DUCT OPTICAL FIBER CABLE · 24 - 204 FIBRES

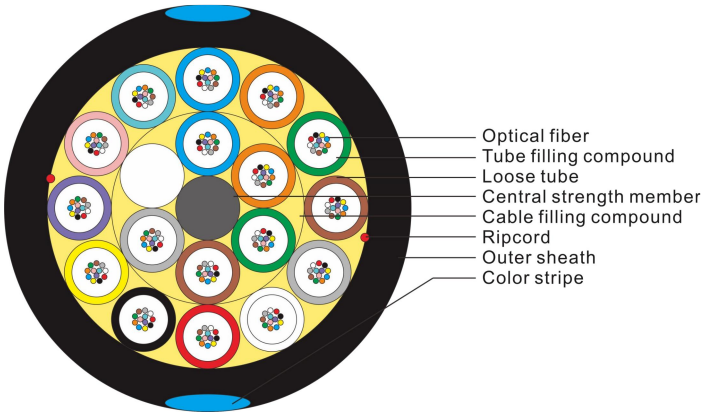
24 - 204 F

GYFTY

MODEL **SM G.652D**

Duct cable from 24 to 204 fibres, stranded PBT loose tubes around an FRP central strength member, black PE sheath with a blue stripe.

FIBRES	TYPE
24 - 204	**DUCT**
SHEATH	WEIGHT
PE BLACK	**96 - 298 kg/km**



01 OVERVIEW

Scope & cable cross-section

The GYFTY is a duct optical fibre cable for underground routes. PBT loose tubes are stranded around an FRP central strength member and sheathed in black PE with a blue stripe; the compact round section is designed for pulling through ducts and conduits.

CONSTRUCTION

- 4 to 17 PBT loose tubes around a 2.3 or 3.0 mm FRP central strength member.
- Cable filling compound in the core, two ripcords.
- Black PE sheath with a blue stripe.
- Bend radius 10 × diameter static, 20 × dynamic.
- Operating temperature −40 °C to +60 °C.

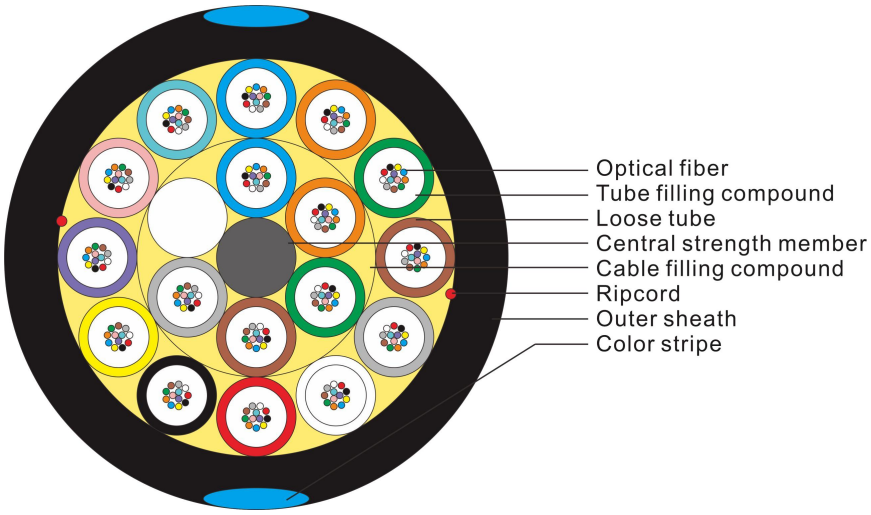


FIG. 1 GYFTY cable cross-section

02 STANDARDS

Design & test references

STANDARD	TITLE
ITU-T G.652	Characteristics of a single-mode optical fibre
IEC 60794-1-1	Optical fibre cables — generic specification, general
IEC 60794-1-2	Optical fibre cables — basic optical cable test procedures
IEC 60794-3	Optical fibre cables — sectional specification, outdoor cables

