



FIBER OPTIC CABLE



TONGDING

Connecting Horizons

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TONGDING TIMELINE



October 2001

Company begins manufacturing optical fiber cables and changes name to Jiangsu Tongding Optic-Electronic Co., Ltd "Tongding"

June 1999

Wujiang Shenxin Cable Co. Ltd is incorporated, company focused on Telecommunication copper cable

March 2004

Tongding expands is fiber optic cable production capacity to 25 million km

June 2006

Tongding starts railway signal cable production

December 2008

Tongding opens optical fiber production facility with an annual capacity of 7 million km of fiber

June 2009

Tongding engages in RF and Leaky Coaxial Cable production

October 2010

Tongding opens FTTH production facility with an annual capacity of 1.4 million fiber-km

October 2010

Jiangsu Tongding Optic-Electronic Co., Ltd is listed on the Shenzhen Stock Exchange

September 2011

Jiangsu Tongding Broadband Co., Ltd., a company for manufacturing Optical Network Distribution products is established

October 2011

Tongding Preform Technology Co., Ltd., company for optical preform manufacturing is incorporated

July 2013

Tongding expands its optical fiber and fiber optic cable annual production capacity to 30 million km and 1.4 million km respectively

October 2014

Tongding signs a cooperation agreement with Corning

December 2015

Tongding establishes presence in global markets

December 2014

Cable subsidiary name is changed to Tongding Interconnection Information Co., Ltd.

October 2016

Tdii made "Power cable Phase II Expansion Project" foundation, further expands the copper cable transmission product line.

July 2017

Intelligent transformation project started, and gradually transformed from intelligent production line to intelligent workshop, and even to intelligent factory.

Company Profile

Tongding Group is one of the world's largest communication cable manufacturers. Incorporated in the Chinese industrial city of Suzhou, the company engages in manufacturing fiber optic cable, ODN components and copper cable.

As a publicly listed company, Tongding has succeeded through constant business expansion throughout the communication cable chain. The company has over 13,000 employees and 1.4 million square meters of production facilities.

Tongding constantly pursues standing at the forefront of the communication industry through its R&D center and strategic partnerships with over 15 leading universities.



Production Base

As a leading cable manufacturer, Tongding Group supplies its products to all regions of the world establishing presence in more countries each year. Its clients include state governments, telecommunication companies, CATV companies, oil & gas companies, state military, electric companies and railway companies.

At Tongding, production is done in one single factory from start to finish. This allows the company to monitor and assess quality throughout the whole production process. Tongding produces fiber optic cable, copper cable and ODN components that meet with customers' requirements and provide supreme performance.

Tongding products comply with international standards which include RoHS, ISO, ITU, IEC and UL.

