



### Description

LANLINE Corrugated Steel Tape (CST) Armoured Multi-tube Double Jacket Outside Plant Fibre Optic cable is designed for industrial building backbones and harsh environments such as direct burial, Aerial lashing or underground ducts. The rugged Loose Tube cable design subjected to wide temperature variations.. 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 and Hybrid 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

**Note:** HUBNETIX recommends to store FO cables in a proper temperature environment prior to installation to allow the cable temperature to meet installation temperature range specifications for best installation results.

### 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
- Long-term Reliability
- Reduces cable preparation and ease of installation.
- Improves compressive strength and rodent protection
- Speeds fibre access and cleanup

### 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	13.8	170	2670	1500	4000	138	276
26-48	14.5	195	2670	1500	4000	145	290
50-72	15.0	200	2670	1500	4000	150	300
74-96	16.0	240	3000	2000	4000	160	320
98-120	17.5	285	3000	2000	4000	175	350
122-144	18.5	320	3000	2000	4000	185	370

## CST Armoured Multi-Tube Double Jacket OSP Cable



## Fibre Technical Specifications

## Optical Characteristics

## Multi-Mode - Fibre Type &amp; 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 &amp; 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 λ <sub>cc</sub>		≤ 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 Cured 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 &amp; 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

## CST Armoured Multi-Tube Double Jacket OSP Cable



## 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 &amp; Part Numbers

Part Number Example	Description
<b>HLH-FEQS2L24-XX</b>	LANLINE 24-Fibre, OS2 SM G.652.D, CST Armoured, Multi-tube Double jacket, LSZH, Outside Plant Cable

HUBNETIX Prefix			1	2	3	4	5	6
H	L	H	F	EQ	S2	L	24	XX

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

**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.

## HUBNETIX CORPORATION

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The dimensions and specifications in this document are for reference purposes only and are subject to change without notice. Consult HUBNETIX Corp. for the latest dimensions and design specifications.

