

TECNICAL SPECIFICATION

1. GENERAL

1.1 SCOPE

Cable type	Application
UV cured resin cable	Air blowing installation cable

1.2 REFERENCE

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

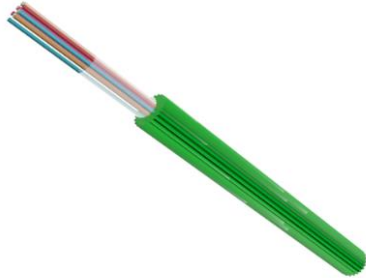
IEC 60793-1	Optical fiber Part 1: Generic specifications
IEC 60793-2	Optical fiber Part 2: Product specifications
IEC 60794-1	Optical fiber cable Part 1-2: Generic specification-basic optical cable test procedures
IEC 60794-5	Optical fiber cables- Part 5: sectional specification -Microduct cabling for 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; Φ 60 mm) @1625 nm	≤ 0.10 dB
	Mode Field Diameter @1310 nm	9.2±0.4 μ m
Dimensional Specifications	Cladding Diameter	125 ±1 μ m
	Coating diameter	245 ±5 μ m
	Core/clad concentricity error	≤0.6 μ m
	Cladding Non-Circularity	< 1.0%
Mechanical Specifications	Proof stress	≥0.69Gpa

3. CABLE STRUCTURE

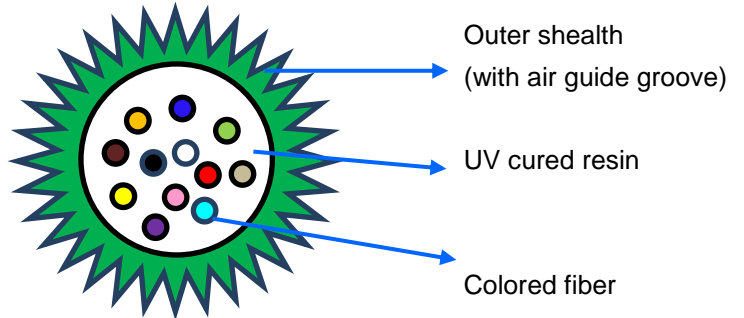
3.1 CABLE TYPE: UV cured resin cable



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	2G.652D	4G.652D	8G.652D	12 G.652D
	UV cured resin OD	0.4mm±0.1mm	0.4mm±0.1mm	0.8±0.1mm	1.2±0.1mm
	Cable OD	1.1±0.2 mm	1.1±0.2 mm	1.5±0.2 mm	1.8±0.2 mm
	Cable weight	1.6 ±0.5 kg/km		2.1 ±0.5 kg/km	2.5 ±0.5 kg/km
Properties	Operation temperature range	-10 °C to + 65 °C			
	Installation temperature range	-10 °C to + 55 °C			
	Transport and storage temperature range	-10 °C to + 65 °C			
	Max. tensile load	1*W			
	Crush resistance	Short--term:50N/10cm		Long-term:25N/10cm	
	Minimal installation bending radius	35mm			
	Minimal operation bending radius	30mm			

W =The cable weight of a kilometer.

Color code scheme:

Fiber color	blue	orange	green	brown	slate	white	red	black	yellow	violet	pink	aqua
UV cured resin color	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	1*W
Duration time	10 minutes
Test results	Additional attenuation ≤ 0.1 dB
	No damage to outer jacket and inner elements

4.2 Crush/Compression Test

Test Standard	IEC 60794-1-21 E3
Load	Short-term load Long-term load
Duration time	1minute
Test results	Additional attenuation ≤ 0.1 dB under short term load No change in additional attenuation after test under short term load No change in additional attenuation under long term load
	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	Additional attenuation ≤ 0.1 dB
	No damage to outer jacket and inner elements

4.4 Repeated Bending Test

Test Standard	IEC 60794-1-21 E6
Bending radius	40mm

Cycles	25 cycles
Load	5N
Test result	Additional attenuation ≤ 0.1 dB
	No damage to cable elements

4.5 Bend Test

Test Standard	IEC 60794-1-21 E11
Mandrel diameter	40mm
Turn number	5
Cycles	3
Test result	Additional attenuation ≤ 0.1 dB
	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	5N
Cycles	10
Test result	Additional attenuation ≤ 0.1 dB
	No damage to cable elements

4.7 Temperature cycling Test

Test Standard	IEC 60794-1-22 F1
Temperature step	$+20^{\circ}\text{C} \rightarrow -10^{\circ}\text{C} \rightarrow +65^{\circ}\text{C} \rightarrow 20^{\circ}\text{C}$
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 $+20 \pm 3^{\circ}\text{C}$) ≤ 0.10 dB/km

4.8 Environmental performance

Test Standard	RoHS
Test result	Pass the test.

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

The test wavelength is 1550 nm.