Bismon®
Communications Products

FIBER OPTIC CABLE By BISMON



SPECIFICATION

FOR

FIBER OPTIC CABLE

UNITUBE CABLE

□ SINGLE JACKET / SINGLE ARMOR□

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1. SCOPE

1.1 General

This specification covers the requirements and constructional details for up to 12 fibers optical cable which consist of central loose tube (Unitube) for aerial, duct and direct burial application.

1.2 Cable Desctiption

Color – coded fibers, jelly filled tube, Paralleled steel wire, Water blocking compound, Corrugated steel tape and Out black polyerthylene jacket.

2.REFERENCE

ITU – T G.650
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IEC 794 – 1
EIA/TIA 568 B.3

3.OPTICAL FIBER

3-1 Fiber Material

Core : Silica (SiO_2) doped with Germanium Dioxide (GeO_2)
Cladding : Silica (SiO_2)
Coating : Dual Layers of UV-Curable Acrylate

3-2 The Geometrical structures and optical characteristics shall be in accordance with Table 1.1 and 1.2

Table 1.1 Multi Mode Optical Fiber Parameters

Parameters	Specification	
Core Diameter	50 ± 3μm	62.5 ± 3μm
Cladding Diameter	125 ± 2μm	
Coating Diameter	245 ± 10μm	
Core / Cladding Concentricity Error	≤ 6.0%	
Core Non-Circularity	≤ 6.0%	
Cladding Non-Circularity	≤ 2.0%	
Attenuation coefficient at 850 nm at 1300 nm	 ≤ 2.7 dB/km ≤ 0.8 dB/km	 ≤ 3.2 dB/km ≤ 0.9 dB/km
Bandwidth at 850 nm at 1300 nm	 ≥ 500 MHz ‘km ≥ 600 MHz ‘km	 ≥ 200 MHz ‘km ≥ 500 MHz ‘km
Numerical Aperture	0.200 ± 0.020	0.275 ± 0.015
Point Discontinuity	≤ 0.1 dB at 850 nm & nm	
Effective Group Index of Refraction (Neff)	1.475 at 850 nm 1.437 at 1300 nm	1.496 at 850 nm 1.491 at 1300 nm

Table 1.2 Single Mode Optical Fiber Parameters

Parameters	Specification
Mode field Diameter	9.3 ± 0.5 μm at 1310 nm 10.5 ± 1.0 μm at 1550 nm
Cladding Diameter	125 ± 1 μm
Coating Diameter	245 ± 10 μm
Mode Field Concentricity Error	≤ 0.8 μm
Cladding Non-Circularity	≤ 1.0 %
Attenuation coefficient	≤ 0.38 dB/km at 1310 nm ≤ 0.25 dB/km at 1550 nm
Cut off Wavelength (cc)	≤ 1260 nm
Chromatic Dispersion	≤ 3.5 ps/(km 'nm) at 1288 ~ 1339 nm ≤ 18 ps/(km 'nm) at 1550 nm
Zero Dispersion Wavelength (0)	1300 ~ 1324 nm
Zero Dispersion Slope (So)	≤ 0.092 ps/(km 'nm^2)
Point Discontinuity	≤ 0.05 Db at 1310 & 1550 nm
Effective Group Index of Refraction (Neff)	1.4677 at 1310 nm 1.4682 at 1550 nm

3-3 Mechanical Characteristics
3-3-1 Proof Test
≥ 100 kpsi (or Equivalent)

4. LOOSE TUBE

4-1 Materials
Tube : Poly Butylene Terephthalate (P.B.T.)
Jelly : Thixotropic Jelly
4-2 Dimensions
4-2-1 12-Fiber Tube
Inner Diameter : Nom. 1.9 mm
Outer Diameter : Nom 2.8 mm

