



TECHNICAL DATA SHEET
FOR
Single Mode Optical Fibre Cable
Duct/Aerial Application
(GYXTW-24 Fibers)

www.xcombg.com



ЦЕНТРАЛЕН ОФИС / СКЛАД ПЛОВДИВ

Пловдив 4000
Южна Индустриална Зона,
ул. Братя Бъкстон 134
(зад строителен хипермаркет "Рила")

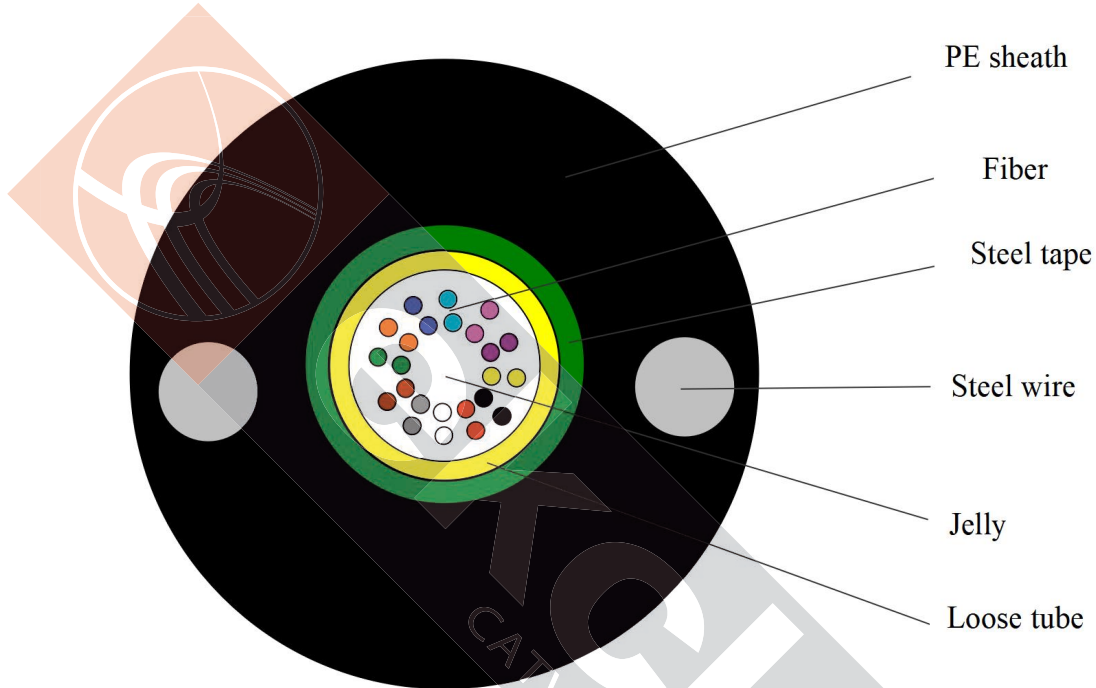
XCOM LTD - Head office:

Plovdiv city, p.c.-4000, BULGARIA,
South Industrial Zone, "Bratia Bakston 134" str.
xcomeood@gmail.com



1. Cable Construction

1.1 Cable cross-section



2. Cable Specification

2.1 Sheath marking

| KXOFC | 2024 | GYXTW | XXB1.3 (G.652D) | XXXXm |
|--|--|-------|-----------------|-------|
| KXOFC | : Manufacturer's brand | | | |
| 2024 | : Manufacture year | | | |
| GYXTW | : Cable type | | | |
| XXB1.3 (G.652D) | : XX cores single-mode optical fiber (ITU-T Rec. G.652D) | | | |
| XXXXm | : Mark of meters | | | |
| <i>*The marking is printed every 1 meter;</i> | | | | |
| <i>**"G.652D" means ITU-T Rec. Low Water Peak (LWP) G.652 Single Mode Optical Fiber.</i> | | | | |

2.2 The color of marking is white.

2.3 An occasional unclear of length marking is permitted if both of the neighboring markings are clear;

2.4 The both cable ends are sealed with heat shrinkable end caps to prevent water ingress.



2.5 Fiber color code

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

2.6 Color Code for Loose Tube (LT) & Filler Rod (FR)

| Fiber count | Element no., name & color code | | | | | |
|-------------|--------------------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 24 | LT | / | / | / | / | / |

* "LT" means "Loose tube";

2.7 Cable structure and parameter

| Items | unit | Details |
|-----------------|----------|-----------------------------|
| Optical fiber | Type | Single Mode G.652.D |
| Loose tube | Material | PBT |
| | Diameter | mm 2.8 |
| Strength member | Material | Two parallel Steel wire |
| | Diameter | mm 2*0.6mm |
| Armor | Material | mm Corrugated steel tape |
| Sheath | Material | PE |
| | Diameter | mm (±0.3) 8.6 |
| Tension | N | 250/600 |
| Crush | N/100mm | 300/1000 |

* The nominal outer diameter and height may vary by ±0.3mm.

