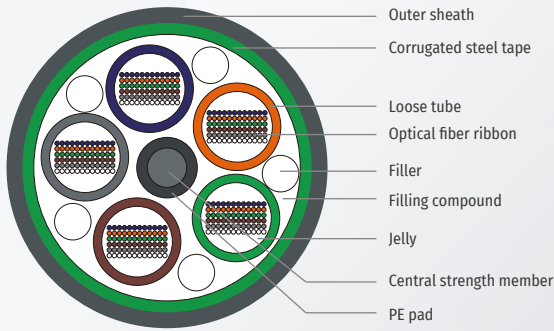


Armored Optical Fiber Ribbon Cables



Lightem offers a board variety of fiber optic cable for different outdoor condition, such as central loose tube armored cable, duct armored cable, direct buried cable, steel wire armored cable, non metallic outdoor cable, ADSS cable and figure 8 Cable. Fitting most of the outdoor application environment, whatever for duct buried, direct buried or aerial cabling.

Lightem corrugated steel tape or aluminum tape armored optical fiber ribbon cables are suitable for installation in aerial or duct environment for communication between exchange, metropolitan network, access network, especially suitable for the situation where high density fibers are expected.

Lightem cables are using the premium quality fiber. Singlemode G652D, multimode 50/125um or 62.5/125um, OM3 and OM4 fibers are available. Lightem also offers the customization service on the fiber, colours and construction of the cables for catering different cases.

Features

- Up to 420 fibers
- The loose tube stranding technology make the fibers have good secondary excess length and allow the fibers free movement in the tube, which
- keeps the fiber stress-free while the cable is subjected to longitudinal stress.
- Aluminum tape armor providing property of moisture resistance.
- Corrugated steel tape armor providing property of crush resistance and gun shot resistance features
- Metal strength member provides excellent strain performance.

Fire Performances

General

Flame Retardant	IEC 60332-1, IEC 60332-2, IEC 60332-3, BS EN 50265, BS EN 50266
Fire Retardant	BS EN ISO 4589-3 Annex A (FT >= 280°C)
Low Smoke Capacity	IEC 61034 1/2, BS EN 50268-2 Annex B (>=60% Light Transmittance)
The Values for The Light Transmittance	BS EN 50268-2
Oxygen Index Testing Method	BS EN ISO 4589-2, ASTM D-2863
Halogen Free	IEC 60754-1/2, BS EN 50267-2-3 Annex A (pH >=4.3)

Specifications

General

Flame Rating	LSZH / FRNC*
Fiber Category	Singlemode / Multimode
*For LSZH model only	
Temperature Range	
Installation	-5°C to +50°C
Operation	-30°C to +70°C
Storage	-40°C to +70°C
Cable Design	
Central Element	Dielectric (Fiber Reinforced Plastic)
Central Element Pad	PE
Fiber Count	2-420 (Optical Fiber Ribbon)
Fiber Colouring	Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Pink, Turquoise
Buffer Tube Material	PBT
Buffer Tube colour	White
Tape	Corrugated Steel Tape or Aluminum Tape
Outer Jacket Material	Polyethylene (PE)
Outer Jacket Colour	Black

Mechanical Characteristics Cable

	2-144	146-180	182-216	218-288	290-360	362-420	Unit
Fiber Count	2-144	146-180	182-216	218-288	290-360	362-420	
Outer Diameter	15.0	16.8	17.8	4	20.2	21.0	mm
Nominal Weight	215	265	300	320	380	410	kg/km
Max. Tension (Short-term)				1500			N
Max. Tension (Long-term)				600			N
Max. Crushing Resistance (Short-term)				1000			N/100mm ²
Max. Crushing Resistance (Long-term)				300			N/100mm ²
Min. Bending Radius (Static)				10 Times O.D.			mm
Min. Bending Radius (Dynamic)				20 Times O.D.			mm

Fiber Specifications (Singlemode)

Characteristics		G652D	G657A1	G657A2
Optical Characteristics *				
Attenuation	1310nm	≤ 0.40 dB/km	≤ 0.40 dB/km	≤ 0.40 dB/km
	1383nm	≤ 0.34 dB/km	≤ 0.35 dB/km	≤ 0.35 dB/km
	1460nm	-	≤ 0.25 dB/km	≤ 0.25 dB/km
	1490nm	-	-	≤ 0.23 dB/km
	1550nm	≤ 0.30 dB/km	≤ 0.30 dB/km	≤ 0.30 dB/km
	1625nm	≤ 0.23 dB/km	≤ 0.23 dB/km	≤ 0.23 dB/km
	Attenuation vs. Wavelength	1285-1330nm	≤ 0.03 dB/km	≤ 0.03 dB/km
Max. α difference	1525-1575nm	≤ 0.02 dB/km	≤ 0.02 dB/km	≤ 0.02 dB/km
Dispersion coefficient	1285-1340nm	≥ -3.4 ≤ 3.4 ps/(nm · km)	≥ -3.4 ≤ 3.4 ps/(nm · km)	-
	1550nm	≤ 18 ps/(nm · km)	≤ 18 ps/(nm · km)	-
	1625nm	≤ 22 ps/(nm · km)	≤ 22 ps/(nm · km)	-
Zero dispersion wavelength		1312±12 nm	1300-1324 nm	1300-1324 nm
Zero dispersion slope		≤ 0.091 ps/nm ² · km	≤ 0.092 ps/nm ² · km	≤ 0.092 ps/nm ² · km
Typical value		0.086 ps/nm ² · km	0.086 ps/nm ² · km	0.04 ps/nm ² · km
PMD				
Maximum Individual Fibre		≤ 0.1 ps/√km	≤ 0.1 ps/√km	≤ 0.1 ps/√km
Link Design Value(M=20,Q=0.01%)		≤ 0.06 ps/√km	≤ 0.06 ps/√km	≤ 0.06 ps/√km
Typical value		0.04 ps/√km	0.04 ps/√km	0.04 ps/√km
Cable cutoff wavelength λ _{cc}		≤ 1260 nm	≤ 1260 nm	≤ 1260 nm
Mode field diameter(MFD)	1310nm	8.7-9.5 μm	8.4-9.2μm	8.4-9.2 μm
	1550nm	9.9-10.9 μm	9.3-10.3 μm	9.3-10.3 μm
Effective group index of refraction(Neff)	1310nm	1.466	1.466	1.466
	1550nm	1.467	1.467	1.467
Point discontinuities	1310nm	≤ 0.05 dB	≤ 0.05 dB	≤ 0.05 dB
	1550nm	≤ 0.05 dB	≤ 0.05 dB	≤ 0.05 dB
Geometrical Characteristics				
Fiber Core Diameter		9 +/-1μm	9 +/-1μm	9 +/-1μm
Cladding diameter		125.0±0.7 μm	125.0±0.7 μm	125.0±0.7 μm
Cladding non-circularity		≤ 1.0 %	≤ 0.7 %	≤ 0.7 %
Coating diameter		245.0±7 μm	245.0±5 μm	245.0±5 μm
Coating-cladding concentricity error		≤ 12.0 μm	≤ 12.0 μm	≤ 12.0 μm
Coating non-circularity		≤ 6.0 %	≤ 6.0 %	≤ 6.0 %
Core-cladding concentricity error		≤ 0.6 μm	≤ 0.5 μm	≤ 0.5 μm
Curl(radius)		≥ 4 m	≥ 4 m	≥ 4 m

