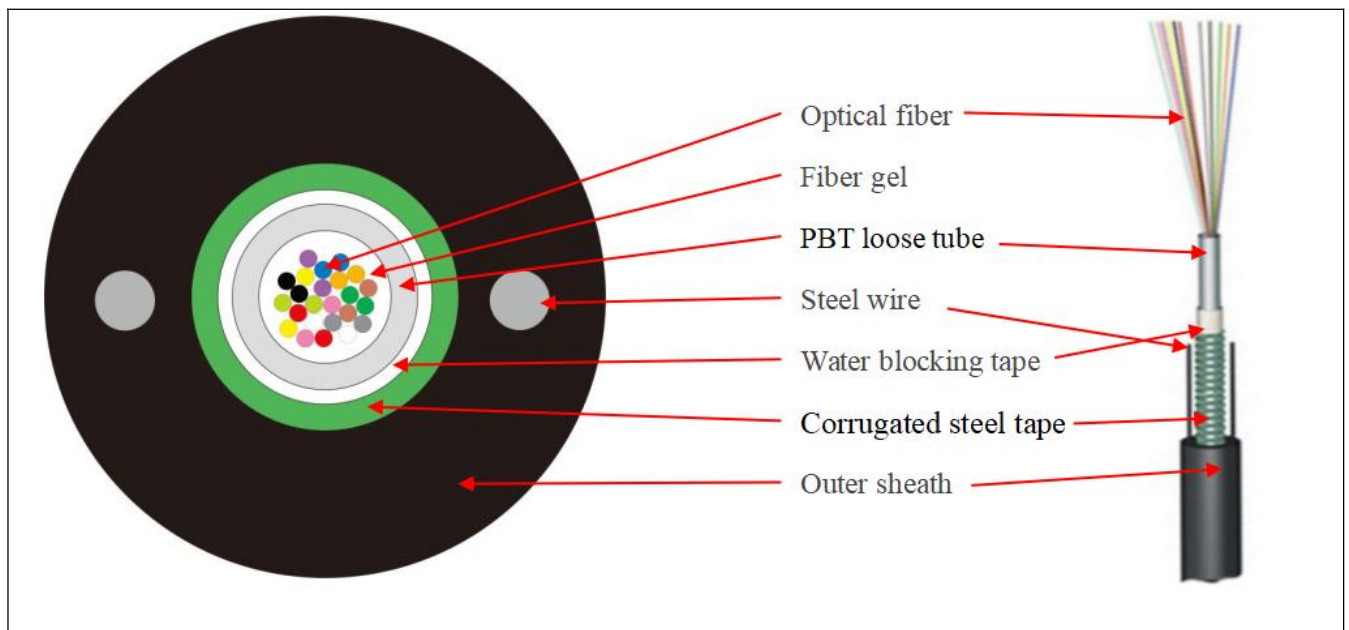


## Unitube Light-Armored Fiber Optical Cable GYXTW 2-24 Cores

### 1. Cable Structure



### 2. Construction

1. Colored fiber  
Coated outside diameter:  $125.0 \pm 0.1 \mu\text{m}$   
Optical fiber diameter:  $242 \pm 7 \mu\text{m}$   
UV color fiber: Standard chromatogram  
-Blue, Orange, Green, Brown, Gray/Slate, White, Red, Black, Yellow, Violet, Rose/Pink, Aqua
2. Tube filling compound(Gel)
3. PBT loose tube
4. Steel wire strength member
5. Water blocking tape
6. Steel Polyethylene Laminate
7. Black PE out jacket
8. Outside diameter:  $8.0 \pm 0.2 \text{mm}$

### 3. Features

- ★ Excellent mechanical and temperature performance
- ★ High strength loose tube that is hydrolysis resistant



- ★ Special tube filling compound ensure a critical protection of fiber
- ★ Crush resistance and flexibility
- ★ Two parallel steel wires ensure tensile strength
- ★ Small diameter,light weight and easy to installation and operation.

#### 4.Application

- ★ Long distance and Local Area Network (LAN) communication.
- ★ Suitable for ducts & aerial fiber optic cabling
- ★ Subscriber network

#### 5.Specification

1):Fiber Allocation Scheme

| Fiber number | Tube number | Fibers per tube | Fiber Type              |
|--------------|-------------|-----------------|-------------------------|
| 2-24         | 1           | 2-24fibers/Tube | OS1,OS2,OM1,OM2,OM3,OM4 |

