

GYFDXBPH — Special Ribbon Cable

16F & 12F ribbons · 288F – 6,912F · 250 µm · LSZH or PE sheath

288F – 6912F

16F/12F ribbon

G.657A1 / A2

LSZH / PE

Mass fusion

GYFDXBPH packs up to 6,912 fibers into a 41.6 mm cable by stacking 16F and 12F special ribbons around a central FRP member. Ribbon construction is what makes the fiber count practical to terminate: mass fusion splicing joins a full ribbon in a single operation instead of fiber by fiber, which is the difference between a feasible and an unfeasible schedule at these densities. G.657 bend-optimised fiber tolerates the tight routing found in data centre trays and manholes.

■ Applications

- AI and hyperscale data centre interconnect, including 800G and 1.6T architectures
- Metro and long-haul backbone trunks where duct count is fixed
- Central office and carrier hotel entrance cables
- High-density campus distribution requiring mass fusion splicing

■ Fiber characteristics — geometric (G.657A1 and G.657A2)

Item		Specification
Mode field diameter	at 1310 nm	$8.6 \pm 0.4 \mu\text{m}$
Cladding diameter		$125 \pm 0.7 \mu\text{m}$
Core concentricity error		$\leq 0.5 \mu\text{m}$
Cladding non-circularity		$\leq 0.7 \%$
Cut-off wavelength (λ_{cc})	cabled	$\leq 1260 \text{ nm}$
Cut-off wavelength (λ_c)	fiber	1180 – 1330 nm
Primary coating diameter	excl. colour layer	$245 \pm 10 \mu\text{m}$
	incl. colour layer	$250 \pm 10 \mu\text{m}$
Coating-cladding concentricity error		$\leq 12.0 \mu\text{m}$
Fiber curl radius		$\geq 4 \text{ m}$

■ Transmission characteristics

Item	Condition	G.657A1	G.657A2
Attenuation	at 1310 nm	$\leq 0.40 \text{ dB/km}$	$\leq 0.40 \text{ dB/km}$
	at 1550 nm	$\leq 0.30 \text{ dB/km}$	$\leq 0.30 \text{ dB/km}$
Macro bending loss	$\Phi 30 \text{ mm}$, 10 turns @ 1550 nm	$\leq 0.25 \text{ dB}$	$\leq 0.03 \text{ dB}$
	$\Phi 30 \text{ mm}$, 10 turns @ 1625 nm	$\leq 1.0 \text{ dB}$	$\leq 0.1 \text{ dB}$
	$\Phi 20 \text{ mm}$, 1 turn @ 1550 nm	$\leq 0.75 \text{ dB}$	$\leq 0.1 \text{ dB}$
	$\Phi 20 \text{ mm}$, 1 turn @ 1625 nm	$\leq 1.5 \text{ dB}$	$\leq 0.2 \text{ dB}$
Chromatic dispersion	1288 – 1339 nm	$\leq 3.5 \text{ ps/nm}\cdot\text{km}$	$\leq 3.5 \text{ ps/nm}\cdot\text{km}$
	at 1550 nm	$\leq 18 \text{ ps/nm}\cdot\text{km}$	$\leq 18 \text{ ps/nm}\cdot\text{km}$
Zero dispersion wavelength		1300 – 1324 nm	1300 – 1324 nm
Zero dispersion slope		$\leq 0.092 \text{ ps/nm}^2\cdot\text{km}$	$\leq 0.092 \text{ ps/nm}^2\cdot\text{km}$

G.657A2 delivers an order-of-magnitude better macro bending performance and is the recommended choice for tray-dense data centre routing. Specify fiber grade at order.

Cable construction

Element	Material / description
Optical unit	16F or 12F special ribbons, stacked and stranded
Central strength member	FRP, fully dielectric
Marking line	Ribbon stack identification
Water blocking	Water blocking tape — half-dry construction
Ripcord	Included for sheath access
Outer sheath	LSZH (yellow) or PE (black)

Dimensions and weight

Fiber count	Fibers / ribbon	Ribbons — 16F	Ribbons — 12F	Diameter (mm)	Weight LSZH (kg/km)	Weight PE (kg/km)
288	16 / 12	18	24	12.5	158	118
432	16 / 12	27	36	14.0	185	139
576	16 / 12	36	48	15.0	207	157
864	16 / 12	54	72	17.5	257	196
1,152	16 / 12	72	96	19.5	301	231
1,728	16 / 12	108	144	24.0	394	305
2,880	16 / 12	180	240	29.0	532	423
3,456	16 / 12	216	288	31.0	585	480
6,912	16 / 12	432	576	41.6	953	788

Diameter and weight are approximate; tolerance $\pm 10\%$. Structural dimensions are preliminary designs and may be adjusted in production.

Mechanical and environmental performance

Test	Method	Conditions	Requirement
Tensile performance	IEC 60794-1-21-E1	Short-term load 1,320 N; 5 min	Loss change ≤ 0.05 dB @ 1550 nm (after test); no sheath damage
Crush	IEC 60794-1-21-E3	1,000 N / 100 mm; 5 min; 100 mm length	Loss change ≤ 0.05 dB @ 1550 nm (during test); no sheath damage
Impact	IEC 60794-1-21-E4	1 m height; 450 g; 3 points $\times$ 1	No fiber break; no sheath damage
Repeated bending	IEC 60794-1-21-E6	Radius $20 \times D$; 150 N; 2 s/cycle; 25 cycles	No fiber break; no sheath damage
Bend	IEC 60794-1-21-E11	Mandrel $20 \times D$; 3 cycles	No fiber break; no sheath damage
Twist	IEC 60794-1-21-E7	1 m; 150 N; $\pm 90^\circ$; ≤ 60 s/cycle; 5 cycles	No fiber break; no sheath damage
Temperature cycling	IEC 60794-1-22-F1	+20 $\rightarrow$ -20 $\rightarrow$ +70 $\rightarrow$ +20 $^\circ\text{C}$; 2 cycles; 12 h per step	Loss change ≤ 0.15 dB/km during test, ≤ 0.05 dB/km after test @ 1550 nm; no sheath damage

D = cable diameter.

■ Fiber colour coding within the ribbon

Pos.	Color	Pos.	Color
1	Blue	9	Yellow
2	Orange	10	Violet
3	Green	11	Pink
4	Brown	12	Aqua
5	Grey	13	Olive
6	White	14	Carmine
7	Red	15	Dark brown
8	Black	16	Lime

■ Sheath marking

Manufacturer · cable type · manufacturing year · ID · sequential length marking in feet or metres.

■ Standards and compliance

Manufactured to ANSI/ICEA S-87-640 and Telcordia GR-20 by Nanjing Wasin Fujikura Optical Communication Ltd. Distributed in Mercosur and LATAM by Reubens Choice LLC. Every shipment ships with factory test reports and compliance documentation.

Ordering and technical support. Contact Reubens Choice LLC for pricing, lead times, drum lengths, sheath options (LSZH / PE / HDPE) and custom fiber counts. When requesting a quotation, specify cable code, fiber count, fiber type and required length per drum.