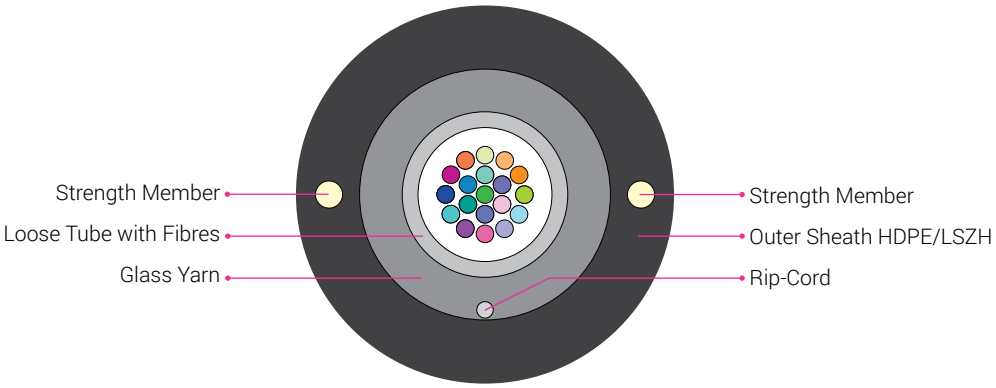
HUBNETIX

Gel-filled All Dielectric Single Loose Tube OSP Cable

LANLINE



Description

HUBNETIX LANLINE All Dielectric Single Loose tube Outside plant (OSP) Duct cables offer a low cost alternative to traditional stranded loose tube cables. The loose tube design offers reliable transmission performance over a broad temperature range and high density to provide standards compliance and flexibility for outdoor use. The rugged single loose tube design features optical fibres placed inside a gel-filled tube. The core tube includes up to 24 distinctly colored fibres. The core tube is then helically wrapped with water-blocking strength members, then encased with a black jacket. A Rip cord is included under the jacket to provide ease of access to the core tube. This cable is suitable for outdoor installations in an underground, used for Duct and Ariel applications. All Dielectric OSP Cable is available in singlemode (OS2 ITU-T G.652.D) and multimode OM2, OM3, and OM4 fibre types, available in fibre counts from 2 to 24-fibres. LANLINE All Dielectric OSP Fibre Optic cable is a key part of HUBNETIX Fibre system 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 4F to 24F
- Multiple Fibre types include - Multimode-OM1, OM2, OM3, OM4; Singlemode-OS1, OS2 and Hybrids
- Outer Strength members available in Metallic or Dielectric
- Small Cable Diameter

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
- Reduces cable preparation and installation time
- Reduces cost
- Installation of more fibres in less space

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
4-12	8.0	50	1000	800	2000	80	160
16-24	9.0	65	1000	800	2000	90	180

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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	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-FEDUS2L12-XX	LANLINE 12-Fibre, OS2 SM, All-Dielectric Single Loose-tube, LSZH Outside Plant Cable

HUBNETIX Prefix			1	2	3	4	5	6
H	**L**	**H**	**F**	**EDU**	**S2**	**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
	EDU – Outside plant (OSP), all Dielectric, Single Loose tube, unarmored **EDM** – 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 **N** – Non-Rated	**12** – 12-fibre **24** – 24-fibre **36** – 36-fibre **48** – 48-fibre **72** – 72-fibre **96** – 96-fibre **144** – 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.

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HUBNETIX PRODUCT WARRANTY

OSP