

**TECHNICAL SPECIFICATIONS
FOR GYFTY CABLE**

1. Product Description

This specification covers the general requirements and performance of cable, which FOC offered including optical characteristics, mechanical characteristics and geometrical characteristics and etc.

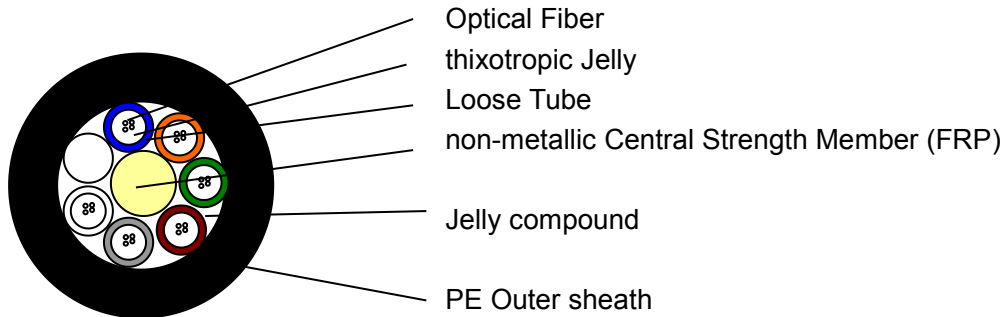
2. OPTICAL FIBER

Optical fiber characteristics (FPC G.652D FIBER)

Category	Description		Specifications
			G.652D
Optical Specifications	Attenuation	@1310nm	≤0.35dB/km
		@1383nm	≤0.35dB/km
		@1550nm	≤0.22dB/km
		@1625nm	≤0.30dB/km
	Attenuation discontinuity		≤0.05 dB
	Attenuation vs. Wavelength	1285~1330 @1310nm	≤0.05 dB/km
		1525~1575 @1550nm	≤0.05 dB/km
	Zero Dispersion Wavelength		1300~1324nm
	Zero Dispersion Slope		≤0.092ps/(nm ² .km)
	Dispersion	@1310nm	≤3.5 ps/nm.km
		@1550nm	≤18 ps/nm.km
	Polarization Mode Dispersion(PMD)		≤0.2ps/km ^{1/2}
	Cable Cutoff Wavelength(λ _{cc})		≤1260nm
Effective Group Index of Refraction	@1310nm	1.4675	
	@1550nm	1.4681	
Geometric Specifications	Mode Field Diameter	@1310nm	9.2±0.6μm
		@1550nm	10.4±0.8μm
	Cladding Diameter		125±1μm
	Cladding Non-Circularity		≤1.0%
	Coating Diameter		245±7μm
	Coating/Cladding Concentricity Error		≤8μm
Core/Cladding Concentricity Error		≤0.8μm	
Mechanical Specifications	Proof Test level		≥1.0%
	Fiber Curl Radius		≥4.0m
	Peak Coating Strip Force		1.3~8.9N

3. OPTICAL CABLE

3.1 Construction of cable



Structure		Unit	Parameter			
Fiber count		Fibers	2~48	50~84	86~96	144
Max.Cores of per tube		--	6	12	12	12
Loose tube Diameter		mm	Nom.Φ1.8	Nom.Φ2.1	Nom.Φ2.1	Nom.Φ2.1
Element			8	7	8	12
Cable diameter		mm	Nom.10.2	Nom.10.8	Nom.11.6	Nom.14.3
sheath thickness		mm	Nom.2.0	Nom.2.0	Nom.2.0	Nom.2.0
Weight		Kg/km	Approx.94	Approx.117	Approx.129	Approx.194
Bending Radius	Dynamic		≥25×Cable Diameter			
	Static		≥15×Cable Diameter			
Operating Temperature		°C	-40 --- +60			

4.2 Fiber coding, The color coding of the optical fiber shall be in accordance with Table 4.2.1

No. of fiber	1	2	3	4	5	6
Color of fiber	Blue	Orange	Green	Brown	Grey	White
No. of fiber	7	8	9	10	11	12
Color of fiber	Red	Black	Yellow	Violet	Pink	Aqua

Table4.2.2: Identification of optical tube

No. of tube	1	2	3	4	5	6
Color of tube	Blue	Orange	Green	Brown	Grey	White
No. of tube	7	8	9	10	11	12
Color of tube	Red	Black	Yellow	Violet	Pink	Aqua

