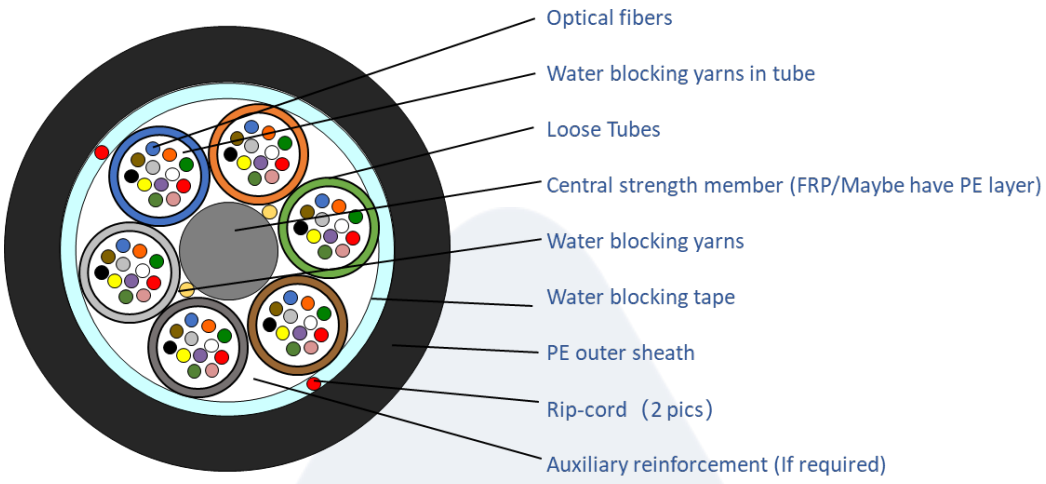
GYFY-12/48/96/144/288B1.3

1. CABLE CONSTRUCTION

1.1. Cross - sectional drawing of the cable



Cable cross-section Not to scale, color is only showing, maybe not exact same as real color.

INTRODUCTION

This specification covers the general requirements of duct optical cable.

The technical requirement in this specification which is not stipulated is not inferior to the requirement of ITU -T and IEC.

1.2. IDENTIFICATION OF FIBERS AND LOOSE TUBES

SINGLE LAYER TWISTED CORE												
NO.	1	2	3	4	5	6	7	8	9	10	11	12
Tube color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua
12F	12F	Filler	Filler	Filler	Filler	Filler	/	/	/	/	/	/
48F	12F	12F	12F	12F	Filler	Filler	/	/	/	/	/	/
96F	12F	12F	12F	12F	12F	12F	12F	12F	/	/	/	/
144F	12F	12F	12F	12F	12F	12F	12F	12F	12F	12F	12F	12F
Color code of fibers: blue, orange, green, brown, gray, white, red, black, yellow, violet, pink and aqua.												

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DOUBLE LAYER TWISTED CORE													
288F	Inner core	1	2	3	4	5	6	7	8	9	/	/	/
		Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	/	/	/
		12F	12F	12F	12F	12F	12F	12F	12F	12F	/	/	/
	Outer core	10	11	12	13	14	15	16	17	18	19	20	21
		Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua
		12F	12F	12F	12F	12F	12F	12F	12F	12F	12F	12F	12F
		22	23	24	/								
		Blue	Orange	Green	/								
		12F	12F	12F	/								
Color code of fibers: blue, orange, green, brown, gray, white, red, black, yellow, violet, pink and aqua.													
22~24# loose casing needs to squeeze longitudinal stripes to show distinction： Blue + Black longitudinal stripe，Orange + Black longitudinal stripe，Green + Black longitudinal stripe.													

2. MAIN MECHANICAL PERFORMANCE OF CABLE

CABLE TYPE	TENSION (N, MAX. INSTALLATION TENSION)	CRUSH (N/10CM)
GYFY-12/48/96/144/288B1.3	2200	1500

3. DIAMETER AND WEIGHT OF CABLE

Cable Type	Outer Diameter (±5%) mm	Approx. Weight kg/km
GYFY-12/48B1.3	9.5	66
GYFY-96B1.3	10.5	88
GYFY-144B1.3	12.8	125
GYFY-288B1.3	16.0	180

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4. MAIN MECHANICAL & ENVIRONMENTAL PERFORMANCE TEST

TEST	STANDARD	SPECIFIED VALUE	ACCEPTANCE CRITERIA
Tension	IEC 60794-1-21E1	Length of test: ≥50m Load: See clause: 2 Duration: 1 min	After test, Additional attenuation: ≤0.1dB; No damage to outer jacket and inner elements.
Crush	IEC 60794-1-21E3	Load: See clause: 2 Duration: 1 min	After test, Additional attenuation: ≤0.1dB; No damage to outer jacket and inner elements.
Temperatur ecycling	IEC 60794-1-22F1	-30℃~+70℃, 2 cycles, 8h	The change in attenuation coefficient shall be less than 0.1dB/km.
Water penetratio n	IEC 60794-1-22F5B	Sample 3m, water 1m, 24h	No water leakage.
Bending radius		Static: 10D Dynamic: 20D	/

5. PACKING AND MARKING

5.1. CABLE AND LENGTH MARKING

The sheath shall be marked with white characters at intervals of one meter with following information. Other marking is also available if requested by customer.