FIBER OPTIC ANNUAL PRODUCTION CAPACITY

Fiber Preform



800 tons

Optical Fiber



45 million fiber-km

Outdoor FO Cable



36 million fiber-km

FTTH Cable



2 million fiber-km

COPPER CABLE ANNUAL PRODUCTION CAPACITY

Power Cable



400,000 km

Telephone Cable & LAN Cable



8.8 million pair-km & 2.6 million boxes

RF Coaxial Cable



150,000 km

Railway Signal Cable



30,000 km

ODN PRODUCTS ANNUAL PRODUCTION CAPACITY

PLC Splitter



7 million pcs

Patch cord & Pigtail



70 million pcs

OCC



111 thousand pcs

Cabinet

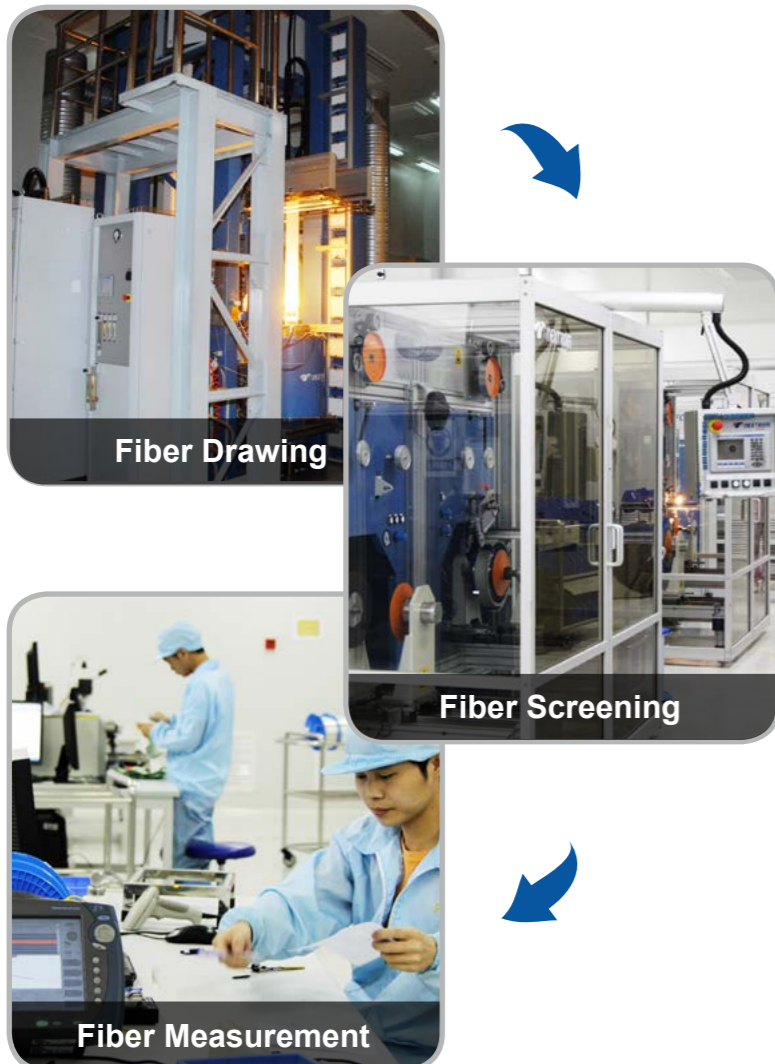


1 million pcs

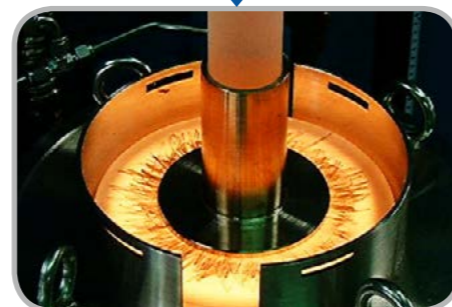
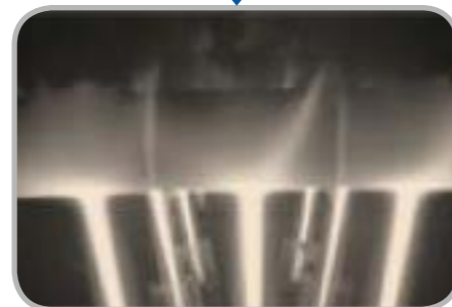
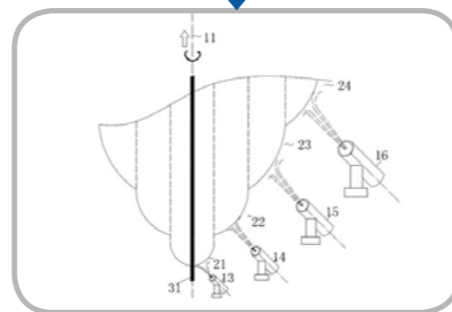
Optical Fiber Facilities

Tongding group has facilities capable of producing fiber preform to fiber optic cable. In their optical fiber related facilities, Tongding has around 300 production lines, 2000 employees and above 100,000 square meters of production facilities.

OPTICAL FIBER



FIBER PREFORM



FIBER OPTIC CABLE

Coloring



The facilities include 89 sets of coloring machines

Loose Tube



50 sets of loose tube extruding machines

Cabling



69 sets of cabling machines

Sheathing



66 sets of sheathing machines

Tongding has a factory specialized in FTTH fiber optic cable with 73 lines making it the largest FTTH manufacturer in China. This factory alone has 30 specialized engineers and another 300 technicians.

At full capacity the factory can produce 7,000 km of drop cable per day.



OPTICAL FIBER

Wavelength Band Extended Non-dispersion Shifted Single-mode Optical Fiber(G.652D)			
Fiber Property	Main Indexes	Technical Parameter	
Geometrical Dimensions	Cladding diameter	125.0±0.7um	
	Cladding non-circularity	≤1%	
	Coating diameter	245±7um	
	Coating/cladding non-concentricity error	≤12um	
	Coating non-circularity	≤6%	
	Core/cladding concentricity error	≤0.6um	
	Fiber curl(radius)	≥4m	
Optical Characteristics	MFD(1310nm)	9.2±0.4um	
	MFD(1550nm)	10.4±0.5um	
	Attenuation at 1310nm	≤0.34dB/km	
	Attenuation at 1383nm	≤0.34dB/km	
	Attenuation at 1550nm	≤0.20dB/km	
	Attenuation at 1625nm	≤0.24dB/km	
	Max. attenuation at 1285~1330nm,compared to that at 1550nm	≤0.04dB/km	
	Max. attenuation at 1525~1575nm,compared to that at 1550nm	≤0.03dB/km	
	Attenuation discontinuity at 1310nm	≤0.05dB	
	Attenuation discontinuity at 1550nm	≤0.05dB	
	PMD	≤0.2ps/(km ^{1/2})	
	PMDq	≤0.1ps/(km ^{1/2})	
	Zero-dispersion wavelength	1312±12nm	
	Zero-dispersion slope	≤0.091ps/(nm ² .km)	
	1285~1399nm	≤3.4ps/(nm.km)	
1271~1360nm	≤5.3ps/(nm.km)		
Cable cutoff wavelength λ _c	≤1260nm		
Mechanical Property	Proof test level	1%	
	Dynamic fatigue(Nd)	≥20	
	Coating strip force	Average value	1.5N
		Peak value	1.3~8.9N
Environmental Property	Temperature attenuation(-60 ~±85 ,two cycles,at 1550nm)	≤0.05dB/km	
	Temperature-humidity cycling attenuation (85±2 ,relative humidity≥85%,30 days,at 1550nm)	≤0.05dB/km	
	Water immersion attenuation(23±5 ,30 days,1550nm)	≤0.05dB/km	
	Dry heat aging attenuation(85±2 ,relative humidity 50%,30 days,1550nm)	≤0.05dB/km	
Bending Property	1 turn,φ32mm 1550nm	≤0.05dB	
	100 turns,φ50mm 1310nm	≤0.05dB	
	100 turns,φ50mm 1550nm	≤0.05dB	
	100 turns,φ60mm 1625nm	≤0.05dB	