2):Cable Construction Details

|                         |                       |            |
|-------------------------|-----------------------|------------|
| <b>Number of Fiber</b>  | 2-24 Cores            |            |
| <b>Moisture Barrier</b> | Water blocking system |            |
| <b>Loose Tube</b>       | Material              | PBT        |
|                         | Diamter               | Φ2.0-2.3mm |
| <b>Tube filling</b>     | Fiber Gel             |            |
| <b>Steel wire/FRP</b>   | Size                  | 0.5-1.0mm  |
|                         | Number                | 2          |
| <b>Outer Sheath</b>     | Material              | PE/HDPE    |
|                         | Color                 | Black      |
|                         | Diamter               | 2.2±0.1mm  |

### 3) :Standard color of fiber and tube

The color code of the tubes and the individual fibers, shall be in accordance with the table as below:

| Standard Colour Identification |      |        |        |        |       |       |
|--------------------------------|------|--------|--------|--------|-------|-------|
| No.                            | 1    | 2      | 3      | 4      | 5     | 6     |
| Color                          | Blue | Orange | Green  | Brown  | Slate | White |
| No.                            | 7    | 8      | 9      | 10     | 11    | 12    |
| Color                          | Red  | Black  | Yellow | Violet | Pink  | Aqua  |

#### Note:

1:Color 13~24 will be marked with a black tracer.For black color no need marked black tracer, will use nature color instead.

2:The color can be required by customers.

### 6.Parameters of fiber

| Optical fiber type                        | Unit  | SM G652D              | SM G657   | MM 50/125                       | MM OM3-300 | MM OM4-550                 |
|---|-------|-----------------------|-----------|---------------------------------|------------|----------------------------|
| <b>Waveband</b>                           | nm    | 1310/1550             | 1310/1550 | 850/1300                        | 850/1300   | 850/1300                   |
| <b>Attenuation</b>                        | dB/km | 0.36/0.23             | 0.36/0.23 | 3.0/1.0                         | 3.0/1.0    | 3.0/1.0                    |
| Characteristics                           |       | Conditions            |           | Specified values                |            | Units                      |
| Optical Characteristics                   |       |                       |           |                                 |            |                            |
| Attenuation                               |       | 1310nm                |           | ≤0.36                           |            | [dB/km]                    |
|   |       | 1383nm(after H-aging) |           | ≤0.36                           |            | [dB/km]                    |
|   |       | 1550nm                |           | ≤0.22                           |            | [dB/km]                    |
|   |       | 1625nm                |           | ≤0.23                           |            | [dB/km]                    |
| Zero Dispersion Wavelength)               |       |                       |           | 1300-1324                       |            | [nm]                       |
| Zero Dispersion Slope(S <sub>c</sub> )    |       |                       |           | ≤0.092                          |            | [ps/(nm <sup>2</sup> -km)] |
| Chromatic dispersion @1310nm<br>@1550nm   |       |                       |           | ≤ 3.5 ps/nm·km<br>≤ 18 ps/nm·km |            |                            |
| Cable Cutoff Wavelength(λ <sub>cc</sub> ) |       |                       |           | ≤1260                           |            | [nm]                       |



|  |   |                         |      |
|--|---|-------------------------|------|
| Macro bending Loss<br>(100 turns; Φ50 mm) @1550 nm | ≤ 0.05 dB                               |                         |      |
| (100 turns; Φ50 mm) @1625 nm                       | ≤ 0.10 dB                               |                         |      |
| Mode Field Diameter @1310 nm                       | 9.2±0.4μm                               |                         |      |
| <b>Dimensional Specifications</b>                  |   |                         |      |
| Cladding Diameter                                  |   | 125.0±1                 | [μm] |
| Cladding Non-Circularity                           |   | ≤1.0                    | [%]  |
| Core-Cladding Concentricity Error                  |   | ≤0.6                    | [μm] |
| Proof stress                                       |   | ≥0.69                   | [G]  |
| <b>Dimension and Properties</b>                    |   |                         |      |
| <b>Physical &amp; Mechanical</b>                   | Cable OD                                | 8.0±0.2mm               |      |
|  | Cable weight                            | 68±3kg/km               |      |
|  | Operation temperature range             | -20 deg C to + 60 deg C |      |
|  | Installation temperature range          | -5 deg C to + 50 deg C  |      |
|  | Transport and storage temperature range | -20 deg C to + 60 deg C |      |
|  | Max. tensile load                       | 1500N                   |      |
|  | Crush resistance                        | 1000 N/10cm             |      |
|  | Minimal installation bending radius     | 20 x OD                 |      |
|  | Minimal operation bending radius        | 10 x OD                 |      |

## 7.Product parameters

| Performance                                    | Long-term    | Short-term  |
|--|--------------|-------------|
| Max. Tension (N)                               | 250          | 550         |
| Max.Crushing Resistance(N/100mm <sup>2</sup> ) | 300          | 1000        |
| Min. Bending Radius                            | 30D(Dynamic) | 15D(Static) |
| Storage and operating temperature              | -40℃ — + 70℃ |             |

## 8.Requirement for Order

- (1) Fiber type: Single mode:G652,G655,G657, Multi mode:OM1,OM2,OM3,OM4.
- (2) Fiber brand: YOFC, Corning, Fiberhome,Fujikura,OFS etc.
- (3) The fiber and tube color: according to stranded color, can be customized.
- (4) The cable Size: shall be in accordance with the cable, can be customized.
- (5) Length of cable: generally is 2KM/Drum, can be customized.

