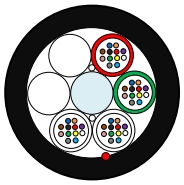
Micro Cable

1. Application / Construction

Identification	GYCFHTY-48/96/144/216 G.657A1			
Application	Micro cable for blowing into microducts			
Cross Section (not to scale)	48 fibers 	96 fibers 	144 fibers 	216 fibers 
Recommended for microduct dimension (O/I-Ø in mm)	≥12/8	≥12/8	≥14/10	≥14/10
Configuration	- Loose tubes with 12 optical fibers, filled with thixotropic compound - Stranded loose tubes and fillers if necessary - Central strength member made of FRP or FRP with coating if necessary - Cable strand: dry, with water blocking materials - Outer sheath: HDPE, 1 ripcord under the sheath			
Temperature Range	Storage and transport -20 to +60°C	Installation -5 to +50°C	Operation -20 to +60°C	
Standards	IEC 60793-1, IEC 60793-2, IEC 60794-5, IEC 60793-1-52			
ZTT Specification	23-XJ30103-1-a			
Customer Reference	Common standard			

2. Dimensions

Number of fibers		48	96	144	216 200µm
Loose tubes x fibers		4x12	8x12	12x12	9x24
Loose tubes / Dummies		4/2	8/0	12/0	9/0
Loose tube Ø	mm	1.5	1.4	1.4	1.6
Central Strength Member	mm	1.7	2.3	4.2 (2.8)	3.2
Outer sheath thickness	mm	0.5	0.4	0.4	0.5
Outer diameter (± 0.3)	mm	5.7	5.9	7.8	7.4
Weight (± 20%)	kg	29	36	58	56

Note: sheath thickness not consider ripcord portion, sizes and values without tolerances are reference values

3. Mechanical Properties

Max. tensile load (Install.)	N	700	1000	1500	2000
Crush resistance / 10 cm	N	700			
Bending radius (installation)	20x cable Ø				
Bending radius (operation)	15x cable Ø				

See Point 6: Test Methods

4. Marking

Fiber Colors	1	2	3	4	5	6	7	8	9	10	11	12
	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
	13	14	15	16	17	18	19	20	21	22	23	24
	red	green	blue	yellow	white	grey	brown	violet	aqua	natural	orange	pink

Tube Colors	1	2	3	4	5	6	7	8	9	10	11	12
	red	green	natural	natural	natural	natural	natural	natural	natural	natural	natural	natural

Outer Sheath: black, ink jet or laser print, marking in 1 meter intervals as follows:

ZTT OPTICAL CABLE <cable type> <batch ID> <meter marking >

5. Optical Fiber

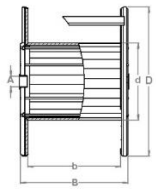
Standard	ITU-T G.657A1		
Optical	Fibre attenuation .. cabled	@ 1310 nm ≤0.38 dB/km	@ 1550 nm ≤0.23 dB/km
	Mode field diameter (MFD)	8.8 ± 0.4 µm	-
	Zero dispersion wavelength	1300~1324 nm	
	Zero dispersion slope	≤0.092 ps/nm² ·km	
	Dispersion coefficient	@ 1310 nm ≤3.5 ps/nm.km	@ 1550 nm ≤19.0 ps/nm.km
	Cut-off wavelength	≤1260 nm	
	Macro bending loss .. 10 turns Ø30 mm .. 1 turn Ø20 mm	@1550 nm ≤0.25 dB ≤0.75 dB	@1625 nm ≤1.0 dB ≤1.5 dB
Geometric	Cladding diameter	125 ± 1.0 µm	
	Coating Diameter	250 ± 15 µm	200 ± 10 µm
	Core/clad concentricity error	≤0.5µm	
	Cladding non-circularity	≤1.0 %	
Mechanical	Proof stress	≥0.69 Gpa	

6. Test Methods

Test	Conditions	Acceptance criteria
Tensile strength IEC 60794-1-2 E1	Tensile strength: see Point 3 Sample length: ≥ 50 m, Test duration: 1 min	- Fiber strain:≤0.60%, △α reversible - No damage
Crush resistance IEC 60794-1-2 E3	Crush: see Point 3 Test duration: 1 min, number of tests: 3	- △α reversible - No damage
Impact IEC 60794-1-2 E4	Impact energy: 1 J R = 300 mm, number of places/tests: 3	- △α reversible - No damage
Repeated bending IEC 60794-1-2 E6	Bending radius: 20x cable Ø 25 cycles, 100N load	- △α reversible - No damage
Torsion IEC 60794-1-2 E7	Sample length: 2 m ± 180°, 10 cycles, 100N	- △α reversible - No damage
Bend IEC 60794-1-2 E11A	Bending radius: 10x cable Ø 4 bends, 3 cycles	- △α reversible - No damage
Temperature cycling IEC 60794-1-2 F1	-20°C .. +60°C 4 hours at each temperature step, 2 cycles	- Δα ≤ 0.1 dB/km - Δα reversible, no damage
Water penetration IEC 60794-1-2 F5	Sample length: 3 m Water column height: 1 m, test duration: 24 h	- No water leakage

All optical measurements at 1550 nm

7. Logistics

Cable type	Length Tolerance	4 km -2% / +2%	
GYCFHTY-48 G.657A1	Wooden drum Dimensions Weight	95*60*75 168 kg	 D*d*B in cm
GYCFHTY-96 G.657A1		95*60*75 196 kg	
GYCFHTY-144 G.657A1		115*70*75 302 kg	
GYCFHTY-216 G.657A1		125*80*75 304 kg	

Dimensions including protection. Indicative values, actually delivered drum sizes and weights may deviate. Cable ends sealed with caps