

SM Multi Loose Tube

Mica Wrapped LSZH Inner Jacket

Steel Wire Braided LSZH Outer Jacket Fire Resisting FO Cable

General Description

This document specifies multi loose tube cable with steel central strength member, containing up to 36 tube and each tube contain up to 6 or 8 fibers. Jelly filled loose tubes are wrapped with mica and fire resisting tape. The cable jacket incorporates LSZH inner jacket, steel wire braiding and LSZH outer jacket. All the fibers in the cores are filled with water blocking gel.

Optical Characteristics

The single-mode cabled fibers meet or exceed the requirements of ITUT G.652D and comply with IEC60793-2, as listed in below:

Table 1.

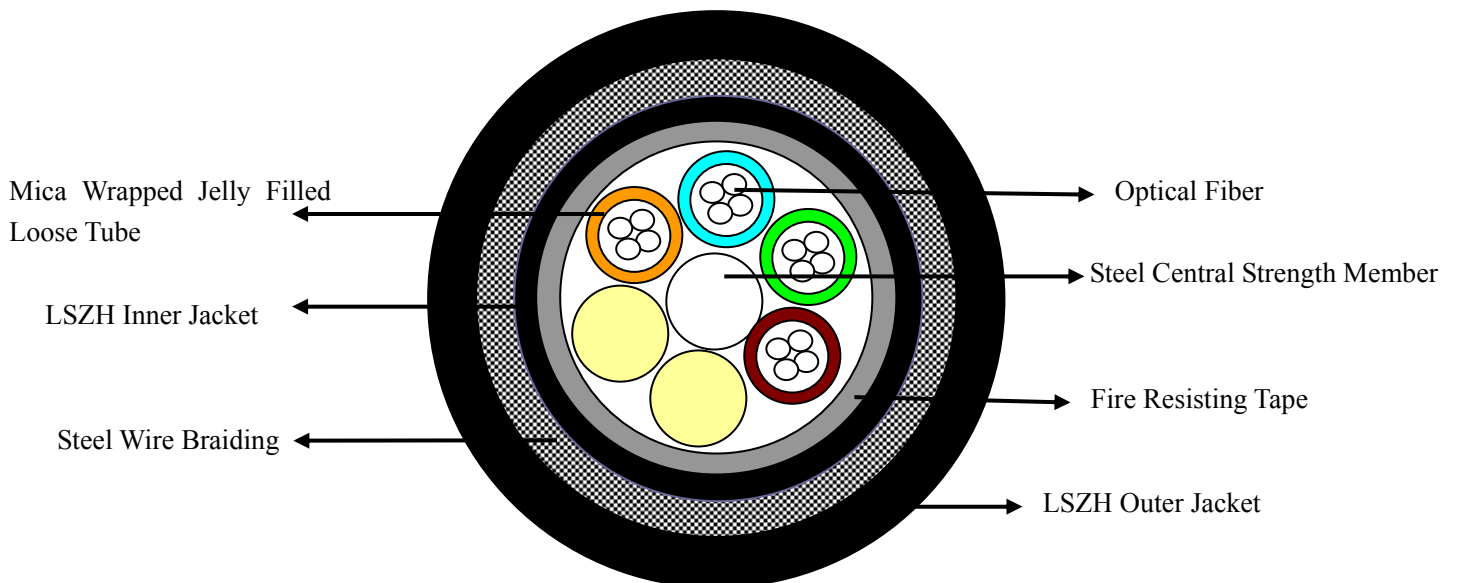
Parameter		Standard Single Mode Fiber per ITU-T G.652D	Non-zero Dispersion Shifted fiber per ITU-T G.655	Non-zero Dispersion Shifted fiber per ITU-T G.656	Units
Fiber Code		9	8	7	
Attenuation, Loose Tube Cables		Standard	Metro Area	Long Haul	
	@1310nm	≤0.35	-	-	dB/km
	@1550nm	≤0.22	≤0.22	≤0.22	dB/km
	@1625nm	≤0.25	≤0.26	≤0.26	dB/km
Attenuation, Tight Buffer or Semi-Tight Cables					
	@1310nm	≤0.38	-	-	dB/km
	@1550nm	≤0.28	-	-	dB/km
Chromatic Dispersion	between 1260 and 1360nm (O Band)	≤3.5	NA-	-	ps/(nm*km)
	between 1460 and 1530nm (S Band)	-	-	2.0-7.0	ps/(nm*km)
	between 1530 and 1565nm (C Band)	≤18	1.0-10.0	7.0-10.0	ps/(nm*km)

