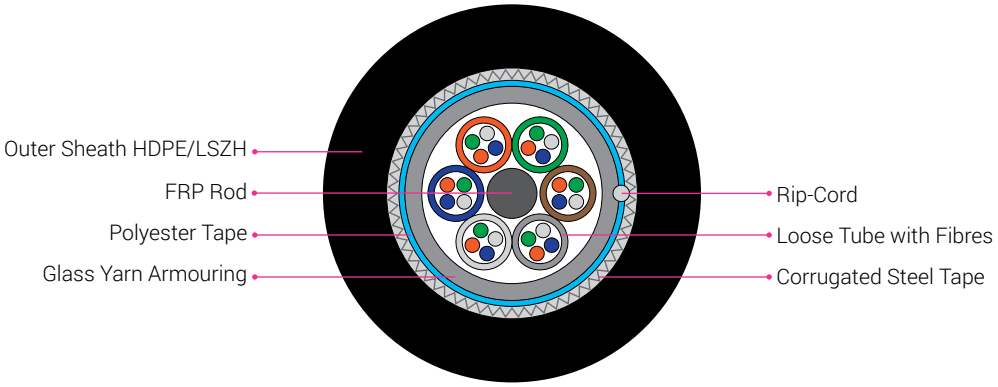
HUBNETIX
CST Armoured Multi-Tube Outside Plant Cable

LANLINE



Description

LANLINE Corrugated Steel Tape (CST) Armoured Multi-tube Outside Plant Fibre Optic cable is designed for installation in harsh OSP environments such as direct burial or underground ducts. These rugged Loose tube cables are the product of choice as the backbone in OSP, offers reliable transmission performance over a broad temperature range. Optical fibres and water-blocking elements are placed inside buffer tubes. The core is constructed by stranding the buffer tubes around a central strength member (FRP). The core is wrapped with flexible strength members covered with a polyester tape. A corrugated steel Armour is applied and then encased with a black jacket. Rip cords are included under the armour for ease of entry. This CST Armoured MT OSP cable is available in Singlemode (OS2 ITU-T G.652.D standards), Multimode-OM1, OM2, OM3 and OM4 Fibre types. HUBNETIX's LANLINE Fibre optic cables are compliance with IEC 60794, EIA/TIA, and ITU-T standards. This OSP cable is RoHS and CE compliant.

Standard Compliance

- Telecordia GR-20, IEC 60794
- EIA/TIA, ITU-T, EN187000, RUS1755.900

Environmental Specifications (Temperature)

- Operation / Storage : -40°C to +70°C
- Installation : -30°C to +75°C

Features

- Fibre Count: Multi-tube 12F to 144F
- Singlemode, Multimode and Hybrid — multiple fibre options available
- Dry core standard (optional)
- Corrugated Steel Tape Armour provides crush and rodent resistance

Application

- Direct Burial, Underground Ducts
- Trunk, Distribution and Feeder cable
- Local loop, Metro, Long-haul and Broadband Network

Advantages

- High Fibre Density
- Multiple Network Applications
- Reduces cable preparation and installation time
- Reduces the number of tools required
- Improves compressive strength and rodent protection

Physical Characteristics

Fibre Count	Cable Outer Diameter (mm) Nominal	Weight (kg/km) (Nominal)	Tensile Strength (Nominal)		Crush Resistance (N/10cm)	Bending Radius (mm)	
			Installation	Operation		Temporary	Permanent
12-24	11.5	130	4000	2000	4000	115	230
26-48	11.8	136	4000	2000	4000	118	236
50-72	12.5	160	4000	2000	4000	125	250
74-96	13.8	185	5000	2500	4000	138	276
98-120	15.5	235	5000	2500	4000	155	310
122-144	16.5	270	5000	2500	4000	165	330

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Fibre Technical Specifications

Optical Characteristics — Multi-Mode - Fibre Type & Grade

		62.5/125µm – OM1	50/125µm – OM2/OM3/OM4	
Characteristics	Conditions	Specified Values		Units
Attenuation	850nm	≤ 3.5	≤ 3.0	dB/km
	1300 nm	≤ 1.5	≤ 1.0	dB/km
Bandwidth	850 nm	≥ 200	≥ 500 /≥ 1500 /≥ 3500	MHz.km
	1300 nm	≥ 600	≥ 500 /≥ 500 /≥ 500	MHz.km
Ethernet Performance 10GBE	850nm	33	150 /300/ 550	m
Ethernet Performance 1000GBE	850nm	220	750 /1000/ 1100	m
Numerical Aperture		0.275 ± 0.015	0.200 ± 0.015	

Geometrical Characteristics

Core Diameter	62.5 ± 2.5	50.0 ± 2.5	µm
Core Non – Circularity	≤ 5.0	≤ 5.0	%
Core/Cladding Concentricity Error	≤ 1.5	≤ 1.5	µm
Cladding Diameter	125.0 ± 1.0	125.0 ± 1.0	µm
Cladding Non – Circularity	≤ 1.0	≤ 1.0	%
Primary Coating Diameter	245 ± 10	245 ± 10	µm
Coating/Cladding Concentricity Error	≤ 12	≤ 12	µm
Primary Coating Material (Colored)	UV Cured Acrylate	UV Cured Acrylate	

