

MICRO SHEATH CABLE

SPECIFICATION

- Type : SMF, MMF 50, 62.5 um
12F, 24F, 48F, 96F
- Spec. No. : GOC600
- Date : 1. October. 2010.

Approved by Junho Lee

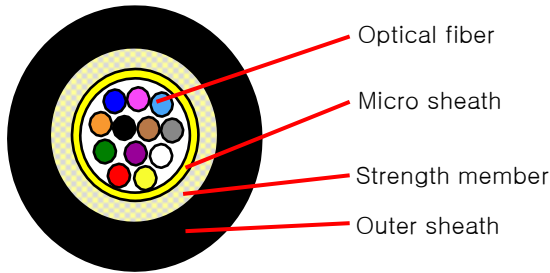
Assistant Manager

G.O.C. Photonics R&D

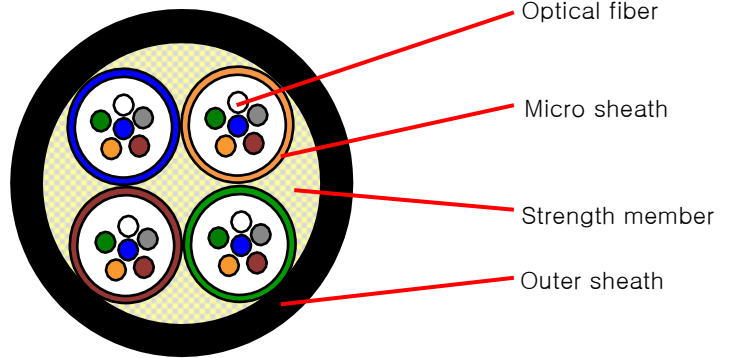
1. Cable Construction

1.1 Cross Section of Fiber Optic Cable

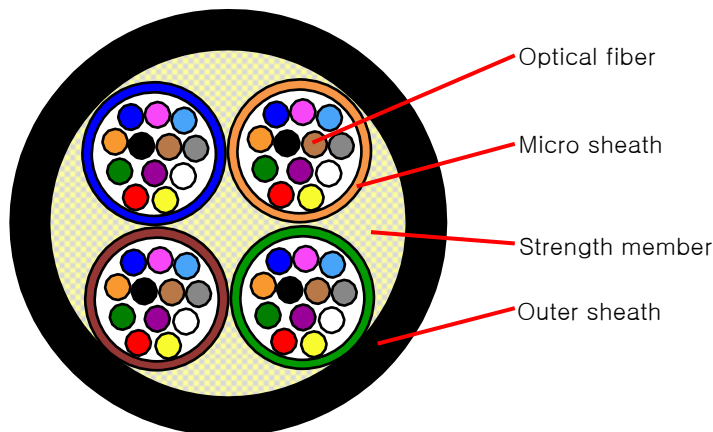
1.1.1 12F



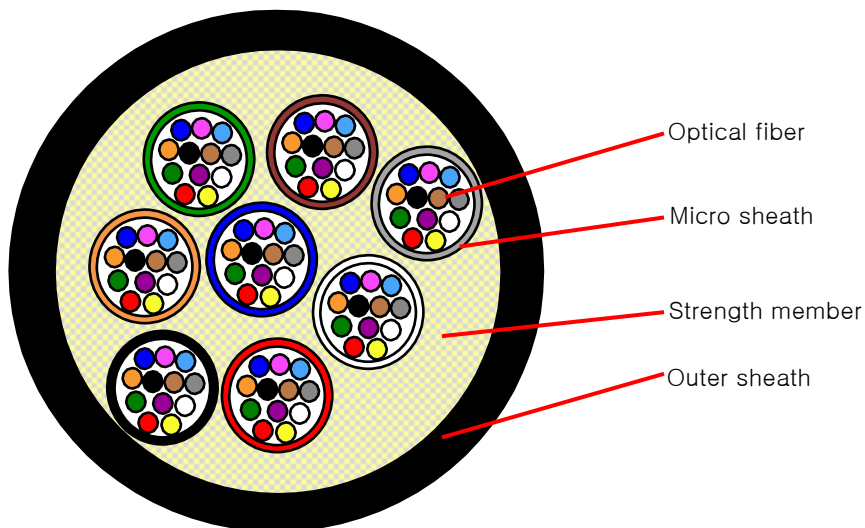
1.1.2 24F



1.1.3 48F



1.1.4 96F



1.2 Construction of Fiber Optic Cable

Structure	Material	SPECCIFICATIONS
Optical fiber	Coloring Fiber	- SM : G657A - MM : 62.5(OM1), 50.0(OM2), 50.0(OM3)
	Color conc.	- 6F : Blue, Orange, Green, Brown, Gray, White - 12F : Blue, Orange, Green, Brown, Gray, White, Red, Black, Yellow, Violet, Pink, Aqua
Micro sheath	LSZH(FR-PE)	- 6F : 1.1 ± 0.1 mm - 12F : 1.4 ± 0.1 mm
	Color conc.	1 unit : Blue 4 unit : Blue, orange, green, brown 8 unit : Blue, orange, green, brown, gray, white, red, black
Outer sheath	Strength member	- Aramid yarn
	Outdoor LSZH(FR-PE)	- Diameter : 1.3 reference - Jacket thickness : 1.0 ± 0.1mm
	Color conc.	- Black
Marking	Ink Jet	- White, 1m

