



TECHNICAL DATA SHEET
SECTION 1
CABLE CONSTRUCTION
GYFTSXX-SM

MULTI LOOSE TUBE, SINGLE SHEATH, STEEL METALLIC ARMORED

- Underground Cable type with Corrugated Steel Tape as armouring
- Direct Buried installation into ground
- Installation by ploughing or laying into ditch
- Also suitable for pulling into ducts.
- Special High Density Black PE provides excellent resistance during installation and protection against external effects.
- Generally preferred as underground backbone cable for Wide Area Telecom Networks

Characteristics	
Fibre optic type	SM: ITU-T G.652.D
Central strength member - Material - Diameter	- Reinforced Glass Fibre - 2.2 mm
Loose tubes - Material - Outer Diameter - Type of filling compound	- Polybuteneterephtheleta (PBT) - 2.05 mm nominal - Thixotropic jelly
Tube assembly - Tube layout - Stranding type	- Tubes stranded around central strength member symmetrically - Tubes stranded with SZ stranding method
Flooding compound - Material	- Petroleum Jelly
Core wrapping	- Polyester Tape
Dielectric Tensile Strength Member	- Glass Yarn
Armoring - Material - Thickness	- Copolymer Coated Corrugated Steel Tape - 0.155±0.015 mm
Rip Cords	Rip cords applied longitudinally to open cable easily
Outer Sheath - Material - Thickness	- Black HDPE UV resistant - 1.5 mm nominal
Cable Marking	Black hot stamping
Drum Length	2000/4000 meters ± 5 %
Identification	<Length meter>< Name of the Manufacturer>< Type of cable>< Number of optical fibers>

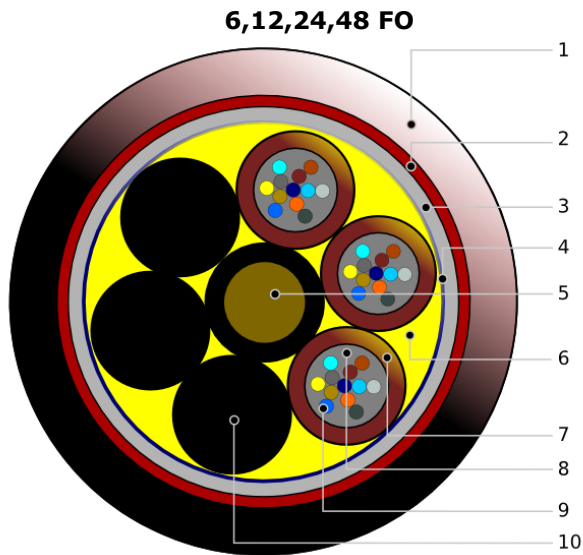
Mechanical Characteristics			
Test	Reference Standard	Specified Value	Acceptance Criteria
Tensile Strength -Installation	IEC 60794-1-2-E1(A-B)	≥1500 N	$\Delta\alpha \leq 0.05$ dB/km
Bending Under Tension	IEC 60794-1-2-E18	3000N; 10 cycles	$\Delta\alpha \leq 0.05$ dB/km
Repeated Bending	IEC 60794-1-2-E6	200mm; 100N; 35 cycles; 2s	$\Delta\alpha \leq 0.05$ dB, no damage
Crush	IEC 60794-1-2-E3	2200 N /100 mm (15min.)	$\Delta\alpha \leq 0.05$ dB, no damage
Impact	IEC 60794-1-2-E4	D=300 mm, 3 impacts, R= 50 mm, 30 Joule hammer impact energy	No sheath damage; No permanent change in attenuation.
Torsion	IEC 60794-1-2-E7	100N, +/- 1, 1000mm, 5 cycles	$\Delta\alpha \leq 0.10$ dB, no damage
Kink	IEC 60794-1-2-E10	300 mm loop, T=20°C	No kink shall occur
Cable Bend	IEC 60794-1-2-E11 (A)	R=600 mm, 5 turns, 3 cycles, T=-15°C	$\Delta\alpha \leq 0.05$ dB, no damage
Temperature Cycling	IEC 60794-1-2-F1	-40°C to +70°C	Max.0.10 dB/km
Ageing	IEC 60794-1-2-E5	Accelerated aging test	Stripping force stability
Water Penetration	IEC 60794-1-2-F5B	Sample=3m, Water column=1m	No water leakage in 24h

Fiber Count	Buffer Count	Filler Count	Cable Diameter nominal (mm)	Cable Weight (kg/km)
6,12,24,48			11.2	100

**TECHNICAL DATA SHEET
SECTION 2
OPTICAL CABLE CHARACTERISTIC**

Property	Value
Attenuation @ 1310 nm average maximum	0.34 dB/km 0.36 dB/Km
Attenuation @ 1550 nm average maximum	0.22 dB/km 0.25 dB/Km

