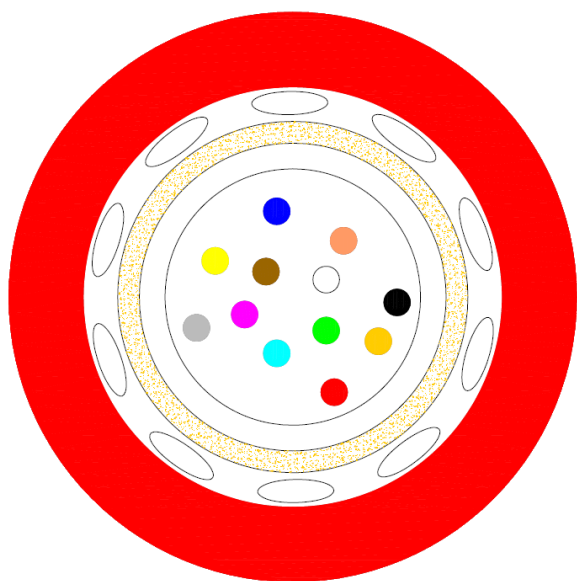


FIRE RESISTANT DIELECTRIC OPTICAL CABLE

4-24 Single mode and Multimode fibers



Design:

- All Dielectric Cable
- PBTP Jelly-filled Loose Tube
- Ripcords
- Central Loose Tube
- Individual colored Fibers
- Rodent Protection Glass Yarns
- Meets CPR Euro Class CPR according to 305/2011: Eca
- Low smoke/zero halogen (LSZH UV-R)
- Fire Resistance (IEC 60331 – EN50200)

Version illustrated is the 12 Fiber Cable

IDENTIFICATION

Fiber Color Code:

1	Natural	2	Red	3	Green	4	Yellow	5	Brown	6	Blue
7	Violet	8	Orange	9	Grey	10	White	11	Black	12	Pink
13	Turquoise	14	Red (black ring)	15	Green (black ring)	16	Yellow (black ring)	17	Brown (black ring)	18	Blue (black ring)
19	Violet (black ring)	20	Orange (black ring)	21	Grey (black ring)	22	White (black ring)	23	Pink (black ring)	24	Turquoise (black ring)

Alternative tube and fiber color code available on request

TECHNICAL SPECIFICATION

Outer sheath:	Material - LSZH UV – Resistant Colour - Red - Outer sheath nominal thickness 1mm - External nominal diameter Ø 7,0mm (Containing up to 12 Fibers) - External nominal diameter Ø 7,5mm (Containing up to 24 Fibers)
Loose Tube:	PBTP Jacket, Jelly-filled Loose Tube - External nominal Ø 2,8 mm (up to 12 Fibers per tube) - External nominal Ø 3,5 mm (up to 24 Fibers per tube)
Fire Protection:	Mica tape
Strength Members	Water blocking Glass yarns
Country of origin	Italy



MECHANICAL TESTS

MAIN FEATURES GLASS YARNS + LSZH SHEATH

	Requirement	Value
Tensile performance: IEC 60794-1-2-E1	- Tensile performance - Max pulling Force (N)	2000 N ($\Delta\alpha$ reversible) 2500 N ($\Delta\alpha$ reversible)
Crush Performance: IEC 60794-1-21-E3 IEC 60794-1-21-E4	Max Crush (N/dm) Impact (J)	2500N/100mm ($\Delta\alpha$ reversible) 10 J ($\Delta\alpha$ reversible)
Bending Performance: IEC 60794-1-21-E11	- Static - Dynamic	Bend radius: 10 x Diameter Bend radius: 15 x Diameter
Temperatures: IEC 60794-1-22-F1	Operation Installation Storage/Shipping	-30 to +70°C -5 to +50°C -30 to +70°C