1.3 Cable diameter & structure

Fiber Count	Number of Unit	Outer Diameter	Weight (Nominal)	Max. Pulling Strength	Remark
		mm	Kg/km	N	
12	12F x 1U	5.1 ± 0.3	23	600	
24	6F x 4U	5.8 ± 0.3	34	600	
48	12F x 4U	6.8 ± 0.3	48	800	
96	12F x 8U	7.3 ± 0.3	62	800	

6 F: 6 fibers, 12 F: 12 fibers, U: Unit

2. Cable characteristic

2.1 The properties of single mode fiber (I-TUT G657A)

Parameter	Specification
Attenuation coefficient	Standard Attenuation(dB/km)
@ 1310 nm	≤ 0.37 dB/km
@ 1383 nm	≤ @1310 nm dB/km loss ↓
@ 1550 nm	≤ 0.28dB/km
@ 1625 nm	≤ 0.30dB/km
PMD	≤ 0.06 dB(ps/km ^{1/2})
Cable cut-off wavelength	≤ 1260 nm
Zero-dispersion wavelength	1300 ~ 1324 nm
Zero-dispersion slope	≤ 0.092 ps/(nm ² .km)
Chromatic dispersion @ 1285 ~ 1625 nm @ 1550 nm	≤ 3.0 ps/(nm ² .km) ≤ 18.0 ps/(nm ² .km)
Mode field diameter @ 1310 nm	8.6 ± 0.4 μm
Core/Clad concentricity error	≤ 0.5 μm
Cladding diameter	125.0 ± 1.0 μm
Cladding non-circularity	≤ 0.5 %
Primary Coating diameter	245 ± 10μm
Proof test level	100 kpsi, 1%
Attenuation with bending Loss (G657 B) 15 mm diameter, 1 turn (G657 A/B) 20 mm diameter, 1 turn (G657 A/B)30 mm diameter, 10 turn	1550nm ≤ Δ 0.50 dB/km 1625nm ≤ Δ 1.00 dB/km 1550nm ≤ Δ 0.10 dB/km 1625nm ≤ Δ 0.20 dB/km 1550nm ≤ Δ 0.03 dB/km 1625nm ≤ Δ 0.10 dB/km

2.2 The properties of cabled multi mode fiber

Parameter	Specification		
	62.5/125um (OM1)	50/125 um (OM2)	50/125 um (OM3)
Attenuation coefficient @ 850 nm @ 1300 nm	<= 3.5 dB/km <= 1.0 dB/km	<= 3.0 dB/km <= 1.0 dB/km	<= 3.0 dB/km <= 1.0 dB/km
Bandwidth @ 850 nm @ 1300 nm	≥ 200 Mhz ≥ 500 Mhz	≥ 500 Mhz ≥ 500 Mhz	≥ 1500 Mhz ≥ 500 Mhz
Numerical Aperture	0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
Core diameter @ 1300 nm	62.5 ± 2.0 um	50.0 ± 1.5 um	50.0 ± 2.5 um
Core / Cladding concentricity error	≤ 3.0 um	≤ 3.0 um	≤ 3.0 um
Core non-circularity	≤ 6 %	≤ 6 %	≤ 6 %
Cladding diameter	125.0 ± 2.0 um	125.0 ± 2.0 um	125.0 ± 2.0 um
Cladding non-circularity	≤ 2.0 %	≤ 2.0 %	≤ 2.0 %
Primary Coating diameter	245 ± 15 um	245 ± 15 um	245 ± 15 um
Proof test level	100 kpsi, 1%	100 kpsi, 1%	100 kpsi, 1%

3. Cable Properties

3.1 Mechanical & Environmental properties

3.1.1 Cable bending radius: 10 x cable diameter (during operation)

15 x cable diameter (during installation)

3.1.2 Operating temperature range : -20°C to +70°C

Installation temperature range : -10°C to +60°C

3.2 Mechanical & Environmental requirements

No	Item	Test Method	Specification
1	Tensile load IEC 794-1-E1	- Load: 1.3 Reference - Mandrel dia.: ≥ 360mm - Length: 100m - Time: 5 mins.	-Loss change ≤ 0.1 dB @1550 nm (SM) ≤ 0.1 dB @1300 nm (MM)
2	Crush test IEC 794-1-E3	- Load: 500 N - Length: 100 mm - Time: 5 mins.	-Loss change ≤ 0.1 dB @1550 nm (SM) ≤ 0.1 dB @1300 nm (MM)
3	Impact test IEC 794-1-E4 (Figure 7a)	- Radius of impacted surface: 25mm - Impact load: 0.5 kg - Falling height: 150mm - Time: 10	-Loss change ≤ 0.1 dB @1550 nm (SM) ≤ 0.1 dB @1300 nm (MM)
4	Torsion IEC 794-1-E7	- Length: 2 m - Load: 50 N - Twist angle: ±180° - No. of cycle : 5	-Loss change ≤ 0.1 dB @1550 nm (SM) ≤ 0.1 dB @1300 nm (MM)
5	Temperature Cycling IEC 794-1-F1	- Temperature cycle: +20°C→-20°C→+70°C→+20 °C - Number of cycle: 2 - Time per cycle: 8 hours	-Loss change ≤ 0.1 dB/km @1550 nm (SM) ≤ 0.3 dB/km @1300 nm (MM)