3. Fiber Properties

3.1 The properties of single mode optical fiber (ITU-T Rec. G.652D)

| Item | Specification |
|----------------------------|----------------------------------|
| Fiber type | Single mode |
| Fiber material | Doped silica |
| Attenuation coefficient | |
| @ 1310 nm | ≤ 0.36 dB/km |
| @ 1383 nm | ≤ 0.32 dB/km |
| @ 1550 nm | ≤ 0.22 dB/km |
| @ 1625 nm | ≤ 0.30 dB/km |
| Point discontinuity | ≤ 0.05 dB |
| Cable cut-off wavelength | ≤ 1260 nm |
| Zero-dispersion wavelength | 1300 ~ 1324 nm |
| Zero-dispersion slope | ≤ 0.093 ps/(nm ² .km) |



| | |
|--|---------------------------|
| Chromatic dispersion | |
| @ 1288 ~ 1339 nm | ≤3.5 ps/(nm. km) |
| @ 1271 ~ 1360 nm | ≤5.3 ps/(nm. km) |
| @ 1550 nm | ≤18 ps/(nm. km) |
| @ 1625 nm | ≤22 ps/(nm. km) |
| PMD _Q (Quadrature average*) | ≤0.2 ps/km ^{1/2} |
| Mode field diameter @ 1310 nm | 9.2±0.4 μm |
| Core / Clad concentricity error | ≤ 0.5 μm |
| Cladding diameter | 125.0 ± 0.7 μm |
| Cladding non-circularity | ≤1.0% |
| Primary coating diameter | 245 ± 10 μm |
| Proof test level | 100 kpsi (=0.69 Gpa), 1% |
| Temperature dependence 0°C~ +70°C @ 1310 & 1550nm | ≤ 0.1 dB/km |

* PMD_Q is a link of 20 cable sections (M) and a probability level of 0.01% (Q).

4. Characteristic of Optical Cable

4.1 Mechanical & environmental characteristics

- 4.1.1 Cable bending radius: 10 x cable diameter (during operation)
 20 x cable diameter (during installation)

4.1.2 Temperature range and humidity

| | |
|---------------------------------------|----------------|
| Operating temperature range | -40°C to +60°C |
| Storage / Transport temperature range | -50°C to +70°C |
| Installation temperature range | -20°C to +50°C |

4.2 Main mechanical & environmental characteristics test

| NO | ITEM | TEST METHOD | ACCEPTANCE REQUIREMENTS |
|----|----------------------------------|--|---|
| 1 | Tensile Strength IEC 794-1-E1 | - Load: 600 N - Length of cable under load: 50m - Load time: 5 min. | - Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage. |
| 2 | Crush Test IEC 60794-1-E3 | - Load: 1, 000 N/100mm - Load time: ≥1min | - Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage. |
| 3 | Impact Test IEC 60794-1-E4 | - Points of impact: 5 - Times of per point: 5 - Impact energy: 4.5 Nm - Radius of hammer head: 12.5mm - Impact rate: 2sec/cycle | - Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage. |



| | | | |
|---|---------------------------------------|--|--|
| 4 | Repeated Bending IEC 60794-1-E6 | - Bending Dia.: 20 x OD - Load: 150N - Flexing rate: 3sec/cycle - No. of cycle: 30 | - Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage. |
| 5 | Torsion IEC 60794-1-E7 | - Length: 1m - Load: 150N - Twist rate: 1min/cycle - Twist angle: $\pm 180^\circ$ - No. of cycle: 10 | - Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage. |
| 6 | Water Penetration IEC 60794-1-F5B | - Height of water: 1m - Sample length: 3 m - Time: 24 hour | - No water shall have leaked from the opposite end of cable |
| 7 | Temperature Cycling IEC 60794-1-F1 | - Temperature step: +20°C \rightarrow -10°C \rightarrow +70°C \rightarrow +20°C - Time per each step: 12 hrs - Number of cycle: 2 | - Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage. |
| 8 | Compound Flow IEC 60794-1-E14 | - Sample length: 30 cm - Temp: 70°C \pm 2°C - Time: 24 hours | - No compound flow |

5. Packing and Marking

5.1 Packing

5.1.1 Each single length of cable shall be reeled on **Non-fumigated wooden Drum** suitable for long distance shipment.

5.1.2 Covered by plastic buffer sheet.

5.1.3 Sealed by strong wooden battens.

5.1.4 At least 1 m of inside end of cable will be reserved for testing.

5.1.5 Drum length

5.1.5.1 Standard drum length is **2000m \pm 5%**;

5.1.5.2 Single length not less than 90% of standard length per drum shall be permitted for quantity not exceeding 10% of the total supply;

5.1.5.3 Total quantity is at least the ordered quantity.

5.2 Marking

5.2.1 Cable drum



- Manufacturer brand;
- Roll-direction arrow;
- Cable outer end position indicating arrow;
- The word "**OPTICAL FIBER CABLE**";
- Origin, The word "**MADE IN CHINA**";
- Caution plate indicating the correct method for loading, unloading and convey the cable;
- *Other customer information such as contract no., project no., and delivery destination. (if needed)*

5.2.2 Marking plate

- Product name;
- Cable type and size;
- Drum length;
- Gross / Net weight in kilograms;
- Drum number in meters;
- Manufacturer's name;
- Manufacturing year and month;
- *Project number, contract number or purchasing order number (if needed).*

5.3 Cable identification documents

- Test report.

-----End-----