Non-zero Dispersion Shifted Single-mode Optical Fiber for DWDM(G.655C)		
Fiber Property	Main Indexes	Technical Parameter
Geometrical Dimensions	Cladding diameter	125.0±0.7um
	Cladding non-circularity	≤1%
	Coating diameter	245±7um
	Coating/cladding non-concentricity error	≤12um
	Coating non-circularity	≤6%
	Core/cladding concentricity error	≤0.6um
	Fiber curl(radius)	≥4m
Optical Characteristics	MFD(1550nm)	9.1~10.1um
	Attenuation at 1550nm	≤0.22dB/km
	Attenuation at 1625nm	≤0.24dB/km
	Max. attenuation at 1525~1575nm, compared to that at 1550nm	≤0.02dB/km
	Attenuation discontinuity at 1550nm	≤0.05dB
	PMD	≤0.2ps/(km ^{1/2})
	PMDq	≤0.1ps(km ^{1/2})
	Dispersion slope	≤0.084ps/(nm ² .km)
	Zero-dispersion wavelength	≤1520nm
	1530~1565nm	≥2, ≤6ps/(nm.km)
	1565~1625nm	≥4.5, ≤11.2ps(nm.km)
	Cable cutoff wavelength λ _c	≤1450nm
Mechanical Property	Proof test level	1%
	Dynamic fatigue(Nd)	≥20
		Coating strip force
Environmental Property	Temperature attenuation(-60 ~±85 ,two cycles,at 1550nm)	≤0.05dB/km
	Temperature-humidity cycling attenuation (85±2 ,relative humidity≥85%,30 days,at 1550nm)	≤0.05dB/km
	Water immersion attenuation(23±5 ,30 days,1550nm) Dry heat aging attenuation(85±2 ,relative humidity 50%,30 days,1550nm)	≤0.05dB/km
Bending Property	1 turn,φ32mm 1550nm	≤0.05dB
	100 turns,φ50mm 1310nm	≤0.05dB
	100 turns,φ50mm 1550nm	≤0.05dB
	100 turns,φ60mm 1625nm	≤0.05dB

Bend Insensitive Single-mode Optical Fiber(G.657.A2)		
Fiber Property	Main Indexes	Technical Parameter
Geometrical Dimensions	Cladding diameter	125.0±0.7um
	Cladding non-circularity	≤0.5%
	Coating diameter	243±5um
	Coating/cladding non-concentricity error	≤12um
	Coating non-circularity	≤6%
	Core/cladding concentricity error	≤0.5um
	Fiber curl(radius)	≥4m
Optical Characteristics	MFD(1310nm)	8.8±0.4um
	MFD(1550nm)	9.8±0.5um
	Attenuation at 1310nm	≤0.35dB/km
	Attenuation at 1383nm	≤0.35dB/km
	Attenuation at 1550nm	≤0.21dB/km
	Attenuation at 1625nm	≤0.23dB/km
	Max. attenuation at 1285~1330nm, compared to that at 1310nm	≤0.03dB/km
	Max. attenuation at 1525~1575nm, compared to that at 1550nm	≤0.02dB/km
	Attenuation discontinuity at 1310nm	≤0.05dB/KM
	Attenuation discontinuity at 1550nm	≤0.05dB/KM
	PMD	≤0.2ps/(km ^{1/2})
	PMDq	≤0.1ps(km ^{1/2})
	Zero-dispersion slope	≤0.092ps/(km ^{1/2})
	Zero-dispersion wavelength	1312±10nm
	Dispersion at 1550nm	≤17ps/(nm.km)
Dispersion at 1625nm	≤22ps/(nm.km)	
Cable cutoff wavelength λ _c	≤1260nm	
Mechanical Property	Proof test level	1%
	Dynamic fatigue(Nd)	≥20
		Coating strip force
Environmental Property	Temperature attenuation(-60℃ ~±85℃ , two cycles, at 1550nm)	≤0.05dB/km
	Temperature-humidity cycling attenuation (85±2℃ , relative humidity≥85%, 30 days, at 1550nm)	≤0.05dB/km
	Water immersion attenuation(23±5℃ , 30 days, 1550nm) Dry heat aging attenuation (85±2℃ , relative humidity 50%, 30 days, 1550nm)	≤0.05dB/km
Bending Property	10 turns,15 mm radius, at 1550nm	≤0.03dB
	10 turns,15 mm radius, at 1625nm	≤0.1dB
	1 turn,10 mm radius, at 1550nm	≤0.1dB
	1 turn,10 mm radius, at 1625nm	≤0.2dB
	1 turn,7.5 mm radius, at 1550nm	≤0.2dB
	1 turn,7.5 mm radius, at 1625nm	≤0.5dB
	Hydrogen Aging Performance	Put sample fiber in a sealed container with a hydrogen partial pressure higher than 0.01atm under the room temperature. Take it out when the attenuation at 1240nm becomes 0.03dB/km higher than that before hydrogen aging test. After 14 days, the attenuation at 1383±3nm shall not be higher than the maximum of in the range of 1310nm~1625nm.



