

TECNICAL SPECIFICATION

1. GENERAL

1.1 SCOPE

Cable type	Application
GYFTH	Indoor cable

1.2 REFERENCE

The cable provided by SUMEC need to pass the following international specifications:

IEC 60793-1	Optical fiber Part 1: Generic specifications
IEC 60793-2	Optical fiber Part 2: Product specifications
IEC 60794-1	Optical fiber cable Part 1-2: Generic specification-basic optical cable test procedures
IEC 60794-2	Optical fiber cables-part 2 indoor cables- sectional specification
ITU-T G.650	Definition and test methods for the relevant parameters of single-mode fibers
ITU-T G.657	Characteristics of a bending-loss insensitive single-mode optical fiber
EIA/TIA 598	Color code of fiber optic cables

2. OPTICAL FIBER

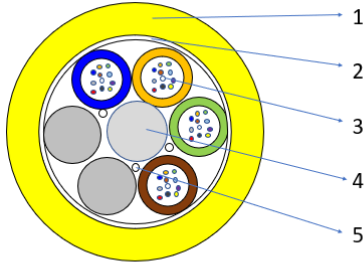
G652D		
Category	Description	Specifications
		After cabling
Optical Specifications	Attenuation @1310 nm	≤0.36 dB/km
	Attenuation @1550 nm	≤0.22 dB/km
	Zero Dispersion Wavelength	1300~1324 nm
	Zero Dispersion Slope	≤0.092 ps/nm ² ·km
	Macro bending Loss (100 turns; Φ50 mm) @1550 nm	≤ 0.05 dB
	(100 turns; Φ50 mm) @1625 nm	≤ 0.10 dB
	Mode Field Diameter @1310 nm	9.0±0.4μm
Dimensional Specifications	Cladding Diameter	125 ±1μm
	Core/clad concentricity error	≤0.6μm
	Cladding Non-Circularity	≤1.0%
Mechanical Specifications	Proof stress	≥0.69Gpa

OM4		
Category	Description	Specifications
		After cable
Optical Specifications	Attenuation	@ 850 nm @ 1300 nm
		≤3.0dB/km ≤1.0 dB/km
	Standard bandwidth	@ 850 nm @ 1300 nm
		≥ 3500 MHz.km ≥ 500 MHz.km
	Numerical Aperture (NA)	0.200 ± 0.015μm
Dimensional Specifications	Core Diameter	50 ± 2.5 μm
	Core Non-Circularity	≤ 6.0%
	Cladding Diameter	125 ±1.0μm
	Core / Clad Concentricity	≤ 1.5μm
	Cladding Non-Circularity	≤2.0%
Mechanical Specifications	Proof Test	≥ 9.0N (100Kps, ≥ 1.0 %)
	Peak Coating Strip Force	1.3~8.9 N

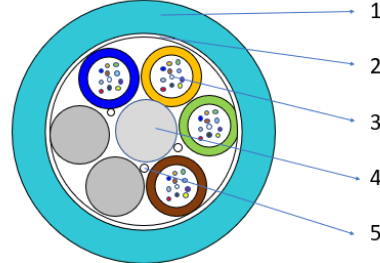
3. CABLE STRUCTURE

3.1 CABLE TYPE: GYFTY

- Easy & simple installation
- Excellent flame retardancy



Single mode fibers



Multimode fibers

Features & Application

- Easy for stripping, splicing, simplified installation and maintenance
- Multiple water blocking material filling provides dual water blocking function

Construction:

1. Outer sheath(LSZH)
2. Water blocking tape
3. Loose tube(PBT), fibers and jelly
4. Strength member (FRP)
5. Water blocking yarns

Dimensions and Properties

Physical	Fiber count	24	48
	No of loose tube / filler	2/4	4/2
	Max. Fiber No. per tube	12	
	Loose tube	1.8±0.1mm	
	Strength member	2.0±0.1mm	
	Outer sheath thickness	Nominal 1.5mm	
	Cable OD	9.0±0.3 mm	
	Cable weight	83kg/km±15%	
Properties	Operation temperature range	-40 °C to + 70 °C	
	Installation temperature range	-10 °C to + 50 °C	
	Transport and storage temperature range	-40 °C to + 70 °C	
	Max. tensile load	1500N	
	Crush resistance	1000N/10cm	
	Minimal installation bending radius	20*D	
	Minimal operation bending radius	10*D	

