

FIBER OPTIC CABLE AND PRODUCT





THE WORLD BEST CABLE SOLUTION LEADER

LS Cable & System supplies various cables and materials used for power grids and communication networks around the world across all industries providing its top class technology and excellent quality. The company has also developed state of the art products, such as superconductors, HVDC and submarine cables that will lead the future energy industry.

LS spun off from LG in 2003 as a group specializing in electronics, electrical systems, energy and materials.



LS Cable & System

Transmission Cable
Distribution Cable
Submarine Cable
Telecommunication Cable
Industrial Cable
Industrial Material

LS ELECTRIC

Electric &
Automatic Equipments

LS Nikko Copper

Copper Refinement

LS Mtron

Mechanical &
Electronic Parts

yesco

LNG



LPG

GBON

Power &
Communication
Cables



LS Fiber Optic Cable Products

As a telecommunication cable manufacturer and a division of LS Cable & System, LS Data Communication Product and Components never stops researching, designing, developing, and manufacturing products with the higher level of quality to address the ever-changing demands in everyday life as well as in the industry.

Our quality control meets the most delicate requirements of international standards and the high level of quality is recognized both by local and international clients.

Our commitment to develop and deliver solutions to address our customers' needs and challenges keep our technology on the cutting edge and our know-how in the field more valuable, which our customers highly appreciate. We are looking forward to working with you.



Contents

Fibers


Part Number Index	7
Xwave™ & Xwave-s™	8
Zwave-s™	10
DreamLight™	14
Multi Mode Fiber	16
Giga™	17

Fiber Optic Cables (Indoor)

Part Number Index	23
All Dielectric Single Jacketed Central Tube	24
900um 2fiber buffered Aramid yarn strength member	25
900um tight buffered Aramid yarn strength member	26
Breakout Cable	27
Micro Distribution Cable	28
Simplex cord, Duplex cord	29

Fiber Optic Cables (Outdoor)

Part Number Index	31
Single Jacket Single Armor Central Loose Tube Cable	32
All Dielectric Single Jacketed Central Tube with Polyamide coat for Insect-resistant	33
All Dielectric Single Jacket Non-Armor Loose Tube Cable	34
All Dielectric Single Jacketed Multi Loose Tube with Polyamide Sheath for Insect-resistant	35
Single Jacket Single Armor Loose Tube Cable	36
Double Jacket Single Armor Loose Tube Cable	37
Micro Unit Cable	38
Micro Unit Armor Cable	39
ADSS Aerial Fiber Optic Cable (Gel filled PBT Tube)	40
ADSS Aerial Fiber Optic Cable (Gel free PP Tube)	41
MICRO AIR BLOWN CABLE (ABC)	42
Air Blown Fiber unit (ABF)	43
LS Active Optical Cable for Professional AV	44
NEK 606 Mud Resistant QFCU	45
NEK 606 Fire Resistant QFCI	46
NEK 606 Flame Retardant AICI	47
Fire Resistant Double Jacket Steel wire Armor Cable	48
Single Jacket Flat FRP Armor Cable	49
Figure 8 Aerial Cable	50
Single Jacket Single Armor Central Ribbon Cable	51
Single Jacket Single Armor All Dry Central Ribbon Cable	52
Single Jacket Non Armor Stranded Ribbon Tube Cable	53
Single Jacket Single Armor Stranded Ribbon Tube Cable	54





Fibers

- **X**wave™ & **X**wave-s™
- **Z**wave-s™
- DreamLight™
- Multi Mode Fiber
- Giga™

Xwave™ & Xwave-s™

Low Water Peak & Zero Water Peak Single Mode Fiber

Description

LSC&S low water peak single mode fiber is full spectrum fiber designed for optical transmission systems operating over the entire wavelength range from 1260nm to 1625nm. This fiber offers customers industry leading performance specification, reliability and unsurpassed quality. LSC&S enhanced single mode fiber supports the most demanding application, including 10G ethernet, ATM, 10 and 40G SONET, and SDH using single channel, DWDM and multi-channel CWDM transmission. To extend today's and network or design tomorrow's emerging networks look for LSC&S enhanced SMF to provide you the greatest capacity and flexibility at lower cost.

Features & Benefits

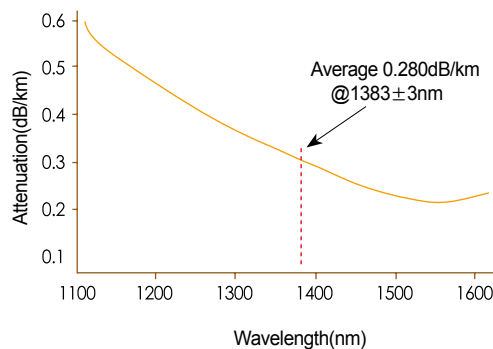
- A 50% increase in usable optical spectrum
- Transmission capability from 1260nm to 1625nm by removing the OH Ion around 1383nm
- Long term attenuation reliability by absence of hydrogen aging defects
- Excellent geometrical properties for active alignment splicing technique available with excellent splice loss control
- Mechanically strippable coating
- Environmentally compatible
- Meets all industry standards
 - ITU-T Recommendation G.652(Tables A,B,C and D)
 - IEC Specifications 60793-2-50 Type b1.3
 - TIA/EIA 492-CAAB
 - Telcordia Generic Requirements GR-20-CORE

Performance

- Ultra Low Loss LWP SMF
 - Spectral attenuation after Hydrogen Aging

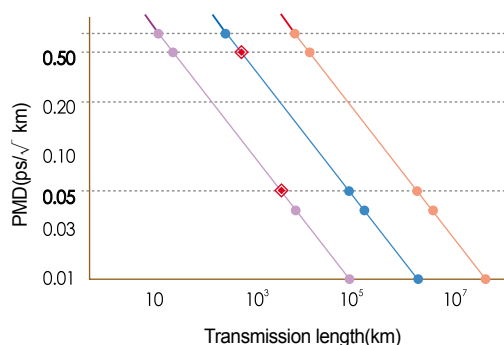
Over 50% More spectrum

- Optimun dispersion For 10 Gb/s
- Low cost operation



- Ultimate Low PMD Single Mode Fiber
 - Manufactured using unsurpassed quality Control, ultimate Low PMD SMF is specified At levels that improve upon even the most Recent PMD specifications in ITU G.652 D.

The PMD link design value is a term used to describe the PMD of concatenated lengths of fiber (also known as PMD₀). This value represents a statistical upper limit for total link PMD. IndividualPMD values may change when cabled.



Specifications

Characteristics		Specified Values	Tolerances	Unit
Optical Properties				
Attenuation	1310nm	≤0.34		dB/km
	1383nm	≤0.31*		dB/km
	1490nm	≤0.21		dB/km
	1550nm	≤0.20		dB/km
	1625nm	≤0.21		dB/km
Point Discontinuity	1550nm	0.05	Max	dB
Mode Field Diameter	1310nm	9.2	±0.4	μm
	1550nm	10.4	±0.5	μm
Cable cutoff Wavelength(Acc)	Cable	1260	Max	nm
Chromatic Dispersion	1550nm	18	Max	ps/(nm · km)
	1625nm	22	Max	ps/(nm · km)
	Zero Dispersion Wavelength	1310~1324	Max	nm
	Slope @λ ₀	0.092	Max	ps/(nm ² · km)
Macro bending Attenuation	1turns, φ32mm 1550nm	0.03	Max	dB
	100turns, φ50mm 1310nm & 1550nm	0.03	Max	dB
	100turns, φ60mm 1625m	0.03	Max	dB
PMD	Link Design Value	≤0.06**	Max	ps/√ km
	Maximum Individual Fiber	≤0.2	Max	ps/√ km

* Attenuation values at this wavelength represent post-hydrogen aging performance. ** Complies with IEC 60794-3:2001, Section 5.5, Method I, September 2001. Alternative attenuation offerings available upon request.

Geometrical Properties

Cladding Diameter		125	±0.7	μm
Cladding Non-Circularity		0.7	Max	%
Core/Cladding Concentricity Error		0.5	Max	μm
Coating Diameter		245	±5	μm
Coating Non-Circularity		6	Max	%
Coating/Cladding Concentricity Error		10	Max	μm

Mechanical Properties

Proof Test	1s	100	Min	kpsi
Fiber Curl	Radius of curvature	4	Min	m
Coating Strip Force	30mm - 500mm/min	1.3~8.9		N
Dynamic Tensile Strength (0.5meter gauge length)	Unaged	≥550	Min	kpsi
		750	Typical	kpsi
	Aged	≥440	Min	kpsi
		750	Typical	kpsi
Stress Corrosion Parameter unaged and aged		≥21	Min	
		≥25	Typical	

Environmental Properties

Temperature Cycling	-60°C to +85°C	0.05***	Max	dB/km
Temperature Humidity Cycling	-10°C to +85°C up to 98% RH	0.05	Max	dB/km
Water Immersion	23 ± 2°C	0.05	Max	dB/km
Heat Aging	85 ± 2°C	0.05	Max	dB/km

*** Induced Attenuation 1310nm, 1550nm & 1625nm / Operating Temperature Range: -60°C to +85°C

Performance Properties

Effective Group Index (Neff)	1310m	1.467	Typical
	1550m	1.468	Typical

Zwave-s™ LWP Single Mode Bend Insensitive Fiber

Description

The design of low bending loss single mode fiber consists of a germanium doped core and a silica cladding. A dual protective acrylate coating is applied over the fiber cladding to cushion the fiber against microbending losses, provide abrasion resistance, and preserve the mechanical strength of the glass. Each fiber is proof tested so that it will survive installation loads and associated long-term residual stresses, even under extreme environmental conditions. Finally, each fiber is measured for optical and dimensional properties for compliance with all specifications listed in the respective fiber data sheets.

Features & Benefits

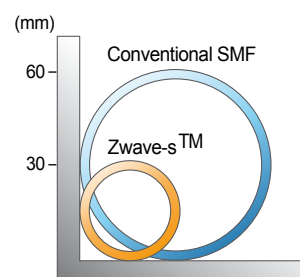
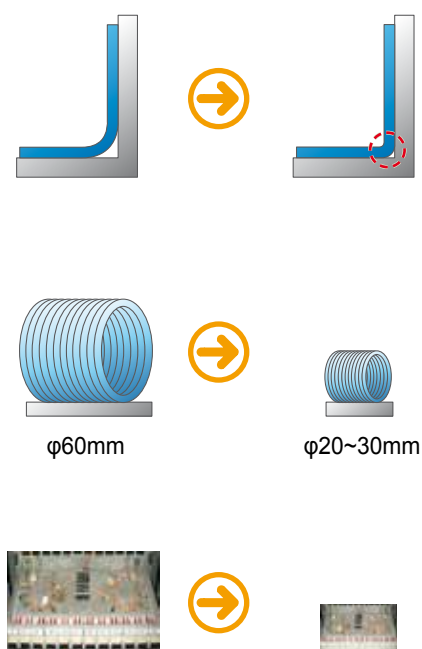
- Complies with ITU-T G657
- Bend-insensitive (~ ϕ 20mm)
- Low intrinsic loss
- Transmission capability from 1280nm to 1625nm by removing the OH Ion around 1383nm
- Excellent geometrical properties for active alignment splicing technique available with excellent splice loss control
- Matched cladding design for excellent microbending resistance
- Supported by a complete family of closures and connectors
- Mechanically strippable coating
- Environmentally compatible
- Meets all industry standards

Performance

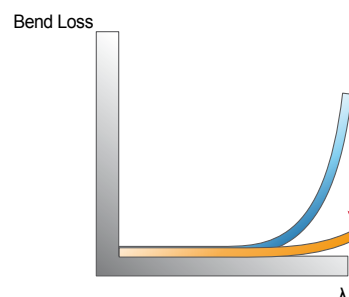
- High Bending Performance

- Maximum bending radius Conv. SMF vs. Zwave-s™

Compact Installation



Bend insensitive!



G.657.A1 Specifications

Characteristics	Specified Values	Tolerances	Unit	
Optical Properties				
Attenuation	1310nm	≤0.35	dB/km	
	1383nm	≤0.31	dB/km	
	1550nm	≤0.21	dB/km	
	1625nm	≤0.23	dB/km	
Attenuation Uniformity	1550nm	0.05	Max	dB
Mode Field Diameter	1310nm	8.6	±0.5	μm
	1550nm	9.6	±0.8	μm
Cable Cutoff Wavelength (Acc)		≤1260	Max	nm
Chromatic Dispersion	1550nm	18	Max	ps/(nm · km)
	Zero Dispersion Wavelength	1300~1324		nm
	Slope@λ ₀	0.092	Max	ps/(nm ² · km)
Macrobending Loss	1turns, Radius 10mm, 1550nm	≤ 0.75		dB
	1turns, Radius 10mm, 1625nm	≤ 1.5		dB
	10turns, Radius 15mm, 1550nm	≤ 0.25		dB
	10turns, Radius 15mm, 1625nm	≤ 1.0		dB
PMD	Link Design Value	≤0.06**	Max	ps/√km
	Maximum Individual Fiber	≤0.2	Max	ps/√km

Geometrical Properties

Cladding Diameter	125	±0.7	μm
Cladding Non-Circularity	0.8	Max	%
Core/Cladding Concentricity Error	0.6	Max	μm
Coating Diameter	245	±5	μm
Coating Non-Circularity	6	Max	%
Coating/Cladding Concentricity Error	10	Max	μm

Mechanical Properties

Proof Test	1s	≥100	Min	kpsi
Fiber Curl	Radius of curvature	≥4	Min	m
Coating Strip Force(average)	30mm - 500mm/min	1~5		N
Stress corrosion parameter, N _s		≥20		
Dynamic Tensile Strength (0.5meter gauge length)	Specimen length 0.5m, Unaged	≥ 3.8		GPa
	Specimen length 0.5m, Aged	≥ 3.03		GPa

Environmental Properties

Temperature Cycling	-60°C to 85°C, 1550nm&1625nm	≤0.05	Max	dB/km
Temperature Humidity Cycling	-60°C to 85°C, 4% to 98%RH, 1550nm&1625nm	≤0.05	Max	dB/km
Water Immersion	23°C, 1550nm&1625nm	≤0.05	Max	dB/km
Damp Heat	85°C, 85%RH, 1550&1625nm	≤0.05	Max	dB/km
Dry Heat	85°C, 1550&1625nm	≤0.05	Max	dB/km

Performance Properties

Effective Group Index (Neff)	1310m	1.467	Typical
	1550m	1.468	Typical

Z wave-s™

LWP Single Mode Bend Insensitive Fiber

G.657.A2 Specifications

Characteristics	Specified Values	Tolerances	Unit
Optical Properties			
Attenuation	1310nm	≤0.35	dB/km
	1383nm	≤0.31	dB/km
	1550nm	≤0.21	dB/km
	1625nm	≤0.23	dB/km
Attenuation Uniformity	1550nm	0.05	Max dB
Mode Field Diameter	1310nm	8.6	±0.5 μm
	1550nm	9.6	±0.8 μm
Cable Cutoff Wavelength (Acc)		≤1260	Max nm
Macrobending Loss	1turns, Radius 7.5mm, 1550nm	≤ 0.5	dB
	1turns, Radius 7.5mm, 1625nm	≤ 1.0	dB
	1turns, Radius 10mm, 1550nm	≤ 0.1	dB
	1turns, Radius 10mm, 1625nm	≤ 0.2	dB
	10turns, Radius 15mm, 1550nm	≤ 0.03	dB
	10turns, Radius 15mm, 1625nm	≤ 0.1	dB
PMD	Link Design Value	≤0.06**	Max ps/√km
	Maximum Individual Fiber	≤0.2	Max ps/√km

Geometrical Properties

Cladding Diameter	125	±0.7	μm
Cladding Non-Circularity	0.8	Max	%
Core/Cladding Concentricity Error	0.6	Max	μm
Coating Diameter	245	±5	μm
Coating Non-Circularity	6	Max	%
Coating/Cladding Concentricity Error	10	Max	μm

Mechanical Properties

Proof Test	1s	≥100	Min	kpsi
Fiber Curl	Radius of curvature	≥4	Min	m
Coating Strip Force(average)	30mm - 500mm/min	1-5		N
Stress corrosion parameter, N _s		≥20		
Dynamic Tensile Strength (0.5meter gauge length)	Specimen length 0.5m, Unaged	≥ 3.8		GPa
	Specimen length 0.5m, Aged	≥ 3.03		GPa

*** Higher Proof test levels available upon request.

Environmental Properties

Temperature Cycling	-60°C to 85°C, 1550nm&1625nm	≤0.05	Max	dB/km
Temperature Humidity Cycling	-60°C to 85°C, 4% to 98%RH, 1550nm&1625nm	≤0.05	Max	dB/km
Water Immersion	23°C, 1550nm&1625nm	≤0.05	Max	dB/km
Damp Heat	85°C, 85%RH, 1550&1625nm	≤0.05	Max	dB/km
Dry Heat	85°C, 1550&1625nm	≤0.05	Max	dB/km

Performance Properties

Effective Group Index (Neff)	1310m	1.467	Typical
	1550m	1.468	Typical

G.657.B3 Specifications

Characteristics		Specified Values	Tolerances	Unit
Optical Properties				
Attenuation	1310nm	≤0.35		dB/km
	1383nm	≤0.31		dB/km
	1550nm	≤0.21		dB/km
	1625nm	≤0.23		dB/km
Attenuation Uniformity	1550nm	0.05	Max	dB
Mode Field Diameter	1310nm	8.6	±0.5	μm
	1550nm	9.6	±0.8	μm
Cable Cutoff Wavelength (Acc)		≤1260	Max	nm
Macrobending Loss	1turns, Radius 7.5mm, 1550nm	≤0.15		dB
	1turns, Radius 7.5mm, 1625nm	≤0.45		dB
	1turns, Radius 10mm, 1550nm	≤0.08		dB
	1turns, Radius 10mm, 1625nm	≤0.25		dB
	10turns, Radius 15mm, 1550nm	≤0.03		dB
	10turns, Radius 15mm, 1625nm	≤0.1		dB
PMD	Link Design Value	≤0.06**	Max	ps/√km
	Maximum Individual Fiber	≤0.2	Max	ps/√km

Geometrical Properties

Cladding Diameter		125	±0.7	μm
Cladding Non-Circularity		0.8	Max	%
Core/Cladding Concentricity Error		0.6	Max	μm
Coating Diameter		245	±5	μm
Coating Non-Circularity		6	Max	%
Coating/Cladding Concentricity Error		10	Max	μm

Mechanical Properties

Proof Test	1s	≥100	Min	kpsi
Fiber Curl	Radius of curvature	≥4	Min	m
Coating Strip Force(average)	30mm - 500mm/min	1-5		N
Stress corrosion parameter, N _s		≥20		
Dynamic Tensile Strength (0.5meter gauge length)	Specimen length 0.5m, Unaged	≥3.8		GPa
	Specimen length 0.5m, Aged	≥3.03		GPa

Environmental Properties

Temperature Cycling	-60°C to 85°C, 1550nm&1625nm	≤0.05	Max	dB/km
Temperature Humidity Cycling	-60°C to 85°C, 4% to 98%RH, 1550nm&1625nm	≤0.05	Max	dB/km
Water Immersion	23°C, 1550nm&1625nm	≤0.05	Max	dB/km
Damp Heat	85°C, 85%RH, 1550&1625nm	≤0.05	Max	dB/km
Dry Heat	85°C, 1550&1625nm	≤0.05	Max	dB/km

Performance Properties

Effective Group Index (Neff)	1310m	1.467	Typical	
	1550m	1.468	Typical	

DreamLight™

Non Zero Dispersion Shifted Optical Fiber

Description

LSC&S DreamLight™ is designed for long-haul, high data rate and high capacity DWDM system.

