



Descripción del Cable	6F / 12F / 24F / 48F / SINGLE SHEATH ARMoured OPTICAL FIBRE CABLE.
Tipo de Fibra	Single Mode, ITU-T G.652D

**Introduction**

Cable de fibra óptica blindado de múltiples tubos que contiene LWP-SMF y cumple totalmente con la norma ITU-T G.652D. Los cables ofrecidos cumplen completamente con las especificaciones relevantes de la IEC.

**Cable Design**

- \*Fibras monomodo de bajo pico de agua mejoradas en plena conformidad con ITU-T-G.652D.
- \*Elemento de resistencia central no metálico y antivuelco: varilla FRP.
- \*Tubos de amortiguación sueltos completamente llenos con gel tixotrópico y fibras.
- \*Tubos de amortiguación sueltos dispuestos en forma de S-Z.
- \*Núcleo S-Z seco y envuelto con cinta hinchable con agua.
- \*Cinta de acero corrugado recubierta de cromo como blindaje.
- \*Cubierta exterior LSZH (resistente a los rayos UV), de color negro.
- \*Cordón de rasgado para abrir la cubierta.

**Application**

- \*Cordón de rasgado para abrir la cubierta.
- \*En áreas con cargas mecánicas particularmente altas.

**Special Features**

- \*Construcción de capa única con disposición en forma de S-Z.
- \*La cinta de acero corrugado actúa como protección contra daños mecánicos causados por roedores.
- \*Los tubos de amortiguación flexibles facilitan el enrutamiento de las fibras dentro del cierre.

**Cable Physical Characteristics**

Fibre Count	6	12	24	48
Number of Fibres in each Loose Tube	6	12		
Number of Loose Tube in each cable	1		2	4
Number of Filler (if Required)	5		4	2
Number of SZ	1			
Cable Diameter (mm)	11.3			
Tolerance ± (mm)	0.5			
Nominal Cable Weight (kg/km)	145			
Standard Length (meters)	2000 ± 10 %			

**Cable Mechanical & Environmental Characteristics**

Test	Standard	Product Performance
Temperature Range (°C)	[IEC 60794-1-22-F1]	Operation: -20°C to +60°C Installation: -5°C to +60°C & Storage: -20°C to +60°C
Cable Bending Radius (mm)	[IEC 60794-1-21-E11 A & B]	20 X D, D= Cable diameter
Tensile Force (N)	[IEC 60794-1-21-E1]	Short term - 3000 N, Long term - 1000 N
Impact Resistance (Nm)	[IEC 60794-1-21-E4]	10 Nm
Crush Resistance (N)	[IEC 60794-1-21-E3]	2000 N (100 mm X 100 mm)
Torsion Resistance	[IEC 60794-1-21-E7]	5 Cycle (± 180°),
Water Penetration	[IEC 60794-1-22-F5 B]	1 Meter Water Head, 3 Meters Cable Sample, 24 Hours

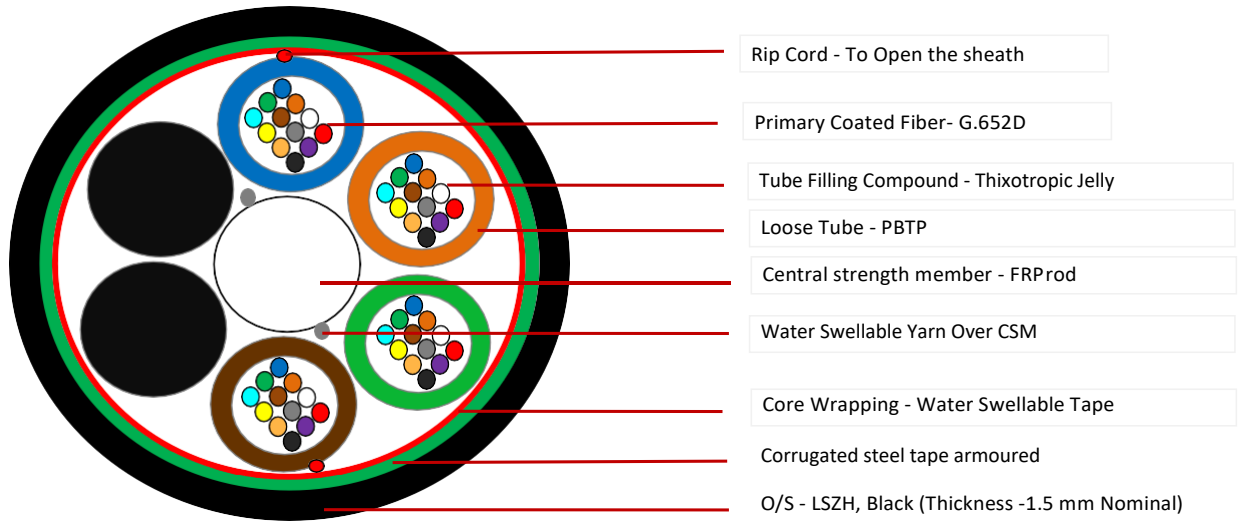
**Cable Transmission Characteristics**

Fibre Type	Attenuation Coefficient (dB/Km)	PMD	Cable Cut-Off	MFD			
					850	1300	1310
Single Mode	G.652D	-	-	≤ 0.36 ≤ 0.23	≤ 0.2	≤ 1260	9.2 ± 0.4