D =cable diameter

Color code scheme:

Fiber color	blue	orange	green	brown	slate	white	red	black	yellow	violet	pink	aqua
Tube color	blue	orange	green	brown	/	/	/	/	/	/	/	/

4. TEST REQUIREMENTS

Fiber test standard

Mode field diameter	IEC 60793-1-45
Mode field Core/clad concentricity	IEC 60793-1-20
Cladding diameter	IEC 60793-1-20
Cladding non-circularity	IEC 60793-1-20
Attenuation coefficient	IEC 60793-1-40
Chromatic dispersion	IEC 60793-1-42
Cable cut-off wavelength	IEC 60793-1-44

Performance Testing List

4.1 Tension Loading Test

Test Standard	IEC 60794-1-21 E1
Sample length	No less than 50 meters
Load	MAT
Duration time	5 minutes
Test results	Fiber strain $\leq 0.6\%$
	Additional attenuation $\leq 0.1\text{dB}$ @1550nm; additional attenuation $\leq 0.2\text{dB/km}$ @1300nm
	No damage to outer jacket and inner elements

4.2 Crush/Compression Test

Test Standard	IEC 60794-1-21 E3
Load	Crush resistance
Duration time	1minute
Test results	Additional attenuation $\leq 0.1\text{dB}$ @1550nm; additional attenuation $\leq 0.2\text{dB/km}$ @1300nm
	No damage to outer jacket and inner elements under short term load

4.3 Impact Resistance Test

Test Standard	IEC 60794-1-21 E4
Impact energy	4.5J

Radius	12.5mm
Impact points	5
Impact number	1
Test result	Additional attenuation $\leq 0.1\text{dB}$ @1550nm; additional attenuation $\leq 0.2\text{dB/km}$ @1300nm
	No damage to outer jacket and inner elements

4.4 Repeated Bending Test

Test Standard	IEC 60794-1-21 E6
Bending radius	20*D
Cycles	25 cycles
Load	150N
Test result	Additional attenuation $\leq 0.1\text{dB}$ @1550nm; additional attenuation $\leq 0.2\text{dB/km}$ @1300nm
	No damage to cable elements

4.5 Bend Test

Test Standard	IEC 60794-1-21 E11
Mandrel diameter	20*D
Turn number	3
Cycles	4
Test result	Additional attenuation $\leq 0.1\text{dB}$ @1550nm; additional attenuation $\leq 0.2\text{dB/km}$ @1300nm
	No damage to outer jacket and inner elements

4.6 Torsion/Twist Test

Test Standard	IEC 60794-1-21 E7
Sample length	1m
Angles	± 180 degree
Load	150N
Cycles	10
Test result	Additional attenuation $\leq 0.1\text{dB}$ @1550nm; additional attenuation $\leq 0.2\text{dB/km}$ @1300nm
	No damage to cable elements

4.7 Abrasion

Test Standard	IEC 60794-1-21 E2B
Experiment method	The wool felt should be thoroughly impregnated with water
Frequency	6-12cycles/min
Load	20N
Cycles	10

Test result	The marking should be legible after test
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4.8 Cable kink

Test Standard	IEC 60794-1-21 E10
Min. Loop diameter	Operating: 10*D, Installation:20*D
Test result	No kink occur

4.9 Water penetration Test

Test Standard	IEC 60794-1-22 F5
Height of water column	1m
Sample length	3m
Test time	24 hour
Test result	No water seepage prom the opposite end of the sample

4.10 Temperature cycling Test

Test Standard	IEC 60794-1-22 F1
Temperature step	+20°C → -20°C → +65°C → 20°C
Time per each step	12 hours
Cycles	2
Test result	Attenuation variation for reference value (the attenuation to be measured before test at +20±3°C) ≤0.10dB/km @1550nm, ≤0.20dB/km @1300nm

4.11 Environmental performance

Test Standard	RoHS
Test result	Pass the test.

Remark: G652D: test wavelength is 1550 nm

OM4: test wavelength is 1300 nm

5. SHEATH MARKING

