

# YOFC CABLE CONSTRUCTIONS

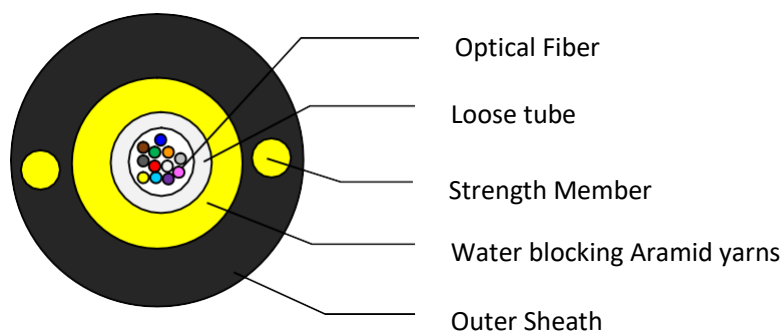
DESIGN on 2021-10-13 update



## Drop Cable

GYFXY-2/4/6/8/12/24B6a1

### 1. Structure Diagram



### 2. The properties of single mode fiber

Items		Unit	Description	
			Before cabled	After cabled
Attenuation	at 1310 nm	dB/km	$\leq 0.35$	$\leq 0.40$
	at 1383 nm	dB/km	$\leq 0.35$	$\leq 0.45$
	at 1550 nm	dB/km	$\leq 0.21$	$\leq 0.30$
	at 1625 nm	dB/km	$\leq 0.23$	$\leq 0.40$
Zero dispersion wavelength		nm	1300~1324	
Zero dispersion slope		ps/(nm <sup>2</sup> ·km)	$\leq 0.092$	
Cable cut-off wavelength $\lambda_{cc}$		nm	$\leq 1260$	
Mode field diameter (MFD)	at 1310 nm	$\mu\text{m}$	$8.8 \pm 0.4$	
	at 1550 nm	$\mu\text{m}$	$9.8 \pm 0.5$	
Group Index of Refractive (Typical)	at 1310 nm	/	1.466	
	at 1550 nm	/	1.467	
Cladding diameter		$\mu\text{m}$	$125 \pm 0.7$	
Cladding non-circularity		%	$\leq 0.7$	
Coating diameter		$\mu\text{m}$	$245 \pm 5$	
Coating/cladding concentricity error		$\mu\text{m}$	$\leq 12.0$	
Coating non-circularity		%	$\leq 6.0$	
Core/cladding concentricity error		$\mu\text{m}$	$\leq 0.5$	
Attention at bending dependence	1 turn, 10mm radius	dB	at 1550nm	$\Delta \leq 0.75$
	1 0turns, 15mm radius	dB	at 1550nm	$\Delta \leq 0.25$

### 3. Cable Dimensions and Constructions

Items		Descriptions	Descriptions
<b>Optical Fiber</b>	Fiber count	2/4/6/8/12G.657A1	24 G.657A1
<b>Loose tube</b>	Sheath Material	PBT	PC+PBT
	Diameter	2.4±0.20mm	2.8±0.20mm
	Sheath Color	White	
<b>Strength member</b>	Material	Water blocking Aramid yarn	
	Material	KFRP	
<b>Outer Sheath</b>	Material	HDPE	
	Thickness	1.4±0.2mm	
	Diameter	5.8±0.20mm	
<b>Weight</b>		30kg/km	

### 4. Optical Fiber Color Code

Each fiber will be identifiable throughout the length of the cable in accordance with the following color sequence. Fiber color starts from No. 1 Blue.

