SINGLE-MODE OPTICAL FIBRE CABLE · DUCT APPLICATION

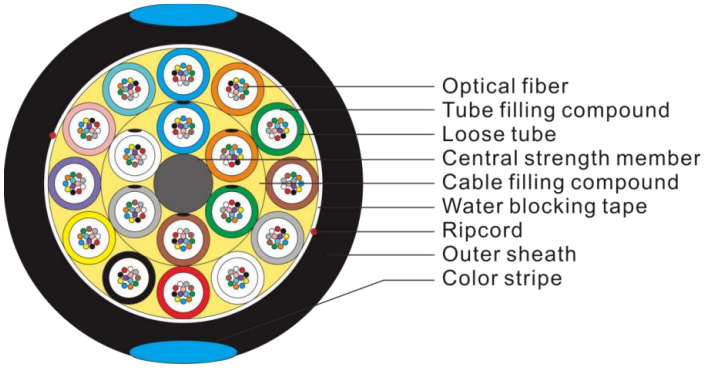
24-216C

DUCT

MODEL **GYFTY**

Single-mode optical fibre cable for duct application, from 24 to 216 fibres on one stranded loose-tube construction.

FIBRE COUNT	FIBRE TYPE
24-216	**G.652D**
TUBES	OD
4-24	**9.4-14.6 mm**



01 OVERVIEW

Product overview

The GYFTY is a single-mode optical fibre cable for duct installation, built on one stranded loose-tube core from 24 to 216 fibres. PBT loose tubes are stranded around a central FRP strength member, water-blocked with filling compound and a water-blocking tape, and finished with a black PE sheath.

The cable carries a blue stripe, two ripcords and a nominal 2.0 mm sheath; standard drum lengths are given in section 08. Dimensions and weights change with the fibre count — see the series table on page 3.

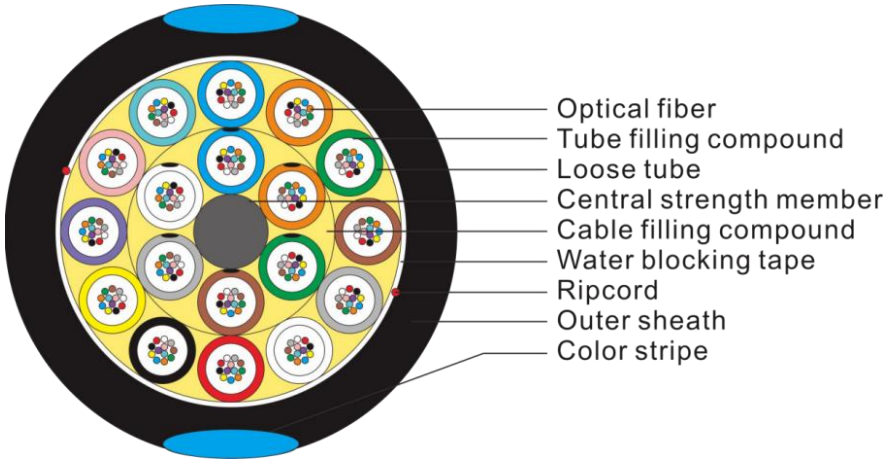


FIG. 1 Cable cross-section (not to scale)

AT A GLANCE

ITEM	VALUE	ITEM	VALUE
Fibre counts	24 · 72 · 144 · 204 · 216	Cable diameter	9.4 - 14.6 mm
Cable weight	70 - 181 kg/km	Operating range	−40 to +70 °C

02 STANDARDS

Reference standards

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

03 CABLE ASSEMBLY & DIMENSIONS

FIBRE COUNT	24	72	144	204	216
Loose tubes	4	6	12	6+11	6+12
Tube diameter (mm)	1.8	2.0	2.0	2.0	2.0
Max. fibres per tube	6	12	12	12	12
Fillers	1	0	0	1	0
CSM diameter (mm)	1.4	2.2	2.2	2.2	2.2
CSM PE layer OD (mm)	–	–	6.0	–	–
Cable diameter (mm)	9.4	10.6	14.4	14.6	14.6
Cable weight (kg/km)	70	91	172	181	181

Common to all counts: PBT loose tube, wall 0.3 ± 0.05 mm, filled with thixotropic compound; PP filler rods where a slot is empty; FRP central strength member; cable filling compound and water-blocking tape; 2 ripcords; blue stripe; black PE sheath, nominal 2.0 mm (minimum 1.8 mm).

04 IDENTIFICATION

Fibre & tube identification

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

Fibre colour code — fibres are counted 1 to 12 in each tube using the colours above. Illustration colours are for reference only and do not indicate exact colour codes.

