

DUCT OPTICAL FIBER CABLE (4 ~ 384C)

GENERAL

This product specification cover **PhotonicsHome™** Loose Tube underground duct fiber cable . The single mode fiber geometry , optical characteristics and mechanical performance fully comply to ITU-T and IEC standard.

Cable type	Application
GYFY-xxB1.3-2	Duct or sub-duct installation cable with midspan access capability

xx: number of core from 4c to 384c

LIFE TIME

Optical fiber cables supplied in compliance with the specifications can be capable of withstanding the typical service condition for a period of no less than twenty-five (25) years

OPTICAL FIBER CHARACTERISTICS

The optical fiber is made of high pure silica and germanium doped silica. UV curable acrylate material is applied over fiber cladding as optical fiber primary protective coating. The detail data of optical fiber performance are shown in the following table.

G.652D Fiber

Category	Description	Specifications
		After cabling
Optical Specifications	Attenuation @1310~1625 nm	≤0.35 dB/km
	Attenuation @1550 nm	≤0.22 dB/km
	Zero Dispersion Wavelength	1300~1324 nm
	Zero Dispersion Slope	≤0.092 ps/nm ² -km
	Polarization Mode Dispersion (PMD)	≤0.20 ps/√km
	Cable Cutoff Wavelength (λ _{cc})	≤1260 nm
	Fiber Cutoff Wavelength (λ _c)	≤1250 nm
	Macro bending Loss (100 turns; radius 30 mm) @1625 nm	≤ 0.1 dB
	Mode Field Diameter @1310 nm	(8.6~9.2)±0.4μm
Fiber Refractive Index @1310/1550nm	1.466/1.467	
Dimensional Specifications	Cladding Diameter	125±0.7μm
	Core/Clad Concentricity Error	≤0.6μm
	Cladding Non-Circularity	≤1.0%
	Fiber diameter	uncolored: 245±10μm colored: 255±10μm
Mechanical Specifications	Proof Stress	≥0.69GPa

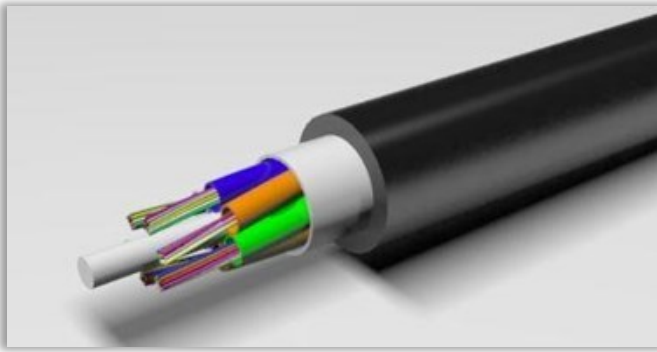
FIBER AND LOOSE TUBE COLOUR CODE

Fiber color	Blue RAL 5015	Yellow RAL 1021	Green RAL 6018	Red RAL 3000	Violet RAL 4005	Brown RAL 8003	Pink RAL 3015	Grey RAL 7035	Black RAL 9004	Orange RAL 2008	White RAL 9001	Aqua RAL 6027
	Blue RAL 5015	Yellow RAL 1021	Green RAL 6018	Red RAL 3000	Violet RAL 4005	Brown RAL 8003	Pink RAL 3015	Grey RAL 7035	Neutral RAL 9001	Orange RAL 2008	White RAL 9001	Aqua RAL 6027
Innertube	Blue RAL 5015	Yellow RAL 1021	Green RAL 6018	Red RAL 3000	Violet RAL 4005	Brown RAL 8003	/	/	/	/	/	/
Outer tube	Blue RAL 5015	Yellow RAL 1021	Green RAL 6018	Red RAL 3000	Violet RAL 4005	Brown RAL 8003	Pink RAL 3015	Grey RAL 7035	Black RAL 9004	Orange RAL 2008	/	/

Notes :

1. Sheath thickness not consider ripcord portion
2. Deviation from this table shall be allowed for all colours fibers and buffer tubes, but all colours shall be made as close to the required centroid as possible following design intent and good commercial practice.
3. 13~24 fibers with black (RAL 9004) tracer.
4. Inner tube with single black (RAL 9004) stripe
5. ITU-T G652D ZTT Fiber is used