*Attenuation loss of barefiber

Fiber Specifications (Multimode)

Characteristics		62.5/125 (OM1)	50/125 (OM2)	OM3/OM4	OM5
Geometry Characteristics					
Core Diameter		62.5±2.5 μm	50±2.5 μm	50±2.5 μm	50±2.5 μm
Core Non-circularity		≤ 5.0 %	≤ 5.0 %	≤ 5.0 %	≤ 5.0 %
Cladding Diameter		125.0±1.0 μm	125.0±1.0 μm	125.0±1.0 μm	125.0±1.0 μm
Cladding Non-circularity		≤ 1.0 %	≤ 1.0 %	≤ 0.6 %	≤ 0.6 %
Coating Diameter		245±7 μm	245±7 μm	245±7 μm	245±7 μm
Coating/Cladding Concentricity Error		≤ 10.0 μm	≤ 10.0 μm	≤ 10.0 μm	≤ 10.0 μm
Coating Non-circularity		≤ 6.0 %	≤ 6.0 %	≤ 6.0 %	≤ 6.0 %
Core/Cladding Concentricity Error		≤ 1.5 μm	≤ 1.5 μm	≤ 1.0 μm	≤ 1.0 μm
Delivery Length		up to 17.6 km/reel	up to 17.6 km/reel	up to 8.8 km/reel	up to 8.8 km/ reel
Optical Characteristics *					
Attenuation	850nm	≤ 3.5 dB/km	≤ 3.5 dB/km	≤ 3.5 dB/km	≤ 3.5 dB/km
	953nm	-	-	-	≤ 1.7 dB/km
	1300nm	≤ 1.5 dB/km	≤ 1.5 dB/km	≤ 1.5 dB/km	≤ 1.5 dB/km
Overfilled Modal Bandwidth	850nm	≥ 200 MHz · km	≥ 500 MHz · km	≥ 1500/ ≥ 3500 MHz · km	≥ 3500 MHz · km
	953nm	-	-	-	≥ 1850 MHz · km
	1300nm	≥ 500 MHz · km	≥ 500 MHz · km	≥ 500/ ≥ 500 MHz · km	≥ 500 MHz · km
Effective Modal Bandwidth	850nm	-	-	≥ 2000/ ≥ 4700 MHz · km	≥ 4700 MHz · km
	953nm	-	-	-	≥ 2470 MHz · km
10Gb/sWDM		-	-	-100/150 m	150 m
40Gb/sWDM		-	-	300/500 m	440 m
40GBASE-SR4 / 100GBASE SR10	850nm	-	-	1000/1100 m	200 m
10GBASE-SR	850nm	-	150 m	300/550 m	-
1000BASE-SR	850nm	-	750 m	1000/1100 m	-
DMD Specification					
Numerical Aperture		0.275±0.015	0.200±0.015	0.200±0.015	0.200±0.015
Group Refractive index		1,496	1,482	1,482	1,482
		1,491	1,477	1,477	1,477
Zero Dispersion Wavelength, λ ₀		1320-1365 nm	1295-1340 nm	1295-1340 nm	1297-1328 nm
Zero Dispersion Slope, S ₀		-	-	-	≤ 4(-103)/(840λ√840) ⁴
		-	-	-	ps/nm ² · km
Zero Dispersion Slope, S ₀₁	295nm ≤ λ ₀ ≤ 1310nm	-	≤ 0.105 ps/nm ² · km	≤ 0.105 ps/nm ² · km	-
	1310nm ≤ λ ₀ ≤ 1340nm	-	≤ 0.000375(1590-λ ₀) ps/nm ² · km	-	-
	1320nm ≤ λ ₀ ≤ 1348nm	≤ 0.11 ps/nm ² · km	-	≤ 0.000375(1590-λ ₀)ps/nm ² · km	-
	1348nm ≤ λ ₀ ≤ 1365nm	≤ 0.001(1458-λ ₀) ps/nm ² · km	-	-	-

*Attenuation loss of barefiber

Ordering Information

* Ordering Code Example