Cable Constructional Details

Cable Cross Sectional Diagram of 48F Cable [Drawing not to scale]



Identification Fibre & Loose Tube Colour

Fibre Colour	Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Pink	Aqua
Loose Tube Colour	Blue	Orange	Green	Brown								
Filler	Black											

Proposed Printing Details & Method at every meters

Printing Method & Colour	Hot Foil & Contrast	CABLE ID Customer/Project Name Telephone Symbol, Laser Symbol, Number of Fibres, Type of Fibre Type of Cable YYYY Manufacturer Name Sequential Meter Marking
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Proposed Stenciling on Drum

Every length will be delivered on non-returnable wooden drums. Generally the cable drum flange will be marked with following: (These details can also be customised.)	<ul style="list-style-type: none"> <li>* Arrow showing the direction, the drum can be rolled.</li> <li>* Country of origin.</li> <li>* The manufacturer's name</li> <li>* Number of fibers.</li> <li>* Nominal cable length in meters</li> <li>* Net and gross weight.</li> <li>* Drum number</li> <li>* Customer's/Project name and destination</li> </ul>
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Specification of Single Mode Matched Clad Type Optical fibre Conforming to ITU - T Rec. G.652D

Properties	Unit	Values
<b>Transmission</b>		
Attenuation at 1310 nm	dB/km	≤ 0.34
Attenuation at 1550 nm	dB/km	≤ 0.20
Attenuation at 1625 nm	dB/km	≤ 0.23
Point discontinuity at 1310 & 1550 nm	dB	≤ 0.05
Difference in maximum attenuation in the range from		
1285 to 1330 nm w.r.t attenuation at 1310 nm	dB/km	≤ 0.03
1530 to 1570 nm w.r.t attenuation at 1550 nm	dB/km	≤ 0.02
Maximum chromatic dispersion at		
1285 - 1330 nm wavelength range	ps/nm.km	≤ 3.5
1270 - 1340 nm wavelength range	ps/nm.km	≤ 5.3
1550 nm	ps/nm.km	≤ 18.0
1625 nm	ps/nm.km	≤ 22.0
Zero dispersion wavelength	nm	1302 to 1322
Zero dispersion slope	nm <sup>2</sup> .km	≤ 0.092
PMD at 1310 & 1550 nm	ps/sqrt.km	≤ 0.15
PMD Link Design Value at 1310 & 1550 nm**	ps/sqrt.km	≤ 0.06
Fibre cut-off wavelength	nm	≤ 1320
Cable cut-off wavelength	nm	≤ 1260
Mode field diameter range at 1310 nm	µm	9.2 ± 0.4
Mode field diameter range at 1550 nm	µm	10.4 ± 0.5
<b>Geometrical</b>		
Cladding Diameter	µm	125 ± 0.7
Cladding noncircularity	%	≤ 0.7
Primary Coating Diameter (uncoloured)	µm	242 ± 5
Coating Diameter (coloured)	µm	252 ± 10
Core/Clad or Mode Field concentricity error	µm	≤ 0.5
Coating / Cladding Concentricity error	µm	≤ 12
Numerical Aperature**		0.14
Refractive Index at 1310 & 1550 nm**		1.467 & 1.468
<b>Mechanical**</b>		
Proof Test for minimum strain level	kpsi, Gpa, %	≥ 100, ≥ 0.69, ≥ 1
Change in Attenuation with Bending		
100 Turns on 60 mm Diameter Mandrel		
at 1310	dB	≤ 0.05
at 1550	dB	≤ 0.05
1 Turn on 32 mm Diameter Mandrel		
at 1310	dB	≤ 0.5
at 1550	dB	≤ 0.5
Strippability force to remove primary coating of fibre	Newton	1.3 ≤ F ≤ 8.9
Fibre Curl	radius of curve.	≥ 4 mtrs
Dynamic tensile strength (unaged)	kpsi	≥ 550
Dynamic tensile strength (Aged)	kpsi	≥ 440
Dynamic Fatigue		≥ 20
<b>Environmental**</b>		
Induced attenuation at 1310 nm, 1550 nm & 1625 nm for		
Temperature & Humidity cycle from -10°C to +85°C at 98 % humidity (min), Reference Temperature 23°C	dB/km	≤ 0.05
Temperature cycle from -60°C to +85°C, Reference Temperature 23°C	dB/km	≤ 0.05
Water Immersion at 23 ± 2°C	dB/km	≤ 0.05
Accelerated Ageing (Temperature) at 85 ± 2°C, Reference Temperature 23°	dB/km	≤ 0.05
<b>** Fibre Manufacturer Certificate will be provided</b>		
Design no.	BCOM/TDS/0320 A-D	
Issue no. & Date	01 DTD 24-11-2022	
Rev. No.	00	