Low Loss Single-mode Optical Fiber (G.652D)			
Fiber Property	Main Indexes	Technical Parameter	
Geometrical Dimensions	Cladding diameter	125.0±0.7um	
	Cladding non-circularity	≤1%	
	Coating diameter	245±7um	
	Coating/cladding non-concentricity error	≤12um	
	Coating non-circularity	≤6%	
	Core/cladding concentricity error	≤0.6um	
Optical Characteristics	Fiber curl(radius)	≥4m	
	MFD(1310nm)	9.2±0.4um	
	MFD(1550nm)	10.4±0.5um	
	Attenuation at 1310nm	≤0.32dB/km	
	Attenuation at 1383nm	≤0.32dB/km	
	Attenuation at 1550nm	≤0.18dB/km	
	Attenuation at 1625nm	≤0.20dB/km	
	Max. attenuation at 1285~1330nm,compared to that at 1310nm	≤0.03dB/km	
	Max. attenuation at 1525~1575nm,compared to that at 1550nm	≤0.04dB/km	
	Attenuation discontinuity at 1310nm	≤0.04dB	
	Attenuation discontinuity at 1550nm	≤0.04dB	
	PMD	≤0.1ps/(km ^{1/2})	
	PMDq	≤0.04ps(km ^{1/2})	
	Zero-dispersion wavelength	≤0.091ps/(nm ² .km)	
	Zero-dispersion slope	1312±12nm	
	Dispersion coefficient at 1285~1339nm	≥-3.4,≤3.4ps/(nm.km)	
	Dispersion coefficient at 1550nm	≤18ps/(nm.km)	
	Dispersion coefficient at 1625nm	≤22ps/(nm.km)	
Cable cutoff wavelength λ _c	≤1260nm		
Mechanical Property	Proof test level	1%	
	Dynamic fatigue(Nd)	≥20	
	Coating strip force	Average value	1.5N
		Peak value	1.3~8.9N
Environmental Property	Temperature dependence Induced attenuation(-60 ~+85)	≤0.05dB/km	
	Damp heat dependence Induced attenuation(85 and 85% RH,for 30 days)	≤0.05dB/km	
	Watersoak dependence Induced attenuation(23 , for 30 days)	≤0.05dB/km	
	Dry heat aging at(85 ,for 30 days)	≤0.05dB/km	
Bending Property	1 turn,φ16mm 1550nm	≤0.05dB	
	100 turns,φ25mm 1330nm&1550nm	≤0.05dB	
	100 turns,φ30mm 1625nm	≤0.05dB	

Low Loss Bend Insensitive Single-mode Optical Fiber (G.657 A2)			
Fiber Property	Main Indexes	Technical Parameter	
Geometrical Dimensions	Cladding diameter	125.0±0.7um	
	Cladding non-circularity	≤0.7%	
	Coating diameter	245±7um	
	Coating/cladding non-concentricity error	≤12um	
	Coating non-circularity	≤6%	
	Core/cladding concentricity error	≤0.5um	
Optical Characteristics	Fiber curl(radius)	≥4m	
	MFD(1310nm)	8.8±0.4um	
	Attenuation at 1310nm	≤0.32dB/km	
	Attenuation at 1383nm	≤0.32dB/km	
	Attenuation at 1550nm	≤0.18dB/km	
	Attenuation at 1625nm	≤0.20dB/km	
	Max. attenuation at 1285~1330nm,compared to that at 1310nm	≤0.03dB/km	
	Max. attenuation at 1525~1575nm,compared to that at 1550nm	≤0.02dB/km	
	Attenuation discontinuity at 1310nm	≤0.05dB	
	Attenuation discontinuity at 1550nm	≤0.05dB	
	PMD	≤0.1ps/(km ^{1/2})	
	PMDq	≤0.04ps(km ^{1/2})	
	Zero-dispersion wavelength	≤0.092ps/(nm ² .km)	
	Zero-dispersion slope	1312±12nm	
	Cable cutoff wavelength λ _c	≤1260nm	
	Mechanical Property	Proof test level	1%
		Dynamic fatigue(Nd)	≥22
		Coating strip force	Average value
Peak value			1.3~8.9N
Environmental Property	Temperature dependence Induced attenuation(-60℃ ~+85℃)	≤0.05dB/km	
	Damp heat dependence Induced attenuation(85℃ and 85% RH,for 30 days)	≤0.05dB/km	
	Watersoak dependence Induced attenuation(23℃, for 30 days)	≤0.05dB/km	
Bending Property	Dry heat aging at(85℃ ,for 30 days)	≤0.05dB/km	
	10 turns,φ15mm 1550nm	≤0.03dB	
	10 turns,φ15mm 1625nm	≤0.1dB	
	1 turn,φ10mm 1550nm	≤0.1dB	
	1 turn,φ10mm 1625nm	≤0.2dB	
	1 turn,φ7.5mm 1550nm	≤0.2dB	
1 turn,φ7.5mm 1625nm	≤0.5dB		

FIBER OPTIC CABLE

ADSS Cable

ADSS Cables are designed for outdoor installation along power lines, railway or telecommunication cables on poles or lattice towers. The cable is self-supporting and require no messenger or lashing wire for fixing. There are no metallic components used in the cable and has a track-resistant sheath material for installation on medium and high voltage lines.

- Up to 288 fibers
- Gel-filled loose tubes are S-Z stranded for easy mid-span access
- Dry-core technology used for excellent water-blocking effects and easier handling
- Central strength member
- Span lengths of up to ~500 meters
- Track-resistant outer sheath material provides long operating lifetime
- Minimized weight due to high strength aramid yarns used and small cable diameter
- Complies with IEEE P-1222, the recognized standard for ADSS cable
- Tested in accordance with IEC 60794-1
- Custom designs available (e.g. single-jacket and double jacket)

Environmental Performance

Minimum bending radius

- Short term (loaded): 15 * Outer diameter
- Long term (installed): 10 * Outer diameter

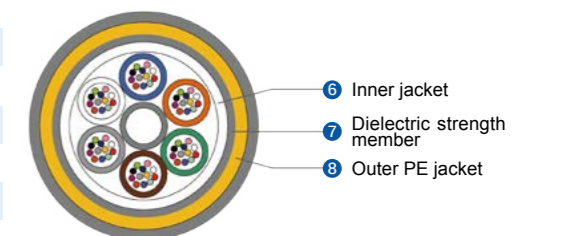
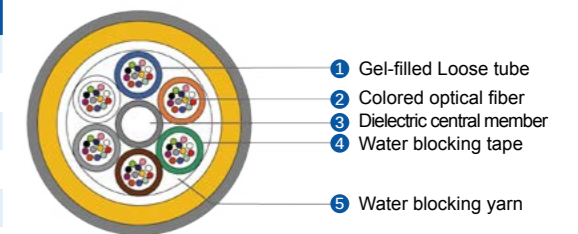
Temperature