Table4.2.3: Make-up of cable, No. of Fibers in each Tube

No. of Fibers	No. of Tube		1	2	3	4	5	6	7	8	9	10	11	12
4	1	Tube color	Blue	F	F	F	F	F	F	F	/	/	/	/
		No. of fiber	4											
8	2	Tube color	Blue	Orange	F	F	F	F	F	F	/	/	/	/
		No. of fiber	4	4										
12	2	Tube color	Blue	Orange	F	F	F	F	F	F	/	/	/	/
		No. of fiber	6	6										
24	4	Tube color	Blue	Orange	Green	Brown	F	F	F	F	/	/	/	/
		No. of fiber	6	6	6	6								
32	6	Tube color	Blue	Orange	Green	Brown	Grey	White	F	F	/	/	/	/
		No. of fiber	6	6	6	6	6	2						
48	8	Tube color	Blue	Orange	Green	Brown	Grey	White	Red	Black	/	/	/	/
		No. of fiber	6	6	6	6	6	6	6	6				
64	6	Tube color	Blue	Orange	Green	Brown	Grey	White	F	/	/	/	/	/
		No. of fiber	12	12	12	12	12	4						
96	8	Tube color	Blue	Orange	Green	Brown	Grey	White	Red	Black	/	/	/	/
		No. of fiber	12	12	12	12	12	12	12	12				
144	12	Tube color	Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
		No. of fiber	12	12	12	12	12	12	12	12	12	12	12	12

Note: "F" means the white filler

4. TEST REQUIREMENTS

No	Item	Test standard	Method	Acceptance criteria
1	Tensile test	IEC-60794-1-E1	-Max. Tensile strength:1500N -Sample length:50 meters -Time: 1minutes;	-Fiber strain at maximum Load: max. 0.33% -Attenuation increase≤0.10dB
2	Crush test	IEC-60794-1-E3	-Load:1000N -Time: 1 minutes -Length: 100mm	-No splits or cracks in the outer jacket; -Attenuation increase<0.10dB,
3	Impact test	IEC-60794-1-E4	-Impact energy: 450g - Height:1 meter -Impact points: min.1 --Number of impacts: 5	-No splits or cracks in the outer jacket -Attenuation increase≤0.10dB (After the test)
4	Repeated bending	IEC-60794-1-E6	-R=20×cable outer diameter -1m cable length with 150N weight,30 cycles	- No splits or cracks in the outer jacket -Attenuation increase

				≤0.10dB (After the test)
5	Torsion test	IEC-60794-1-E7	-1m cable length with 150N weight -±180 degrees, 10 cycles	- No splits or cracks in the outer jacket -Attenuation increase ≤0.10B (After the test)
6	Bending test	IEC-60794-1-E11	-Diameter of mandrel: 20×D -Number of turns/helix:10 -Number of cycles: 5	- No splits or cracks in the outer jacket - No fiber break
7	Temperature cycling test	IEC-60794-1-F1	-Temperature step: +20°C → -40°C → +60°C → -40°C → +60°C → +20°C -Time per each step: 12 hrs -Number of cycles: 2 cycles	-Attenuation variation for reference value (the attenuation to be measured before test at +20±3°C) ≤0.10dB/km,
8	Water penetration test	IEC-60794-1-F5	-Water height: 1m -Sample length:3m -Duration of test: 24hrs	-No water leakage at the end of the sample
9	Drip test	IEC-60794-1-E14	-Five 0.3m samples suspended vertically in a climate chamber, raised temperature to +70°C	-No filling compound shall drip from tubes after 24 hr

5. PACKING AND DRUM

5.1 The cable is wound on a non-returnable wooden drum. Both ends of cable are securely fastened to drum and sealed with a shrinkable cap to prevent ingress of moisture. The following information shall be marked on the outer sheath of the cable at an interval of about 1 meter.

- Cable type and number of optical fiber
- Manufacturer name
- Month and Year of Manufacture
- Cable length

The sequential number of the cable length shall be marked on the outer sheath of the cable at an interval of 1meter ± 1%.

5.2 Drum marking, Each side of every wooden drum shall be permanently marked in a minimum of 2.5~3 cm high lettering with following:

- Manufacture name and logo
- Cable length
- Cable type and number of fibers
- Roll way
- Gross and net weight