Miniduct Optical Cable

Cable Design

IEC/EN 60794

- 72FO version illustrated, not to scale -

- **Central Strength Member (CSM):** glass fibres reinforced plastic material (FRP).
- **Loose Tube:** thermoplastic material containing 6 or 12 optical fibres and filled with a suitable water tightness compound.
- **Filler Elements:** thermoplastic rods, when needed.
- **Identification Thread**
- **Stranding:** loose tubes, SZ stranded around the CSM.
- **Binding elements:** aramid yarns
- **Longitudinal Water Tightness:** water swellable materials (dry core).
- **Outer Sheath:** HDPE.

This optical cable is designed for duct installation by blowing technique.

Technical data

No. of Fibres		**12**	**24**	**36**	**48**	**60**	**72**	**96**
Design	-	1x12	2x12	3x12	4x12	5x12	6x12	8x12
Number of fillers	-	5	4	3	2	1	-	-
Tube diameter - ø	mm	1.55						
CSM/Enlargement - ø	mm	1.6/-						2.6/-
Sheath thickness	mm	0.4						
Cable diameter – ø, max	mm	5.8						6.6
Cable weight	Kg/Km	30						42

Min. bending radius	mm	Under Maximum Tension: 20xCable-ø		Without Tension: 15xCable-ø
Temperature range	°C	Transport & Storage: -40 -> +70	Installation: -5 -> +55	Operation: -30 -> +60

Main characteristics

Test	**Standard**	**Value**	**Requirement***
Tensile strength	IEC 60794-1-21-E1	12÷72fo, 500N, 1 min. 96fo, 750N, 1 min.	$\Delta l/l$ fibre ≤ 0.6%, $\Delta\alpha$ reversible
Cable Sheath Abrasion	IEC 60794-1-21-E2A	500 cycles, 4N	No penetration, optical continuity
Cable Marking Resistance	IEC 60794-1-21-E2B/2	100 cycles, 4N	Legible marking
Crush	IEC 60794-1-21-E3	3 x 500N/100mm, 5min	$\Delta\alpha \leq 0.05$ dB under test, no damage
Impact	IEC 60794-1-21-E4	3J, 3 impacts, R=300 mm	$\Delta\alpha \leq 0.1$ dB / fibre, no damage
Repeated Bending	IEC 60794-1-21-E6	R=20xOD, 100N, 25 cycles	No damage of cable`s elements
Cable Torsion	IEC 60794-1-21-E7	±180°, 2 m, 5 cycles, 20N	$\Delta\alpha \leq 0.1$ dB / fibre, no damage
Kink	IEC 60794-1-21-E10	20xOD	No kink
Cable Bend	IEC 60794-1-21-E11	R=20xOD, 3 cycles, 4 turns	$\Delta\alpha \leq 0.1$ dB / fibre, no damage
Temperature Cycling	IEC 60794-1-22-F1	-30 -> 60°C, 2 cycles, 24 h/cycle	$\Delta\alpha \leq 0.15$ dB/Km, reversible
Aging test	IEC 60794-1-22-F1	T= 85 °C, 96h	$\Delta\alpha \leq 0.1$ dB/Km, reversible
Water Penetration	IEC 60794-1-22-F5B	1m sample, 1m water, 24h	No water penetration

** values for single-mode fibres, all optical measurements performed at 1550 nm*

Optical Characteristics

See the attached cabled optical fibre data sheet.

Identification

Fiber colors:

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

Tube Colors:

Fibre Count	Elements							
	1	2	3	4	5	6	7	8
1x12	BL12T	NF	NF	NF	NF	NF	-	-
2x12	BL12T	OR12T	NF	NF	NF	NF	-	-
3x12	BL12T	OR12T	GN12T	NF	NF	NF	-	-
4x12	BL12T	OR12T	GN12T	BN12T	NF	NF	-	-
5x12	BL12T	OR12T	GN12T	BN12T	SL12T	NF	-	-
6x12	BL12T	OR12T	GN12T	BN12T	SL12T	WH12T	-	-
8x12	BL12T	OR12T	GN12T	BN12T	SL12T	WH12T	RD12T	BK12T

where: BL12T = Blue tube with 12 fibers, OR12T = Orange tube with 12 fibers, GR12T = Green tube with 12 fibers, BN12T = Brown tube with 12 fibers, WH12T = White tube with 12 fibers, SL12T = Slate tube with 12 fibers, RD12T = Red tube with 12 fibers, BK12T = Black tube with 12 fibers, NF = Natural Filler.

Sheath Color:
The outer sheath color is black.

Sheath Marking:
The outer sheath is marked in 1 meter intervals by ink jet method as follows:

PRYSMIAN(S) yyyy OPTICAL CABLE A-DQ(ZN)2Y t x 12 <fiber type> ANSI zzzz

where: yyyy = year of production, t = no. of tubes, zzzz = sequential length mark, <fiber type> = i.e. G.652D, G.655C, G.657A2, etc.

Logistic

Packing:
Wooden drums with protection.

Delivery Lengths: 2000 ± 100 m; 4000 ± 200 m; 6000 ± 300 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.