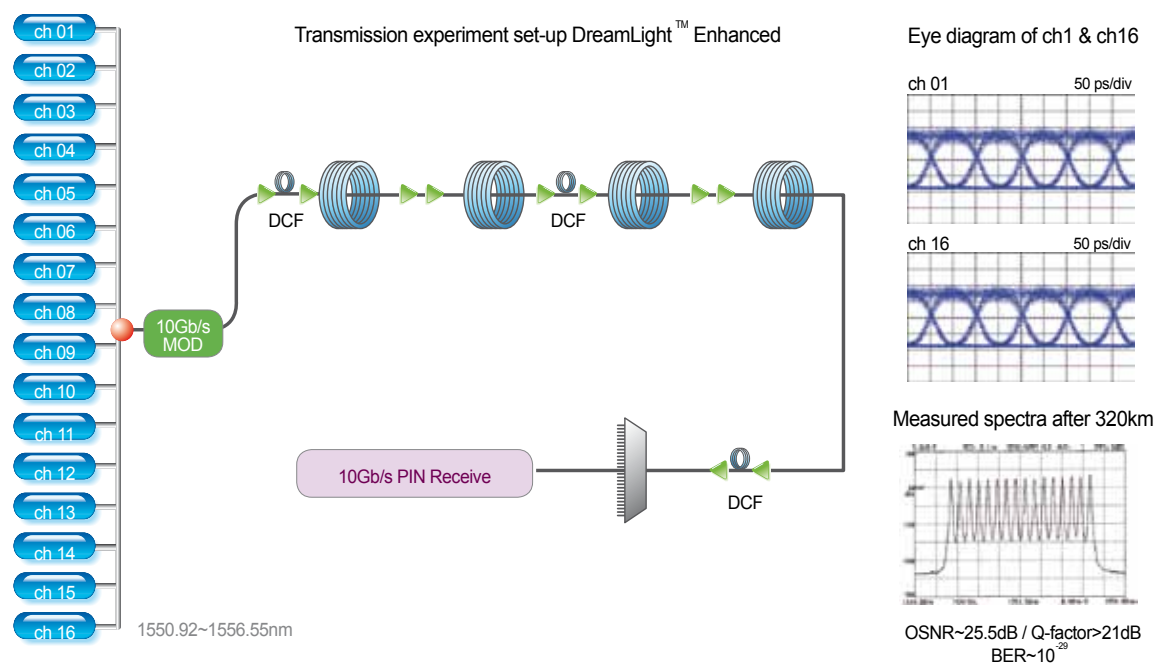
DreamLight™ has optimum performance for 40Gb/s, 100GHz Channel spacing system in the C and L bands. By optimizing dispersion and effective area, the generation of non-linear effects in 50 GHz channel spacing system is successfully surpassed. To meet tomorrow's needs, DreamLight™ provides excellent characteristics for higher bit rate transmission. The reduced PMD makes it feasible the next generation 40Gb/s transmission system.

Features & Benefits

- Complies with ITU-T G655 & G656
- Provide optimum performance for 10Gb/s 50GHz channel spacing in the C band
- 100GHz and 50GHz compatibility with 10 Gb/s systems in C & L bands
- Make it feasible the next generation 40 Gb/s transmission system
- Compatible with future DWDM amplifier regions such as the S band
- Ensure single mode operation in 1310nm region
- Enhanced PMD performance
- Excellent geometrical characteristics
- Environmentally compatible
- Meets all industry standards

Performance

- It fully guarantees, > 320 km transmission in 16 x10 Gb/s, 50 GHz channel spacing



Specifications

Characteristics	Unit	DreamLifht™ LA	DreamLifht™ Enhanced	DreamLifht™ RS
Optical & Geomrteical roperties				
ITU-T Reference		G.655A	G.655B&C	G.655A
Attenuation coefficient at 1550nm at 1625nm	dB/km	≤0.22 ≤0.25	≤0.22 ≤0.25	≤0.22 ≤0.25
Chromatic dispersion 1530 ~ 1565nm 1625nm	ps/nm.km	2~6 ≤11.2	5.5~10 ≤13.8	2~7 ≤8.9
Polarization mode Dispersion Link Design Value Maximum Individual PMD	ps/(km) ^{1/2}	≤0.1 ≤0.2	≤0.1 ≤0.2	≤0.1 ≤0.2
Macrobending loss (1550 & 1625nm) φ 60mm, 100 turns φ 32mm, 1 turn	dB	≤0.05 ≤0.5	≤0.05 ≤0.5	≤0.05 ≤0.5
Attenuation uniformity at 1550nm	db	0.05	0.05	0.05
Mode field diameter at 1550nm	um	9.6±0.5	9.3±0.5	8.4±0.6
Core concentricity error	um	0.6	0.6	0.6
Clad diameter	um	125±0.7	125±0.7	125±0.7
Clad non-circularity	%	0.8	0.8	0.8
Coating diameter	um	245±5	245±5	245±5
Fiber curl	m	Min.4	Min.4	Min.4

Characteristics	Specified Values	Tolerances	Unit
Mechanical Properties			
Proof Test	1s	100*	kpsi
Fiber Curl		4	m
Coating Strip Force	30mm - 500mm/min	1.3	N
Dynamic Tensile Strength (0.5meter gauge length)	Unaged	≥550	Min
		750	Typical
	Aged	≥440	Min
		750	Typical

*** Higher Proof test levels available upon request.

Environmental Properties

Temperature Cycling	-60°C to +85°C, 1310&1550nm	0.05	Max	dB/km
Temperature Humidity Cycling	-10°C to +85°C, 1310&1550nm	0.05	Max	dB/km
Water Immersion	23°C, 1310&1550nm	0.05	Max	dB/km
Heat Aging	85°C, 1310&1550nm	0.05	Max	dB/km

Performance Properties

Effective Group Index (Neff)	1550m	1.468	Typical
	1625m	1.469	Typical

Multi Mode Fiber

Description

LSC&S multi mode optical fiber consists of a germanium doped core and a matched silica cladding using modified Chemical Vapor Deposition process. LSC&S Multi mode optical fiber has a graded index profile with 50 μ m and 62.5 μ m core diameter and 125 μ m cladding diameter. These fibers have the highest bandwidth and lowest attenuation which is satisfying the use of 850nm and 1300nm. The dual layer of UV-cured acrylate coating material is applied to the glass to provide excellent glass protection and be easy to work with and is well recognized as a superior coating performing "good mechanical strippability, enough cushion against microbending and strong color code retention". They are sufficiently optimized for the cables including loose tube and tight buffer cable with their outer diameter of 245 μ m.

Features & Benefits

- Complies with ITU-T G651
- Designed for use at 850nm and 1300nm
- Low attenuation and high bandwidth, which overfills the transmission demand of IEEE 802.3z Gigabit Ethernet
- Excellent dimension controls for low splice loss
- Environmentally compatible
- Meets all industry standards

Specifications

Characteristics	Unit	50/125 μ m MMF	6.25/125 μ m MMF
Attenuation coefficient 850nm 1300nm	dB/km MHz.km	≤ 2.4	≤ 2.8
Bandwidth Premium 850nm / 1300nm Standard 850nm / 1300nm		500/1000 400/800	200/600 140/400
Attenuation uniformity at 850nm & 1300nm	dB	0.1	0.1
Macrobend loss (850 & 1300nm) ϕ 75mm, 100 turns	dB	0.5	0.5
Numerical Aperture	-	0.200 \pm 0.015	0.275 \pm 0.15
Core Diameter	μ m	50 \pm 2.5	62.5 \pm 2.5
Core concentricity error	μ m	≤ 1.5	≤ 1.5
Core Non-Circularity	%	≤ 5	≤ 5
Clad diameter	μ m	125 \pm 1.0	125 \pm 1.0
Clad non-circularity	%	≤ 1.5	≤ 1.5
Coating diameter	μ m	245 \pm 5	245 \pm 5
Temperature Dependence(-60~85°C) 850nm&1300nm	dB/km	≤ 0.2	≤ 0.2
Temp-Humid -10~85°C(4~98%RH) 850nm&1300nm	dB/km	≤ 0.2	≤ 0.2
Coating StripForce	N	1.3~8.9	1.3~8.9
Effective Group Index(Neff) 850nm 1300nm	-	1.483 1.479	1.496 1.487
Proof Test	kpsi	100	100

Giga™ For High Speed Local Network Superior Performance and Reliability !!

The rapid world-wide growth of the internet has prompted the performance improvement and infrastructure expansion of fiber optic communication system. The demand for higher quality and better performance optical communication had led to the continuous increase of deployment of new high speed network. Especially, faster access network service is needed to overcome the bandwidth bottleneck between local access network and long-haul network.

Fast Ethernet, FDDI, and ATM Protocol are the main protocols for the indoor and premises network solution, and Multimode Fiber and UTP Cable are used as main transmission media. In general, the transmission speed of LAN backbone network needs to be 10 times faster than desktop access line, which necessitates the introduction of Gigabit Ethernet system that offers high information carrying capacity. Gigabit Ethernet, being an extended version of Ethernet system, is preferred as the enterprise LAN and needs a new transmission media. LS Cable & System's newly developed Giga™ is the perfect media for Gigabit Ethernet system.

incessant demands of end-users to move large amounts of data at gigabit speeds required a new technology to handle the 100-fold increase in the transmitting speed used in the network. To this end, the Institute of Electrical and Electronic Engineers (IEEE) 802.3z committee revised the Ethernet protocol standards for transmission for optical networks at one gigabit. The revised protocol standards are based upon the Fast Ethernet system protocol developed in 1995. These new protocols are 1000Base-SX for 850nm wavelength using laser-based transceivers over multimode optical fiber and 1000Base-LX for 1300nm wavelength using laser-based transceivers over multimode or singlemode optical fibers, which are to be considered Gigabit Ethernet (GbE).

10-Gigabit Ethernet (10-GbE) standard considering the trend toward increasing traffic levels, as well as the development of more bandwidth-intensive applications, 10-Gbit/sec capability in both LANs and MANs will become extremely important. 10-GbE is the first Ethernet standard that will only function over optical fiber. Operation is over full-duplex mode and only with point-to-point connections, so collision detection protocols are not required.

The key criteria for efficient and effective high-speed networks are as follow.

- Easy, straightforward migration to higher performance levels without disruption
- Low cost of ownership
- Familiar management tools and common skills base
- Flexibility in network design

TIA FO2.2.1 Working Group has been determining the necessary performance criteria for multimode fiber (MMF) and 850-nm laser transmitters to support emerging 10-Gbit/sec applications to at least 300 m. The effort succeeded in providing a low-cost solution meeting the distance requirements of the vast majority of in-building LANs, storage-area networks (SANs), and equipment room inter connections using 850-nm vertical-cavity surface-emitting laser (VCSEL) serial transceivers and laser-optimized 50-micron MMF.

Laser Sources & Gigabit MMF

The light source for Gigabit Ethernet system needs to be cost-effective for data transmission speed and installation. The typical light sources that satisfy these requirements are VCSEL and low cost FP-LD. Besides the operating bandwidth, another difference between LED and LD is beam pattern. The different operating patterns of multimode fiber using different light sources are shown in figure 2.

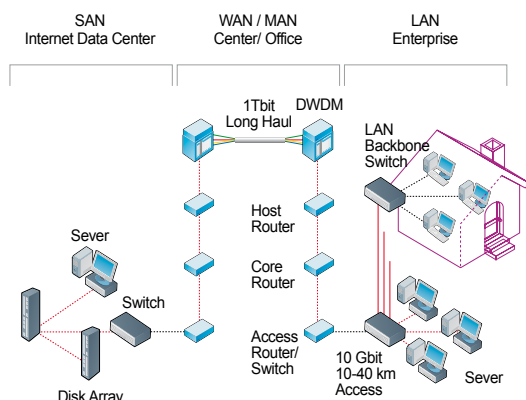


Figure 1. Optical System

Optical System

With the advent of Gigabit Ethernet Systems utilizing multimode fiber, the limiting factor in the fiber backbone was no longer the attenuation of the passive link, but rather the information carrying capacity of the fiber. Due to different signal characteristics of the transmitter, new test procedures and a new understanding of the interaction between the optical fiber and the optical signal were required.

Gigabit Ethernet systems are the result of the continual evolution of networks toward higher and higher speeds. The

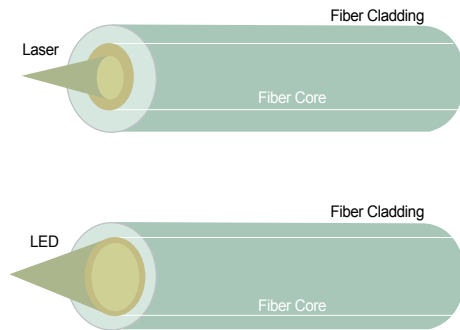


Figure 2. The operation pattern of Multimode Fiber by light source

LED has 100 μ m beam size and excites entire core of multimode fiber. On the contrary, FP-LD or VCSEL have relatively smaller beam size than fiber core and the light is launched into the partial core of multimode fiber exciting few modes. These different launching conditions induce different transmission characteristics for the same multimode fiber. As a result, transmission capacity of multimode fiber varies with laser source type, therefore this variation results in the modification of the definition of bandwidth. Bandwidth was originally defined under the condition of all modes exciting in core using LED, called Over Filled Launching(OFL). However, OFL bandwidth is not a good indicator under the condition of few modes exciting in core using LD. This few mode exciting condition is redefined as laser-based bandwidth and specified in TIA/EIA FOTP-204 which is redefinition of FOTP-30 and FOTP-51.

For the enhancement of transmission performance of MMF, core index profile must be carefully controlled. Defects of refractive index profile affects the transmission quality of multimode fiber for Gigabit Ethernet system. Among these defects, index dip is the major factor that impairs the performance of multimode fiber. Index dip originates from the evaporation of volatile dopants in the MCVD process. Because gigabit transmission system uses LD instead of LED, core central defect, like index dip, must be eliminated. The elimination of refractive index dip can be achieved through the fine control of manufacturing process. Even in the absent of core center dip, finite tuning is also important factor for transmission performance.

LS Cable & System developed center dip free process and realized uniform index profile. Fig. 3-(a) shows the typical index profile of conventional multimode fiber and Fig.3-(b) shows index profile of newly developed multimode fiber.

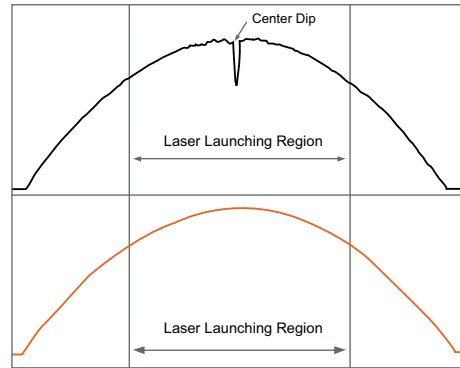


Figure 3. Index Profile of Multimode Fiber Conventional and Laser optimized MMF

TIA FO2.2.1 Working Group, which determined the performance requirements and accompanying new test procedure to measure the differential mode delay (DMD) property of the new fiber. The Telecommunications Industry Association (TIA) published the test procedure, FOTP-220. The ballot on a detailed fiber specification, to be published as TIA/EIA-492AAAC.

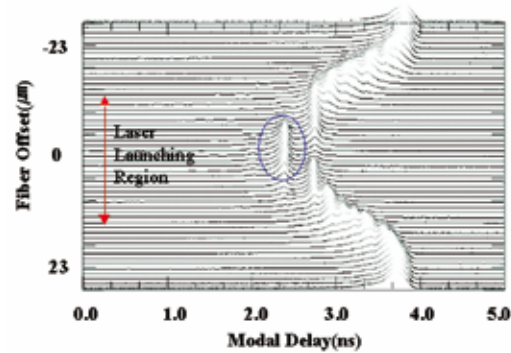


Figure 4. DMD Measurement scheme

Perturbations in the index profile capable of affecting the laser bandwidth can appear as negligible differences from the power-law profile using even the most sensitive index-profile measurement techniques. Fortunately, fiber-profile quality can be controlled and quantified using a technique called differential mode delay (DMD, FOTP-220), which measures the delay of each mode by scanning across the fiber core with a small launch spot. The DMD curve in Figure 4 illustrates the typical effect of an index depression at the center of the core. The delay of the lower-order modes (transmitted on or near the axis of the fiber) is affected significantly due to this perturbation. The information from the DMD scan can be used to make minute adjustments to the

index profile to equalize or flatten the DMD profile across the core of the fiber. It is critical point for system design to understand.

Figure 5 describes the inter-relationship between transmission capacity, OFL Bandwidth, RMLB(Retricted Modal Bandwidth), EMB(Effective Modal Bandwidth) and DMD. EMB is extended definition of RML Bandwidth. TIA FO-2.2.1 confirmed its specifications by measuring system EMB, the information-carrying capacity of a system, taking into account both fiber modal delays and transmitter launch condition. EMB measures the effects of multimode-fiber and transceiver interaction to accurately evaluate overall system performance.

Guarantee the Performance of Giga™ for 1Gigabit & 10Gigabit Ethernet system

IEEE 802.3z defines the system specification for Gigabit Ethernet under worst-case philosophy. Under this configuration, the transmission performance of multimode fiber can be newly defined. The Gigabit Ethernet Optical Link Model is used to qualify the transmission performance.

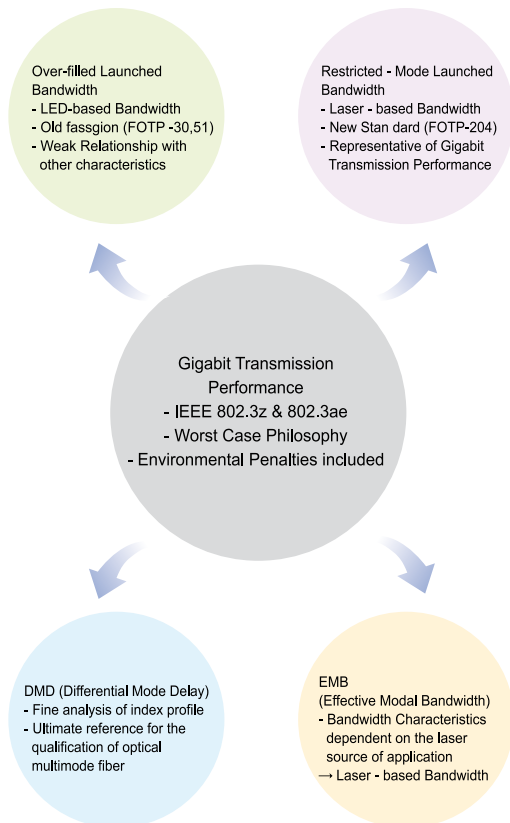


Figure 5. Optical characteristics of multimode fiber and inter-relationship

This model is based on the concept of power budgeting. The GbE link model was created by using worst-case models and applied empirically to LS product. The transmission performance test is conducted following IEEE802.3z. And the reliability of test result is enhanced with the aid of fiber shaker(FOTP-142) to simulate worst-case environment. Figure 6 shows the basic concept of transmission experiment.