- Operation / Storage: -40°C~+70°C
- Installation: -20°C~+70°C



MECHANICAL PERFORMANCE(SINGLE-JACKET TYPE)				
Fiber count	2~36	2~37	74~96	144
Nominal outer diameter (mm)	11.4	12.2	13.9	15.8
Nominal cable weight (kg/km)	100	144	147	192
Maximum operating load(kN)	4	4	4	6
Maximum breaking load(kN)	13.0	13.6	14.0	15.4

MECHANICAL PERFORMANCE(DOUBLE-JACKET TYPE)								
Fiber count	2~36				38~72			
Nominal outer diameter (mm)	12.9	14.1	15.3	16.2	13.8	14.8	15.8	16.8
Nominal cable weight (kg/km)	128	151	176	199	14	166	189	212
Maximum operating load(kN)	4	12	20	28	4	12	20	28
Maximum breaking load(kN)	13.4	35.7	59.9	82.8	14.0	35.1	58.1	81.0
Fiber count	74~96				98~144			
Nominal outer diameter (mm)	15.4	16.3	17.3	18.1	19.2	19.9	20.7	21.4
Nominal cable weight (kg/km)	180	202	225	247	280	302	323	345
Maximum operating load(kN)	4	12	20	28	8	16	24	32
Maximum breaking load(kN)	13.2	35.5	58.5	81.5	23.1	46.5	69.5	92.6





Single-jacket Non-armored Cable

Single-jacket Non-armored cables have a small diameter and are lightweight suitable for duct and aerial installation using the lashing method. Designed with either a metallic central strength member or an aluminum inner sheathing tape, the cable has excellent performance over a wide range of temperature.

- Up to 288 fibers
- Gel-filled loose tubes are S-Z stranded for easy mid-span access
- Dry-core technology used for excellent water-blocking effects and easier handling
- Metallic central strength member or aluminum/polymer laminated tape
- Track-resistant outer sheath material provides long operating lifetime
- Tested in accordance with IEC 60794-1

Environmental Performance

Minimum bending radius

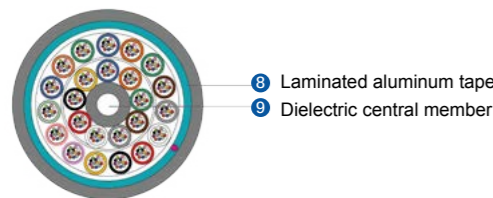
- Short term (loaded): 15 * Outer diameter
- Long term (installed): 10 * Outer diameter

Temperature

- Operation / Storage: -40°C~+70°C
- Installation: -20°C~+70°C



MECHANICAL PERFORMANCE(NON ARMORED AND STEEL CSM TYPE)							
Fiber count	2~36	2~48	2~72	96	96	144	288
Fibers per tube	6	8	12	8	12	12	12
Nominal outer diameter (mm)	10.4	10.4	10.4	14.4	11.7	14.6	17.1
Nominal cable weight (kg/km)	98	98	99	173	120	182	237
Maximum tensile strength(N)	2,700	2,700	2,700	3,400	2,700	3,600	4,000
Maximum crush resistance(N/10cm)	2,000	2,000	2,000	2,000	2,000	2,000	2,000



MECHANICAL PERFORMANCE(LAP AND DIELECTRIC CSM TYPE)							
Fiber count	2~36	2~48	2~72	96	96	144	288
Fibers per tube	6	8	12	8	12	12	12
Nominal outer diameter (mm)	10.8	10.8	10.8	15.0	12.3	15.2	17.7
Nominal cable weight (kg/km)	99	99	99	185	128	195	253
Maximum tensile strength(N)	1,500	1,500	1,500	2,700	2,000	3,000	3,500
Maximum crush resistance(N/10cm)	2,000	2,000	2,000	2,000	2,000	2,000	2,000

Single-jacket Single-armored Cable

Single-jacket Single-armored cables have a small diameter and are lightweight suitable for direct burial, duct or aerial installation using the lashing method. The cable's corrugated steel tape armoring and its loose tube design provide excellent crush and rodent resistance. The cable provides stable performance in a wide range of temperatures and in the most demanding environments.

- Up to 288 fibers
- Gel-filled loose tubes are S-Z stranded for easy mid-span access
- Dry-core technology used for excellent water-blocking effects and easier handling
- Corrugated steel tape that provides excellent crush and rodent resistance
- High strength with peripheral dielectric strength members
- Track-resistant outer sheath material provides long operating lifetime
- Tested in accordance with IEC 60794-1

Environmental Performance

Minimum bending radius

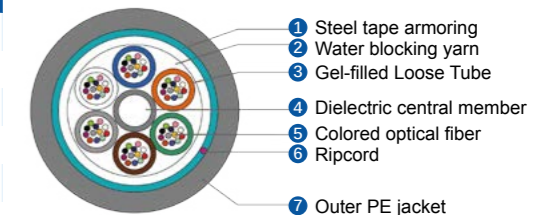
- Short term (loaded): 15 * Outer diameter
- Long term (installed): 10 * Outer diameter

Temperature

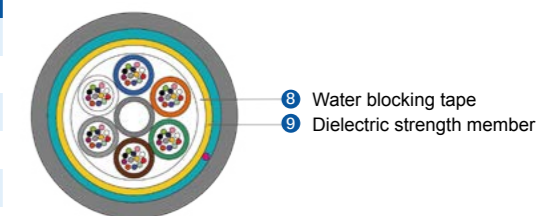
- Operation / Storage: -40°C~+70°C
- Installation: -20°C~+70°C



