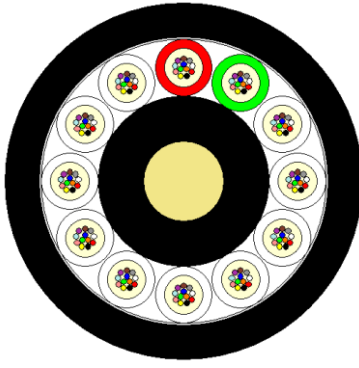# Loose Tube Duct Cable

Cable Design

- **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.
- **Peripheral Strength Elements:** aramid yarns (if required).
- **2 Ripcords**
- **Outer Sheath:** PE.

- not to scale -

Duct installation cables are very suitable for pulling, blowing or floating installation into duct.

Technical data

No. of Fibres(grouped by 12)		12	24	36	48	60	72	84	96	108	120	132	144
Design			5 x 12				6x12	8 x 12		10 x12		12 x 12	
Loose Tube / Filler - Ø	mm						2.5						
CSM – Ø	mm		2.1				2.6	3.0		3.5		3.5	
CSM-Oversheathing - Ø	mm		-				-	4.2		5.8		7.5	
Outer Sheath Thickness	mm						1.5						
Cable Diameter	mm		10.4				10.8	12.2		13.8		15.5	
Cable Weight	kg / km		80				90	115		155		190	

Minimum Bending Radius	mm	Without Tension 10 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

Test	Test Standard	Specified Value	Acceptance Criteria
Max. Installation Tension	IEC 60794–1-2-E1	1.5 * W [N], min. 2700 N	$\Delta\alpha$ reversible, fibre strain $\leq$ 0.33%
Max. Operation Tension	IEC 60794–1-2-E1	0.5 * W [N], min. 900 N	no fibre strain, $\Delta\alpha \leq$ 0.05 dB
Crush	IEC 60794–1-2-E3	2000 N / 100 mm, max. 15 min	$\Delta\alpha \leq$ 0.05 dB, no damage
Impact	IEC 60794–1-2-E4	5 Nm, 3 impacts, R= 300 mm	$\Delta\alpha \leq$ 0.05 dB after the test
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 (SM) and 1300 nm (MM). Acceptance criteria for MM fibres $\leq$ 0.2 dB for all mechanical test and $\leq$ 0.5 dB/km for temperature cycling, instead of 0.05 dB (SM).

Optical Characteristics

See the attached cabled optical fibre data sheet.

Identification

Fibre Colours (acc. to EN187105)

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 (acc. to EN187105 – alternative tube identification)

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Colour	red	green	white	white	white	white	white	white	white	white	white	white

Filler Elements Colours:

All filler elements are uncoloured (natural).

Sheath Colour:

The outer sheath colour is black.

Sheath Marking:

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

> **<Manufacturer>   <year of manufacture>   <optional: OPTICAL CABLE and/or product type>**
> **<no. and type of fibre>   <length marking in meter>**

Logistic

Packing:

Wooden drums with protection.

Delivery Lengths:

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