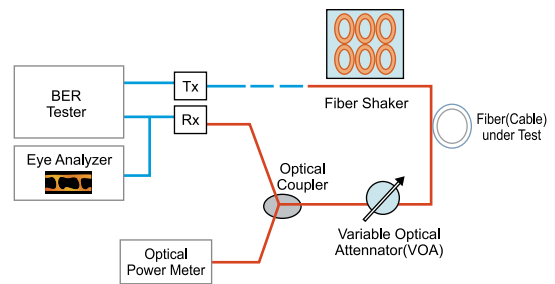


Figure 6. Transmission Measuring Equipment (According to IEEE802.3z & IEEE802.3ae)

LS Cable & System established the test-bed to measure transmission properties of multimode fiber satisfying international standards and set up mass production line which can guarantee the excellent minimum transmission distance of the fiber.

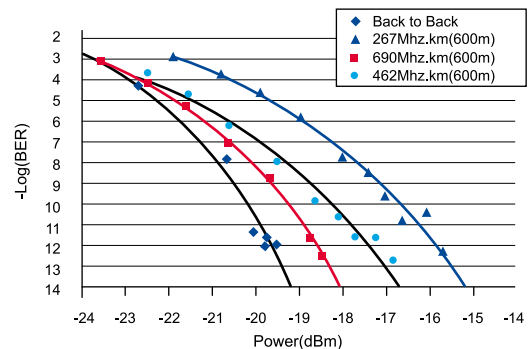


Figure 7. Measured power penalty dependence of EMB. For 1GbE Giga™ 62.5(62.5E) series MMF of 600meters with different EMB bandwidth (267, 462, 690Mhz.km), the power penalty varies from 1dB to 4dB. (Receiver Sensitivity : -19.5dBm)

However, this direct test method is not easily implemented for mass production process. Therefore, some alternatives are needed. EMB & DMD are known to have close relationship with transmission capacity of multimode fiber, and can be referenced as representative characteristics for 1Gigabit & 10 Gigabit transmission performance. EMB is calculated with DMD characteristics for various commercially available GbE transmitters.

Giga™ For High Speed Local Network Superior Performance and Reliability !!

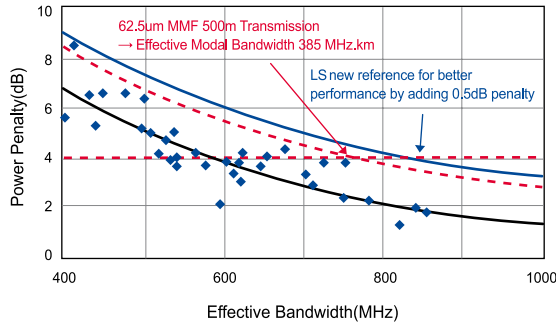


Figure 8. Power Penalty vs. EMB

Figure 7 and 8 show the results of 1GbE transmission experiment for Giga™ 62.5(62.5E) products.

As shown in figure 8, the test results coincide with IEEE power penalty link model.

For the application of MMF to short reach 10GbE system, DMD profile should be finely controlled. TIA/EIA-492AAAC defines the DMD characteristics of 10Gbps MMF with six templates of DMD mask. The fiber shall meet at least one of following six DMD templates, which each consists of both an inner and outer mask definition.

Template Number	Inner Mask DMD(ps/m) for 5um~18um	Outer Mask DMD(ps/m) for 0um~23um
1	≤ 0.23	0.70
2	≤ 0.24	0.60
3	≤ 0.25	0.50
4	≤ 0.26	0.40
5	≤ 0.27	0.35
6	≤ 0.33	0.33

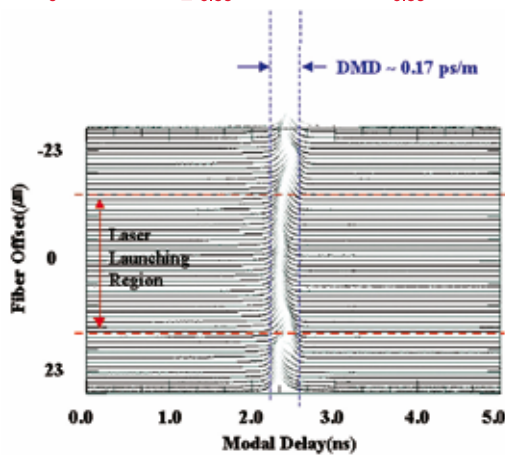
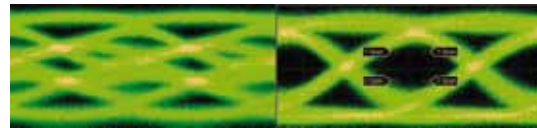


Figure 9. DMD Mask set defined on TIA/EIA-492AAAC and typical DMD profile of Enhanced MMF, Giga™ 50XE

To meet the DMD Mask requirements, LSC&S's Giga™ 50XE is manufactured carefully for 10GbE application. Figure 9 shows typical DMD characteristics of Giga™ 50XE. With enhanced DMD characteristics, the transmission performance of Giga™ 50XE exceeds the IEEE recommendation.



(A) (B)

Figure 10. Transmitted eye diagram of (a) 150meters of conventional MMF and (b) 700meters of Giga™ 50XE

Giga™

Giga™ provides gigabit multimode fiber as the solution for emerging high speed local area network.

The superior performance of Giga™ surpasses the minimum requirements specified by IEEE802.3z and enhances your system performance with reliability.

Giga™ supports current indoor and premises network with superior performance up to 2,000m transmission length.

Giga™ 62.5E guarantees the minimum transmission length of 500m for 850nm and 1000m for 1300nm. Giga™ 50E guarantees 600m for 850nm and 2000m for 1300nm.

Giga™ 50XE is optimized for 10GbE and Fibre Channel applications. The safe transmission length exceeds 300m for the system compatible with 10Gbase-SW/SR.

Giga™ series products of high performance and reliability are the best solutions for your system.

Table 1. Transmission length properties of Giga™

Items	Transmission Length (m)		Optical Properties				
	850nm	1300nm	Bandwidth (MHz.km)		Optical Attenuation(dB/km)		
			850nm	1300nm	850nm	1300nm	
1 Gbps	GipaPass™ 62.5	300	550	200	400	2.8	0.7
	GipaPass™ 62.5E	500	1000	200	600	2.4	0.6
	GipaPass™ 50	600	600	400	800		
	GipaPass™ 50E	600	2000	500	1000		
10 Gbps	GipaPass™ 50X	150	-	800	500	2.4	0.6
	GipaPass™ 50XE	300	-	800	500		
	GipaPass™ 50XXX	550	-	3500	500		

Geometrical Specifications

Glass Geometry

Cladding Diameter	125 ± 1.0 μm
Core-Cladding Concentricity	3.0 μm
Cladding Non-Circularity	≤ 1.5%
Core Non-Circularity	≤ 5.0%

Coating Geometry

Cladding Diameter	245 ± 1.0 μm
Core-Cladding Concentricity	± 10.0 μm

Standar Length(km/reel) 2.2~8.8km

Mechanical Specification

Proof Test

The entire fiber length is subjected to a tensile proot	Stress 100kpsi(0.7GN/m ²)
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* Higher Proof test levels are available

Coating

Coating Strip Force	1.3N ≤ S.F ≤ 8.3N
Pullout Force	6.2N ≤ P.F ≤ 22.2N

Environmental Specification

Test Condition	Induced Attenuation (dB/km)	
	850nm	1300nm
Temperature Dependance -65°C to +85°C	≤ 0.20	≤ 0.20
Temp-Humid Cycling -10°C to +85°C (4~98% RH)	≤ 0.20	≤ 0.20

Environmental Specification

Test Condition	Induced Attenuation (dB/km)	
	50.0 μm	62.5 μm
850nm	1.483	1.496
1300nm	1.479	1.487

Fatigue Resistance Parameter(nd) 20



Fiber Optic Cables (Indoor)

- Part Number Index
- All Dielectric Single Jacketed Central Tube
- 900um 2fiber buffered Aramid yarn Distribution Cable
- 900um tight buffered Aramid yarn Distribution Cable
- Breakout Cable
- Micro Distribution Cable
- Simplex cord, Duplex cord

LSC&S Part No.

① Select Fiber Type

SC = 9/125 μ m (ITU-T G652A,B)
SE = 9/125 μ m (ITU-T G652C,D)
HG = 62.5/125 μ m Standard
HC = 50/125 μ m 1 Gbe
MC = 50/125 μ m Standard
MG = 50/125 μ m 1 Gbe
MX = 50/125 μ m 10 Gbe 300 meter Link Length

② Fiber Count : 2 digit No.

Ex. 6 Fiber Count : 06, 24 Fiber Count : 24

R = UL TYPE OFNR
P = UL TYPE OFNP
Z = LSZH TYPE

③ Sheath Color

YL = Yellow
OR = Orange
AQ = Aqua
BK = Black

④ 16 = 1.6 mm Diameter

18 = 1.8 mm Diameter
20 = 2.0 mm Diameter
24 = 2.4 mm Diameter
29 = 2.9 mm Diameter

LS FIBER OPTIC LOOSE TUBE CABLE

All Dielectric Single Jacketed Central Tube

Description / Applications

- All dielectric Single Jacket Central Loose Tube cable is a UV-stabilized, fully water blocked cable for outdoor duct applications (PE outer jacket) or Indoor/Outdoor applications (LSZH outer jacket)
- Loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- Compact design for limited conduit space
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) complied

Specification

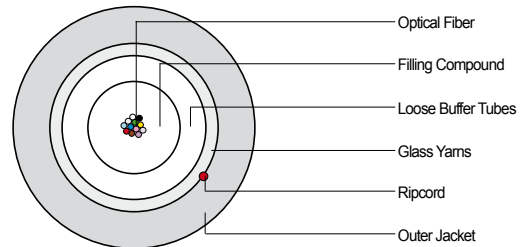
- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794
- ITU-T G652

Options

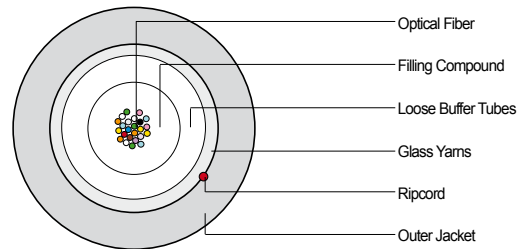
- Fiber - Single mode, 50 μ m, 62.5 μ m multi mode available
- Sequential meter or footage markings
- Outer jacket : Black UV- and moisture-resistant Polyethylene or LSZH (Low Smoke Zero Halogen)

Color Identification

01 - Blue	07 - Red	13 - Blue / Single stripe	19 - Red / Single stripe
02 - Orange	08 - Black	14 - Orange / Single stripe	20 - Natural
03 - Green	09 - Yellow	15 - Green / Single stripe	21 - Yellow / Single stripe
04 - Brown	10 - Violet	16 - Brown / Single stripe	22 - Violet / Single stripe
05 - Slate	11 - Rose	17 - Slate / Single stripe	23 - Rose / Single stripe
06 - White	12 - Aqua	18 - White / Single stripe	24 - Aqua / Single stripe



12-Fiber Cable



24-Fiber Cable

Mechanical Characteristics

Storage Temperature : -20 to + 70°C / Operating Temperature : -10 to + 60°C

Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load		Crush Load		Minimum Bend Radius			
	[mm]	[inch]	[kg/km]	[lb/kt]	Short Term [N]	Long Term [N]	Short Term [N/cm]	Long Term [N/cm]	Loaded [mm]	Loaded [inch]	Installed [mm]	Installed [inch]
2	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
4	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
6	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
8	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
10	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
12	6.3	0.25	45	0.10	1200	600	220	110	126	4.96	63	2.51
16	6.8	0.27	55	0.12	1200	600	220	110	136	5.35	68	2.71
18	6.8	0.27	55	0.12	1200	600	220	110	136	5.35	68	2.71
24	6.8	0.27	55	0.12	1200	600	220	110	136	5.35	68	2.71

LSC&S Part No.

LSZH RATED : CT ZSJNA
 RISER RATED : CT RSJNA
 PLENUM RATED: CT PSJNA

①

②

Transmission Performance

	9/125 μ m (1310/1550nm)	50/125 μ m Standard (850/1300nm)	50/125 μ m Gigabit (850/1300nm)	50/125 μ m 10Gigabit (850/1300nm)	62.5/125 μ m Standard (850/1300nm)	52.5/125 μ m Gigabit (850/1300nm)
Attenuation(dB/km) Typical values	0.4/0.3	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz • km)	-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)						
10Gbps	-	-	-	300	-	-
1Gbps	-	-	550/550	-	-	250/550

LS FIBER OPTIC DISTRIBUTION CABLE

900um 2fiber buffered Aramid yarn strength member

Description / Applications

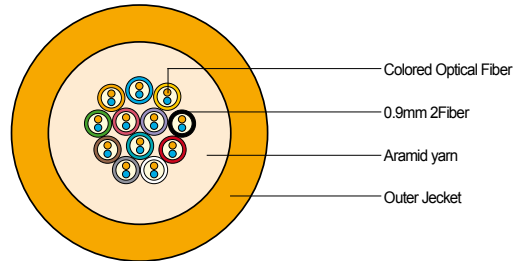
- Fiber to the desk cable for very high speed multimedia application
- Rugged construction : 2 fiber buffer structure with individually protected tubes
- Color coded tubes to identify transmitting and receiving fibers
- Small size and light weight
- Simplify pulling and installation work

Specification

- ISO/IEC 11801
- Telcordia GR-409-CORE
- ANSI/ ICEA S-83-596

Options

- Fiber - Single mode, 50 μ m, 62.5 μ m multi mode available
- Outer Jacket color
 - Single Mode : Yellow
 - 62.5/125 μ m 1Gbe : Orange
 - 50/125 μ m 1Gbe : Orange
 - 50/125 μ m 10Gbe : Aqua
- Outer jacket : PVC or LSZH (Low Smoke Zero Halogen)



Color of Buffer

- 01 - Blue
- 02 - Orange
- 03 - Green
- 04 - Brown
- 05 - Grey
- 06 - White
- 07 - Red
- 08 - Black
- 09 - Yellow
- 10 - Violet
- 11 - Pink
- 12 - Aqua

Color of Fiber

- 01 - Blue
- 02 - Orange

Mechanical Characteristics

Storage Temperature : -10 to + 70°C / Operating Temperature : 0 to + 60°C

Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load		Crush Load		Minimum Bend Radius			
	[mm]	[inch]	[kg/km]	[lb/kt]	Short Term [N]	Long Term [N]	Short Term [N/cm]	Long Term [N/cm]	Loaded [mm]	Loaded [inch]	Installed [mm]	Installed [inch]
2	2.9	0.11	10	0.02	300	150	35	13	58	2.28	29	1.15
4	4.5	0.18	20	0.04	660	300	35	13	90	3.54	45	1.79
6	5.2	0.20	23	0.05	660	300	35	13	104	4.09	52	2.07
8	5.3	0.21	25	0.06	660	300	35	13	106	4.17	53	2.11
12	5.7	0.22	30	0.07	660	300	35	13	114	4.49	57	2.27
16	6.0	0.24	35	0.08	660	300	35	13	120	4.72	60	2.39
24	6.7	0.26	40	0.09	660	300	35	13	134	5.28	67	2.67

LSC&S Part No.

LSZH RATED : 2DT Z
 RISER RATED : 2DT R
 PLENUM RATED: 2DT P
 ① ② ③

Transmission Performance

	9/125 μ m (1310/1550nm)	50/125 μ m Standard (850/1300nm)	50/125 μ m Gigabit (850/1300nm)	50/125 μ m 10Gigabit (850/1300nm)	62.5/125 μ m Standard (850/1300nm)	52.5/125 μ m Gigabit (850/1300nm)
Attenuation(dB/km) Typical values	0.5/0.4	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz • km)	-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)						
10Gbps	-	-	-	300	-	-
1Gbps	-	-	550/550	-	-	250/550

LS FIBER OPTIC DISTRIBUTION CABLE

900um tight buffered Aramid yarn strength member

Description / Applications

- Distribution cables are rugged, high performance optical communication cables for inside plant installations
- Backbone & Computer Room Cabling
- Compact design for limited conduit space
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) optional

Specification

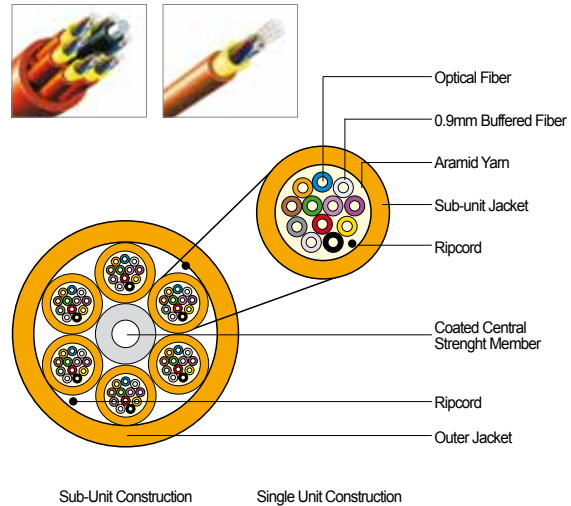
- ISO/IEC 11801
- Telcordia GR-409-CORE
- ANSI/ ICEA S-83-596

Options

- Fiber - Single mode, 50 μ m, 62.5 μ m multi mode available
- Sub-unit & Outer Jacket color
 - Single Mode : Yellow
 - 62.5/125 μ m 1Gbe : Orange
 - 50/125 μ m 1Gbe : Orange
 - 50/125 μ m 10Gbe : Aqua
- If the cable will be used indoor/outdoor applications, outer cable jacket shall be black
- Outer jacket : PVC or LSZH (Low Smoke Zero Halogen)

Subunit Identification

The identification code & number is printed on the sub-unit jacket every 10 cm (eg. SM#1, SM#2)



Color of Buffer

01 - Blue	07 - Red	13 - Blue / Black dash	19 - Red / Black dash
02 - Orange	08 - Black	14 - Orange / Black dash	20 - Black / White dash
03 - Green	09 - Yellow	15 - Green / Black dash	21 - Yellow / Black dash
04 - Brown	10 - Violet	16 - Brown / Black dash	22 - Violet / Black dash
05 - Grey	11 - Pink	17 - Grey / Black dash	23 - Pink / Black dash
06 - White	12 - Aqua	18 - White / Black dash	24 - Aqua / Black dash

Mechanical Characteristics

Storage Temperature : -20 to + 70°C / Operating Temperature : -10 to + 60°C

Construction	Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load		Crush Load		Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/ktf]	Short Term [N]	Long Term [N]	Short Term [N/cm]	Long Term [N/cm]	Loaded [mm]	Loaded [inch]	Installed [mm]	Installed [inch]
Single Unit	2	4.5	0.18	20	0.04	660	300	50	25	90	3.54	45	1.79
	4	5.3	0.21	25	0.06	660	300	50	25	106	4.17	53	2.11
	6	5.7	0.22	30	0.07	660	300	50	25	114	4.49	57	2.27
	8	6	0.24	35	0.08	660	300	50	25	120	4.72	60	2.39
	12	6.7	0.26	40	0.09	660	300	50	25	134	5.28	67	2.67
	16	8.5	0.33	70	0.15	1320	660	100	50	170	6.69	85	3.38
	18	8.9	0.35	75	0.17	1320	660	100	50	178	7.01	89	3.54
6 Fiber Subunits	24*	13.9	0.55	160	0.35	1320	660	100	50	278	10.94	139	5.53
12 Fiber Subunits	48	18.3	0.72	275	0.61	1320	660	100	50	366	14.41	183	7.28

*Single mode 24fiber cable is subunit Construction only

LSC&S Part No.