Sequence number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Pink	Aqua
Sequence number	13	14	15	16	17	18	19	20	21	22	23	24
Color	Blue +black tracer	Orange + black tracer	Green + black tracer	Brown + black tracer	Slate + black tracer	White + black tracer	Red + black tracer	Nature + black tracer	Yellow + black tracer	Violet + black tracer	Pink + black tracer	Aqua + black tracer

### 5. Mechanical and Environmental Characteristics

Items	Test Method	Specification
<b>Tensile Strength</b> ICEA S-110-717	<p>Tensile loading and bending measurements and data reporting shall be as required by FOTP-33.</p> <p>Load:500N</p> <p>The fiber strain test is performed as a part of the tensile loading and bending test.</p> <p>Fiber strain measurements and data reporting shall be made as required by FOTP-38</p>	<p>The axial fiber strain shall be &lt; 60 % of the fiber proof level while the cable is under the Rated Installation Load.</p> <p>&lt; 20 % of the fiber proof level while the cable is under the Residual Load.</p> <p>The increase in attenuation at the Residual Load shall be ≤0.40 dB at 1550 nm</p>

		The increase in attenuation at the Residual Load shall be $\leq 0.40$ dB at 1550 nm
<b>Cable Compressive Loading Test</b> ICEA S-110-717	The compressive loading test measurements and data reporting shall be as required by FOTP-41. The load to be applied shall be 100 N/cm (57 lbf/in) at a rate of 2.5 mm (0.1 in) per minute and maintained for a period of 1 minute. The load shall then be decreased to 50 N/cm (29 lbf/in) and maintained for 10 minutes.	The increase in attenuation shall be: $\leq 0.40$ dB at 1550 nm
<b>Impact test</b> ICEA S-110-717	Test in accordance with the requirements of FOTP-25. Test using 2 impacts, at 3 locations spaced 150 mm apart. The impact energy shall be at least 2.94 N•m.	There shall be no visible cracks, splits, tears, or other openings on the outer surface of the jacket. There shall be no broken fibers within the specimen. The increase in attenuation shall be: $\leq 0.40$ dB at 1550 nm
<b>Torsion</b> ICEA S-110-717	Cable twist test measurements and data reporting shall be as required by FOTP-85. The length of the cable sample under test shall be no more than 2.0 m (6.5 ft). The test shall be repeated for 10 cycles	The cable shall maintain its integrity after completion of the test. The jacket shall not crack or split, when observed with 5X magnification. The increase in attenuation shall be: $\leq 0.40$ dB at 1550 nm
<b>Temperature Cycling</b> ICEA S-110-717	Cable temperature cycling, measurements, and data reporting shall be as required by FOTP-3. - Number of cycle: 2 - Time per step: 12hours 20oC→-40oC→+70oC→-40oC →+70oC→20oC	The increase in attenuation shall be: $\leq 0.40$ dB at 1550 nm

<p><b>Cable Low and High Temperature Bend Test</b> ICEA S-110-717</p>	<p>Test in accordance with FOTP-37. The tests shall be conducted at the installation temperature extremes of Table 1-1 (Conditions E and N in FOTP-37, respectively). Test for physical damage and optical loss increase.</p> <p>Test procedure I or II (single end or double end) may be used. The number of turns shall be 4 per procedure I or 2 per procedure II (FOTP-37, Table 2, level 3). The mandrel diameter shall be the larger of 20X cable diameter or 150 mm. For cables not having a circular cross-section, bending requirements are to be determined using the thickness (minor axis) as the cable diameter and bending in the direction of the preferential bend.</p> <p>-40~+70</p>	<p>The presence of visible cracks, splits, tears, or other openings, on either the inner or outer surface of the jacket, constitutes a failure. None of the sheath components shall show visible cracking when removed successively and examined.</p> <p>There shall be no broken fibers within the specimen. The increase in attenuation shall be: <math>\leq</math> 0.40 dB at 1550 nm</p>
<p><b>Cable Cyclic Flexing Test</b> ICEA S-110-717</p>	<p>Test in accordance with the requirements of FOTP-104, measuring at Conditions I and IV—unloaded, before and after testing.</p> <p>The mandrel diameter shall be &lt; 20X the cable outer diameter.</p> <p>The test shall be repeated for a total of 25 cycles.</p> <p>Measure or monitor the transmitted optical power or attenuation of selected fibers.</p>	<p>The presence of visible cracks, splits, tears, or other openings on either the inner or outer surface of the jacket constitutes a failure.</p> <p>There shall be no visible cracks in the armor or shielding greater than 5 mm in length.</p> <p>• The increase in attenuation shall be: <math>\leq</math> 0.40 dB at 1550 nm</p>

## 6. Delivery Length

Standard delivery length is 2km/Drum.