MECHANICAL PERFORMANCE(NORMAL TYPE)							
Fiber count	2~36	2~48	2~72	96	96	144	288
Fibers per tube	6	8	12	8	12	12	12
Nominal outer diameter (mm)	11.2	11.2	11.2	15.4	12.7	15.6	18.1
Nominal cable weight (kg/km)	127	128	128	228	160	234	300
Maximum tensile strength(N)	1,800	1,800	1,800	3,000	2,400	3,200	4,000
Maximum crush resistance(N/10cm)	3,000	3,000	3,000	3,000	3,000	3,000	3,000



MECHANICAL PERFORMANCE(YARN TYPE)							
Fiber count	2~36	2~48	2~72	96	96	144	288
Fibers per tube	6	8	12	8	12	12	12
Nominal outer diameter (mm)	11.6	11.6	11.6	15.8	13.1	16.0	18.5
Nominal cable weight (kg/km)	136	136	136	237	170	247	315
Maximum tensile strength(N)	2,200	2,200	2,200	3,600	3,000	4,200	4,500
Maximum crush resistance(N/10cm)	3,000	3,000	3,000	3,000	3,000	3,000	3,000





Double-jacket Single-armored Cable

Double-jacket Single-armored cables are suitable for direct burial and aerial installation using the lashing method. The cable's loose tube design, double jacket and corrugated steel tape armoring provide superior crush and rodent resistance. The cable provides stable performance in a wide range of temperatures and in the most demanding environments.

- Up to 288 fibers
- Gel-filled loose tubes are S-Z stranded for easy mid-span access
- Dry-core technology used for excellent water-blocking effects and easier handling
- Corrugated steel tape that provides superior crush and rodent resistance
- High strength with central strength member and peripheral dielectric strength members
- Track-resistant outer sheath material provides long operating lifetime
- Tested in accordance with IEC 60794-1

Environmental Performance

Minimum bending radius

- Short term (loaded): 15 * Outer diameter
- Long term (installed): 10 * Outer diameter

Temperature

- Operation / Storage: -40°C~+70°C
- Installation: -20°C~+70°C



MECHANICAL PERFORMANCE							
Fiber count	2~36	2~48	2~72	96	96	144	288
Fibers per tube	6	8	12	8	12	12	12
Nominal outer diameter (mm)	13.7	13.7	13.7	17.9	15.2	18.1	20.6
Nominal cable weight (kg/km)	177	177	177	201	215	300	374
Maximum tensile strength(N)	1800	1800	1800	1800	1800	1800	1800
Maximum crush resistance(N/10cm)	3000	3000	3000	3000	3000	3000	3000

Double-jacket Steel Wire Armored Cable

Double-jacket Steel Wire Armored Cable are suitable for direct burial and aerial installation using the lashing method. The cable's loose tube design, double jacket and steel wire armoring provide superior crush and rodent resistance. The cable provides stable performance in a wide range of temperatures and in the most demanding environments.

- Up to 288 fibers
- Gel-filled loose tubes are S-Z stranded for easy mid-span access
- Dry-core technology used for excellent water-blocking effects and easier handling
- Steel wire armor that provides superior crush and rodent resistance
- High strength with central strength member and peripheral dielectric strength members
- Track-resistant outer sheath material provides long operating lifetime
- Tested in accordance with IEC 60794-1

Environmental Performance

Minimum bending radius

- Short term (loaded): 15 * Outer diameter
- Long term (installed): 10 * Outer diameter

Temperature

- Operation / Storage: -40°C~+70°C
- Installation: -20°C~+70°C



MECHANICAL PERFORMANCE						
Fiber count	2~36	48~72	72~96	96~120	120~144	288
Fibers per tube	6	12	12	12	12	12
Nominal outer diameter (mm)	14.6	15.2	16.6	18.2	19.8	21.6
Nominal cable weight (kg/km)	200	217	250	295	344	406
Maximum tensile strength(kgf)	2000	2000	2000	2000	2000	2000
Maximum crush resistance(kgf/cm)	40	40	40	40	40	40

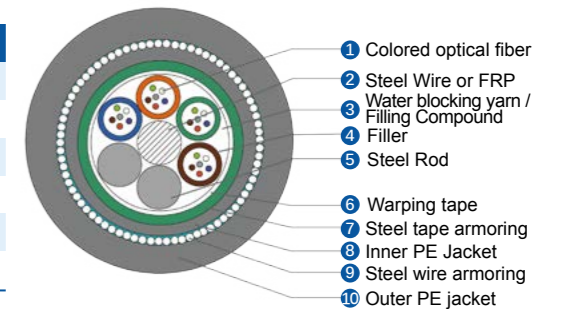




FIGURE 8 CABLE

Figure 8 cables are suitable for aerial installation and are self-supporting. The strength member is designed to withstand tensile forces and may be metallic or non-metallic. The figure 8 design provides easy one-step and cost-effective installations. The cable also provides stable performance over a wide range of temperatures.

- Up to 288 fibers
- Gel-filled loose tubes are S-Z stranded for easy mid-span access
- Dry-core technology used for excellent water-blocking effects and easier handling
- All self-supporting design
- Easy one step installation
- High strength with central strength member and peripheral dielectric strength members
- A variety of design configurations such as armored and double jacket can be made.
- Track-resistant outer sheath material provides long operating lifetime
- Tested in accordance with IEC 60794-1

Environmental Performance

Minimum bending radius

- Short term (loaded): 15 * Outer diameter
- Long term (installed): 10 * Outer diameter

Temperature

- Operation / Storage: -40°C~+70°C
- Installation: -20°C~+70°C

MULTI-TUBE RIBBON CABLE

Ribbon cables deliver the highest fiber density in the most compact cable package possible. This design makes it easy and cost-effective at mass-fusion splicing in highly-dense environments. Ribbon cables can be adapted to All-Dielectric design suitable for duct and Single-jacket Single-armored suitable for direct buried applications.