LSZH RATED : DT KR
 RISER RATED : DT KR
 PLENUM RATED: DT KP
 ① ② ③

Transmission Performance

	9/125 μ m (1310/1550nm)	50/125 μ m Standard (850/1300nm)	50/125 μ m Gigabit (850/1300nm)	50/125 μ m 10Gigabit (850/1300nm)	62.5/125 μ m Standard (850/1300nm)	52.5/125 μ m Gigabit (850/1300nm)
Attenuation(dB/km) Typical values	0.5/0.4	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz • km)	-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)	10Gbps	-	-	300	-	-
	1Gbps	-	-	550/550	-	250/550

LS FIBER OPTIC CABLE

Breakout cable

Description / Applications

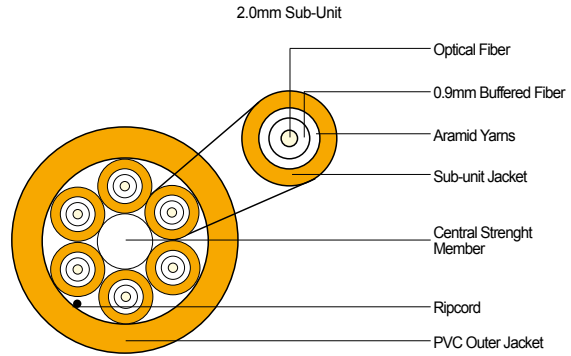
- Breakout cables are rugged, high performance optical communication cables for inside plant installations
- OFNR (riser rated), OFNP (plenum rated) or LSZH (low smoke zero halogen rated)
- Backbone & Computer Room Cabling
- Direct Termination on 2.0 mm Sub-Units
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) complied

Specification

- ISO/IEC 11801
- Telcordia GR-409-CORE
- ANSI/ICEA S-83-596

Options

- Fiber - Single mode, 50 μ m, 62.5 μ m multi mode available
- Higher fiber counts available upon request
- Other Sub-Unit Diameters Available (1.8mm, 2.4 mm, 2.9mm etc.)
- Buffered fiber : Natural (white)
- Sub-unit & Outer Jacket color
 - Single Mode : Yellow
 - 62.5/125 μ m 1Gbe : Orange
 - 50/125 μ m 1Gbe : Orange
 - 50/125 μ m 10Gbe : Aqua



Subunit Identification

The identification code & number is printed on the sub-unit jacket every 10 cm (eg. 62.5MM#1, 62.5MM#2)

Mechanical Characteristics

Storage Temperature : -20 to + 70°C / Operating Temperature : -10 to + 60°C

Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load		Crush Load		Minimum Bend Radius			
	[mm]	[inch]	[kg/km]	[lb/ktft]	Short Term [N]	Long Term [N]	Short Term [N/cm]	Long Term [N/cm]	Loaded [mm]	Loaded [inch]	Installed [mm]	Installed [inch]
2	7.5	0.30	50	0.11	660	300	35	13	150	5.91	75	2.98
4	7.7	0.30	55	0.12	660	300	35	13	154	6.06	77	3.06
6	8	0.31	65	0.14	660	300	35	13	160	6.30	80	3.18
8	9.5	0.37	85	0.19	660	300	35	13	190	7.48	95	3.78
12	10.5	0.41	95	0.21	1320	660	35	13	210	8.27	105	4.18

LSC&S Part No.

LSZH RATED : BT KZ
 RISER RATED : BT KR
 PLENUM RATED: BT KP
 ① ② ③

Transmission Performance

	9/125 μ m (1310/1550nm)	50/125 μ m Standard (850/1300nm)	50/125 μ m Gigabit (850/1300nm)	50/125 μ m 10Gigabit (850/1300nm)	62.5/125 μ m Standard (850/1300nm)	52.5/125 μ m Gigabit (850/1300nm)
Attenuation(dB/km) Typical values	0.5/0.4	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz • km)	-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)	10Gbps -	-	-	300	-	-
	1Gbps -	-	550/550	-	-	250/550

LS FIBER OPTIC DISTRIBUTION CABLE

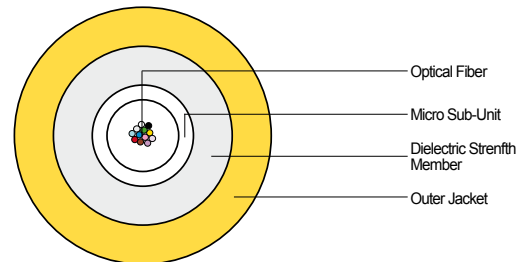
Micro Distribution Cable

Description

- Colored fiber, Micro sub-unit, dielectric strength member, Outer jacket
- Micro Sub-unit cable containing Max. 12 optical fibres
- Outer sheath: PVC OFNR(riser rated), PVC OFNP(plenum rated) or LSZH(low smoke zero halogen rated)
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) complied

Color of Fiber

01 - Blue	05 - Grey	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



Color of Micro Sub-unit

Natural or white

Color of Sheath

SM-Yellow
MM-Orange

Mechanical Characteristics

Storage Temperature : -20 to + 70°C / Operating Temperature : -10 to + 60°C

Fiber Count	Nominal Diameter		Nominal Weight		Maximum Tensile Load		Crush Load		Minimum Bend Radius			
	[mm]	[inch]	[kg/km]	[lb/kt]	Short Term [N]	Long Term [N]	Short Term [N/cm]	Long Term [N/cm]	Loaded [mm]	Installed [inch]	Installed [mm]	Installed [inch]
2	3.8	0.15	15	0.03	300	100	7.4	3.7	76	2.99	38	1.51
4	3.8	0.15	15	0.03	300	100	7.4	3.7	76	2.99	38	1.51
6	3.8	0.15	15	0.03	300	100	7.4	3.7	76	2.99	38	1.51
8	3.8	0.15	15	0.03	300	100	7.4	3.7	76	2.99	38	1.51
12	3.8	0.15	15	0.03	300	100	7.4	3.7	76	2.99	38	1.51

LSC&S Part No.LSZH RATED : MD KZ
 RISER RATED : MD KR
 PLENUM RATED: MD KP
 ① ② ③

Transmission Performance

	9/125 μ m (1310/1550nm)	50/125 μ m Standard (850/1300nm)	50/125 μ m Gigabit (850/1300nm)	50/125 μ m 10Gigabit (850/1300nm)	62.5/125 μ m Standard (850/1300nm)	52.5/125 μ m Gigabit (850/1300nm)
Attenuation(dB/km) Typical values	0.5/0.4	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz • km)	-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)						
10Gbps	-	-	-	300	-	-
1Gbps	-	-	550/550	-	-	250/550

LS FIBER OPTIC CABLE

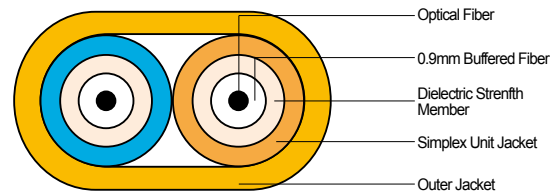
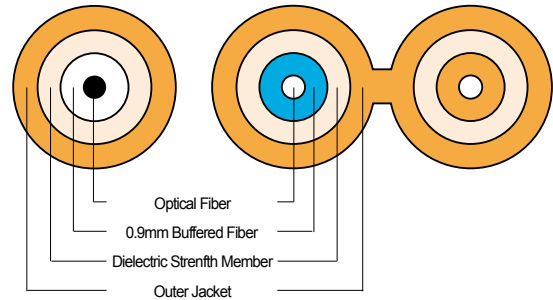
Simplex cord, Duplex cord

Description / Applications

- Short Run Office & Computer Room Cabling
- Patch cords, Pigtails and Jumpers
- Equipment Interconnects
- OFNR (riser rated), OFNP (plenum rated) or LSZH (low smoke zero halogen rated)
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) complied

Construction

- Simplex
 - Buffer color : Natural (white)
- Zipcord
 - Buffer color : Blue and Orange
- Duplex Flat :
 - Buffer color : Natural (white)
 - Simplex unit color : Blue and Orange
- Fiber - Single mode, 50 μ m, 62.5 μ m multi mode available
- Jacket color
 - Single Mode : Yellow
 - 62.5/125 μ m 1Gbe : Orange
 - 50/125 μ m 1Gbe : Orange
 - 50/125 μ m 10Gbe : Aqua



Specification

- ISO/IEC 11801
- Telcordia GR-409-CORE
- ANSI/ICEA S-83-596

Mechanical Characteristics

Storage Temperature : -40 to +70°C / Operating Temperature : -10 to +70°C

SIMPLEX CORD	Buffered Fiber Outer diameter [μm]	Nominal Diameter [mm] [inch]	Nominal Weight [kg/km] [lb/kt]	Maximum Tensile Load		Crush Load		Minimum Bend Radius		
				Short Term [N]	Long Term [N]	Short Term [N/cm]	Long Term [N/cm]	Loaded [mm] [inch]	Installed [mm] [inch]	
SIMPLEX CORD	Riser/Pleum rate 1.6mm	600 ± 50μm	1.6 0.06	3.0 0.01	130	65	3.5	1.5	32 1.26	16 0.64
	Riser/Pleum rate 1.8mm	600 ± 50μm	1.8 0.07	4.0 0.01	130	65	3.5	1.5	36 1.42	18 0.72
	Riser/Pleum rate 2.0mm	900 ± 50μm	2.0 0.08	4.0 0.01	130	65	3.5	1.5	40 1.57	20 0.80
	Riser/Pleum rate 2.4mm	900 ± 50μm	2.4 0.09	6.5 0.01	300	150	3.5	1.5	48 1.089	24 0.95
	Riser/Pleum rate 2.9mm	900 ± 50μm	2.9 0.11	9.5 0.02	300	150	3.5	1.5	58 2.28	29 1.15
ZIPCORD	Riser/Pleum rate 1.6mm	600 ± 50μm	1.6 0.06	5.5 0.01	200	100	3.5	1.5	32 1.26	16 0.64
	Riser/Pleum rate 1.8mm	600 ± 50μm	1.8 0.07	7.0 0.02	200	100	3.5	1.5	36 1.42	18 0.72
	Riser/Pleum rate 2.0mm	900 ± 50μm	2.0 0.08	8.0 0.02	200	100	3.5	1.5	40 1.57	20 0.80
	Riser/Pleum rate 2.4mm	900 ± 50μm	2.4 0.09	12.0 0.03	500	250	3.5	1.5	48 1.89	24 0.95
	Riser/Pleum rate 2.9mm	900 ± 50μm	2.9 0.11	17.0 0.04	500	250	3.5	1.5	58 2.28	29 1.15
DUPLEX FLAT	Riser/Pleum rate 2.0mm	900 ± 50μm	2.0 0.08	18.0 0.04	260	130	3.5	1.5	40 1.57	20 0.80
	Riser/Pleum rate 2.8mm	900 ± 50μm	2.8 0.11	28.0 0.06	500	250	3.5	1.5	56 2.20	28 1.11

LSC&S Part No.

SIMPLEX CORD : SC □ □ □ 01 □ □ □ □
 ZIPCORD : DC □ □ □ 02 □ □ □ □
 DUPLEX FLAT : DF □ □ □ 02 □ □ □ □

① ② ③ ④

Transmission Performance

	9/125 μ m (1310/1550nm)	50/125 μ m Standard (850/1300nm)	50/125 μ m Gigabit (850/1300nm)	50/125 μ m 10Gigabit (850/1300nm)	62.5/125 μ m Standard (850/1300nm)	52.5/125 μ m Gigabit (850/1300nm)
Attenuation(dB/km) Typical values	0.5/0.4	3.0/1.0	3.0/1.0	3.0/1.0	3.5/1.0	3.5/1.0
Minimum Bandwidth (MHz • km)	-	500/500	500/500	1500/500	200/500	200/500
Ethernet Link Distance (m)	10Gbps	-	-	300	-	-
	1Gbps	-	-	550/550	-	250/550



Fiber Optic Cables (Outdoor)

- Part Number Index
- Single Jacket Single Armor Central Loose Tube Cable
- All Dielectric Single Jacketed Central Tube with Polyamide coat for Insect-resistant
- All Dielectric Single Jacket Non-Armor Loose Tube Cable
- All Dielectric Single Jacketed Multi Loose Tube with Polyamide Sheath for Insect-resistant
- Single Jacket Single Armor Loose Tube Cable
- Double Jacket Single Armor Loose Tube Cable
- Micro Unit Cable
- Micro Unit Armor Cable
- ADSS Aerial Fiber Optic Cable (Gel filled PBT Tube)
- ADSS Aerial Fiber Optic Cable (Gel free PP Tube)
- MICRO AIR BLOWN CABLE (ABC)
- Air Blown Fiber unit (ABF)
- LS Active Optical Cable for Professional AV
- NEK 606 Mud Resistant QFCU
- NEK 606 Fire Resistant QFCI
- NEK 606 Flame Retardant AICI
- Fire Resistant Double Jacket Steel wire Armor Cable
- Single Jacket Flat FRP Armor Cable
- Figure 8 Aerial Cable
- Single Jacket Single Armor Central Ribbon Cable
- Single Jacket Single Armor All Dry Central Ribbon Cable
- Single Jacket Non Armor Stranded Ribbon Tube Cable
- Single Jacket Single Armor Stranded Ribbon Tube Cable
- Global Network

LSC&S Part No.

① Select Central Strength Member D: FRP M: Steel wire	③ Select Jacket Type E, E: Polyethylene Z, Z: LSZH	⑤ Select Fiber Type SC = 9/125 μm (ITU-T G652A,B) SE = 9/125 μm (ITU-T G652C,D) HC = 62.5/125 μm Standard HG = 62.5/125 μm 1 Gbe MC = 50/125 μm Standard MG = 50/125 μm 1 Gbe MX = 50/125 μm 10 Gbe 300 meter Link Length	⑥ Select Fiber Count ① Select Fiber Type SE = 9/125 μm ② Max. Span(m) ③ Select Fiber Type SC = 9/125 μm (ITU-T G652A,B) SE = 9/125 μm (ITU-T G652C,D)
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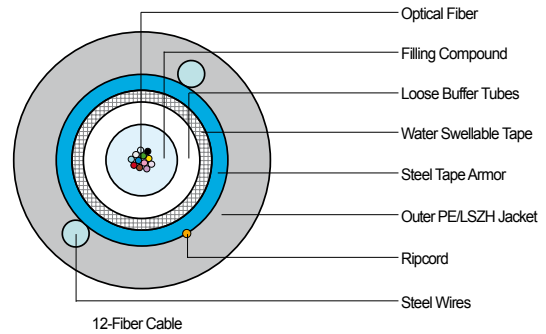
CT-NJBSME

LS FIBER OPTIC LOOSE TUBE CABLE

Single Jacket Single Armor Central Loose Tube Cable

Description / Applications

- Single Jacket Single armored Central loose tube cable is a UV-stabilized, fully water blocked cable for outdoor duct and direct burial applications.
- Loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- This lightweight cable offers durability and flexibility required for many outside plant application.
- Compact design for limited conduit space
- The cables are well suited for campus-type environments in and between buildings without building entry joints
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) complied



Specification

- Telcordia GR-20-CORE
- IEC 60793, 60794
- IEC 60332-1, 3

Color Identification

01 - Blue	07 - Red	13 - Blue / Single stripe	19 - Red / Single stripe
02 - Orange	08 - Black	14 - Orange / Single stripe	20 - Natural
03 - Green	09 - Yellow	15 - Green / Single stripe	21 - Yellow / Single stripe
04 - Brown	10 - Violet	16 - Brown / Single stripe	22 - Violet / Single stripe
05 - Slate	11 - Rose	17 - Slate / Single stripe	23 - Rose / Single stripe
06 - White	12 - Aqua	18 - White / Single stripe	24 - Aqua / Single stripe

Mechanical Characteristics

Storage Temperature : -40 to + 70°C / Operating Temperature : -10 to + 70°C

Fiber Count	LSC&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	Short Term [N]	Long Term [lb]	Short Term [N]	Long Term [lb]	Short Term [N/cm]	Long Term [lb/inch]	Short Term [N/cm]	Long Term [lb/inch]	Loaded [cm]	Installed [inch]		
2	CT-NJBSM□/□□-02	10.4	0.41	130/178	87/120	1,500	69	600	28	220	125	110	63	20.8	8.19	10.4	4.09
4	CT-NJBSM□/□□-04	10.4	0.41	130/178	87/120	1,500	69	600	28	220	125	110	63	20.8	8.19	10.4	4.09
6	CT-NJBSM□/□□-06	10.4	0.41	130/178	87/120	1,500	69	600	28	220	125	110	63	20.8	8.19	10.4	4.09
8	CT-NJBSM□/□□-08	10.4	0.41	130/178	87/120	1,500	69	600	28	220	125	110	63	20.8	8.19	10.4	4.09
10	CT-NJBSM□/□□-10	10.4	0.41	130/178	87/120	1,500	69	600	28	220	125	110	63	20.8	8.19	10.4	4.09
12	CT-NJBSM□/□□-12	10.4	0.41	130/178	87/120	1,500	69	600	28	220	125	110	63	20.8	8.19	10.4	4.09
18	CT-NJBSM□/□□-18	10.4	0.41	130/178	87/120	1,500	69	600	28	220	125	110	63	20.8	8.19	10.4	4.09
24	CT-NJBSM□/□□-24	10.4	0.41	130/178	87/120	1,500	69	600	28	220	125	110	63	20.8	8.19	10.4	4.09

*Denotes nominal value for PE / LSZH Jacketed Cable.