(6) Cable printing: standard printing or can be customized.

(7) Other requirement: can be negotiated.

### 9. Cable marking

The cable sheath shall be marked with white characters at intervals of one meter with following information:

- (1) Purchaser's name
- (2) Cable type
- (3) Fiber type and Fiber number
- (4) Year of manufacture
- (5) Length marking
- (6) Can do Customized cable printing

### 10. Packing Informations

- (1) Packing material: Wooden drum
- (2) Cable end protect material: waterproof-cap
- (3) Packing length: standard length of cable is 2km/drum. Customized packing length is available
- (4) Shipping mark is available if requested by customer



- 1. No damage on the surface: no trachoma.
- 2. Wooden tray packaging: wood whole seal packaging
- 3. Size of Wooden drum: 800\*340\*580mm
- 4. Segment length: no less than 2000M. The estimated weight of 2 km/roll is 155 kg. The segment length of each tray of the same batch shall be similar as much as possible. Other lengths can be agreed upon through consultation.
- 5. Test Report : It includes optical cable inspection number, optical cable type, core number, optical fiber type, length, etc

## 11. Our certificates

(1) ISO9001 (2) SGS (3) ROHS (4) REACH

## 12. TEST REQUIREMENTS

The cable is in accordance with applicable standard of cable and requirement of customer. The following test items are carried out according to corresponding reference.

### 1. Tension Loading Test

|               |  |
|---------------|--|
| Test Standard | IEC 60794-1-2 E1                             |
| Sample length | No less than 50 meters                       |
| Load          | Max. tension load                            |
| Duration time | 1 minute                                     |
| Test results  | Additional attenuation: ≤0.1dB               |
|               | No damage to outer jacket and inner elements |

### 2. Crush/Compression Test

|               |  |
|---------------|--|
| Test Standard | IEC 60794-1-2 E3                             |
| Load          | Crush load                                   |
| Duration time | 1 minute                                     |
| Test number   | 3  |
| Test results  | Additional attenuation: ≤0.1dB               |
|               | No damage to outer jacket and inner elements |

### 3. Impact Resistance Test

|                   |   |
|-------------------|---|
| Test Standard     | IEC 60794-1-2 E4  |
| Impact energy     | 3J  |
| Radius            | 300mm   |
| Number of impacts | One in 3 different places spaced not less than 500 mm apart |
| Test results      | Additional attenuation: ≤0.1dB                              |
|                   | No damage to outer jacket and inner elements                |

### 4. Torsion/Twist Test

|               |                  |
|---------------|------------------|
| Test Standard | IEC 60794-1-2 E7 |
| Sample length | 2m               |
| Angles        | ±180 degree      |
| cycles        | 10               |



|              |  |
|--------------|--|
| Test results | Additional attenuation: ≤0.1dB               |
|              | No damage to outer jacket and inner elements |

**5. Bend Test**

|                  |  |
|------------------|--|
| Test Standard    | IEC 60794-1-2 E11                            |
| Mandrel diameter | 20 X diameter of cable                       |
| Turn number      | 4  |
| Number of cycles | 3  |
| Test results     | Additional attenuation: ≤0.1dB               |
|                  | No damage to outer jacket and inner elements |

**6. Repeated Bending Test**

|                |  |
|----------------|--|
| Test Standard  | IEC 60794-1-2 E6                             |
| Bending radius | 20 X diameter of cable                       |
| Cycles         | 25 cycles                                    |
| Test results   | Additional attenuation: ≤0.1dB               |
|                | No damage to outer jacket and inner elements |

**7. Temperature cycling Test**

|                    |  |
|--------------------|--|
| Test Standard      | IEC 60794-1-2 F1   |
| Temperature step   | +20°C → -40°C → +70°C → -40°C → +70°C → +20°C  |
| Time per each step | 12 hrs   |
| Cycles             | 2  |
| Test results       | Attenuation variation for reference value (the attenuation to be measured before test at +20±3°C) ≤ 0.15 dB/km |

**8. Water penetration Test**

|                        |   |
|------------------------|---|
| Test Standard          | IEC 60794-1-2 F5                                      |
| Height of water column | 1m  |
| Sample length          | 3m  |
| Test time              | 24 hrs  |
| Test result            | No water leakage from the opposite of the sample core |