



Technical Data Sheet

Cable Description	4F / 6F / 8F / 12F CENTRAL TUBE (UNITUBE) DUCT OFC
Type of Fibre	Single Mode, G.652D

Introduction

Central Loose tube, Duct fibre optic cable containing LWP-SMF, in full compliance with ITU-T G652D. The offered cables are fully compliant to the relevant IEC specifications.

Cable Design

- * Enhance low water peak single mode fibers in full compliance with ITU-T-G652D
- * Loose buffer tubes fully filled
- * Peripheral Strength Member - Glass Yarn
- * HDPE outer sheath, Black
- * Rip Cord to open the sheath

Application

- * Suitable for Duct Application

Special Features

- * Completely dielectric cable/ non metallic cable immune to electromagnetic interferences
- * Rodent Protection

Cable Physical Characteristics

Fibre Count	4	6	8	12
Number of Fibres in Loose Tube	4	6	8	12
Number of Loose Tube in cable	1			
Cable Diameter (mm)	6.5			
Tolerance ± (mm)	0.5			
Nominal Cable Weight (kg/km)	38.0			
Standard Length (meters)	4000 ± 3%			

Cable Mechanical & Environmental Characteristics

Test	Standard	Product Performance
Temperature Range (°C)	[IEC 60794-1-22-F1]	-40 °C to +70 °C
Cable Bending Radius (mm)	[IEC 60794-1-21-E11 A & B]	Dynamic - 20 X D , Static - 15 D (D= Cable diameter)
Repeated Bending	[IEC 60794-1-21-E6]	Installation - 1200 N @ 0.66% , In service - 500N @ 0.25%
Tensile Force (N)	[IEC 60794-1-21-E1]	5 Nm, 3 Impacts
Crush Resistance (N)	[IEC 60794-1-21-E3]	2000 N (100 X 100 mm)
Torsion Resistance	[IEC 60794-1-21-E7]	10 Cycle (± 180°),

Note: After the Test, Change in Attenuation shall be ≤ 0.05 dB/Km. No Fibre Break & Damage or Crack on the Cable

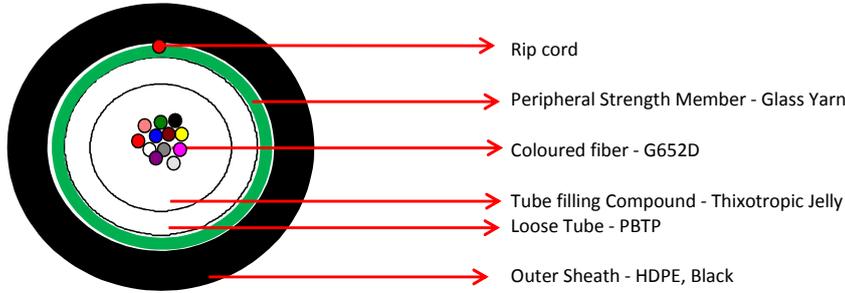
Cable Transmission Characteristics

Fibre Type	Attenuation Coefficient (dB/Km)	PMD	Cable Cut-Off	MFD				
					850	1300	1310	1550
Single Mode	G.652D	-	-	≤ 0.36	≤ 0.22	≤ 0.2	≤ 1260	9.2 ± 0.4

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Cable Constructional Details

Cable Cross Sectional Diagram of 12F Cable [Drawing not to scale]



Identification Fibre & Loose Tube

Fibre Colour	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Aqua	Black	Orange	Pink
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Loose Tube Colour	White											
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Proposed Printing Details & Method at every meters

Printing Method & Colour	Hotfoil & Contrast	<p>CABLE ID Customer/Project Name Telephone Symbol, Laser Symbol, Number of Fibres, Type of Fibre Type of Cable YYYY Manufacturer Name Sequential Meter Marking or as agree (EX for 12F - A1 Bulgaria EAD – YEAR – manufacturer – cable type – 12X1G652D – 1020m >)</p>
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Proposed Stenciling on Drum

<p>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.)</p>	<ul style="list-style-type: none"> * Arrow showing the direction, the drum can be rolled. * Country of origin. * The manufacturer's name * Number of fibers. * Nominal cable length in meters * Net and gross weight. * Drum number * Customer's/Project name and destination
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Specification of Single Mode Matched Clad Type Optical fibre Conforming to ITU - T Rec. G.652D

Properties	Unit	Values
Transmission		
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 ² .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
Geometrical		
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
Mechanical**		
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
Environmental**		
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
** Fibre Manufacturer Certificate will be provided		
Design no.	BEPB/TDS/3067 A-D	
Issue no. & Date	01 DTD 31-01-2021	
Rev no. & Date	00	