03 CABLE IDENTIFICATION

3.1 FIBRE COLOUR CODE

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

3.2 LOOSE TUBE (LT) & FILLER ROD (FR) COLOUR CODE

FIBRE COUNT	ELEMENT NO.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
24	LT	LT	LT	LT	FR	FR							
72	LT	LT	LT	LT	LT	LT							
144	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	
204	LT	LT	LT	LT	LT	FR	LT	LT	LT	LT	LT	LT	

LT = loose tube, FR = filler rod. Element numbers 1 - 13 as per the cable construction.

04 CONSTRUCTION

Cable assembly & dimensions

ITEM	CONTENT	24	72	144	204
Loose tube	Number	4	6	12	5+12
Loose tube	Outer diameter (mm)	2.1 ± 0.1	2.8 ± 0.1	2.5 ± 0.1	3.0 ± 0.1
Loose tube	Wall thickness (mm)	0.35 ± 0.05			
Loose tube	Material	PBT			
Loose tube	Water blocking	Tube filling compound			
Filler rod	Number	2	0	0	1+0
Filler rod	Material	PP			
Max. fibres per tube	G.652D	6	12	12	12
CSM	Material	FRP			
CSM	Diameter (mm)	2.3 ± 0.1	2.3 ± 0.1	3.0	3.0
CSM	PE layer diameter (mm)	–	–	7.5 ± 0.2	–
Cable core	Water blocking	Cable filling compound			
Ripcord	Number	2			
Stripe	Colour	Blue			
Outer sheath	Material / colour	PE, black			
Outer sheath	Thickness (mm)	Nominal 2.0 / min 1.8	Nominal 2.2 / min 2.0	Nominal 2.0 / min 1.8	Nominal 2.0 / min 1.8
Cable	Cable diameter (mm)	10.5 ± 0.5	13.0 ± 0.5	16.5 ± 0.5	19.0 ± 0.5
Cable	Cable weight (kg/km)	96 ± 15 %	146 ± 15 %	232 ± 15 %	298 ± 15 %

05 FIBRE PERFORMANCE

Cabled fibre, ITU-T G.652D

ITEM	SPECIFICATION
Fiber type	Single mode
Fiber material	Doped silica
Attenuation @ 1310 nm	≤ 0.36 dB/km
Attenuation @ 1550 nm	≤ 0.22 dB/km
Cable cut-off wavelength	≤ 1260 nm
Zero-dispersion wavelength	1300 - 1324 nm
Zero-dispersion slope	≤ 0.092 ps/(nm²·km)
Chromatic dispersion, 1288 - 1339 nm	≤ 3.5 ps/(nm·km)
Chromatic dispersion, 1550 nm	≤ 18 ps/(nm·km)
Chromatic dispersion, 1625 nm	≤ 22 ps/(nm·km)
PMD	≤ 0.2 ps/√km
Mode field diameter @ 1310 nm	9.2 ± 0.4 μm
Core / clad concentricity error	≤ 0.6 μm
Cladding diameter	125.0 ± 1.0 μm
Cladding non-circularity	≤ 1.0 %
Primary coating diameter	245 ± 10 μm

06 CABLE PERFORMANCE

Bend radius & temperature

ITEM	SPECIFICATION
Cable bending radius	10 × cable diameter (static) / 20 × cable diameter (dynamic)
Operating temperature	−40 °C to +60 °C
Storage / transport temperature	−40 °C to +60 °C
Installation temperature	−20 °C to +50 °C