LSC&S Part No. CT-NJBSM □ / □□ - □□
③ ⑤ ⑥

Shipping Information

Standard Reel Length 4000m

*Other Cable lengths may be available upon request

CT-NJBGEN

LS FIBER OPTIC LOOSE TUBE CABLE

All Dielectric Single Jacketed Central Tube with Polyamide coat for Insect-resistant

Description / Applications

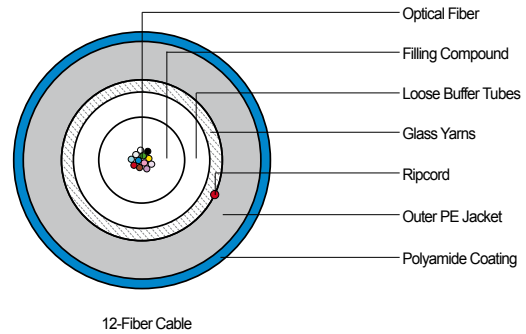
- All dielectric Single Jacket Central Loose Tube cable is a UV-stabilized, fully water blocked cable for outdoor duct applications.
- Polyamide coated sheath construction provides resistance against insects.
- Loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- This lightweight cable offers durability and flexibility required for many outside plant uses.
- Compact design for limited conduit space

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794
- ITU-T G652

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



Mechanical Characteristics

Storage Temperature : -20 to + 80°C / Operating Temperature : -10 to + 70°C

Fiber Count	LSC&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	Short Term		Long Term		Short Term		Long Term		Loaded		Installed	
						[N]	[lb]	[N]	[lb]	[N/cm]	[lb/inch]	[N/cm]	[lb/inch]	[cm]	[inch]	[cm]	[inch]
2	CT-□□SJNA02-N	7.7	0.30	53	36	2,000	93	700	32	220	125	110	63	15.4	6.06	7.7	3.03
4	CT-□□SJNA04-N	7.7	0.30	53	36	2,000	93	700	32	220	125	110	63	15.4	6.06	7.7	3.03
6	CT-□□SJNA06-N	7.7	0.30	53	36	2,000	93	700	32	220	125	110	63	15.4	6.06	7.7	3.03
8	CT-□□SJNA08-N	7.7	0.30	53	36	2,000	93	700	32	220	125	110	63	15.4	6.06	7.7	3.03
10	CT-□□SJNA10-N	7.7	0.30	53	36	2,000	93	700	32	220	125	110	63	15.4	6.06	7.7	3.03
12	CT-□□SJNA12-N	7.7	0.30	53	36	2,000	93	700	32	220	125	110	63	15.4	6.06	7.7	3.03

LSC&S Part No.CT□□SJNA□□-N
⑤ ⑥

Shipping Information

Standard Reel Length 4000m

*Other Cable lengths may be available upon request

LT-DJBG(K)E(Z)

LS FIBER OPTIC MULTI LOOSE TUBE CABLE All Dielectric Single Jacket Non-Armor Loose Tube Cable

Description / Applications

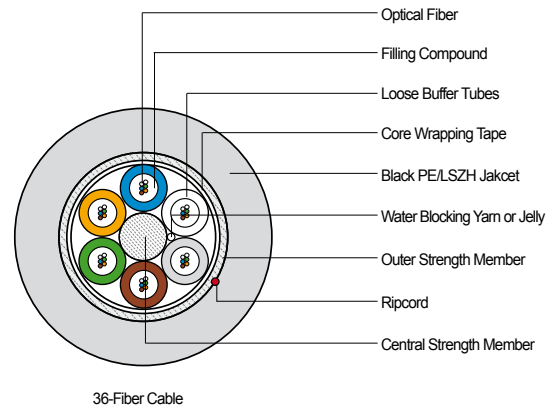
- All dielectric Single Jacket Multi Loose Tube cable is a UV-stabilized, fully water blocked cable for In/Outdoor duct applications.
- Loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- This lightweight cable offers durability and flexibility required for many outside plant uses.
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) Complied

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794
- IEC 60332-1,3
- IEEE 383

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



Mechanical Characteristics

Storage Temperature : -40 to + 70°C / Operating Temperature : -40 to + 70°C

Fiber Count	LSC&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Loaded	Installed	[cm]	[inch]	[cm]	[inch]
6	LT-DJB □□/□/□□-06	10.5/11.2	0.41/0.44	86/115	58/77	2,700	125	1,000	46	110	63	55	31	21/22.4	8.27/8.82	10.5/11.2	4.13/4.41
12	LT-DJB □□/□/□□-12	10.5/11.2	0.41/0.44	86/115	58/77	2,700	125	1,000	46	110	63	55	31	21/22.4	8.27/8.82	10.5/11.2	4.13/4.41
24	LT-DJB □□/□/□□-24	10.5/11.2	0.41/0.44	86/115	58/77	2,700	125	1,000	46	110	63	55	31	21/22.4	8.27/8.82	10.5/11.2	4.13/4.41
36	LT-DJB □□/□/□□-36	10.5/11.2	0.41/0.44	86/115	58/77	2,700	125	1,000	46	110	63	55	31	21/22.4	8.27/8.82	10.5/11.2	4.13/4.41
48	LT-DJB □□/□/□□-48	11.0/11.7	0.43/0.46	92/130	62/87	2,700	125	1,000	46	110	63	55	31	22/23.4	8.66/9.21	11.0/11.7	4.33/4.61
72	LT-DJB □□/□/□□-72	11.0/11.7	0.43/0.46	92/130	62/87	2,700	125	1,000	46	110	63	55	31	22/23.4	8.66/9.21	11.0/11.7	4.33/4.61
96	LT-DJB □□/□/□□-96	12.1/13.7	0.48/0.54	113/167	76/112	2,700	125	1,000	46	110	63	55	31	24/27.4	9.53/10.79	12.1/13.7	4.76/5.39
120	LT-DJB □□/□/□□-120	13.6	0.54	139	93	2,700	125	1,000	46	110	63	55	31	27	10.71	13.6	5.35
144	LT-DJB □□/□/□□-144	15.0	0.59	167	112	2,700	125	1,000	46	110	63	55	31	30	11.81	15	5.9
228	LT-DJB □□/□/□□-228	15.8	0.62	178	120	2,700	125	1,000	46	110	63	55	31	32	12.44	15.8	6.22
276	LT-DJB □□/□/□□-276	17.0	0.67	212	142	2,700	125	1,000	46	110	63	55	31	34	13.39	17	6.69
300	LT-DJB □□/□/□□-300	17.7	0.70	228	153	2,700	125	1,000	46	110	63	55	31	35	13.94	17.7	6.97

*Denotes nominal value for PE / LSZH Jacketed Cable.

LSC&S Part No. LT-DJB □ □ / □ / □ □ - □ □
② ③ ④ ⑤ ⑥

Shipping Information

Standard Reel Length 4000m

*Other Cable lengths may be available upon request

LT-DJBEN

LS FIBER OPTIC MULTI LOOSE TUBE CABLE

All Dielectric Single Jacketed Multi Loose Tube with Polyamide Sheath for Insect-resistant

Description / Applications

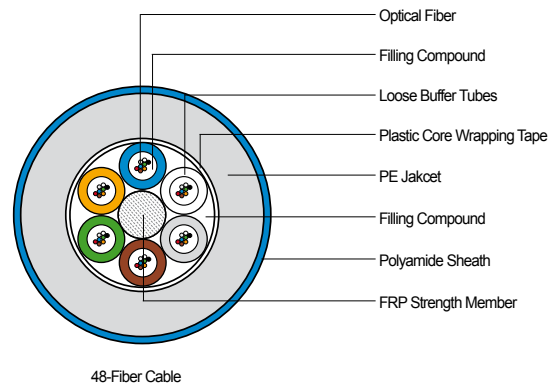
- All dielectric Single Jacket Multi Loose Tube cable is a UV-stabilized, fully water blocked cable for outdoor duct applications.
- Polyamide sheath construction provides resistance against insects.
- Loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- This lightweight cable offers durability and flexibility required for many outside plant uses.

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794
- ITU-T G652

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



Mechanical Characteristics

Storage Temperature : -40 to + 80°C / Operating Temperature : -30 to + 70°C

Fiber Count	LSC&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	Short Term [N]	Long Term [N]	Short Term [lb]	Long Term [lb]	Short Term [N/cm]	Long Term [N/cm]	Short Term [lb/inch]	Long Term [lb/inch]	Loaded [cm]	Installed [cm]		
4	LT□□SJNA04-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13
8	LT□□SJNA08-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13
16	LT□□SJNA16-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13
24	LT□□SJNA24-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13
32	LT□□SJNA32-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13
48	LT□□SJNA48-N	10.5	0.41	115	77	2,000	93	900	42	220	125	110	63	21.0	8.27	10.5	4.13

LSC&S Part No.LT□□SJNA□□-N
 ① ②

Shipping Information

Standard Reel Length 4000m

*Other Cable lengths may be available upon request

LT-D(M)JBG(K)SE(Z)

LS FIBER OPTIC MULTI LOOSE TUBE CABLE

Single Jacket Single Armor Loose Tube Cable

Description / Applications

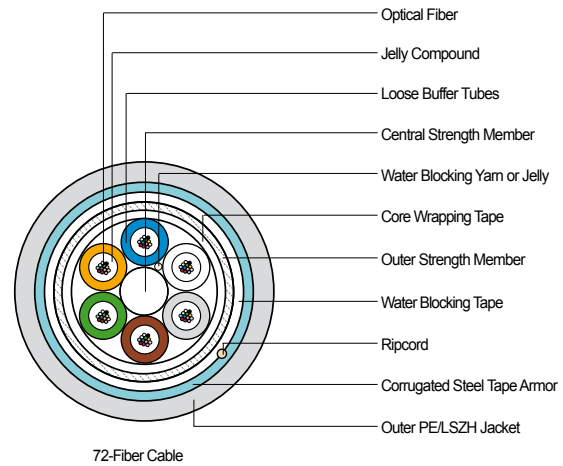
- Single jacket single armor loose tube fiber optic cable provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- The cable offers durability and flexibility required for many outside plant uses where added compressive strength, rodent resistance
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) Complied

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794
- IEC 332-1,3
- IEEE 383

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



Mechanical Characteristics

Storage Temperature : -40 to + 70°C / Operating Temperature : -10 to + 70°C

Fiber Count	LSC&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	Short Term [N]	Long Term [lb]	Short Term [N]	Long Term [lb]	Short Term [N/cm]	Long Term [lb/inch]	Short Term [N/cm]	Long Term [lb/inch]	Loaded [cm]	Installed [inch]	Loaded [cm]	Installed [inch]
6	LT-□JB□S□/□/□□-06	12.7	0.50	157/215	105/144	2,700	125	1,000	46	220	125	110	63	25.4	10.00	12.7	5.00
12	LT-□JB□S□/□/□□-12	12.7	0.50	157/215	105/144	2,700	125	1,000	46	220	125	110	63	25.4	10.00	12.7	5.00
24	LT-□JB□S□/□/□□-24	12.7	0.50	157/215	105/144	2,700	125	1,000	46	220	125	110	63	25.4	10.00	12.7	5.00
36	LT-□JB□S□/□/□□-36	12.7	0.50	157/215	105/144	2,700	125	1,000	46	220	125	110	63	25.4	10.00	12.7	5.00
48	LT-□JB□S□/□/□□-48	13.2	0.52	163/223	109/150	2,700	125	1,000	46	220	125	110	63	26.4	10.39	13.2	5.20
72	LT-□JB□S□/□/□□-72	13.2	0.52	163/223	109/150	2,700	125	1,000	46	220	125	110	63	26.4	10.39	13.2	5.20
96	LT-□JB□S□/□/□□-96	14.3	0.56	190/260	128/175	2,700	125	1,000	46	220	125	110	63	28.6	11.26	14.3	5.63
120	LT-□JB□S□/□/□□-120	15.8	0.62	225/308	151/207	2,700	125	1,000	46	220	125	110	63	31.6	12.44	15.8	6.22
144	LT-□JB□S□/□/□□-144	17.2	0.68	260/356	175/239	2,700	125	1,000	46	220	125	110	63	34.4	13.54	17.2	6.77
228	LT-□JB□S□/□/□□-228	18.0	0.71	279/382	187/257	2,700	125	1,000	46	220	125	110	63	36.0	14.17	18.0	7.09
276	LT-□JB□S□/□/□□-276	19.2	0.76	319/437	214/293	2,700	125	1,000	46	220	125	110	63	38.4	15.12	19.2	7.56
300	LT-□JB□S□/□/□□-300	19.9	0.78	340/466	228/313	2,700	125	1,000	46	220	125	110	63	39.8	15.67	19.9	7.83

*Denotes nominal value for PE / LSZH Jacketed Cable.

LSC&S Part No. LT-□JB□S□/□/□□-□□
 ① ② ③ ④ ⑤ ⑥

Shipping Information

Standard Reel Length 4000m

*Other Cable lengths may be available upon request

LT-D(M)JBG(K)ESE

LS FIBER OPTIC MULTI LOOSE TUBE CABLE

Double Jacket Single Armor Loose Tube Cable

Description / Applications

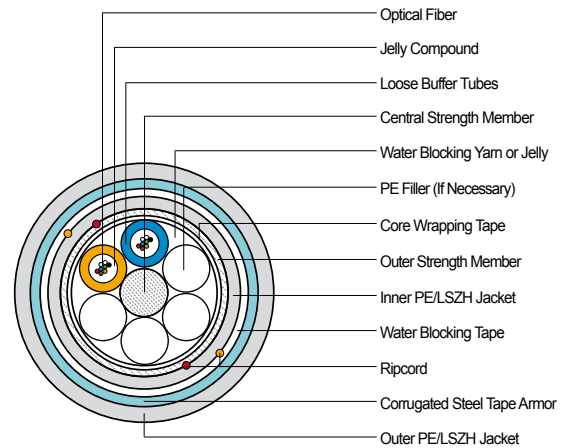
- Double jacket single armor loose tube fiber optic cable provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- The cable offers durability and flexibility required for many outside plant uses where added compressive strength, rodent resistance
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) Complied

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794
- IEC 60332-1, 3
- IEEE 383

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



Mechanical Characteristics

Storage Temperature : -40 to + 70°C / Operating Temperature : -10 to + 70°C

Fiber Count	LSC&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	Short Term [N]	Long Term [lb]	Short Term [N]	Long Term [lb]	Short Term [N/cm]	Long Term [lb/inch]	Short Term [N/cm]	Long Term [lb/inch]	Loaded [cm]	Installed [inch]	Loaded [cm]	Installed [inch]
6	LT-□JB□S□□/□□-06	14.7	0.58	199/273	134/183	2,700	125	1,000	46	220	125	110	63	29.4	11.57	14.7	5.79
12	LT-□JB□S□□/□□-12	14.7	0.58	199/273	134/183	2,700	125	1,000	46	220	125	110	63	29.4	11.57	14.7	5.79
24	LT-□JB□S□□/□□-24	14.7	0.58	199/273	134/183	2,700	125	1,000	46	220	125	110	63	29.4	11.57	14.7	5.79
36	LT-□JB□S□□/□□-36	14.7	0.58	199/273	134/183	2,700	125	1,000	46	220	125	110	63	29.4	11.57	14.7	5.79
48	LT-□JB□S□□/□□-48	15.2	0.60	212/290	142/195	2,700	125	1,000	46	220	125	110	63	30.4	11.97	15.2	5.98
72	LT-□JB□S□□/□□-72	15.2	0.60	212/290	142/195	2,700	125	1,000	46	220	125	110	63	30.4	11.97	15.2	5.98
96	LT-□JB□S□□/□□-96	16.3	0.64	242/332	162/223	2,700	125	1,000	46	220	125	110	63	32.6	12.83	16.3	6.42
120	LT-□JB□S□□/□□-120	17.8	0.70	280/384	188/258	2,700	125	1,000	46	220	125	110	63	35.6	14.02	17.8	7.01
144	LT-□JB□S□□/□□-144	19.2	0.76	320/438	215/294	2,700	125	1,000	46	220	125	110	63	38.4	15.12	19.2	7.56
228	LT-□JB□S□□/□□-228	20.0	0.79	340/466	228/313	2,700	125	1,000	46	220	125	110	63	40.0	15.75	20.0	7.87
276	LT-□JB□S□□/□□-276	21.2	0.83	384/526	258/353	2,700	125	1,000	46	220	125	110	63	42.4	16.69	21.2	8.35
300	LT-□JB□S□□/□□-300	21.9	0.86	407/558	273/374	2,700	125	1,000	46	220	125	110	63	43.8	17.24	21.9	8.62

*Denotes nominal value for PE / LSZH Jacketed Cable.

LSC&S Part No. LT-□JB□S□□/□□-□□
 ① ② ③ ④ ⑤ ⑥

Shipping Information

Standard Reel Length 4000m

*Other Cable lengths may be available upon request

LS FIBER OPTIC MICRO UNIT CABLE

Mixed(Convertible to aerial/ duct) type, Underground & Aerial type

Description / Applications

- All dielectric single jacket cable is UV-stabilized, fully water blocked (dry core) cable for outdoor duct/aerial applications.
- Micro unit design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- This lightweight cable offers durability and flexibility required for many outside plant uses.
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) optional
- All dry(Gel-Free) type

Specification

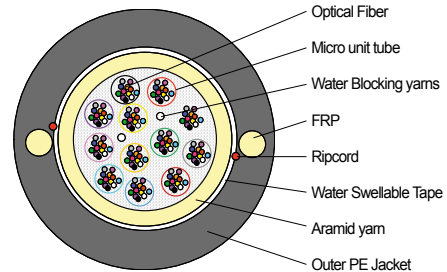
- IEC 60793 / IEC 60794
- ITU-T G.652(Up to 288F) , ITU-T G.657A2(Up to 864F)

Options

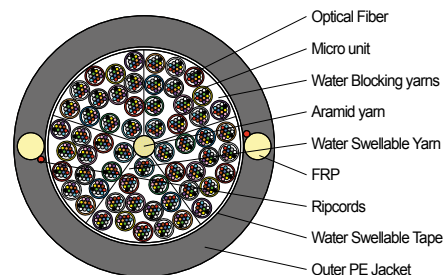
- Fiber - Single mode available
- Higher fiber counts available

Color Identification

01 - Red	05 - Violet	09 - Brown
02 - Blue	06 - White	10 - Black
03 - Green	07 - Orange	11 - Aqua
04 - Yellow	08 - Gray	12 - Pink