	between 1565 and 1625nm (L Band)	≤ 22	7.0-12.0	10.0-14.0	ps/(nm*km)
	Zero Dispersion Wavelength	1310±11	≤ 1520	≤ 1420	nm
	Zero Dispersion Slope	0.093	0.093	0.093	ps/(nm ² .km)
	Point Discontinuity at 1300nm & 1550nm	0.1	0.1	0.1	dB
Mode Field Diameter	@1300nm	9.3±0.5	-		um
	@1550nm	10.4±0.8	8.5±0.6	9.0±0.5	um
	Cable Cut-off Wavelength	≤ 1260	≤ 1450	≤ 1310	nm
	PMD (Individual fiber)	≤ 0.2	≤ 0.2	≤ 0.2	ps/km ^{1/2}
	Cladding Diameter	125±1	125±1	125±1	um
	Core/Cladding Concentricity Error	≤ 0.5	≤ 0.5	≤ 0.6	um
	Cladding Non-Circularity	≤ 1.0	≤ 1.0	≤ 1.0	%
	Coating Non-Circularity	≤ 6.0	≤ 6.0	≤ 6.0	%
	Primary Coating Diameter	245±10	245±10	245±10	um
	Proof-Test Level	100 (0.7)	100 (0.7)	100 (0.7)	Kpsi/GN/m ²
	Fatigue Coefficient	≥ 20	≥ 20	≥ 20	
	Temperature Dependence between 0 C ~ +70oC @ 1310 & 1550nm	0.1	0.1	0.1	Db/km

The fibers contain no splices.

Basic Construction

12 Fibers, Loose Tube Fiber optic Cable





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* Optical Fiber

Single-mode fibers meet or exceed the requirements of ITUT G.652D specification

* Central Strength Member

2.5mm steel wire central strength member. PE is coated over the steel if necessary.

* Loose Tube

PBT tubes, 1.8±0.1 mm outer diameter, contains 1-6 fibers each. The tubes are filled with a thixotropic gel to prevent the ingress of water. Mica tape wraps each loose tube helically.

* Fire Resisting Tape

Fire resisting tape provides additional protection against fire.

* Inner Jacket

LSZH inner jacket is extruded over the cable core. The thickness is normally 1.0mm.

* Steel Wire Braiding

Steel wire braiding is applied over the inner jacket. Outer diameter of the steel wire is 0.2mm

* Outer Jacket

LSZH outer jacket is extruded over the armor. Nominal thickness is about 1.8mm

* Marking

The cable is marked with white or other colors as follows:

FiberTek FBOPCP0240009 24 x 9/125um 2009*Meter Marking*

The meter mark is printed every meter with an accuracy of ±0.5%.

Other printing are available according to customer request.

* Length of Optical Cable

Standard length of each reel will be 1,000-2,000 meters.

Table 2. Technical Characteristics

No. of Cores	Outer Diameter (mm)	Approx. Weight (Kg/Km)	Maximum Pulling Load	
			Installation (N)	In Service (N)
12	14.6	265	2700	1300



Mechanical Properties:

Minimum Bending Radius:

Under installation: 25×OD
During operation: 12.5×OD for armoured cables.

Temperature Range:

Operating Temperature Range: -40°C (-40 °F) to +70°C (+158 °F)
Storage Temperature Range: -50°C (-58 °F) to +70°C (+158 °F)

Maximum Crush Resistance: 2000N

Repeated Impact: 4.0 N.m (J)

Twist (Torsion): 180 x 10 times, 125 x OD

Cyclic Flexing: 25 cycles for armoured cables.;

Fiber Compliance:

Water penetration test	IEC60794-1-F5
Filling Drip/Leak test	EIA/TIA-455-81A
Temperature cycling	IEC60794-1-2-F2
Tensile strength	IEC60794-1-2-E1A
Compressive load resistive test	IEC60794-1-2-E3
Impact	IEC60794-1-2-E4
Repeated bending	IEC60794-1-2-E6
Torsion	IEC60794-1-2-E7
Kink	IEC60794-1-2-E10
Mechanical flexure test	IEC60794-1-2-E11
Cool bend	IEC60794-1-2-E11

Safety Compliance:

FR Grade Fire Resistance Test: IEC 60331

Standard Compliance:

Telcordia GR-20

RUS 7 CFR 1755.900 (REA PE-90)

ICEA S 87-640

The data included in the present catalogue are merely indicative; Caledonian Cables Limited reserves to itself the right to change them as its own discretion in any time.