- Up to 864 fibers
- 12-fiber ribbons with readily identifiable ribbon IDs and easily accessible
- Dry-core technology used for excellent water-blocking effects and easier handling
- Excellent for mass fusion splicing
- High fiber density reduces installation costs
- Easy one step installation
- High strength with central strength member and peripheral dielectric strength members
- A variety of design configurations such as armored and double jacket can be made
- Track-resistant outer sheath material provides long operating lifetime
- Tested in accordance with IEC 60794-1

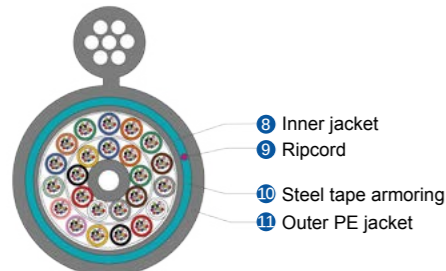
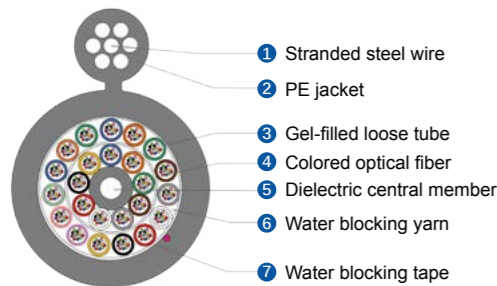
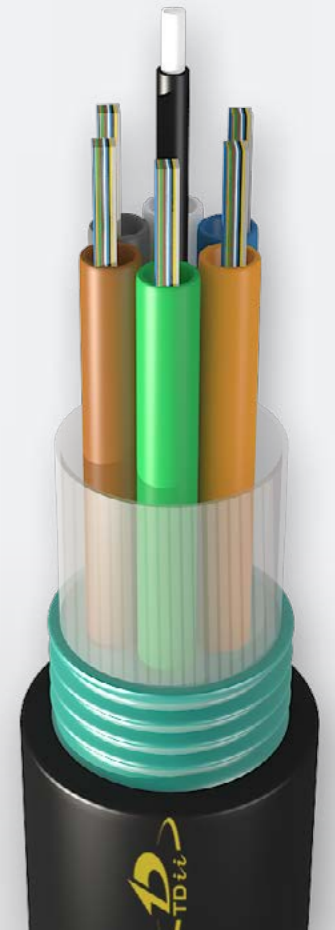
Environmental Performance

Minimum bending radius

- Short term (loaded): 15 * Outer diameter
- Long term (installed): 10 * Outer diameter

Temperature

- Operation / Storage: -40°C~+70°C
- Installation: -20°C~+70°C

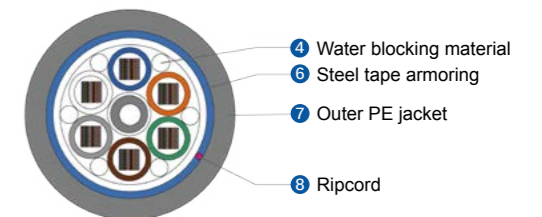
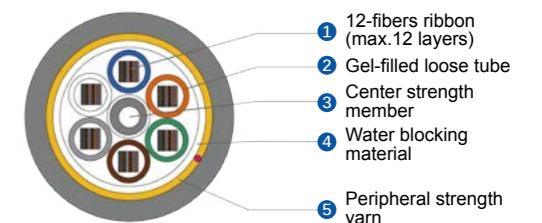


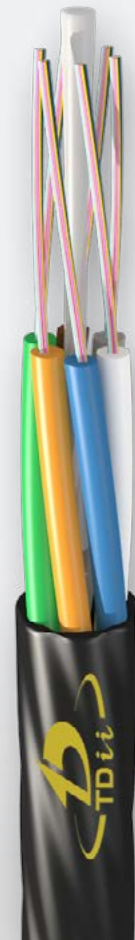
MECHANICAL PERFORMANCE(SINGLE-JACKET NON-ARMORED)							
Fiber count	2~36	2~48	2~72	96	96	144	288
Fibers per tube	6	8	12	8	12	12	12
Nominal outer diameter (mm)	10.2	10.2	10.2	14.4	11.7	14.6	17.1
Nominal cable height (mm)	19.4	19.4	19.4	23.6	20.9	23.8	26.3
Nominal cable weight (kg/km)	193	194	195	273	220	280	335
Maximum tensile strength(N)	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Maximum crush resistance(N/10cm)	2,000	2,000	2,000	2,000	2,000	2,000	2,000

MECHANICAL PERFORMANCE(DOUBLE-JACKET SINGLE-ARMORED)							
Fiber count	2~36	2~48	2~72	96	96	144	288
Fibers per tube	6	8	12	8	12	12	12
Nominal outer diameter (mm)	13.7	13.7	13.7	17.9	15.2	18.1	20.6
Nominal cable height (mm)	22.9	22.9	22.9	27.1	24.4	27.3	29.8
Nominal cable weight (kg/km)	290	290	292	405	329	414	488
Maximum tensile strength(N)	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Maximum crush resistance(N/10cm)	3,000	3,000	3,000	3,000	3,000	3,000	3,000

MECHANICAL PERFORMANCE(SINGLE-JACKET NON-ARMORED TYPE)					
Fiber count	144	288	432	576	864
Fibers per ribbon	12	12	12	12	12
No. of total unit	6	6	6	6	6
Nominal outer diameter (mm)	20.2	20.2	22.2	28.1	28.1
Nominal cable weight (kg/km)	338	370	470	692	743
Maximum tensile strength(N)	2,700	2,700	2,700	2,700	2,700
Maximum crush resistance(N/10cm)	2,000	2,000	2,000	2,000	2,000

MECHANICAL PERFORMANCE(SINGLE-JACKET SINGLE-ARMORED TYPE)					
Fiber count	144	288	432	576	864
Fibers per ribbon	12	12	12	12	12
No. of total unit	6	6	6	6	6
Nominal outer diameter (mm)	21.6	21.6	23.6	29.5	29.5
Nominal cable weight (kg/km)	444	476	586	835	886
Maximum tensile strength(N)	2,700	2,700	2,700	2,700	2,700
Maximum crush resistance(N/10cm)	4,000	4,000	4,000	4,000	4,000





Stranded Air-blowing Micro Cable

Air Blown Micro Cables are very lightweight and with a small diameter suitable for underground duct networks. The cable has a low friction jacket for an efficient jetting process through micro-ducts using compressed air. The installation avoids expensive excavation costs and permits.