144-Fiber Cable



720-Fiber Cable

Mechanical Characteristics

Fiber Count	Type	No. of fiber per tube	Nominal Diameter [mm] / [inch]	Nominal Weight [kg/km] / [lb/kft]	Maximum Tensile Load [N]	Crush Load		Minimum Bend Radius	
						Short Term [N/cm]	Long Term [N/cm]	Loaded [mm] / [inch]	Installed [mm] / [inch]
6	Mixed type	6	7.5 / 0.30	47 / 32	2200	220	110	150 / 5.9	75 / 3.0
12	Mixed type	6	7.6 / 0.30	47 / 32	2200	220	110	150 / 5.9	75 / 3.0
24	Mixed type	6	8.7 / 0.34	55 / 37	2200	220	110	180 / 7.1	90 / 3.5
36	Mixed type	6	8.7 / 0.34	55 / 37	2200	220	110	180 / 7.1	90 / 3.5
48	Mixed type	6	8.7 / 0.34	58 / 39	2700	220	110	180 / 7.1	90 / 3.5
72	Mixed type	6	11.6 / 0.46	85 / 57	2700	220	110	230 / 9.1	115 / 4.5
96	Mixed type	6	12.5 / 0.49	100 / 67	2700	220	110	250 / 9.8	125 / 4.9
144	Mixed type	6	13.0 / 0.51	110 / 74	3200	220	110	260 / 10.2	130 / 5.1
12	Mixed type	12	7.5 / 0.30	47 / 32	2200	220	110	150 / 5.9	75 / 3.0
24	Mixed type	12	8.0 / 0.31	55 / 37	2200	220	110	160 / 6.3	80 / 3.1
36	Mixed type	12	8.4 / 0.33	60 / 40	2200	220	110	170 / 6.7	85 / 3.3
48	Mixed type	12	8.8 / 0.35	60 / 40	2200	220	110	180 / 7.1	90 / 3.5
72	Mixed type	12	10.2 / 0.40	80 / 54	2200	220	110	210 / 8.3	105 / 4.1
96	Mixed type	12	11.6 / 0.46	90 / 60	2700	220	110	240 / 9.4	120 / 4.7
144	Mixed type	12	11.6 / 0.46	95 / 64	2700	220	110	240 / 9.4	120 / 4.7
288	Mixed type	12	14.0 / 0.55	135 / 91	3200	220	110	280 / 11.0	140 / 5.5
12	Aerial type	12	6.1 / 0.24	31 / 21	1200	200	100	120 / 4.7	60 / 2.4
24	Aerial type	12	8.3 / 0.33	48 / 32	1350	200	100	160 / 6.3	80 / 3.1
36	Aerial type	12	8.3 / 0.33	50 / 34	1350	200	100	160 / 6.3	80 / 3.1
48	Aerial type	12	9.4 / 0.37	65 / 44	2200	300	150	170 / 6.7	85 / 3.3
72	Aerial type	12	10.7 / 0.42	80 / 54	2500	300	150	220 / 8.7	110 / 4.3
96	Aerial type	12	11.3 / 0.44	82 / 55	2900	300	150	240 / 9.4	120 / 4.7
144	Aerial type	12	11.3 / 0.44	87 / 58	2900	300	150	240 / 9.4	120 / 4.7
288	Aerial type	12	14.6 / 0.57	133 / 89	3200	300	150	300 / 11.8	150 / 5.9
432	Underground type	12	16.2 / 0.64	185 / 124	2700	220	110	330 / 13.0	165 / 6.5
576	Underground type	12	17.5 / 0.69	220 / 148	2700	220	110	350 / 13.8	175 / 6.9
720	Underground type	12	19.6 / 0.77	240 / 161	2700	220	110	390 / 15.4	195 / 7.7
864	Underground type	12	19.6 / 0.77	265 / 178	2700	220	110	390 / 15.4	195 / 7.7

Environmental Characteristics

Storage Temperature	-40 to +80 °C
Operating Temperature	-30 to +70 °C

LS FIBER OPTIC MICRO UNIT ARMOR CABLE

Double Jacket Flat FRP Armor Cable

Description / Applications

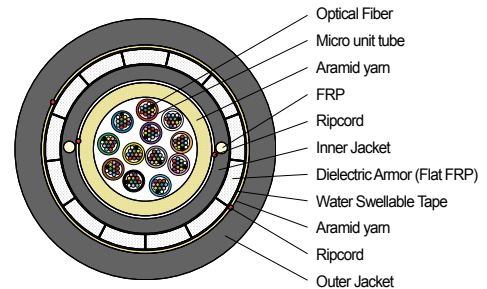
- All dielectric double jacket armored cable is UV-stabilized, fully water blocked cable for outdoor applications.(underground/aerial)
- Micro unit provides high fiber density, rapid installation, easy break-out of tubes.
- All dry(Gel-Free) construction provides easy handling and saving installation time/cost.
- Flat FRP armor provides protection from rodent attack and high tensile strength.
- The cable offers durability and flexibility required for many outside plant uses.

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794
- ITU-T G.652/657

Options

- Flat FRP Thickness(0.7/1.0/1.4mm)



144-Fiber Cable

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Rose
04 - Brown	08 - Black	12 - Aqua

LSC Part No. : MF-NBVKEFE- □□ □□

- ① Select Fiber Type. ② Fiber Count

- SE = G652D 245 μm
- A1 = G657A1 245 μm
- A2 = G657A2 245 μm

Mechanical Characteristics

Fiber Count	LSC Part Number	Nominal OD [mm] / [inch]		Nominal Weight [kg/km] / [lb/ktf]		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
						Short Term [N]	Long Term [b]	Short Term [N]	Long Term [b]	Short Term [N/cm]	Long Term [lb/inch]	Short Term [N/cm]	Long Term [lb/inch]	Loaded [cm]	Installed [inch]	Loaded [cm]	Installed [inch]
12	MF-NBVKEFE□□12	11.1	0.437	104	70	7500	1686	2250	506	220	126	110	63	24	9.4	12	4.7
24	MF-NBVKEFE□□24	11.6	0.457	114	77	7500	1686	2250	506	220	126	110	63	24	9.4	12	4.7
36	MF-NBVKEFE□□36	12.1	0.476	122	82	7500	1686	2250	506	220	126	110	63	26	10.2	13	5.1
48	MF-NBVKEFE□□48	12.5	0.492	130	87	9000	2023	2700	607	220	126	110	63	26	10.2	13	5.1
60	MF-NBVKEFE□□60	13.9	0.547	155	104	9000	2023	2700	607	220	126	110	63	28	11	14	5.5
72	MF-NBVKEFE□□72	13.9	0.547	157	105	9000	2023	2700	607	220	126	110	63	28	11	14	5.5
96	MF-NBVKEFE□□96	14.7	0.579	167	112	12000	2698	3600	809	220	126	110	63	30	11.8	15	5.9
144	MF-NBVKEFE□□144	14.7	0.579	175	118	12000	2698	3600	809	220	126	110	63	30	11.8	15	5.9

Environmental Characteristics

Storage Temperature	-30 to +70 °C
Operating Temperature	-30 to +70 °C

LS FIBER OPTIC LOOSE TUBE CABLE

ADSS Aerial Fiber Optic Cable (Gel filled PBT Tube)

Description / Applications

- All Dielectric Self Supporting (ADSS) Cable for Aerial Application.
- Black PE jacketed cable is a UV-stabilized, water blocked cable for outdoor aerial applications.
- Loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- High modulus aramid yarns provides high tensile strength and long term reliability.
- Long span products are available.

Specification

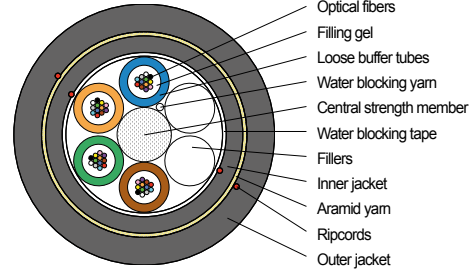
- IEC 60793 / IEC 60794
- IEEE 1222
- ITU-T G.652, G.655
- Telcordia GR-20-CORE

Options

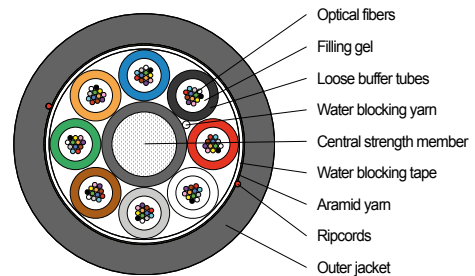
- Fiber – Single mode, 50 μ m, 62.5 μ m multi mode available
- Higher fiber counts available
- Anti-tracking Jacket (IEEE 1222 Class B)
- Fully customized products are available.

Color Identification

01 - Blue	05 - Gray	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



48-Fiber Double Jacket Cable



96-Fiber Single Jacket Cable

LSC Part No. : LT-DJB□□□/B□□ □□ □□ □□

- | | | | |
|--|--|---|---------------|
| ① Select Jacket Type.
KEX = Single
EKE = Double
EKT = Double, Anti-tracking | ② Select Span
08 = 80m
12 = 120m
T0 = 1000m
T2 = 1200m | ③ Select Fiber Type
SE = G.652D
A1 = G.657A1
A2 = G.657A2
NA = G.655D | ④ Fiber Count |
|--|--|---|---------------|

Mechanical Characteristics

Fiber Count	Type	LSC Part Number	Nominal OD		Nominal Weight		Maximum Tensile Load				Crush Load		Minimum Bend Radius					
			[mm]	[inch]	[kg/km]	[lb/ft]	Short Term [N]	Long Term [b]	Short Term [N/cm]	Long Term [lb/inch]	Short Term [N/cm]	Long Term [lb/inch]	Loaded [cm]	Installed [inch]	Loaded [cm]	Installed [inch]		
6~36	S-80M	LT-DJBKEXX/B08 SE24XX	9.2	0.361	62	42	1,147	258	344	77	220	126	110	63	20	7.9	10	3.9
48~72	S-80M	LT-DJBKEXX/B08 SE48XX	9.9	0.391	74	50	1,264	284	379	85	220	126	110	63	20	7.9	10	3.9
96	S-80M	LT-DJBKEXX/B08 SE96XX	10.1	0.399	84	56	1,490	335	447	100	220	126	110	63	22	8.7	11	4.3
144	S-80M	LT-DJBKEXX/B08 SE144X	12.6	0.497	125	84	1,891	425	567	128	220	126	110	63	26	10.2	13	5.1
6~36	S-120M	LT-DJBKEXX/B12 SE24XX	9.6	0.378	66	44	1,862	419	559	126	200	114	100	57	20	7.9	10	3.9
48~72	S-120M	LT-DJBKEXX/B12 SE48XX	10.6	0.418	84	57	2,195	494	659	148	200	114	100	57	22	8.7	11	4.3
96	S-120M	LT-DJBKEXX/B12 SE96XX	11.3	0.444	100	67	2,499	562	750	169	200	114	100	57	24	9.4	12	4.7
144	S-120M	LT-DJBKEXX/B12 SE144X	14.3	0.563	154	104	3,146	707	944	212	200	114	100	57	30	11.8	15	5.9
6~36	S-200M	LT-DJBKEXX/B20 SE24XX	9.8	0.385	69	46	2,881	648	864	194	200	114	100	57	20	7.9	10	3.9
48~72	S-200M	LT-DJBKEXX/B20 SE48XX	10.8	0.426	88	59	3,361	756	1,008	227	200	114	100	57	22	8.7	11	4.3
96	S-200M	LT-DJBKEXX/B20 SE96XX	11.5	0.452	104	70	3,753	844	1,126	253	200	114	100	57	24	9.4	12	4.7
144	S-200M	LT-DJBKEXX/B20 SE144X	14.5	0.57	158	106	4,694	1,055	1,408	317	200	114	100	57	30	11.8	15	5.9
6~36	S-600M	LT-DJBKEXX/B60 SE24XX	14.5	0.572	157	105	11,711	2,633	3,513	790	220	126	110	63	30	11.8	15	5.9
6~36	S-800M	LT-DJBKEXX/B80 SE24XX	14.8	0.581	162	109	14,484	3,256	4,345	977	220	126	110	63	30	11.8	15	5.9
6~36	S-800M	LT-DJBKEXX/B80 SE24XX	14.8	0.581	162	109	14,484	3,256	4,345	977	220	126	110	63	30	11.8	15	5.9
6~36	S-1000M	LT-DJBKEXX/B10 SE24XX	14.9	0.588	166	112	17,023	3,827	5,107	1148	220	126	110	63	30	11.8	15	5.9
6~36	S-1200M	LT-DJBKEXX/B12 SE24XX	15.2	0.599	173	116	20,835	4,684	6,251	1405	220	126	110	63	32	12.6	16	6.3

Environmental Characteristics

Storage Temperature	-40 to +70 °C
Operating Temperature	-30 to +70 °C

LS FIBER OPTIC LOOSE TUBE CABLE

ADSS Aerial Fiber Optic Cable (Gel free PP Tube)

Description / Applications

- All Dielectric Self Supporting (ADSS) Cable for Aerial Application.
- Black PE jacketed cable is a UV-stabilized, water blocked cable for outdoor aerial applications.
- Loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.
- High modulus aramid yarns provides high tensile strength and long term reliability.
- Flexible PP tube and gel free tubes provide a quick and safe cable installation.

Specification

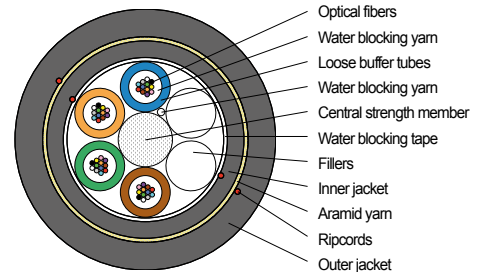
- IEC 60793 / IEC 60794
- IEEE 1222
- ITU-T G.652, G.655
- Telcordia GR-20-CORE

Options

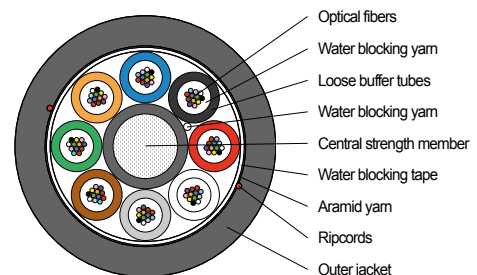
- Fiber – Single mode, 50 μ m, 62.5 μ m multi mode available
- Higher fiber counts available
- Anti-tracking Jacket (IEEE 1222 Class B)
- Fully customized products are available.

Color Identification

01 - Blue	05 - Gray	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



S-400M 48-Fiber Cable



S-100M & S-200M 96-Fiber Cable

LSC Part No. : LT-DBP□□□□/B□□ □□ □□□□

- | | | | |
|--|--|---|---------------|
| ① Select Jacket Type.
KEX = Single
EKE = Double
EKT = Double, Anti-tracking | ② Select Span
10 = 100m
20 = 200m
40 = 400m | ③ Select Fiber Type
SE = G.652D
A1 = G.657A1
A2 = G.657A2
NA = G.655D | ④ Fiber Count |
|--|--|---|---------------|

Mechanical Characteristics

Fiber Count	Type	LSC Part Number	Nominal OD		Nominal Weight		Maximum Tensile Load				Crush Load		Minimum Bend Radius					
			[mm]	[inch]	[kg/km]	[lb/kt]	Short Term [N]	Long Term [b]	Short Term [N/cm]	Long Term [lb/inch]	Loaded [inch]	Installed [inch]						
12~72	S-100M	LT-DBPKEXX/B10 SE48XX	11	0.433	81	54	2,127	478	638	143	220	126	110	63	22	8.7	11	4.3
96	S-100M	LT-DBPKEXX/B10 SE96XX	12.4	0.49	102	69	2,479	557	744	167	220	126	110	63	26	10.2	13	5.1
96	S-100M	LT-DBPKEXX/B10 SE96XX	12.4	0.49	102	68	2,479	557	744	167	220	126	110	63	26	10.2	13	5.1
144	S-100M	LT-DBPKEXX/B10 SE144X	15.8	0.623	164	110	3,401	765	1,020	229	220	126	110	63	32	12.6	16	6.3
288	S-100M	LT-DBPKEXX/B10 SE288X	18.5	0.728	198	133	4,145	932	1,244	280	220	126	110	63	38	15	19	7.5
12~72	S-200M	LT-DBPKEXX/B20 SE72XX	12.2	0.479	95	64	3,165	712	950	213	220	126	110	63	26	10.2	13	5.1
96	S-200M	LT-DBPKEXX/B20 SE96XX	13.7	0.54	123	83	4,087	919	1,226	276	220	126	110	63	28	11	14	5.5
144	S-200M	LT-DBPKEXX/B20 SE144X	16.1	0.635	171	115	4,469	1,005	1,341	301	220	126	110	63	34	13.4	17	6.7
144	S-200M	LT-DBPKEXX/B20 SE144X	16.1	0.635	171	115	4,469	1,005	1,341	301	220	126	110	63	34	13.4	17	6.7
288	S-200M	LT-DBPKEXX/B20 SE288X	18.8	0.739	206	139	5,204	1,170	1,561	351	220	126	110	63	38	15	19	7.5
288	S-200M	LT-DBPKEXX/B20 SE288X	18.8	0.739	205	138	5,204	1,170	1,561	351	220	126	110	63	38	15	19	7.5
12~72	S-400M	LT-DBPEKEX/B40 SE72XX	14.1	0.557	135	90	7,242	1,628	2,173	488	220	126	110	63	30	11.8	15	5.9
96	S-400M	LT-DBPEKEX/B40 SE96XX	15.7	0.618	167	112	8,105	1,822	2,432	547	220	126	110	63	32	12.6	16	6.3
96	S-400M	LT-DBPEKEX/B40 SE96XX	15.7	0.618	166	111	8,105	1,822	2,432	547	220	126	110	63	32	12.6	16	6.3
144	S-400M	LT-DBPEKEX/B40 SE144X	19.3	0.76	250	168	10,270	2,309	3,081	693	220	126	110	63	40	15.7	20	7.9
144	S-400M	LT-DBPEKEX/B40 SE144X	19.3	0.76	249	167	10,270	2,309	3,081	693	220	126	110	63	40	15.7	20	7.9
288	S-400M	LT-DBPEKEX/B40 SE288X	22.5	0.886	306	205	12,123	2,725	3,637	818	220	126	110	63	46	18.1	23	9.1
288	S-400M	LT-DBPEKEX/B40 SE288X	22.5	0.886	304	204	12,123	2,725	3,637	818	220	126	110	63	46	18.1	23	9.1

Environmental Characteristics

Storage Temperature	-40 to +70 °C
Operating Temperature	-30 to +70 °C

MICRO AIR BLOWN CABLE (ABC) SZ Stranded Loose Tube Type

Description / Applications

- Duct saving in metro area using blown cable
- Small size micro ABC and Micro Duct cable enables duct consumption efficiency in metro area
- Dramatically reduce expensive duct construction cost

Specification

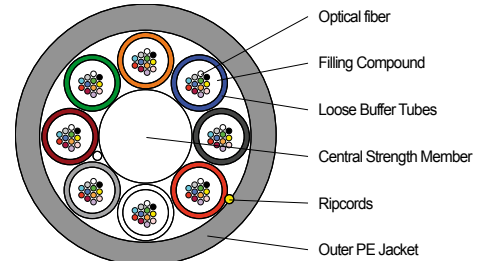
- IEC 60793 / IEC 60794
- ITU-T G652, G657, G651

Options

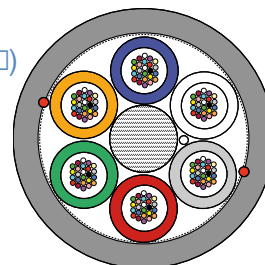
- Single Mode (200um / 245 um), Multimode 50/125, Multimode 62.5/125

LSC Part No. : LT-DJBEXXX/BRN □□ □□□□(□□T □.□□)

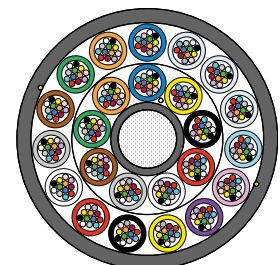
- ① Select Fiber Type.
SE = G652D 245 μm
B(A1) = G657A1 245 μm
B(A2) = G657A2 245 μm
S(A1) = G657A1 200 μm
S(A2) = G657A2 200 μm
- ② Fiber Count
③ Fiber per unit
④ Tube diameter



96 fibers
Nom. 6.5mm



144fibers
Nom. 6.5mm



288 fibers
Nom. 8.3mm

Mechanical Characteristics

[245um fiber]

Fiber Count	LSC Part Number	Fiber per tube	Nominal Diameter [mm]	Nominal Weight [kg/km]	Maximum Tensile Load [N]	Crush Resistance [N/10cm]	Minimum Bend Radius Loaded [mm]	Minimum Bend Radius Installed [mm]
~72	LT-DJBEXXX/BRN □□72XX(12T□.□□)	12	5.8 ± 0.2	28	280	500	120	60
96	LT-DJBEXXX/BRN □□96XX(12T□.□□)	12	6.5 ± 0.2	38	380	500	130	65
144	LT-DJBEXXX/BRN □□144X(12T□.□□)	12	8.0 ± 0.2	58	580	500	160	80
144	LT-DJBEXXX/BRN □□144X(24T□.□□)	24	7.8 ± 0.2	50	500	500	160	80
192	LT-DJBEXXX/BRN □□192X(12T□.□□)	12	8.2 ± 0.2	52	520	500	170	85
216	LT-DJBEXXX/BRN □□216X(12T□.□□)	12	8.2 ± 0.2	53	530	500	170	85
288	LT-DJBEXXX/BRN □□288X(12T□.□□)	12	10.2 ± 0.2	82	820	500	210	105

[200um fiber]

Fiber Count	LSC Part Number	Fiber per tube	Nominal Diameter [mm]	Nominal Weight [kg/km]	Maximum Tensile Load [N]	Crush Resistance [N/10cm]	Minimum Bend Radius Loaded [mm]	Minimum Bend Radius Installed [mm]
~72	LT-DJBEXXX/BRN □□72XX(12T□.□□)	12	4.6±0.2mm	18	180	500	100	50
96	LT-DJBEXXX/BRN □□96XX(12T□.□□)	12	5.2±0.2mm	27	270	500	110	55
144	LT-DJBEXXX/BRN □□144X(24T□.□□)	24	5.4±0.2mm	26	260	500	110	55
144	LT-DJBEXXX/BRN □□192X(24T□.□□)	24	6.3±0.2mm	39	390	500	130	65
216	LT-DJBEXXX/BRN □□216X(36T□.□□)	36	6.7±0.2mm	39	390	500	140	70
192	LT-DJBEXXX/BRN □□288X(12T□.□□)	12	7.9±0.2mm	60	600	500	160	80
216	LT-DJBEXXX/BRN □□288X(36T□.□□)	36	8.0±0.2mm	54	540	500	160	80
288	LT-DJBEXXX/BRN □□396X(36T□.□□)	36	11.0±0.2mm	100	1000	500	220	110

Environmental Characteristics

Storage Temperature	-40 to +60 °C
Operating Temperature	-30 to +60 °C

Air Blown Fiber unit (ABF) EPFU, EPSU

Description / Applications

- Optimized for blowing installation.
- Very small diameter for light weight and longer installation distance.
- Glass micro sphere coating for friction reduction and drag force increase.
- Easy stripping (no tool required).