07 MECHANICAL & ENVIRONMENTAL TESTS

Test methods & criteria

S/N	TEST ITEM	METHOD	ACCEPTANCE CRITERIA
1	Tensile strength	IEC 60794-1-21-E1	1,500 N / 600 N (24 F) 2,000 N / 800 N (72 F) 3,000 N / 1,200 N (144 F) 3,500 N / 1,600 N (204 F) Length 50 m; ≥ 1 min; Δα ≤ 0.1 dB @ 1550 nm; fibre strain ≤ 0.6 % short term / ≤ 0.2 % long term; no fibre break, no sheath damage.
2	Crush	IEC 60794-1-21-E3	1,000 N/100 mm short term; 300 N/100 mm long term; ≥ 1 min; Δα ≤ 0.1 dB @ 1550 nm; no fibre break, no sheath damage.
3	Impact resistance	IEC 60794-1-21-E4	5 points × 1 impact; 4.5 N·m; Δα ≤ 0.1 dB @ 1550 nm; no fibre break, no sheath damage.
4	Repeated bending	IEC 60794-1-21-E6	Bending radius 20 × OD; 25 cycles; Δα ≤ 0.1 dB @ 1550 nm; no fibre break, no sheath damage.
5	Torsion	IEC 60794-1-21-E7	Length 1 m; ± 180°; 10 cycles; Δα ≤ 0.1 dB @ 1550 nm; no fibre break, no sheath damage.
6	Water penetration	IEC 60794-1-22-F5B	Water height 1 m; sample 3 m; 24 h; no water at the opposite end.
7	Temperature cycling	IEC 60794-1-22-F1	−40 °C / +60 °C; dwell 12 h; 2 cycles; Δα ≤ 0.1 dB/km @ 1550 nm; no sheath damage.
8	Compound flow	IEC 60794-1-21-E14	Sample 30 cm; 70 ± 2 °C; 24 h; no compound flow.

08 PACKING

Drum length & dimensions

- Each cable length is wound on an iron-stand wooden composite or pure wooden drum.
- Standard drum length 2,000 / 3,000 / 4,000 m with ± 2 %.
- Covered by a plastic buffer sheet.
- Sealed by strong wooden battens or cartons.
- At least 3 m of the cable inner end is reserved for testing.

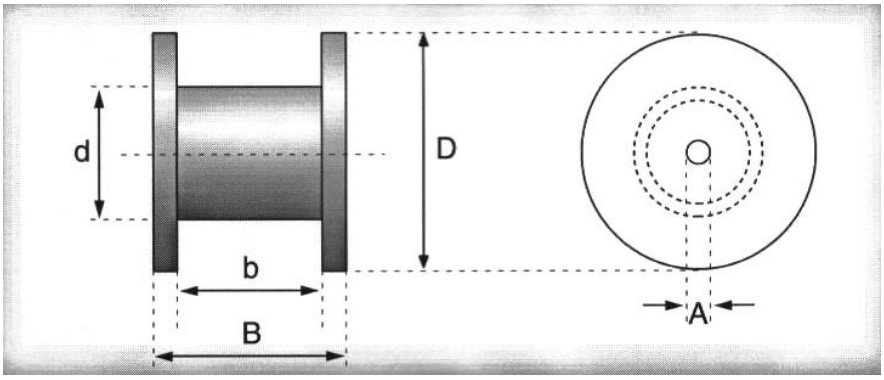


FIG. 2 Drum dimensions — D includes the seal dimension

STANDARD DRUM LENGTH & DIMENSIONS

CABLE TYPE	DRUM LENGTH (m)	D (mm)	d (mm)	B (mm)	b (mm)
GYFTY 24C	4,000	1,230	500	720	620
GYFTY 72C	4,000	1,538	700	720	610
GYFTY 144C	4,000	1,538	700	1,100	1,000
GYFTY 204C	4,000	1,838	900	1,100	970

D (-2, +12) mm, d (±10) mm, B (-5, 0) mm.

ZUOYEAL

ZUOYEAL TECHNOLOGY

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This datasheet describes the GYFTY duct cable at the time of publication. Dimensions and configurations may change without notice; confirm current values with ZUOYEAL before ordering.

24 - 204F · G.652D · DUCT

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