5. CABLE DESIGN AND CONSTRUCTION

Optical Fiber	Color-doded Single Mode Fiber (Refer to table 2)
Secondary Coating	Jelly filled Tube
Strength Member	Paralleled two Steel Wire
Filling	Water Blocking Compound
Armoring	A tatal of 0.25 mm Thickness Steel Tape (Including Copolymer Coating on Both Side)
Out sheath	Black MDPE, UV Resistance
Cable Diameter	Refer to Table 3
Cable Weight	Refer to Table 3
Cable Cross Section	Refer to Figure 1

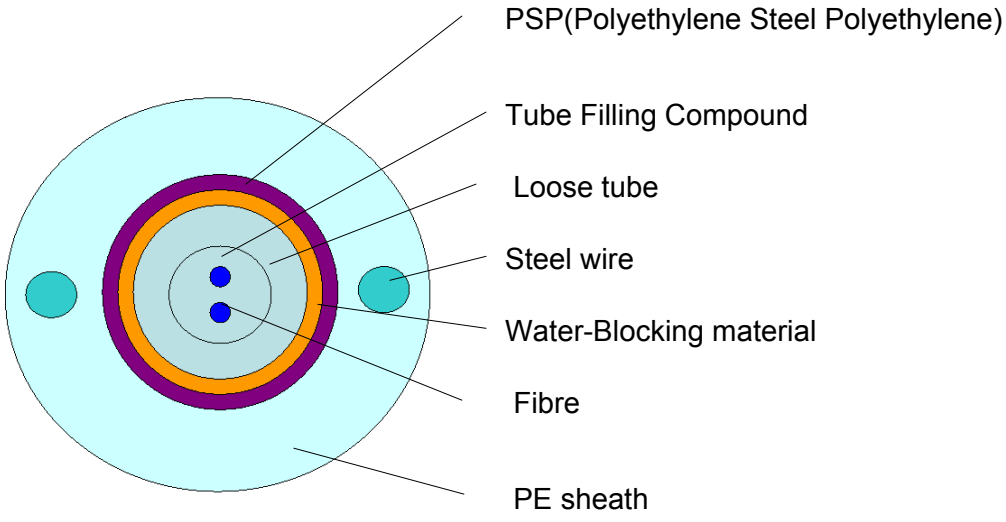


Figure 1. Cross Section of Fiber Optic Cable

Table 2. Color Coding Sequence in Central Loose Tube.

Number	Fiber Color	Loose Tube Color
1	Blue	White
2	Orange	
3	Green	
4	Brown	
5	Grey	
6	White	
7	Red	
8	Black	
9	Yellow	
10	Violet	
11	Pink	
12	Aqua	

Table 3. Dimension of Fiber Optic Cable

Fiber Count	Cable Diameter	Cable Weight	Remarks
2-12	Nom. 10.6 mm	Approx. 127 kg/km	Max. Cable Dia. 11.0 mm

6. CABLE TEST

The fiber optic cable shall meet the mechanical and environmental characteristics as follows

6-1 Mechanical Characteristics

Test Items	Condition	Result
Tensile Strength (IEC 794-1-E1)	2,700 N 5 Minutes	0.1 dB
Crush (IEC 794-1-E3)	3,000 N/100 mm 5 Minutes	0.1 dB
Repeated Bending (IEC 794-1-E6)	20 x Cable Outer Diameter 20 Cycles	0.1 dB

6-2 Environmental Characteristics

Test Items	Condition	Result
Temperature Cycling (IEC 794-1-F1)	-40 ~ +70	0.1 dB/km (Ref : +20)
Water Penetratoin (IEC 794-1-F5)	Cable Length : 3 m Water Height : 1 m (24 Hours)	No Water Drip

7. MARKING

7-1 Accomplished cable shall have sequentially numbered length marker at regular intervals of one meter Continuously numbering shall be employed starting from zero at the inner end.

7-2 The accuracy of the length marking shall be within -0, +1 %

7-3 Required marking can be printed in indent on the cable jacket at the regular intervals sequentially

- Type of Cable (GYXTW)
- Fiber Count (SM XX or MM XX)
- Year of Manufacturing (2002), etc

8. PACKING

8-1 Nominal shipping length of the cable shall be 2,000 meters.