Specification

- IEC 60793 / IEC 60794
- ITU-T G652, G657, G651

Options

- Single Mode, Multimode 50/125, Multimode 62.5/125
- Hybrid (SMF + MMF) and special fibers including high bending performance fiber

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Rose
04 - Brown	08 - Black	12 - Aqua

LSC Part No. : BF-□□□□ □□ □□-□□

① ABF Type

EPFU : Enhanced Performance Fiber Unit
 EPSU : Enhanced Performance Smooth sheath Unit
 ESU : Tensile Enhanced Smooth sheath Unit

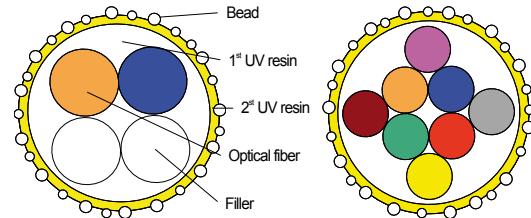
② Select Fiber Type.

SE = G652D 245 μm HG = 62.5/125 OM1
 B(A1) = G657A1 245 μm MG = 50/125 OM2
 B(A2) = G657A2 245 μm MX = 50/125 OM3
 S(A1) = G657A1 200 μm M4 = 50/125 OM4
 S(A2) = G657A2 200 μm

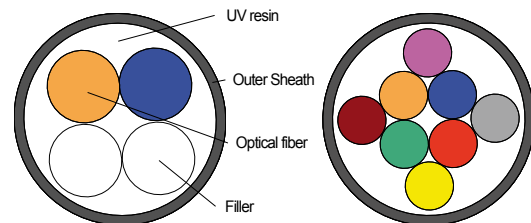
③ Fiber count

④ Sheath color
 YL = Yellow
 BL = Blue
 OR = Orange

EPFU



EPSU



Mechanical Characteristics

[EPFU]

Fiber Count	LSC Part Number	Nominal Diameter [mm]	Nominal Weight [kg/km]	Minimum Bend Radius
2	BF-EPFU □□02-□□	1.02	0.9	40
4	BF-EPFU □□04-□□	1.02	0.9	40
8	BF-EPFU □□08-□□	1.02	1.7	60
12	BF-EPFU □□12-□□	1.02	2.2	60

[EPSU]

Fiber Count	LSC Part Number	Nominal Diameter [mm]	Nominal Weight [kg/km]	Minimum Bend Radius
2	BF-EPSU □□02-□□	1.2	1.4	40
4	BF-EPSU □□04-□□	1.2	1.4	40
8	BF-EPSU □□08-□□	1.4	1.6	60
12	BF-EPSU □□12-□□	1.6	1.9	60

[TESU]

Fiber Count	LSC Part Number	Nominal Diameter [mm]	Nominal Weight [kg/km]	Minimum Bend Radius
2	BF-TESU □□02-□□	1.6	2.2	50
4	BF-TESU □□04-□□	1.6	2.2	50
8	BF-TESU □□08-□□	1.8	2.9	50
12	BF-TESU □□12-□□	1.9	3.2	50

Environmental Characteristics

Storage Temperature	-40 to +60 °C
Operating Temperature	-40 to +60 °C

LS Active Optical Cable for Professional AV HDMI, DVI, DP series

Feature

- Resolution : 4K, FHD, 3D Support (UHDTV : 3840×2160, VESA : 4096×2160)
- No external Power/Plug & Play (Condition : 5V, typ.55mA)
- 2 Types of Cable Jacket applicable (LSZH, Flame Retardant)
- EMI Resistance approved (CE : Class B)
- For Industrial & Residential usage

Applications

- Indoor Video/Audio System, Projector, Camera
- Control Tower, School, Church, Hospital, Meeting Room
- Digital signage, KIOSK, Video-Wall, DID
- Residential (Home Theater, 3D game, Pro Video/Audio System & etc)



Real 4K series Hybrid connection type (NEW!)



Product Specifications

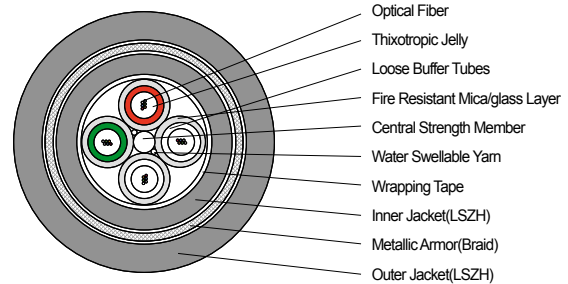
		HDMI (1.4)	HDMI (2.0)	DVI-D (Single)	DisplayPort(1.2a)
Video Specification					
Resolution (HDTV)	4K/UHD(3840x2160, FHD(1080p)	● (60Hz, 4:2:0)	● (60Hz, 4:4:4)	-	● (60Hz, 4:4:4)
Resolution (PC)	All VESA Resolution (4096×2160)	●	●	-	●
	All VESA Resolution (1920×1200)	●	●	●	●
3D		●	●	-	●
Deep Color		●	●	-	●
Feature supported		DDC, HDCP, CEC	DDC, HDCP, CEC	EDID, HDCP	AUX, HDCP, DPCP
Pixel Clock Rates		300MHz	600MHz	165MHz	-
Audio Specification					
PCM 8ch, Dolby Digital True HD	Supported on the HDMI stream	●	●	-	●
DTS-HD, Master Audio					
Connector Specification					
Connector		HDMI-A	HDMI-A	DVI-D	DisplayPort
Version		1.4	2.0	Single Link	1.2a
Transfer Speed					
Data Rate		10.2 Gbps	18.0 Gbps	4.95 Gbps	21.6 Gbps
Power Specification					
Input Voltage	DC V / Source through PIN	DC 5V / 18pin	DC 5V / 18pin	DC 5V / 14pin	DC 3.3V / 20pin
Power Consumption		0.25W	0.25W	0.25W	0.11W
Cable Specification					
Diameter	3.4mm / 4.5mm	●	●	●	●
Weight	10m 0.18kg, 100m 1.64kg	●	●	●	●
Tensile Strength (boots)	100N (10kg)	●	●	●	●
Tensile/Pressure Load	500N (50kg)	●	●	●	●
Jacket	Plenum (CMP-OF)	●	●	●	●
	LSZH (Low smoke zero halogen)	●	●	●	●
	Rental/Staging Poly Urethane	●	●	●	●
Environment Specification					
Operation Temperature	+32 ~ +122° F (0 ~ +50° C)	●	●	●	●
Storage Temperature	-22 ~ +122° F (-30 ~ +70° C)	●	●	●	●
Operation Humidity	5 ~ 85%	●	●	●	●

LS FIBER OPTIC CABLE

NEK 606 Mud Resistant QFCU

Description / Applications

- ISO/IEC 11801
- Telcordia GR-20-CORE
- ANSI/ICEA S-87-640
- Flame retardant : IEC 60332-24 CAT.C
- Fire resistant : IEC 60331-25(750°C)
- Halogen free : IEC 60754
- Mud proof : NEK 606



Identification of Tight buffers

- BL, OR, GN, BN, GY, WH, RD, BK, YL, VI, PK, AQ

Identification of Cord Jacket

- RD, GN, WH, WH

Mechanical Characteristics

Fiber Count	Fiber per Tube	Nominal* Diameter [mm]	Nominal* Weight [kg/km]	Maximum Tensile Load [N]	Crush Load [N/cm]	Min Bend Radius	
						Loaded [mm]	Installed [mm]
2 ~ 8	2	15.7	370	1500	100	314	157
10 ~ 16	4	15.7	370	1500	100	314	157
18 ~ 24	6	15.7	370	1500	100	314	157
26 ~ 32	8	15.7	370	1500	100	314	157
34 ~ 48	12	15.7	370	1500	100	314	157

Environmental Characteristics

Operation	-40 to +70°C
Installation	-10 to +60°C
Storage/Shipping	-40 to +70°C

Optical Characteristics

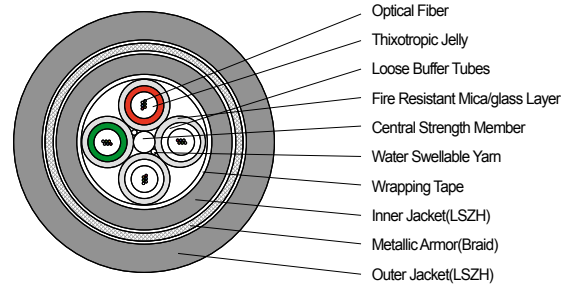
Fiber Type (Single Mode)	G652.D	Fiber Type (Multi Mode)	OM1	OM2	OM3
Attenuation(dB/km)@1310/1383/1550nm	≤ 0.36/0.35/0.25	Attenuation(dB/km)@850/1300 nm	3.5/1.0	3.0/1.0	3.0/1.0
Zero dispersion Wavelength	1300 ~ 1322 nm	Min. Laser EMB Bandwidth@850nm (MHz.km)	-	-	2000
Zero Dispersion Slope (ps/nm ² .km)	≤ 0.092	Min. OFL Bandwidth@850/1300nm (MHz.km)	200/500	500/500	1500/500
PMDq (ps/√km)	≤ 0.2	Numerical Aperture	0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
MFD	@ 1310nm	Typical Core dia. (mm)	62.5 ± 3.0	50 ± 3.0	50 ± 3.0
	@ 1550nm	Core-Clad Conc Error (mm)	≤ 2.0	≤ 2.0	≤ 2.0
Cladding diameter (mm)	125 ± 1	Cladding diameter (mm)	125 ± 2	125 ± 2	125 ± 2
Mode field concentricity error	≤ 0.6 mm	Fiber coating diameter (mm)	245 ± 15	245 ± 15	245 ± 15
Cladding non-circularity (%)	1	Max. Link Distance at 850/1300nm (m)	1 Giga	1 Giga	10 Giga
Fiber coating diameter (mm)	250 ± 10		200/500	500/500	300/-

LS FIBER OPTIC CABLE

NEK 606 Fire Resistant QFCI

Description / Applications

- ISO/IEC 11801
- Telcordia GR-20-CORE
- ANSI/ICEA S-87-640
- Flame retardant : IEC 60332-24 CAT.C
- Fire resistant : IEC 60331-25(750°C)
- Halogen free : IEC 60754



Identification of Tight buffers

- BL, OR, GN, BN, GY, WH, RD, BK, YL, VI, PK, AQ

Identification of Cord Jacket

- RD, GN, WH, WH

Mechanical Characteristics

Fiber Count	Fiber per Tube	Nominal* Diameter [mm]	Nominal* Weight [kg/km]	Maximum Tensile Load [N]	Crush Load [N/cm]	Min Bend Radius	
						Loaded [mm]	Installed [mm]
2 ~ 8	2	16.5	350	1500	100	330	165
10 ~ 16	4	16.5	350	1500	100	330	165
18 ~ 24	6	16.5	350	1500	100	330	165
26 ~ 32	8	16.5	350	1500	100	330	165
34 ~ 48	12	16.5	350	1500	100	330	165

Environmental Characteristics

Operation	-40 to +70°C
Installation	-10 to +60°C
Storage/Shipping	-40 to +70°C

Optical Characteristics

Fiber Type (Single Mode)	G652.D	Fiber Type (Multi Mode)	OM1	OM2	OM3
Attenuation(dB/km)@1310/1383/1550nm	≤ 0.36/0.35/0.25	Attenuation(dB/km)@850/1300 nm	3.5/1.0	3.0/1.0	3.0/1.0
Zero dispersion Wavelength	1300 ~ 1322 nm	Min. Laser EMB Bandwidth@850nm (MHz.km)	-	-	2000
Zero Dispersion Slope (ps/nm ² .km)	≤ 0.092	Min. OFL Bandwidth@850/1300nm (MHz.km)	200/500	500/500	1500/500
PMDq (ps/√km)	≤ 0.2	Numerical Aperture	0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
MFD	@ 1310nm	Typical Core dia. (mm)	62.5 ± 3.0	50 ± 3.0	50 ± 3.0
	@ 1550nm	Core-Clad Conc Error (mm)	≤ 2.0	≤ 2.0	≤ 2.0
Cladding diameter (mm)	125 ± 1	Cladding diameter (mm)	125 ± 2	125 ± 2	125 ± 2
Mode field concentricity error	≤ 0.6 mm	Fiber coating diameter (mm)	245 ± 15	245 ± 15	245 ± 15
Cladding non-circularity (%)	1	Max. Link Distance at 850/1300nm (m)	1 Giga	1 Giga	10 Giga
Fiber coating diameter (mm)	250 ± 10		200/500	500/500	300/-

LS FIBER OPTIC CABLE

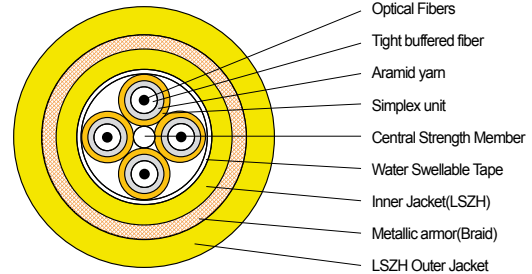
NEK 606 Flame Retardant AICI

Description / Applications

- ISO/IEC 11801
- Telcordia GR-409-CORE
- ANSI/ICEA S-83-596
- Flame retardant : IEC 60332-24 CAT.C
- Halogen free : IEC 60754

Identification of Tight buffers

- Single mode fiber : White
- 50 Multi mode fiber : White
- 62.5 Multi mode fiber : White



Identification of Cord Jacket

- Single mode fiber : Yellow
- 50 Multi mode fiber : Orange
- 62.5 Multi mode fiber : Orange

Mechanical Characteristics

Fiber Count	Cable Construction (FRP+Subunit)	Nominal* Diameter [mm]	Nominal* Weight [kg/km]	Maximum Tensile Load [N]	Crush Load [N/cm]	Min Bend Radius	
						Loaded [mm]	Installed [mm]
4	1+4	14.8	310	600	100	300	150
8	1+8	17.3	400	600	100	360	180
12	1+12	19.8	520	600	100	400	200
16	1+5+11	19.7	490	600	100	400	200
24	1+9+15	22.2	600	600	100	460	230

Environmental Characteristics

Operation	-20 to +70°C
Installation	-10 to +60°C
Storage/Shipping	-20 to +70°C

Optical Characteristics

Fiber Type (Single Mode)	G652.D	Fiber Type (Multi Mode)	OM1	OM2	OM3
Attenuation(dB/km)@1310/1383/1550nm	≤ 0.36/0.35/0.25	Attenuation(dB/km)@850/1300 nm	3.5/1.0	3.0/1.0	3.0/1.0
Zero dispersion Wavelength	1300 ~ 1322 nm	Min. Laser EMB Bandwidth@850nm (MHz.km)	-	-	2000
Zero Dispersion Slope (ps/nm ² .km)	≤ 0.092	Min. OFL Bandwidth@850/1300nm (MHz.km)	200/500	500/500	1500/500
PMDq (ps/√km)	≤ 0.2	Numerical Aperture	0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
MFD	@ 1310nm	Typical Core dia. (mm)	62.5 ± 3.0	50 ± 3.0	50 ± 3.0
	@ 1550nm	Core-Clad Conc Error (mm)	≤ 2.0	≤ 2.0	≤ 2.0
Cladding diameter (mm)	125 ± 1	Cladding diameter (mm)	125 ± 2	125 ± 2	125 ± 2
Mode field concentricity error	≤ 0.6 mm	Fiber coating diameter (mm)	245 ± 15	245 ± 15	245 ± 15
Cladding non-circularity (%)	1	Max. Link Distance at 850/1300nm (m)	1 Giga	1 Giga	10 Giga
Fiber coating diameter (mm)	250 ± 10		200/500	500/500	300/-

LS FIBER OPTIC MULTI LOOSE TUBE CABLE

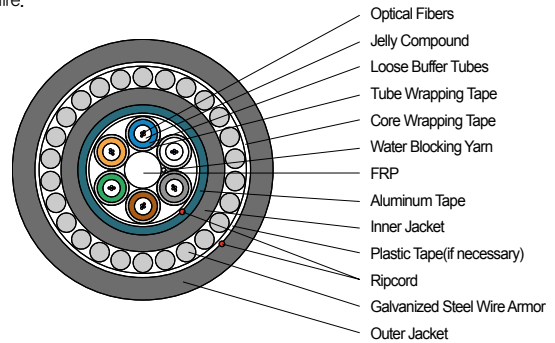
Fire Resistant Double Jacket Steel wire Armor Cable

