

DUCT OPTICAL CABLE

Cable Design

IEC/EN 60794-3-10



-72F version illustrated not to scale -

- **Central Strength Member (CSM):** glass fibres reinforced plastic material (GRP) overshooting when needed.
- **Loose Tubes:** thermoplastic material containing up to 12 optical fibres and filled with a suitable water tightness compound.
- **Filler Elements:** thermoplastic rods, where needed.
- **Stranding:** loose tubes, SZ stranded around the CSM.
- **Longitudinal Water Tightness:** water swellable materials (dry core).
- **Peripheral Strength Elements:** glass yarns.
- **Outer Sheath:** HDPE, 2 ripcords beneath.

This dielectric optical cable is designed for duct installation technique.

Technical data

No. of Fibres		2	4	8	12	16	20	24	6	36
Design	-	1x2	1x4	2x4	3x4	4x4	5x4	6x4	1x6	6x6
Number of fillers	-	5	5	4	3	2	1	-	5	-
Tube diameter - \varnothing	mm	1.8								
CSM / Enlargement - \varnothing	mm	1.8								
Sheath thickness	mm	1.3								
Cable diameter - \varnothing	mm	8.5								
Cable weight	Kg/Km	61								

No. of Fibres		12	24	36	48	60	72	84	96	144	288	
Design	-	1x12	2x12	3x12	4x12	5x12	6x12	7x12	8x12	12x12	24x12	
Number of fillers	-	5	4	3	2	1	-	1	-	-	-	
Tube diameter - \varnothing	mm	1.8									1.95	
CSM / Enlargement - \varnothing	mm	1.8						2.6/3.2		2.6/5.5		4.0/-
Sheath thickness	mm	1.3										
Cable diameter, max - \varnothing	mm	8.5					10.6			12.7		15.3
Cable weight	Kg/Km	61					86			123		190

Min. bending radius	mm	Under Maximum Tension: 20xCable- \varnothing					Without Tension: 15xCable- \varnothing				
Temperature range	°C	Transport & Storage :				Installation:			Operation:		
		-40 -> +70				-15 -> +60			-40 -> +70		

Main characteristics

Test	Standard	Value	Requirement*
Tensile strength - Installation	IEC 60794-1-2-E1	4÷72fo 2700N 96÷288fo 3000N	Δ /l fibre \leq 0.6%, $\Delta\alpha$ reversible
Tensile strength - Operation	IEC 60794-1-2-E1	4÷72fo 1350N 96÷288fo 1500N	Δ /l fibre \leq 0.2%, $\Delta\alpha$ reversible
Crush	IEC 60794-1-2-E3	2000N/100mm, max. 5min	$\Delta\alpha \leq$ 0.05 dB under test, no damage
Impact	IEC 60794-1-2-E4	10 J, 1 impacts, R=300 mm	$\Delta\alpha \leq$ 0.05 dB after the test, no damage
Repeated Bending	IEC 60794-1-2-E6	R=20xOD, 100N, 35 cycles	$\Delta\alpha \leq$ 0.05 dB after the test, no damage
Cable Torsion	IEC 60794-1-2-E7	\pm 180°, 2 m, 5 cycles	$\Delta\alpha \leq$ 0.05 dB after the test, no damage
Cable Bend	IEC 60794-1-2-E11	R=15xOD, 3 cycles, 5 turns	$\Delta\alpha \leq$ 0.05 dB after the test, no damage
Temperature Cycling	IEC 60794-1-2-F1	-40 -> +70 °C, 2 cycles,	$\Delta\alpha \leq$ 0.10 dB/Km, reversible
Water Penetration	IEC 60794-1-2-F5B	3 m sample, 24 h	No water penetration

Optical Characteristics

See the attached cabled optical fibre data sheet.

Identification

Fibre Colors:

No.	1	2	3	4	5	6	7	8	9	10	11	12
Color	blue	orange	green	brown	grey	white	red	black	yellow	violet	pink	aqua

Tube Colors:

Fiber Count	Elements														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	blue	orange	green	brown	grey	white	red	black	yellow	violet	pink	tuquoise	blue#	orange#	green#
1 x 2, 1 x 4, 1 x 6, 1 x 12	BLxT	NF	NF	NF	NF	NF	-	-	-	-	-	-	-	-	-
2 x 4, 2 x 12	BLxT	ORxT	NF	NF	NF	NF	-	-	-	-	-	-	-	-	-
3 x 4, 3 x 12	BLxT	ORxT	GRxT	NF	NF	NF	-	-	-	-	-	-	-	-	-
4 x 4, 4 x 12	BLxT	ORxT	GRxT	BNxT	NF	NF	-	-	-	-	-	-	-	-	-
5 x 4, 5 x 12	BLxT	ORxT	GRxT	BNxT	GYxT	NF	-	-	-	-	-	-	-	-	-
6 x 4, 6 x 6, 6 x 12	BLxT	ORxT	GRxT	BNxT	GYxT	WHxT	-	-	-	-	-	-	-	-	-
84	BLxT	ORxT	GRxT	BNxT	GYxT	WHxT	RDxT	NF	-	-	-	-	-	-	-
96	BLxT	ORxT	GRxT	BNxT	GYxT	WHxT	RDxT	BKxT	-	-	-	-	-	-	-
144	BLxT	ORxT	GRxT	BNxT	GYxT	WHxT	RDxT	BKxT	YExT	VIxT	PKxT	TQxT	-	-	-
288	1 st layer	BLxT	ORxT	GRxT	BNxT	GYxT	WHxT	RDxT	BKxT	YExT	VIxT	PKxT	TQxT	-	-
	2 nd layer	BLxT	ORxT	GRxT	BNxT	GYxT	WHxT	RDxT	BKxT	YExT	VIxT	PKxT	TQxT	BLxT#	ORxT#

Where: BLxT=Blue tube with x fibres, ORxT=Orange tube with x fibres, GRxT=Green tube with x fibres, BNxT=Brown tube with x fibres, GYxT=Grey tube with x fibres, WHxT=White tube with x fibres, RDxT=Red tube with x fibres, BKxT=Black tube with x fibres, YExT=Yellow tube with x fibres, VIxT=Violet tube with x fibres, PKxT=Pink tube with x fibres, TQxT=Turquoise tube with x fibres, # = with black ring mark, NF = Natural Filler.

Sheath Color:

The outer sheath color is black.

Sheath Marking:

The outer sheath is marked in 1 meter intervals by hot print foil method as follows:

PRYSMIAN (S) FDDN-nnFO <fibre type> yyyy mmmm

where: yyyy = year of production, nn = no. of fibers, mmmm = Sequential Length Mark, <fibre type> = i.e. G.652D, G.655C, G.657A1, etc.

Logistic

Packing:

Wooden drums with protection.

Delivery Lengths: 2000 ± 100 m; 4000 ± 200 m.

Other lengths available upon agreement, up to a maximum of 10% of the total number of cable lengths could be shorter than nominal values.

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