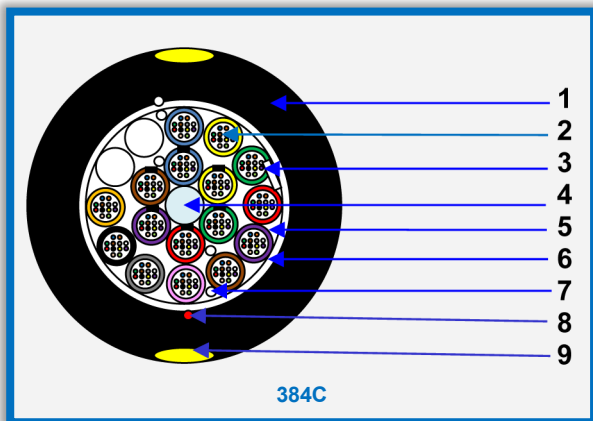
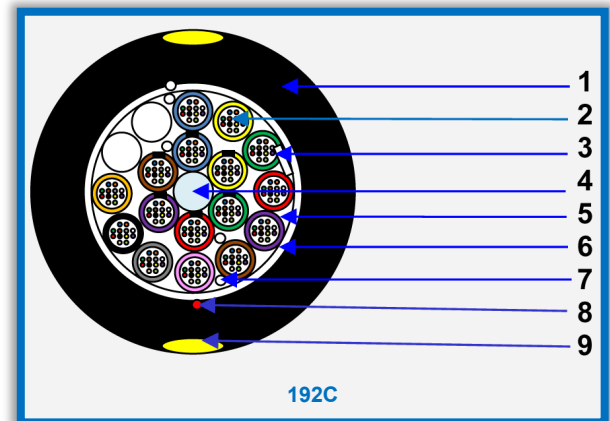
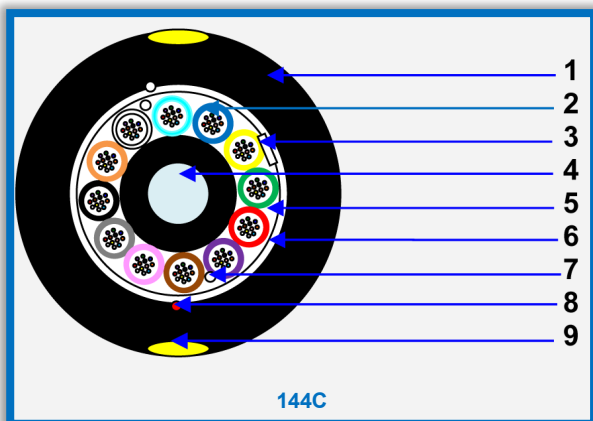
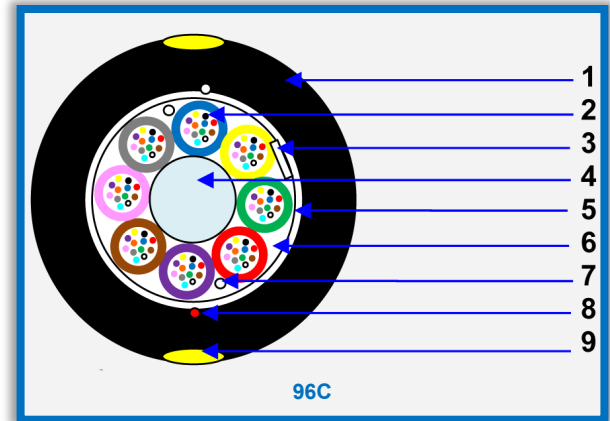
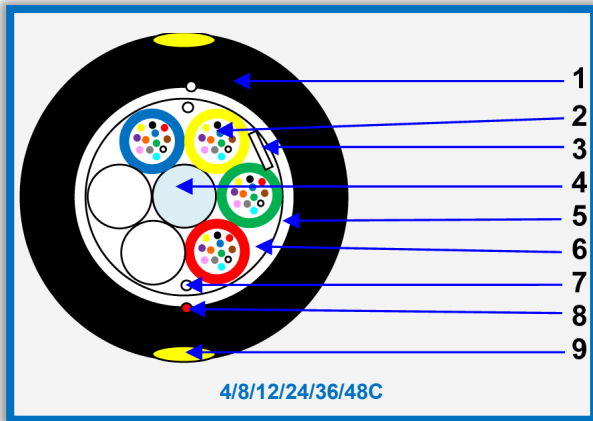
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FEATURES

