TECNICAL SPECIFICATION

1. GENERAL

1.1 SCOPE

Cable type	Application
GYCXY	Air blowing installation cable

1.2 REFERENCE

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

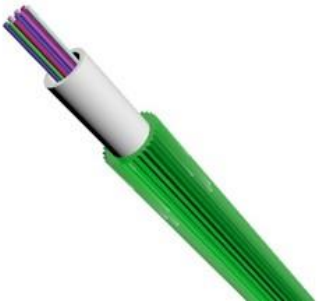
IEC 60793-1	Optical fiber Part 1: Generic specifications
IEC 60793-2	Optical fiber Part 2: Product specifications
IEC 60794-1	Optical fiber cable Part 1-2: Generic specification-basic optical cable test procedures
IEC 60794-5	Optical fiber cables- Part 5: sectional specification -Microduct cabling for installation by blowing
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

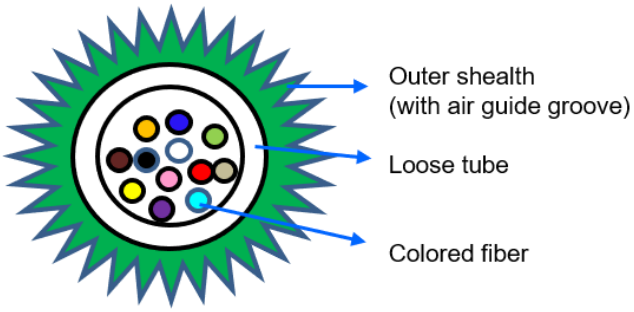
2. OPTICAL FIBER

G652D Fiber		
Category	Description	Specifications
Optical Specifications	Attenuation @1310 nm	≤0.40 dB/km
	Attenuation @1550 nm	≤0.30 dB/km
	Zero Dispersion Wavelength	1300~1322 nm
	Chromatic dispersion @1310nm @1550nm @1625nm	≤3.5 ps/(nm·km) ≤18 ps/(nm·km) ≤22 ps/(nm·km)
	Zero Dispersion Slope	≤0.092 ps/nm^2·km
	PMD_Q	≤0.2 ps/√km
	PMD individual value	≤0.2 ps/√km
	Cable Cutoff Wavelength (λ_{cc})	≤1260 nm
	Macro bending Loss (100 turns; Φ60 mm) @1625 nm	≤ 0.10 dB
	Mode Field Diameter @1310 nm	9.2±0.4μm
Dimensional Specifications	Cladding Diameter	125 ±1μm
	Coating diameter	245 ±5μm
	Core/clad concentricity error	≤0.6μm
	Cladding Non-Circularity	＜1.0%
Mechanical Specifications	Proof stress	≥0.69Gpa

3. CABLE STRUCTURE

3.1 CABLE TYPE: GYCXY





Three-dimensional schematic

Features & Application

- Ultra small diameter
- Low weight
- High fiber density
- Easy for blowing
- Saving the source of duct

Dimensions and Properties

Physical	Fiber count	2 G.652D	4 G.652D	6G.652D	12 G.652D
	Loose tube diameter	1.6±0.1mm			2.0±0.1mm
	Cable OD	2.3±0.3mm			2.6±0.3mm
	Cable weight	4kg/km±15%			
Properties	Operation temperature range	-20 ℃ to + 65 ℃			
	Installation temperature range	-20 ℃ to + 65 ℃			
	Transport and storage temperature range	-20 ℃ to + 65 ℃			
	Max. tensile load	0.5*W			
	Crush resistance	500N/10cm			
	Minimal installation bending radius	20*D			
	Minimal operation bending radius	10*D			

W =The cable weight of a kilometer.

D =cable diameter

Color code scheme:

Fiber color	**blue**	**orange**	**green**	**brown**	**slate**	**white**	**red**	**black**	**yellow**	**violet**	**pink**	**aqua**
Loose tube	nature											

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	0.5*W
Duration time	1 minutes
Test results	Additional attenuation ≤0.05dB
	No damage to outer jacket and inner elements

4.2 Crush/Compression Test

Test Standard	**IEC 60794-1-21 E3**
Load	500N
Duration time	1minute
Test time	3
Test results	No change in additional attenuation after test
	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	1J
Radius	12.5mm
Impact points	5
Impact number	1
Test result	No change in additional attenuation after test

	No damage to outer jacket and inner elements

4.4 Repeated Bending Test

Test Standard	**IEC 60794-1-21 E6**
Bending radius	90mm
Cycles	25 cycles
Load	25N
Test result	No change in additional attenuation after test
	No damage to cable elements

4.5 Bend Test

Test Standard	**IEC 60794-1-21 E11**
Mandrel diameter	50mm
Turn number	5
Cycles	3
Test result	No change in additional attenuation after test
	No damage to outer jacket and inner elements

4.6 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

4.7 Torsion/Twist Test

Test Standard	**IEC 60794-1-21 E7**
Sample length	1m
Angles	±180 degree
Load	40N
Cycles	10
Test result	Additional attenuation≤0.1dB
	No damage to cable elements

4.8 Water penetration Test

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

4.9 Temperature cycling Test

Test Standard	**IEC 60794-1-22 F1**
Temperature step	+20℃→-20℃ →+65℃→20℃
Time per each step	At least 8 hours
Cycles	2
Test result	Attenuation variation for reference value (the attenuation to be measured before test at +20±3℃) ≤0.10dB/km

4.10 Environmental performance

Test Standard	**RoHS**
Test result	Pass the test.

Remark: “No change in additional attenuation” is considered as the addition attenuation≤0.03dB,

The test wavelength is 1550 nm.