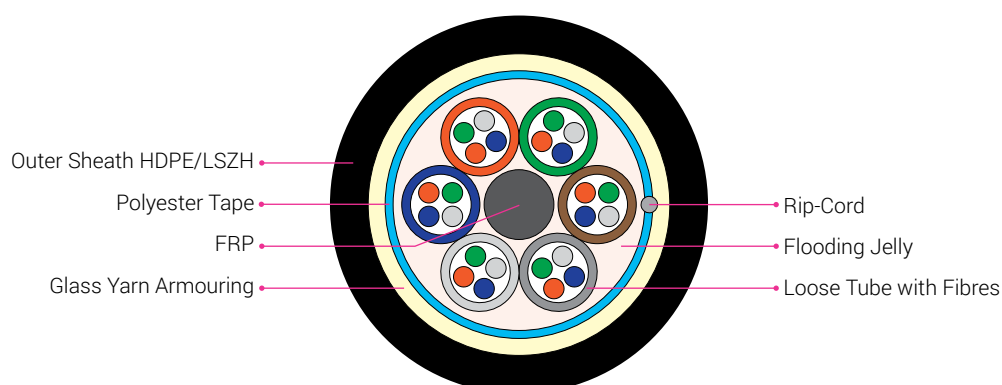


HUBNETIX

All Dielectric Multi-Tube Outside Plant Cable



Description

LANLINE All Dielectric Multi tube Outdoor Duct cables are the products of choice as the backbone in Outside Plant (OSP) environments. This cable is suitable for outdoor installations in an underground duct or for direct burial. The loose tube design 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 FRP rod, the central strength member. The core is wrapped with flexible strength members covered with a water-blocking tape, then encased with a black jacket. A rip cord is included under the jacket for ease of entry. This MT OSP Cable is available in singlemode G.652.D and multimode Fibre types. LANLINE All Dielectric OSP cable is a key part of HUBNETIX Fibre system, compliant with LSZH/HDPE requirements, 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 available from 12F to 144F
- Multiple Fibre types include - Multimode-OM1, OM2, OM3, OM4; Singlemode-OS1, OS2 and Hybrids
- Central Strength members available in Metallic or Dielectric
- Dry Core standard (optional)
- Standard Tube size for all fibre counts

Application

- Underground Ducts and Lashed Aerial
- Trunk, Distribution and feeder cable
- Local loop, Metro, Long-haul and Broadband network

Advantages

- High Fibre Density
- Multiple Network Applications
- Metallic option offers ease of location, Dielectric design eliminates grounding issues
- Reduces cable prep and installation time
- Reduces the number of tools required
- 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	10.0	80	2000	1000	2000	100	200
26-48	10.2	85	2000	1000	2000	102	204
50-72	10.5	90	2000	1000	2000	105	210
74-96	11.5	120	3000	1500	3000	115	230
98-120	13.0	155	3000	1500	3000	130	260
122-144	14.5	180	3000	1500	3000	145	290

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Fibre Technical Specifications

Optical Characteristics		Multi-Mode - Fibre Type & Grade		
Characteristics	Conditions	Specified Values		Units
		62.5/125µm – OM1	50/125µm – OM2/OM3/OM4	
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

Characteristics	Conditions	Specified Values			Units
		ITU-T G.652.D	ITU-T G.657.A1	ITU-T G.657.A2	
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 _{cc}			≤ 1260		nm
Zero Dispersion wavelength			1300 - 1324		nm
Zero Dispersion slope			≤ 0.092		ps/nm ² .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

	Conditions	Specified Values			Units
		ITU-T G.652.D	ITU-T G.657.A1	ITU-T G.657.A2	
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	YL – w/mark every 70mm	19	YL – w/mark every 35mm
2	GR – Green	8	VT – Violet	14	WT – w/mark every 70mm	20	WT – w/mark every 35mm
3	BL – Blue	9	TQ – Turquoise	15	GR – w/mark every 70mm	21	GR – w/mark every 35mm
4	YL – Yellow	10	BK – Black	16	TQ – w/mark every 70mm	22	TQ – w/mark every 35mm
5	WT – White	11	OR – Orange	17	OR – w/mark every 70mm	23	OR – w/mark every 35mm
6	GY – Grey	12	PK – Pink	18	PK – w/mark every 70mm	24	PK – w/mark every 35mm

Ordering Info & Part Numbers

Part Number Example	Description
HLH-FEDM3N12-XX	LANLINE 12-Fibre, OM3 MM, All-Dielectric Multi-tube Outside Plant Cable

HUBNETIX Prefix			1	2	3	4	5	6
H	L	H	F	ED	M3	L	12	XX

1=F - Fibre Optic	2=Cable construction	3=Fibre type	4=Flame Rating	5=XX - Fibre Count	6=XX - Fibre Color code
	ED – Outside plant (OSP), all Dielectric, unarmored, Multi-tube	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 P – PVC	02 – 02-fibre 24 – 24-fibre 04 – 04-fibre 36 – 36-fibre 06 – 06-fibre 48 – 48-fibre 08 – 08-fibre 72 – 72-fibre 12 – 12-fibre 96 – 96-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.

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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.

