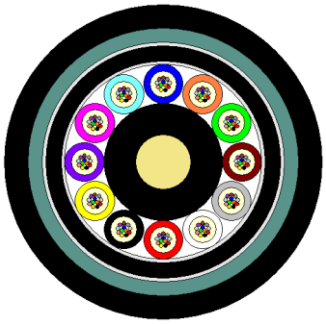
Armoured optical cable for duct installation

Cable Design

Acc. to IEC 60794-3-10



144 fo- not to scale -

- **Central Strength Member (CSM):** glass fibre reinforced plastic rod (FRP), with plastic oversheathing when needed.
- **Loose Tube:** thermoplastic material, containing up to 12 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.
- **Inner Sheath:** PE, 2 ripcords beneath.
- **Peripheral Strength Elements:** aramid yarns.
- **Armour:** both sides copolymer coated corrugated steel tape with overlap. Steel thickness: 0.15 mm. 2 ripcords beneath the tape.
- **Outer Sheath:** HDPE.

Technical data

No. of Fibres		**12**	**16**	**24**	**36**	**48**	**60**	**72**	**96**	**132**	**144**	**216**	**240**	**252**
Design		1x12	2x8	2x12	3x12	4x12	5x12	6x12	8x12	11x12	12x12	6x12+ 12x12	7x12+ 13x12	8x12+ 13x12
Loose Tube / Filler - Ø	mm	2.5												
CSM – Ø	mm	2.1						2.6	3.0	3.0	3.0	2.6	3.5	3.0
CSM Oversheathing -Ø	mm	-						-	4.2	7.5	7.5	-	-	4.2
Inner / Outer Sheath Thickness	mm	0.8 / 1.5												
Cable Diameter	mm	13.5						13.8	15.4	18.7	18.7	18.8	19.7	20.4
Cable Weight	kg/km	165						180	220	310	310	310	340	360

Minimum Bending Radius	mm	Without Tension 15 x Cable-Ø	Under Maximum Tension 20 x Cable-Ø	
Temperature Range	ºC	Installation - 30 to + 70	Transport & Storage - 50 to + 70	Operation - 40 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 ≤ 0.33%
Max. Operation Tension	IEC 60794–1–2-E1	900 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, no damage
Impact	IEC 60794–1–2-E4	30 Nm, 3 impacts, R= 300 mm	$\Delta\alpha \leq 0.05$ dB
Torsion	IEC 60794–1–2-E7	100N, +/- 180°, 10 cycles	$\Delta\alpha \leq 0.05$ dB, no damage
Repeated Bending	IEC 60794–1–2-E6	R=20x D, 100 N, 35 cycles	no damage
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	-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

All optical measurements at 1550 nm.

Optical Characteristics

See the attached cabled optical fibre data sheet.

Identification

Fibre Colours(acc. to EIA/TIA-598-A)

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

Buffer Tube

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
Colour	blue[1]	orange[1]	green[1]	brown[1]	grey[1]	white[1]	red[1]	white[2]	yellow[1]

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

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

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:

DRAKA <year of manufacture> <no. and type of fibre> ARMADO UFINET TELECOM <length marking in meter>

Logistic

Packing:
Wooden drums with protection.

Delivery Lengths:
Standard delivery lengths are 2 km, 4 km, 6 km with a tolerance of - 1% / + 3%