Description / Applications

These cables are suitable for installation inside buildings, tunnels, subways or closed areas in general, specially designed to guarantee the signal transmission even in case of fire. The cable can also be used for direct burial

Specification

- Fire resistant IEC 60331-25, BS 6387 CWZ
- Flammability ISO 4589-2, ISO 4589-3
- Flame Propagation IEC 60332-1, IEC 60332-3-24(Cat.C)
- Corrosive and acid gas emission IEC 60754-1
- Smoke Emission IEC 61034-1, IEC 61034-2
- UV resistances UL 1581



Options

- Single Mode, Multimode 50/125, Multimode 62.5/125
- Steel wire armor/Moisture barrier
- Double Jacket
- Color stripe on outer jacket

Color Identification

- | | | |
|-------------|------------|-------------|
| 01 - Blue | 05 - Grey | 09 - Yellow |
| 02 - Orange | 06 - White | 10 - Violet |
| 03 - Green | 07 - Red | 11 - Pink |
| 04 - Brown | 08 - Black | 12 - Aqua |

Mechanical Characteristics

Fiber Count	LSC&S Part Number	Nominal* OD		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/kt]	Short Term [N]	Long Term [lb]	Short Term [N]	Long Term [lb]	Short Term [N/cm]	Long Term [lb/inch]	Short Term [N/cm]	Long Term [lb/inch]	Loaded [cm]	Installed [inch]	Loaded [cm]	Installed [inch]
12	LT-□□AZWZ-12	19.2	0.756	630	423	5000	1124	2000	450	400	228	200	114	40	15.7	20	7.9
24	LT-□□AZWZ-24	19.2	0.756	630	423	5000	1124	2000	450	400	228	200	114	40	15.7	20	7.9
36	LT-□□AZWZ-36	19.2	0.756	630	423	5000	1124	2000	450	400	228	200	114	40	15.7	20	7.9
48	LT-□□AZWZ-48	19.2	0.756	630	423	5000	1124	2000	450	400	228	200	114	40	15.7	20	7.9
72	LT-□□AZWZ-72	19.2	0.756	630	423	5000	1124	2000	450	400	228	200	114	40	15.7	20	7.9

LSC&S Part No. LT-□□AZWZ □□

- ① Select Fiber Type.
 09 = 9/125 μm
 62 = 62.5/125 μm standard 1 Gbe
 6X = 62.5/125 μm 1 Gbe Extended Distance
 50 = 50/125 μm standard 1 Gbe
 XG = 50/125 μm 10Gbe 300 meter link length
 X5 = 50/125 μm 10 Gbe 500 meter link length
- ② Fiber Count

Environmental Characteristics

Storage Temperature	-40 to +70°C
Operating Temperature	-40 to +70°C

LS FIBER OPTIC MULTI LOOSE TUBE CABLE

Single Jacket Flat FRP Armor Cable

Description / Applications

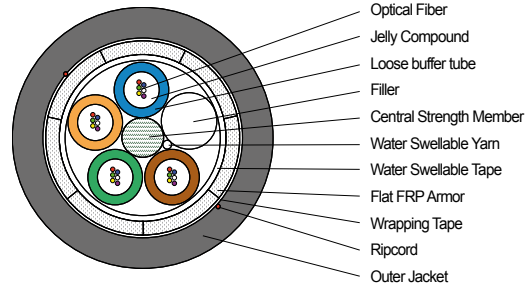
- All dielectric single jacket armored cable is UV-stabilized, fully water blocked cable for outdoor applications.(underground/aerial)
- Flat FRP armor provides protection from rodent attack and high tensile strength.
- The cable offers durability and flexibility required for many outside plant uses.

Specification

- Telcordia GR-20-CORE
- IEC 60793/IEC 60794
- ITU-T G.652/657/651

Options

- Single Mode, Multimode 50/125, Multimode 62.5/125
- Flat FRP Thickness(0.7/1.0/1.4mm) as installation environments
- Double jacket type
- Color stripe on outer jacket



Color Identification

- | | | |
|-------------|------------|-------------|
| 01 - Blue | 05 - Slate | 09 - Yellow |
| 02 - Orange | 06 - White | 10 - Violet |
| 03 - Green | 07 - Red | 11 - Rose |
| 04 - Brown | 08 - Black | 12 - Aqua |

Mechanical Characteristics

Fiber Count	LSC&S Part Number	Nominal* OD		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/kt]	Short Term [N]	Long Term [lb]	Short Term [N]	Long Term [lb]	Short Term [N/cm]	Long Term [lb/inch]	Short Term [N/cm]	Long Term [lb/inch]	Loaded [cm]	Installed [inch]	Loaded [cm]	Installed [inch]
6	LT-DJBFEXX-06	10.6	0.417	105	71	2500	562	750	169	220	126	110	63	22	8.7	11	4.3
12	LT-DJBFEXX-12	10.6	0.417	105	71	2500	562	750	169	220	126	110	63	22	8.7	11	4.3
24	LT-DJBFEXX-24	10.6	0.417	105	71	2500	562	750	169	220	126	110	63	22	8.7	11	4.3
36	LT-DJBFEXX-36	11.5	0.453	120	81	2500	562	750	169	220	126	110	63	24	9.4	12	4.7
48	LT-DJBFEXX-48	11.5	0.453	120	81	2500	562	750	169	220	126	110	63	24	9.4	12	4.7
60	LT-DJBFEXX-60	11.5	0.453	120	81	2500	562	750	169	220	126	110	63	24	9.4	12	4.7
72	LT-DJBFEXX-72	12.1	0.476	135	91	2500	562	750	169	220	126	110	63	26	10.2	13	5.1
96	LT-DJBFEXX-96	13.5	0.531	170	114	2500	562	750	169	220	126	110	63	28	11	14	5.5
120	LT-DJBFEXX-120	14.8	0.583	200	134	2500	562	750	169	220	126	110	63	30	11.8	15	5.9
144	LT-DJBFEXX-144	16.2	0.638	240	161	2500	562	750	169	220	126	110	63	34	13.4	17	6.7

LSC&S Part No. LT-DJBFEXX

- ① Select Fiber Type. ② Fiber Count
- SE = G652D 245 μm
A1 = G657A1 245 μm
A2 = G657A2 245 μm

Environmental Characteristics

Storage Temperature	-40 to +70°C
Operating Temperature	-40 to +70°C

LS FIBER OPTIC MULTI LOOSE TUBE CABLE

Figure 8 Aerial Cable

Description / Applications

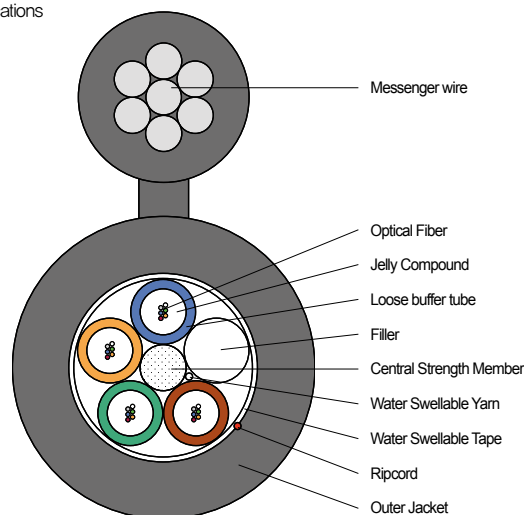
- Single jacket cable is UV-stabilized, fully water blocked cable for outdoor aerial applications
- Messenger wire provides high tensile strength and self-supporting on the pole.
- The cable offers durability and flexibility required for many outside plant uses.

Specification

- Telcordia GR-20-CORE
- IEC 60793/IEC 60794
- ITU-T G.652/657/651

Options

- Single Mode, Multimode 50/125, Multimode 62.5/125
- Steel tape armor/Moisture barrier
- Double Jacket
- Color stripe on outer jacket



Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Rose
04 - Brown	08 - Black	12 - Aqua

Mechanical Characteristics

Fiber Count	LSC&S Part Number	Nominal* OD		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius					
		Core [mm]	Overall [inch]	[mm]	[inch]	[kg/km]	[lb/kt]	Short Term [N]	Long Term [lb]	Short Term [N]	Long Term [lb]	Short Term [N/cm]	Long Term [lb/inch]	Short Term [N/cm]	Long Term [lb/inch]	Loaded [cm]	Installed [inch]	Loaded [cm]	Installed [inch]
6	LT-DJBEXXX/B8N□□-06	9	0.354	16.6	0.654	140	94	7000	1574	2100	472	220	126	110	63	18	7.1	9	3.5
12	LT-DJBEXXX/B8N□□-12	9	0.354	16.6	0.654	140	94	7000	1574	2100	472	220	126	110	63	18	7.1	9	3.5
24	LT-DJBEXXX/B8N□□-24	9	0.354	16.6	0.654	140	94	7000	1574	2100	472	220	126	110	63	18	7.1	9	3.5
36	LT-DJBEXXX/B8N□□-36	9.7	0.382	17.3	0.681	155	104	7000	1574	2100	472	220	126	110	63	20	7.9	10	3.9
48	LT-DJBEXXX/B8N□□-48	9.7	0.382	17.3	0.681	155	104	7000	1574	2100	472	220	126	110	63	20	7.9	10	3.9
60	LT-DJBEXXX/B8N□□-60	9.7	0.382	17.3	0.681	155	104	7000	1574	2100	472	220	126	110	63	20	7.9	10	3.9
72	LT-DJBEXXX/B8N□□-72	10.5	0.413	18.6	0.732	190	128	7000	1574	2100	472	220	126	110	63	22	8.7	11	4.3
96	LT-DJBEXXX/B8N□□-96	12	0.472	20.1	0.791	220	148	7000	1574	2100	472	220	126	110	63	24	9.4	12	4.7
120	LT-DJBEXXX/B8N□□-120	13.5	0.531	21.5	0.846	250	168	7000	1574	2100	472	220	126	110	63	28	11.0	14	5.5
144	LT-DJBEXXX/B8N□□-144	15	0.591	23.8	0.937	290	195	7000	1574	2100	472	220	126	110	63	30	11.8	15	5.9

LSC&S Part No.

LT-DJBEXXX/B8N□□□□

- ① Select Fiber Type.
 SE = G652D 245 μm
 A1 = G657A1 245 μm
 A2 = G657A2 245 μm
- ② Fiber Count

Environmental Characteristics

Storage Temperature	-40 to +70°C
Operating Temperature	-40 to +70°C

LS FIBER OPTIC RIBBON CABLE

Single Jacket Single Armor Central Ribbon Cable

Description / Applications

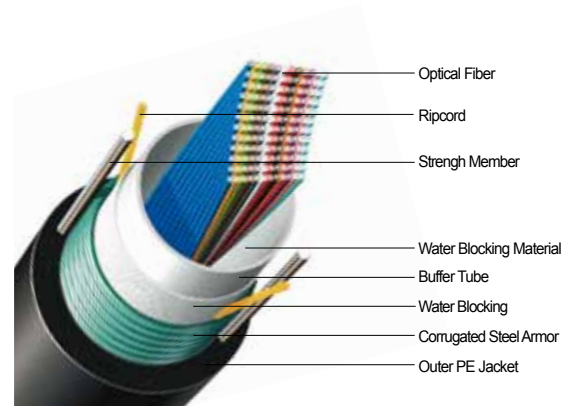
- Easy access to individual fibers
- Excellent mass fusion splicing reduces splicing cost
- High fiber count (Up to 432)
- Compact size and light weight
- Meets or exceeds Telcordia GR-20-CORE and other industry standards
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) Complied

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



Mechanical Characteristics

Storage Temperature : -40 to + 70°C / Operating Temperature : -40 to + 70°C

Fiber Count	LSC&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	Short Term		Long Term		Short Term		Long Term		Loaded		Installed	
						[N]	[lb]	[N]	[lb]	[N/cm]	[lb/inch]	[N/cm]	[lb/inch]	[cm]	[inch]	[cm]	[inch]
96	CR-NJB□□E/B□□-096	13.8	0.54	166	111	2,700	125	1,000	46	440	251	220	125	27.6	10.87	13.8	5.43
216	CR-NJB□□E/B□□-216	16.3	0.64	244	164	2,700	125	1,000	46	440	251	220	125	32.6	12.83	16.3	6.42
432	CR-NJB□□E/B□□-432	20.0	0.79	333	224	2,700	125	1,000	46	440	251	220	125	40.0	15.75	20.0	7.87

LSC&S Part No. CR-NJBE□□E / □□ - □□ □
① ② ③ ④ ⑤ ⑥

Shipping Information

Standard Reel Length 4000m

*Other Cable lengths may be available upon request

Ez Metro RT™ Cable

LS FIBER OPTIC RIBBON ALL DRY CABLE

Single Jacket Single Armor All Dry Central Ribbon Cable

Description / Applications

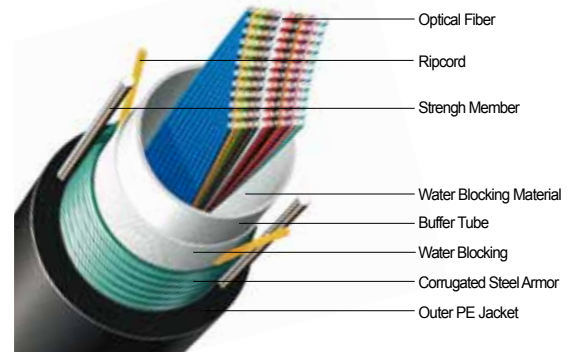
- All Dry design contains no flooding compounds
- Ribbon cleaning related time & cost saving
- Easy access to individual fibers
- Excellent mass fusion splicing reduces splicing cost
- High fiber count (Up to 216)
- Compact size and light weight
- Meets or exceeds Telcordia GR-20-CORE and other industry standards
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) Complied

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Rose
04 - Brown	08 - Black	12 - Aqua



Mechanical Characteristics

Storage Temperature : -40 to + 70°C / Operating Temperature : -40 to + 70°C

Fiber Count	LSC&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Loaded	Installed	Loaded	Installed		
						[N]	[lb]	[N]	[lb]	[N/cm]	[lb/inch]	[N/cm]	[lb/inch]	[cm]	[inch]	[cm]	[inch]
144	CR-NBE□E/B□□-144	15.5	0.61	250	168	2,700	125	1,000	46	440	251	220	125	31.0	12.20	15.5	6.10
216	CR-NBE□E/B□□-216	18.0	0.71	305	205	2,700	125	1,000	46	440	251	220	125	36.0	14.17	18.0	7.09

LSC&S Part No.CR-NBE□E / □□ - □□
① ② ③ ④ ⑤ ⑥

Shipping Information

Standard Reel Length 2000m

*Other Cable lengths may be available upon request

MR-D(M)JPE

LS FIBER OPTIC MULTI RIBBON CABLE

Single Jacket Non Armor Stranded Ribbon Tube Cable

Description / Applications

- Easy access to individual fibers
- Excellent mass fusion splicing reduces splicing cost
- High fiber count (Up to 864)
- Reverse Oscillation Lay (ROL) buffer tube stranding technique facilitates mid-span fiber access and splicing
- Meets or exceeds Telcordia GR-20-CORE and other industry standards
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) Complied

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



Mechanical Characteristics

Storage Temperature : -40 to + 70°C / Operating Temperature : -40 to + 70°C

Fiber Count	LSC&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	Short Term [N]	Long Term [N]	Short Term [lb]	Long Term [lb]	Short Term [N/cm]	Long Term [N/cm]	Short Term [lb/inch]	Long Term [lb/inch]	Loaded [cm]	Installed [cm]	Loaded [cm]	Installed [cm]
432	MR- □JPGE/□□-432	23.6	0.93	388	260	4,500	208	1,000	46	220	125	110	63	47.2	18.58	35.4	13.94
864	MR- □JPGE/□□-864	27.4	1.08	539	362	4,500	208	1,000	46	220	125	110	63	54.8	21.57	41.1	16.18

LSC&S Part No.

* ① D : Non-metallic Strength Member / M : Metallic Strength Member.

MR- □JPGE / □□ - □□

Shipping Information

Standard Reel Length 2000m

*Other Cable lengths may be available upon request

MR-D(M)JPGSE

LS FIBER OPTIC MULTI RIBBON CABLE Single Jacket Single Armor Stranded Ribbon Tube Cable

Description / Applications

- Easy access to individual fibers
- Excellent mass fusion splicing reduces splicing cost
- High fiber count (Up to 864)
- Reverse Oscillation Lay (ROL) buffer tube stranding technique facilitates mid-span fiber access and splicing
- Durable and reliable for applications requiring added compressive strength and rodent resistance
- Meets or exceeds Telcordia GR-20-CORE and other industry standards
- RoHS (Restriction of the use of Certain Hazardous Substances Directive) Complied

Specification

- Telcordia GR-20-CORE
- IEC 60793 / IEC 60794

Color Identification

01 - Blue	05 - Slate	09 - Yellow
02 - Orange	06 - White	10 - Violet
03 - Green	07 - Red	11 - Pink
04 - Brown	08 - Black	12 - Aqua



Mechanical Characteristics

Storage Temperature : -40 to + 70°C / Operating Temperature : -40 to + 70°C

Fiber Count	LSC&S Part Number	Nominal* Outer diameter		Nominal* Weight		Maximum Tensile Load				Crush Load				Minimum Bend Radius			
		[mm]	[inch]	[kg/km]	[lb/1000 ft]	Short Term [N]	Long Term [N]	Short Term [lb]	Long Term [lb]	Short Term [N/cm]	Long Term [N/cm]	Short Term [lb/inch]	Long Term [lb/inch]	Loaded [cm]	Installed [cm]	Loaded [inch]	Installed [inch]
432	CR-NBE □E/B □□-144	26.2	1.03	553	371	4,500	208	1,000	46	440	251	220	125	52.4	20.63	39.3	15.47
864	CR-NBE □E/B □□-216	31.0	1.22	740	497	4,500	208	1,000	46	440	251	220	125	62.0	24.41	46.5	18.31

LSC&S Part No. MR- □ JPGSE / □ □ - □ □
 * ① D : Non-metallic Strength Member / M : Metallic Strength Member. ① ② ③ ④ ⑤ ⑥

Shipping Information

Standard Reel Length 2000m

*Other Cable lengths may be available upon request

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KOREA



Gumi Plant

EHV / MV / LV cable
UTP, Coaxial cable
SCR, Magnet wire
Overhead cable, Bus duct



Indong Plant

Optical fiber
Optical cable



Donghae Plant

Submarine cable
Industrial specialty cable

CHINA



LSHQ(Yichang)

EHV / MV / LV cable
Industrial specialty cable



LSCW(Wuxi)

Industrial devices cable
Automotive cable
Harness & module
Aluminum, Bus duct



VIETNAM



LS-VINA(Haiphong)

EHV / MV / LV cable
SCR, ACSR
Overhead cable



LSCV(HO Chi Minh)

MV / LV cable
UTP, Optical cable
Overhead cable

INDIA



LSCI(Bawal)

EHV / MV / LV cable
Coaxial cable
Overhead cable

USA



LSCUS(Tarboro)

MV / LV cable
Control, Instrument cable

POLAND



LS EV Poland./LSCP (Dzierzoniow)

Automotive battery components
Optical cable



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