FIRE PERFORMANCE

- Halogen acid gas emission $\leq 0,5\%$ when tested accordance to IEC 60754-1 – CEI 20-37 - Acidity Degree of gases evolved during the combustion ($\text{pH} \leq 4,3$ and Conductivity $\leq 10\mu\text{S/mm}$) tested accordance to IEC 60754-2 - Smoke emission (Transmittance) $\geq 60\%$ when tested in accordance to IEC 61034-1 - IEC 61034-2 - Fire propagation complying with IEC 60332-3-24 - Fire resistant complying with IEC 60331-25 (90min @ 750°C) - Fire resistant complying with EN 50200 (90 min @ 830°C) Max attenuation 1 dB/fibre max attenuation change 1 dB/fiber for single mode fibers max attenuation change 2 dB/fiber for multi-mode fibers - <i>European Directives 2002/95/CE (RoHS - Reduction of Hazardous Substances) and 2002/96/CE (WEEE - Waste from Electrical and Electronic Equipment)</i>

SHIPPING INFORMATION

Cable Length (Kg/Km)	2-12 Fibers	13-24 Fibers
	55	65



MULTI MODE FIBER PROPERTIES

Product Specifications	OM1 62.5 µm Graded-Index (OM1)	50/125µm OM2	50/125µm OM3	50/125 OM4
Physical Characteristics				
Core diameter	62.5 ± 2.5 µm	50 ± 2.5 µm	50 ± 2.5 µm	50 ± 2.5 µm
Cladding diameter	125 ± 1 µm	125 ± 1 µm	125 ± 1 µm	125 ± 1 µm
Core non-circularity	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Cladding non-circularity	≤ 0.7 %	≤ 0,7 %	≤ 0,7 %	≤ 0,7 %
Core/cladding concentricity error	≤ 1 µm	≤ 1 µm	≤ 1 µm	≤ 1 µm
Coating Diameter	242 ± 5 µm	242 ± 5 µm	242 ± 5 µm	242 ± 5 µm
Tensile Proof Test	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa
Optical Characteristics				
Attenuation @ 850 nm @ 1300 nm	≤ 3.5 dB/km ≤ 1.00 dB/km	≤ 2.8 dB/km ≤ 0.8 dB/km	≤ 2.8 dB/km ≤ 0.8 dB/km	≤ 2.8 dB/km ≤ 0.8 dB/km
Overfilled Bandwidth @ 850 nm @ 1300 nm	≥ 200 MHz-km ≥ 500 MHz-km	≥ 500 MHz-km ≥ 500 MHz-km	≥ 1500 MHz-km ≥ 500 MHz-km	≥ 3500 MHz-km ≥ 500 MHz-km
Laser Bandwidth/EMB 10GBASE-SR 10GBASE-SR	33m 274m	83m 600m	300m 1000m	550m 1100m
Numerical Aperture	0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015



SINGLE MODE FIBER PROPERTIES

Product Specifications		
Physical Characteristics	SM-LWP – ITU-T G.652.D	SM- ITU-T G.657.A1
Cladding diameter	125.0 ± 0.7 µm	125.0 ± 0.7 µm
Cladding Non-Circularity	≤ 0.7 %	≤ 0.7 %
Core/Cladding Concentricity Error	≤ 0.5 µm	≤ 0.5 µm
Coating Diameter (Uncolored)	242 ± 7 µm	242 ± 7 µm
Coating/Cladding Concentricity Error	≤ 12 µm	≤ 12 µm
Tensile Proof Test	≥ 0.7 GPa	≥ 0.7 GPa
Optical Characteristics		
Attenuation	Maximum	
@ 1310 nm	≤ 0.36 dB/km	≤ 0.36 dB/km
@ 1385 nm	≤ 0.36 dB/km	≤ 0.36 dB/km
@ 1550 nm	≤ 0.25 dB/km	≤ 0.25 dB/km
@ 1625 nm	≤ 0.28 dB/km	≤ 0.28 dB/km
Macrobending Attenuation: The maximum attenuation with bending does not exceed the specified values under the following deployment conditions:		
Deployment Condition	Wavelength	Induced Attenuation
1 turn on a 10 mm radius mandrel	1550 nm	≤ 0.75 dB
	1625 nm	≤ 1.5 dB
10 turns on a 15 mm radius mandrel	1550 nm	≤ 0.25 dB
	1625 nm	≤ 1.0 dB
Chromatic Dispersion		
Zero Dispersion Wavelength (λ ₀)	1300 - 1324 nm	1300 - 1324 nm
Zero Dispersion Slope (S ₀)	≤ 0.090 ps/nm ² -km	≤ 0.090 ps/nm ² -km