

Optical Fiber Cable Specification

FIG-8 ARMORED Optical Fiber Cable (SuGYFTC8S)

1. General

1.1 This specification covers the requirements for the supply of single-mode optical fiber cables.

1.2 The single mode optical fiber cable comply with the requirements of this specification and generally meet any latest relevant ITU-T Recommendation G.652.

2. G.652

2.1 Geometric characteristics

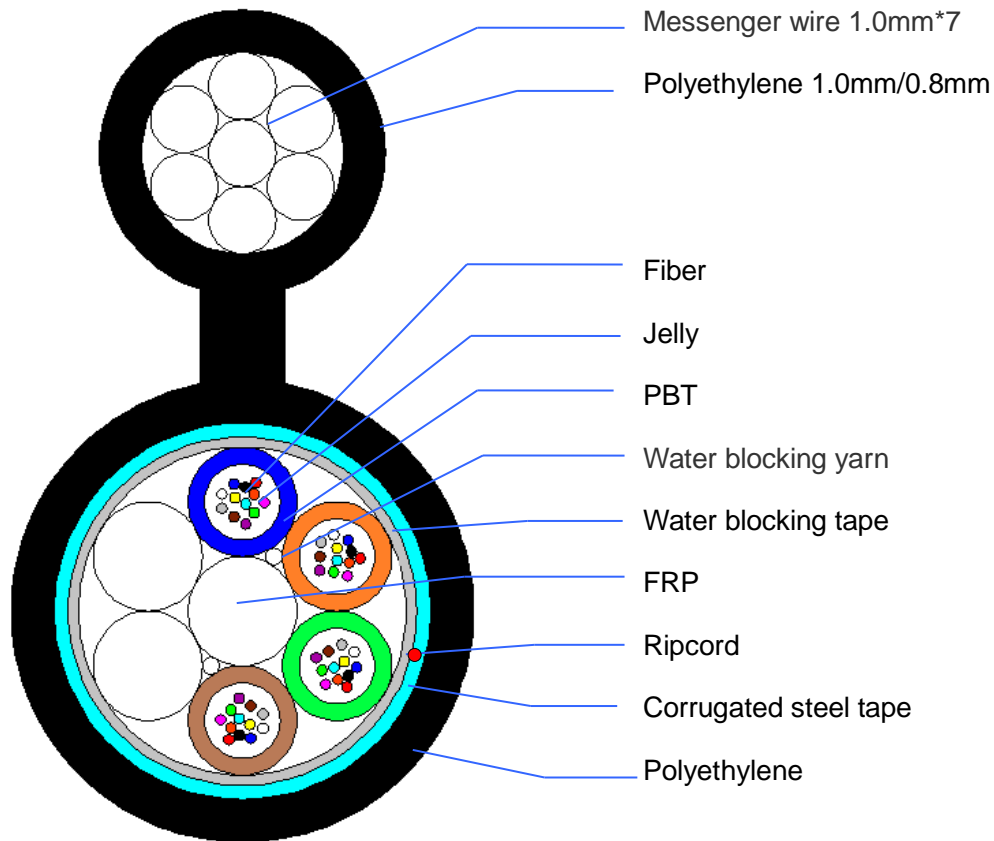
Item		Construction
Mode field diameter	At 1310nm	$9.2 \pm 0.4 \mu\text{m}$
Cladding diameter		$125 \pm 1 \mu\text{m}$
Core concentricity error		$\leq 0.6 \mu\text{m}$
Cladding non-circularity		$\leq 1.0\%$
Cut-off wavelength (λ_{cc}) (for cable)		$\leq 1260\text{nm}$
Cut-off wavelength (λ_c) (for fiber)		1180nm~1330nm
Primary coating diameter	(Not included color layer)	$245 \pm 10 \mu\text{m}$
	(Included color layer)	$250 \pm 15 \mu\text{m}$
Coating-cladding concentricity error		$\leq 12.5 \mu\text{m}$
Fiber curl radius		$\geq 4\text{m}$

2.2 Transmission characteristics

Item		Performance
Attenuation	At 1310nm	$\leq 0.36\text{dB/km(max.)}$
	At 1550nm	$\leq 0.22\text{dB/km(max.)}$
Macro bending loss	$\Phi=60\text{mm}$, 100turns at 1550nm	$\leq 0.1\text{dB}$
Chromatic dispersion	Within 1288~1339nm	$\leq 3.5\text{ps/nm}\cdot\text{km}$
	At 1550nm	$\leq 18\text{ps/nm}\cdot\text{km}$
Zero dispersion wavelength		1300~1324nm
Zero dispersion slope		$\leq 0.092\text{ps/nm}^2\cdot\text{km}$

3 Optical Fiber Cable

3.1 Cross section



3.2 Dimension of the cable

Amount. of fiber	Max. numb of fiber in one tube	Number of Tube Position s	Number of Active Tubes	*Nom. thickness of sheath	Overall diameter (Approx.)	Weight (Approx.)
				mm	mm	kg/km
6	6	5	1	1.8	10.4*17.4	161
12	6	5	2	1.8	10.4*17.4	161
24	6	5	4	1.8	10.4*17.4	161
48	12	6	4	1.8	11.4*18.4	194
72	12	6	6	1.8	11.4*18.4	194

*Note: The minimum thickness of the sheath is 1.5mm

3.3 Performance

N O	ITEM	TEST METHOD	SPECIFICATION
1	Tensile performance IEC60794-1-21-E 1	- Load: 5000N - Time: 1 minute	- Loss change ≤ 0.10 dB @ 1550 nm - Fiber strain ≤ 0.60 % - No fiber break - No sheath damage
2	Crush test IEC60794-1-21-E 3	- Load: 2200 N /100mm - Time: 1 minute - Length: 100 mm	- No fiber break - No sheath damage
3	Impact test IEC60794-1-21-E 4	- Impact high: 1m - Impact weight: 450g - Number of impacts: 5 - Impact rate: 3 sec/cycle	- No fiber break - No sheath damage
4	Repeated bending IEC60794-1-21-E 6	- Bending radius: $25 \times D$ - Load: 150N - Flexing rate: 3sec/cycle - No. of cycle: ≥ 30	- No fiber break - No sheath damage
5	Water penetration IEC60794-1-22-F 5B	- Height of water: 1m - Sample length: 3 m - Time: 24 hr	- No drip through the cable core assembly
6	Twist / Torsion IEC60794-1-21-E 7	- Length: 1 m - Load: 150N - Twist rate: 6sec/cycle - Twist angle: $\pm 180^\circ$ - No. of cycle: 10	- No fiber break - No sheath damage
7	Temperature Cycling IEC60794-1-22-F 1	- Temperature step: $+20^\circ\text{C} \rightarrow -40^\circ\text{C} \rightarrow +70^\circ\text{C} \rightarrow +20^\circ\text{C}$ - Number of cycle: 2 turns - Time per each step: 12 hrs	- Maximum Loss change ≤ 0.15 dB/km @ 1550 nm - No fiber break - No sheath damage

D*: Cable diameter

3.4 Color Coding of Loose Tubes and Fibers

Fiber color code

Position	Fiber Color
1	Blue
2	Orange
3	Green
4	Brown
5	Grey
6	White
7	Red
8	Black
9	Yellow
10	Violet
11	Pink
12	Aqua

Color codes for Loose Tube

Position	Loose Tube Color
1	Blue
2	Orange
3	Green
4	Brown
5	Grey
6	White

4. Sheath marking