**TECHNICAL DATA SHEET
SECTION 3
TECHNICAL DRAWING**



1. Outer Sheath
2. Corrugated Steel Tape
3. Glass Yarn
4. Core Wrapping
5. Central Strength Member
6. Petroleum Jelly
7. Buffer Material (PBT)
8. Thixotropic Jelly
9. 6,12,24,48 Fibers per Cable
10. PE Fillers

OPTICAL FIBER and TUBE COLORS

Tube Color Scheme	
Tube No.	Color
1	Red
2	Yellow
3	Green

Fiber Color Scheme	
Fiber No.	Color
1	Red
2	Yellow

Notes:

- 1) Different color coding available on request.
- 2) Number of tubes per cable and number of fibers per tube depend on cable design.

TECHNICAL DATA SHEET
SECTION 4
OPTICAL FIBER CORE SPECIFICATIONS
Low Water Peak Single-Mode Optical Fibre
Standard ITU-T G.652.D
(Uncoloured Fibre)

Geometrical Characteristics		
Mode field diameter	at 1310 nm	9.20 ± 0.40 μm
	at 1550 nm	10.30 ± 0.50 μm
Core concentricity error	≤ 0.6 μm	
Cladding diameter	125.0 ± 0.7 μm	
Cladding non-circularity	≤ 0.7 %	
Coating/Cladding concentricity error	≤ 12 μm	
Primary coating material - Diameter	UV curable acrylate 245 ± 5 μm (Uncoloured)	
Fibre curl radius	≥ 4.0 m	
Optical Characteristics		
Attenuation	at 1310 nm	≤ 0.35 dB/km
	at 1383 nm	≤ 0.32 dB/km* ¹
	at 1550 nm	≤ 0.20 dB/km
	at 1625 nm	≤ 0.23 dB/km
Attenuation vs. wavelength	1285 – 1330nm	α ≤ 0.03 dB/km (ref. λ of 1310nm)
	1525 – 1575nm	α ≤ 0.02 dB/km (ref. λ of 1310nm)
Point discontinuity at 1310 and at 1550 nm	≤ 0.05 dB	
Cable cut-off wavelength (λ _{cc})	≤ 1260 nm	
Zero dispersion wavelength λ ₀	1300 – 1324 nm	
Zero dispersion slope S ₀	≤ 0.086 ps/nm ² x km	
Chromatic dispersion	at 1285-1330 nm	≤ 3.5 ps/nm x km
	at 1550 nm	≤ 17.0 ps/nm x km
	at 1625 nm	≤ 22.0 ps/nm x km
Fibre polarization mode dispersion	≤ 0.15 ps/√km (Uncabled fibre)	
	≤ 0.06 ps/√km (PMD link design value) * ²	
* ¹ :Attenuation increases due to hydrogen aging at this wavelength will be 0.01 dB/km or less in accordance with IEC 60793-2-50 test procedure.		
* ² :Since PMD value may change when fiber is cabled, actual PMD Link design value in a cable shall be confirmed by cable manufacturer. Under appropriate cable design, core specification supports network design requirements for a 0.20 ps/r-km of maximum PMD link design value specified by ITU-T G.652D.		
Mechanical Characteristics		
Proof stress level	1.0% (100 kpsi, 0.7 GPa)	
Minimum bending radius	30 mm	
Bending induced attenuation		
• 1 turn on 32 mm diameter at 1550 nm	≤ 0.05 dB	
• 100 turn on 50 mm diameter at 1310 nm	≤ 0.05 dB	
• 100 turn on 50 mm diameter at 1550 nm	≤ 0.05 dB	
• 100 turn on 60 mm diameter at 1625 nm	≤ 0.05 dB	
Coating strip force (F)	1.3 N ≤ F ≤ 8.9 N (Peak value)	
	1.0 N ≤ F ≤ 5.0 N (Average value)	
Dynamic tensile strength	Unaged	≥ 3.8 Gpa (≥ 550 kpsi)
	Aged	≥ 3.0 Gpa (≥ 440 kpsi)
Dynamic fatigue (n _d)	20 (typical value)	
Static fatigue (n _s)	20 (typical value)	
Environmental Characteristics		
Induced attenuation at 1310 nm, at 1550 nm and at 1625 nm		
• -60°C ~ +85°C Temperature Cycling	≤ 0.05 dB/km	
• -10°C ~ +85°C/up to 98% RH Dump Heat Cycling	≤ 0.05 dB/km	
• +85°C ± 2°C Dry Heat	≤ 0.05 dB/km	
• +23°C ± 2°C Water Immersion	≤ 0.05 dB/km	
Performance Characteristics		
Effective group index of refraction	1.4675@1310nm	
	1.4681@1550nm	

NOTE: Unless otherwise verified using measurement method according to international standard such like ITU-T G.650