

LGCE-23-OC1038-03

Cable Description	96F MICRO CABLE (MULTI LOOSE TUBE TYPE) AIR BLOWN CABLE
Type of Fibre	Single Mode, G.657A1

Introduction

Multi Loose tube, micro fibre optic cable containing LWP-SMF, in full compliance with ITU-T G657A1.
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-G657A1.
- * Non-metallic and anti-buckling element FRP rod used as Central Strength Member
- * Loose buffer tubes fully filled with Thixotropic Jelly and Fibers
- * Loose buffer tubes in single S-Z Stranded
- * Outer sheath - HDPE, (UV Stabilized), Black
- * Rip cord to open the sheath

Application

- * Suitable for Installation inside Ducts.

Special Features

- * Single layer stranded construction
- * Flexible buffer tubes provide easy fibre routing inside closure
- * All dielectric construction

Cable Physical Characteristics

Fibre Count	96
Number of Fibres in Each Loose Tube	12
Number of Loose Tube in each cable	8
Number of filler required	0
Cable Diameter (mm)	6.3
Tolerance $\pm$ (mm)	0.3
Approx Cable Weight (kg/km)	36
Standard Length (meters)	8000 $\pm$ 5%

Cable Mechanical & Environmental Characteristics

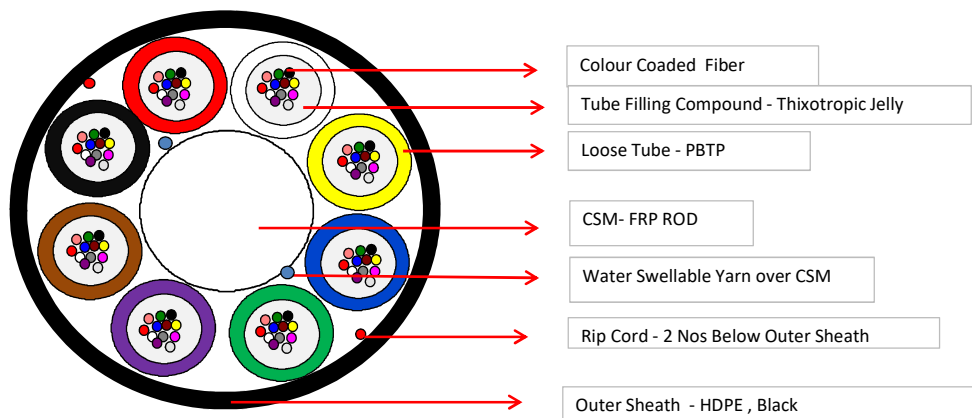
Test	Standard	Product Performance
Temperature Range (°C)	[IEC 60794-1-22-F1]	Operation: -40 °C to +70 °C, Installation: -20 °C to +60 °C & Storage: -40 °C to +70 °C
Cable Bending Radius (mm)	[IEC 60794-1-21-E11 A & B]	20 x D , D= Diameter of cable
Repeated Bending	[IEC 60794-1-21-E6]	25 Cycles, r = 10D, (D= Diameter of cable)
Tensile Force (N)	[IEC 60794-1-21-E1]	1000 N (Max)
Impact Resistance (Nm)	[IEC 60794-1-21-E4]	3 Nm, 3 Nos
Crush Resistance (N)	[IEC 60794-1-21-E3 A]	1000 N /(100 mm x 100 mm)
Torsion Resistance	[IEC 60794-1-21-E7]	10 Cycle, $\pm$ 180°, L=2 Meter
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	1550		ps/sqrt.km	nm	μ m
Single Mode	G.657A1	-	-	$\leq$ 0.34	$\leq$ 0.20	$\leq$ 0.1	$\leq$ 1260	9.2 $\pm$ 0.4

Cable Constructional Details

Cable Cross Sectional Diagram of 96F Cable [Drawing not to scale]



Identification Fibre & Loose Tube

Fibre Colour -	Red	White	Yellow	Blue	Green	Violet	Brown	Black	Orange	Aqua	Pink	Grey
Loose Tube Colour	Red	White	Yellow	Blue	Green	Violet	Brown	Black				

Proposed Printing Details & Method at every meters

Printing Method & Colour	Ink Jet & Contrast Colour	0001m - 8x12F - G.657A1- ABC - LGCE - LGCE-23-OC1038-03 - (Batch Number) - (Production date MM-YYYY) - 0002mm
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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.)	* 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.657A1

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	ps/nm ² .km	≤ 0.092
PMD at 1310 & 1550 nm	ps/sqrt.km	≤ 0.10
PMD Link Design Value at 1310 & 1550 nm**	ps/sqrt.km	≤ 0.04
Fibre cut-off wavelength	nm	≤ 1320
Cable cut-off wavelength	nm	≤ 1260
Mode field diameter range at 1310 nm	µm	9.2 ± 0.4
Geometrical		
Cladding Diameter	µm	125 ± 0.7
Cladding noncircularity	%	≤ 1.0
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		
10 Turns on 30 mm Diameter Mandrel		
at 1550	dB	≤ 0.25
at 1625	dB	≤ 1.0
1 Turn on 20 mm Diameter Mandrel		
at 1550	dB	≤ 0.75
at 1625	dB	≤ 1.5
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		