(1) Name of the manufacturer

(2) Cable type and fiber counts

(3) Year of manufacture

(4) Length marking

(5) Reel number(XXXXX)

(6) Requested by customer

5.2. CABLE PACKING

5.2.1. Each length of the cable shall be wound on a separate reel. Standard length of cable shall be 10000ft or 20000ft, other cable length is also available if requested by customer.

5.2.2. Both ends of the cable shall be sealed with suitable plastic caps to prevent the entry of moisture during shipping, handling and storage, and the A-end shall be indicated with redcap, the B-end shall be indicated with green cap. The cable ends shall be securely fastened to the reel. At least 1.5 meter of the cable inner end shall be remained for test purpose.

5.2.3. The cable reel shall be wooden materials. It is not exceeding 2.4 meters in diameter and 1.6 meters in width. The diameter of the center hole is less than 110mm, the reel shall be protected the cable form the damage during shipping, storage and installation, and should be fixed in individual pallets.

5.2.4. Details given below shall be distinctly marked with a weather proof materials on the reel flange, at the same time, a Quality Certification and a Test Record shall be provided with the reel when it is delivered.

(1) Purchaser's Name
(2) Cable type and fiber counts
(3) Length of cable in meters
(4) Gross weight and in kilograms
(5) Name of the manufacturer
(6) Year of manufacture
(7) Arrow showing the direction the reel shall be rolled
(8) Other shipping mark is also available if requested by customer.

Technical Specification

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OPTICAL FIBER PERFORMANCE (G.657A1)

Characteristics	Units	Specified Value
Optical characteristics		
Type of fiber		Single mode, Doped silica
Attenuation @1310nm @1550nm	dB/km	 ≤0.35 ≤0.25
Dispersion coefficient @1288-1339nm @1550nm @1625nm	ps/(nm.km)	 ≤3.5 ≤18 ≤22
Zero dispersion wavelength	Nm	1300～1324
Zero dispersion slope	ps/(nm^2.km)	≤0.092
Polarization mode dispersion (PMD)	ps / √Km	≤0.2
Cable cut -off wavelength λcc	nm	≤1260
Mode field diameter (MFD) @1310nm @1550nm	μm	 9.2±0.4 10.4±0.8
Geometrical characteristics		
Cladding diameter	Mm	125±1
Cladding non-circularity	%	≤1.0
Coating diameter	μm	245±10
Coating/cladding concentrity error	μm	≤12.0
Core/cladding concentrity error	μm	≤0.8
Curl (radius)	m	≥4
Mechanical characteristics		
Proof test off line	N % kpsi	≥8.6 ≥1.0 ≥100
Bending dependence induced attenuation 10 turn, 30mm diameter @1550nm 1 turn, 20mm diameter @1550nm	 dB dB	 ≤0.25 ≤0.75

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Technical Specification

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OPTICAL FIBER PERFORMANCE (G.652D)

Characteristics	Units	Specified Value
Optical characteristics		
Type of fiber		Single mode, Doped silica
Attenuation @1310nm @1550nm	dB/km	 ≤0.35 ≤0.22
Dispersion coefficient @1288-1339nm @1550nm @1625nm	ps/(nm.km)	 ≤3.5 ≤18 ≤22
Zero dispersion wavelength	Nm	1300～1324
Zero dispersion slope	ps/(nm^2.km)	≤0.092
Polarization mode dispersion (PMD)	ps / √Km	≤0.2
Cable cut -off wavelength λcc	nm	≤1260
Mode field diameter (MFD) @1310nm	μm	 9.1±0.4
Geometrical characteristics		
Cladding diameter	Mm	125±0.7
Cladding non-circularity	%	≤1.0
Coating diameter	μm	245±10
Coating/cladding concentrity error	μm	≤12.0
Core/cladding concentrity error	μm	≤0.6
Curl (radius)	m	≥4
Mechanical characteristics		
Proof test off line	N % kpsi	≥8.6 ≥1.0 ≥100
Bending dependence induced attenuation 100 turns 60mm diameter @1625n	dB	 ≤0.1
Temperature dependence induced attenuation -60ºC ～+85ºC @1310 & 1550nm	dB/km	≤0.5