Mechanical Characteristics

Bending Induced Attenuation				
10 Turns @60mm Radius	850nm	≤ 0.5		dB
	1300 nm	≤ 0.5		dB
100 Turns @ 37.5mm Radius	850nm		≤ 0.50	dB
	1300 nm		≤ 0.50	dB
2 Turns @ 15mm Radius	850nm		≤ 1.0	dB
	1300 nm		≤ 1.0	dB
Proof Stress Level		≤ 1.0	≤ 1.0	%
		≤ 100	≤ 100	kpsi

Optical Characteristics — Single-Mode - Fibre Type & Grade

		ITU-T G.652.D	ITU-T G.657.A1	ITU-T G.657.A2	
Characteristics	Conditions	Specified Values			Units
Attenuation	1310 nm	≤ 0.36	≤ 0.36	≤ 0.38	dB/km
	1550 nm	≤ 0.23	≤ 0.23	≤ 0.23	dB/km
Chromatic Dispersion	1285 - 1330 nm	≤ 3.5			ps/(nm.km)
	1550 nm	≤ 18.0			ps/(nm.km)
Cable cutoff wavelength λcc		≤ 1260			nm
Zero Dispersion wavelength		1300 - 1324			nm
Zero Dispersion slope		≤ 0.092			ps/nm².km
Polarization mode Dispersion (PMD)	Fibre	≤ 0.2			ps/km
	Link Design Value	≤ 0.08			ps/km

Geometrical Characteristics

Mode Field Diameter (MFD)	1310 nm	9.2 ± 0.4	8.6 ± 0.4	6.3 ± 9.5	µm
	1550 nm	10.4 ± 0.5	9.8 ± 0.5		µm
Cladding Diameter		125.0 ± 1.0			µm
Cladding Non – Circularity		≤ 1.0			%
Core/Cladding Concentricity Error		≤ 0.5			µm
Coating/Cladding Concentricity Error		≤ 12.0			µm
Primary Coating Diameter		245 ± 10			µm
Primary Coating Material (Colored)		UV Curved Acrylate			
Fibre Curl (Radius)		≥ 4			m

Note- The optical attenuation/PMD given values may change due to fibre cabling.

Mechanical Characteristics - SM — Single-Mode - Fibre Type & Grade

		ITU-T G.652.D	ITU-T G.657.A1	ITU-T G.657.A2	
	Conditions	Specified Values			Units
Bending Induced Attenuation					
1 Turn @32mm Diameter	1550 nm	≤ 0.05			dB
100 Turns @ 50mm Diameter	1310 nm	≤ 0.05			dB
	1550 nm	≤ 0.05			dB
100 Turns @ 60mm Diameter	1625 nm	≤ 0.05			dB
Proof Stress Level		≥ 1.00			%
		≥ 100			kpsi

Environmental Characteristics

Environmental Tests			
Temperature Dependence	-60 to +85°C	≤ 0.05	dB/km
Temperature-Humidity Cycling	-10 to +85°C	≤ 0.05	dB/km
Water Immersion	23	≤ 0.05	dB/km
Dry Heat Aging	85	≤ 0.05	dB/km
Damp Heat	85°C @ 85% RH	≤ 0.05	dB/km

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Fibre Color Code

1	RD – Red	7	BR – Brown	13	RD – Ring mark every 50mm	19	BR – Ring mark every 50mm
2	GR – Green	8	VT – Violet	14	GR – Ring mark every 50mm	20	VT – Ring mark every 50mm
3	BL – Blue	9	TQ – Turquoise	15	BL – Ring mark every 50mm	21	TQ – Ring mark every 50mm
4	YL – Yellow	10	BK – Black	16	YL – Ring mark every 50mm	22	BK – Ring mark every 50mm
5	WT – White	11	OR – Orange	17	WT – Ring mark every 50mm	23	OR – Ring mark every 50mm
6	GY – Grey	12	PK – Pink	18	GY – Ring mark every 50mm	24	PK – Ring mark every 50mm

Ordering Info & Part Numbers

Part Number Example	Description
HLH-FECM2L48-XX	LANLINE 48-Fibre, OM2 MM, CST Armoured, Multi-tube Single jacket, LSZH, Outside Plant Cable

HUBNETIX Prefix			1	2	3	4	5	6
H	**L**	**H**	**F**	**EC**	**M2**	**L**	**48**	**XX**

1=F - Fibre Optic	2=Cable construction	3=Fibre type	4=Flame Rating	5=XX - Fibre Count	6=XX - Fibre Color code
	EC – Outside plant (OSP), CST Armoured Multi-tube Single jacket **EQ** – Outside plant (OSP), CST Armoured Multi-tube Double jacket	**S1 – Singlemode** OS1 9/125µm **S2 – Singlemode** OS2 9/125µm (ITU G.652.D) **M1** – **Multimode** OM1 62.5/125µm **M2 – Multimode** OM2 50/125µm **M3 – Multimode** OM3 50/125µm **M4 – Multimode** OM4 50/125µm	**L** – Low Smoke Zero Halogen **H** – HDPE **N** – Non-Rated	**12** – 12-fibre **24** – 24-fibre **36** – 36-fibre **48** – 48-fibre **72** – 72-fibre **96** – 96-fibre **120** – 120-fibre **144** – 144-fibre	**BK** – BLACK

Note: All packaging is 2,000 mtr drum reel. The above shown cable designs are HUBNETIX standard designs. Other lengths and customised designs are available upon specific request.

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