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

FIBRE COUNT	ELEMENT NO.											
	1	2	3	4	5	6	7	8	9	10	11	12
24	LT	LT	LT	LT	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	LT	LT	LT	LT	LT	LT	FR
	LT+BS	LT+BS	LT+BS	LT+BS	LT+BS	LT+BS						
216	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT
	LT+BS	LT+BS	LT+BS	LT+BS	LT+BS	LT+BS						

LT = loose tube, FR = filler rod, BS = black stripe. Element 1 starts blue, element 2 orange, and so on with the colour code above.

05 OPTICAL

Performance of cabled optical fibre

ITEM	CONDITION	SPECIFICATION
Fiber type		Single mode, ITU-T G.652D
Fiber material		Doped silica
Attenuation coefficient	1310 nm	≤ 0.36 dB/km
Attenuation coefficient	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 / cladding concentricity error		≤ 0.6 μm
Cladding diameter		125.0 ± 1.0 μm
Cladding non-circularity		≤ 1.0 %
Primary coating diameter		245 ± 10 μm

06 PERFORMANCE

Performance of optical fibre cable

ITEM	SPECIFICATION
Cable bending radius	10 × cable diameter (static) · 20 × cable diameter (dynamic)
Operating temperature	−40 °C to +70 °C
Storage / transport temperature	−40 °C to +70 °C
Installation temperature	-20 °C to +60 °C

07 TESTING

Mechanical & environmental performance

S/N	ITEM	TEST METHOD	ACCEPTANCE
1	Tensile strength IEC 60794-1-21-E1	800 N short term / 320 N long term (24F) 1,500 N short term / 600 N long term (72–216F)	Δ loss ≤ 0.1 dB @1550 nm Strain ≤ 0.6 % short / ≤ 0.2 % long
2	Crush IEC 60794-1-21-E3	1,000 N/100 mm · ≥ 1 min	Δ loss ≤ 0.1 dB @1550 nm No fibre break, no sheath damage
3	Impact IEC 60794-1-21-E4	5 points · 1 impact each · 450 g × 1 m	Δ loss ≤ 0.1 dB @1550 nm No fibre break, no sheath damage
4	Repeated bending IEC 60794-1-21-E6	20 × OD · 150 N · 30 cycles	Δ loss ≤ 0.1 dB @1550 nm No fibre break, no sheath damage
5	Torsion IEC 60794-1-21-E7	1 m · 150 N · ±180° · 10 cycles	Δ loss ≤ 0.1 dB @1550 nm No fibre break, no sheath damage
6	Water penetration IEC 60794-1-22-F5B	1 m head · 3 m · 24 h	No water at the opposite end
7	Temperature cycling IEC 60794-1-22-F1	−40 / +70 °C · 12 h per step · 2 cycles	Δ loss ≤ 0.1 dB/km @1550 nm No fibre break, no sheath damage
8	Compound flow IEC 60794-1-21-E14	30 cm · 70 ± 2 °C · 24 h	No compound flow

08 PACKING

Packing & drum

DRUM	Each single length is wound on an iron stand-wooden composite or pure wooden drum.
STANDARD LENGTH	2,000 / 3,000 / 4,000 m per drum, ±2%.
PROTECTION	Covered by a plastic buffer sheet and sealed with strong wooden battens.
TEST ALLOWANCE	At least 3 m of the cable inner end is reserved for testing.

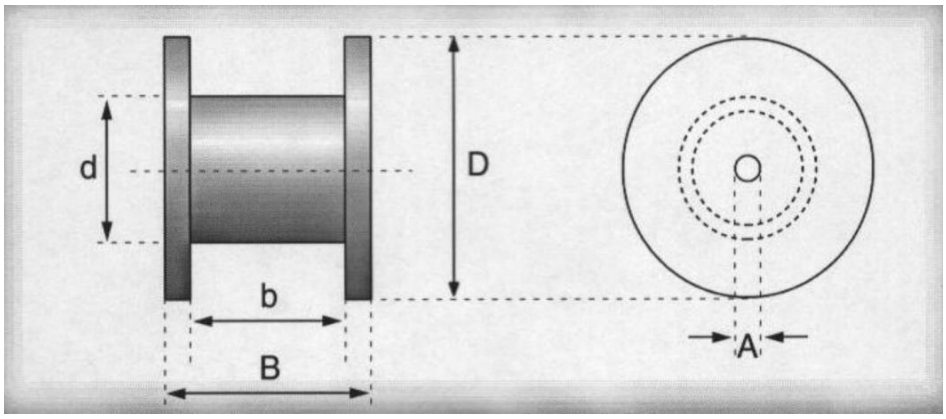


FIG. 2 Drum dimensions — D contains the seal dimension

CABLE TYPE	DRUM LENGTH (m)	D (mm)	d (mm)	B (mm)	b (mm)
GYFTY 24C	4,000	1,130	500	710	660
GYFTY 72C	4,000	1,186	500	710	660
GYFTY 144/204/216C	4,000	1,438	700	1,100	1,000

ZUOYEAL

ZUOYEAL TECHNOLOGY

Connecting More, With Fiber

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

24–216C · G.652D · DUCT

Connecting More, With Fiber