

Type

p/n: GYBW-...FSM

mini-duct optical cable acc. IEC EN 60794-3-10

Application

Cable is designed for duct installation in cable microduct by blowing and meets optimal stiffness and flexibility parameters using optical fibers acc. G.652D or G.657A1 standards in mini loose tubes.

Cable Design



144F version illustrated
-not to scale -

- 1. Central strength member:** Fiber reinforced plastic rod (FRP)
- 2. Loose tubes:** Polybutileneptalate (PBT) tubes containing up to 24 fibers and filled with a tixotropic compound
- 3. Fillers:** thermoplastic rods (if applicable)
- 4. Water tightness:** water swellable yarns placed longitudinally (dry core)
- 5. Ripcord** (optionally)
- 6. Outer sheath:** High density polyethylene (HDPE)

Cable properties

Optical characteristics

Optical fibers ¹	Fujikura FutureGuide-ACE™ singlemode fibers acc. ITU-T G.652D / G.657A1 standards
Outer diameter (uncoloured), μm	240±0.5
Cladding diameter, μm	125±1.0
Core concentricity error, μm	≤ 0.5
Mode field diameter at: @ 1310 nm @ 1550 nm	9.2±0.4 10.4±0.8
Attenuation, dB/km at: @ 1310 nm @ 1550 nm	0.36 0.22
Chromatic dispersion, ps/(nm km): @ 1310 nm @ 1550 nm	3.5 18
Link design value PMD _Q *4, ps/√km	≤ 0.08
Proof test, GPa	≤ 0.69

¹ The fibers of the other manufacturers can be used. See fiber data sheet for more information

Physical characteristics

Fiber count in the cable	12	24	48	72
Core design	1*12	2*12	4*12	6*12
Outer diameter, mm	5,5			
Cable weight, kg/km	23,0	23,0	23,5	24,0
Temperature range:	Operational temperature: -40 ... +60 °C Storage temperature: 40 ... +60 °C Installation temperature: -10 ... +60 °C			

























² Where: Numbers of tubes x numbers of fibers in each tube

Mechanical & Environmental characteristics

Test	Standard	Value	Requirements ³
Tensile strength	IEC 60794-1-21-E1	≥ 0,7 N	Δα reversible
Crush resistance	IEC 60794-1-21-E3	500 N/100 mm, 15 min	Δα ≤ 0.05 dB, no damage
Impact	IEC 60794-1-21-E4	2 J, 3 impacts, R=300 mm	Δα ≤ 0.05 dB after the test, no damage
Repeated bending	IEC 60794-1-21-E6	R=20xOD, 100 N, 35 cycles	No damage
Torsion	IEC 60794-1-21-E7	100 N, ±180°, 10 cycles	Δα ≤ 0.05 dB, no damage
Minimum bend radius	IEC 60794-1-21-E11	R=20xOD, 3 cycles, 4 turns	Δα ≤ 0.05 dB, no damage
Temperature cycling	IEC 60794-1-21-F1	-15° -> +60°C -25° -> +70°C	Δα ≤ 0.05 dB/km Δα ≤ 0.10 dB/km, reversible
Water penetration	IEC 60794-1-21-F5B	3 m sample, 24h	No water penetration

³ values for single mode fibers, all optical measurements performed at 1550 nm

Colour coding acc. IEC 60304⁴

No of fiber/tubes	1	2	3	4	5	6	7	8	9	10	11	12
Colour												
No of fiber/tubes	13	14	15	16	17	18	19	20	21	22	23	24
Colour												

⁴ Other colour coding system (e.g. IEEE 802.8 FOTAG, ANSI/TIA 598-C) is available on customer's order.

Logistic

Packing: wooden drums with cover protection

Delivery lengths: 2000, 4000 or 6000 meters (tolerance -3%/+3%), other lengths available upon agreement