- The unique extruding technology provides the fibers in the tube with good flexibility and bending endurance
- The unique fiber excess length control method provides the cable with excellent mechanical and environmental properties
- Multiple water blocking material filling provides dual water blocking function

CABLE STRUCTURE



CABLE STRUCTURE FEATURED

- 1) Outer sheath (MDPE, Black)
- 2) Loose tube (PBT), fiber and jelly
- 3) ID tape
- 4) CSM (FRP)
- 5) Water blocking tape
- 6) Cable jelly
- 7) Binder yarn
- 8) Ripcord*1 (Red, Breaking load≥150N)
- 9) Yellow stripe*2 (Width: approx. 3.0mm)

DUCT OPTICAL FIBER CABLE (4 ~ 384C)

SPECIFICATIONS

	Fiber Count (G.652D)	4	8	12	24	36	48	96	144	192	384	
Physical	No. Of Loose Tube/ Filler	1/5	1/5	2/4	2/4	3/3	4/2	8/0	12/0	6+10/2	6+10/2	
	Fiber No. Per Tube	4	8	6	12	12	12	12	12	12	24	
	Loose Tube Diameter (mm)	2.1±0.1									2.8±0.1	
	Loose Tube Thickness (mm)	0.30±0.05									0.30±0.05	
	Central Strength Member Diameter (mm)	FRP 2.2±0.1						3.5±0.2	6.3±0.2 (FRP 3.5±0.1)	FRP 2.2±0.1		FRP 3.0±0.1
	Pitch Length (mm)	70-75						105-125	125-145	Inner layer 85-95 Outer layer 135 -145		Inner layer 95-130 Outer layer 155-175
	S-Z Stranded Length (mm)	400-800						600-1260	700-1460	Inner layer 500 -960 Outer layer 750 -1460		Inner layer 600-136 Outer layer 900-1760
	Outer Sheath Thickness	1.5+0.5mm/-0.1mm (Density 0.926 – 0.940g/cm ³ or better, Carbon black ≥2%)										
	Stripe Color	Yellow RAL 1026										
	Cable OD (mm ± %)	9.8 ± 5					11.1 ± 5		13.9 ± 5	14.0 ± 5	17.6 ± 5	
	Cable Weight (kg/km ± %)	81 ± 15					102 ± 15		161 ± 15	125 ± 15	382 ± 15	
	Operation Temperature Range (°C)	-30 to + 70										
	Installation Temperature Range (°C)	-15 to + 60										
	Transport and Storage Temperature Range (°C)	-40 to + 70										
	Mechanical	Max. Tensile Load (N)	2000									
Crush Resistance		1500 N/10cm										
Minimal Installation Bending Radius		20 x OD										
Minimal Operation Bending Radius		10 x OD										

MECHANICAL & ENVIROMENTAL CHARTERITICS COMPLIANCE

The Optical Fiber Cable shall meet following mechanical and environmental characteristics

No.	Test Item	Test Standard
1	Tension Loading Test	IEC 60794-1-2 E1
2	Crush/Compression Test	IEC 60794-1-2 E3
3	Bending Test	IEC 60794-1-2 E11
4	Impact Resistance Test	IEC 60794-1-2 E4
5	Repeated Bending Test	IEC 60794-1-2 E6
6	Torsion/Twist Test	IEC 60794-1-2 E7
7	Temperature cycling Test	IEC 60794-1-2 F1
8	Water penetration Test	IEC 60794-1-2 F5
9	Drip Test	IEC 60794-1-2 E14
10	Cable Retention	GR-771-CORE
11	Buffer tube Kink Test	IEC 60794-1-2 G7