- Up to 288 fibers
- Small diameter, lightweight and low friction sheath design
- Contain high fiber density to maximize the fiber count
- Central strength member
- Cost effective installation and removal if necessary
- Gel-filled loose tubes are S-Z stranded for easy mid-span access
- Dry-core technology used for excellent water-blocking effects and easier handling

Environmental Performance

Minimum bending radius

- Short term (loaded): 15 * Outer diameter
- Long term (installed): 10 * Outer diameter

Temperature

- Operation / Storage: -40°C~+70°C
- Installation: -20°C~+70°C

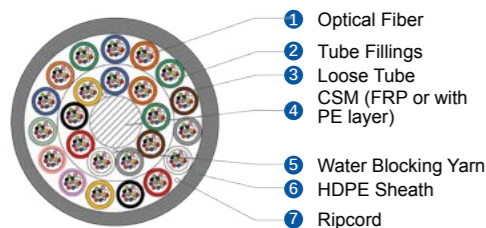
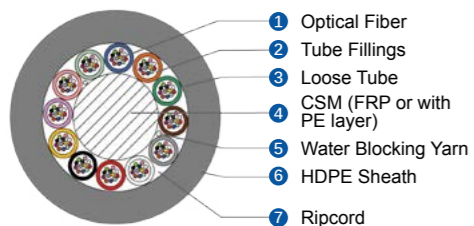
Round Type

Drop cables are specifically designed for Fiber-to-the-Subscriber applications. It is a dielectric cable and may be round or flat shape. The cable may be self-supported by adding a messenger cable or may be installed using the lashing method along other cables.

Environmental Performance

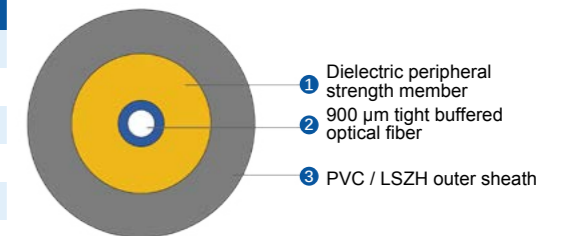
Temperature

- Operation / Storage: -30°C~+70°C
- Installation: -10°C~+70°C



Structural parameters of cable					
Cable Cores	Number of loose tube	Stranded units	Fibers in each tube	Diameter of cable (mm)	Weight of cable (kg/km)
24	2	5	12	5.0	20
48	4	5	12	5.0	21
72	6	6	12	5.5	26
96	8	8	12	6.2	35
144	12	12	12	8.0	56
288	24	9+15	12	9.4	78

MECHANICAL PERFORMANCE		
Fiber count	1	2,4
Nominal outer diameter (mm)	3.0	3.5
Nominal cable weight (kg/km)	8.0	11.0
Maximum tensile strength(N)	500	500
Maximum crush resistance(N/10cm)	1,000	1,000
*Bending loss:0.1dB(R. 10nm, 1turn, @1550nm)		





Flat Type

Drop cables are specifically designed for Fiber-to-the-Subscriber applications. It is a dielectric cable and may round or flat shape. The cable may be self-supported by adding a messenger cable or may be installed using the lashing method along other cables.

Environmental Performance

Temperature

Operation: -40°C~+70°C / Storage: -20°C~+60°C

Installation: 0°C~+60°C

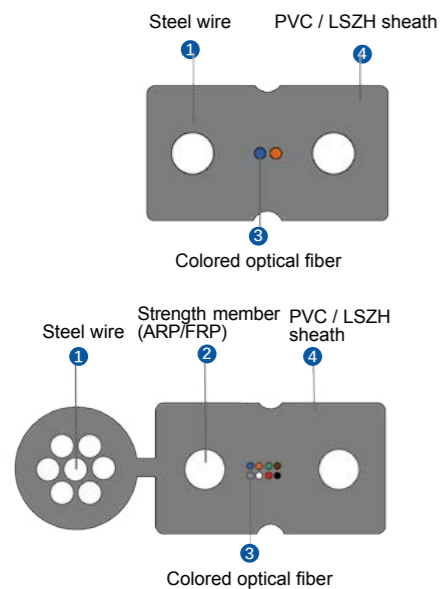
Multi-fiber Breakout Cable

Multi-fiber Breakout cable are suitable for direct cable termination and for environments with severe mechanical exposure. The cable has individual 2.5mm subunits containing one 900µm tight-buffered fiber allowing rapid field termination. Each subunit has an identification number for quick and error-free installation.

- Standardized 2.5mm subunit size simplifies termination practices
- 900µm tight-buffered fibers designed to support rapid field termination
- Numbered subunit identification for quick, error-free fiber identification
- Available with bend-insensitive single-mode and multimode optical fibers
- Flexible, flame-retardant, and color-coded jacket outer
- Optional interlock armor provides added robust protection & supports
- One-step installation
- Supports all high performance networks including OM4/10 Gigabit Ethernet Systems



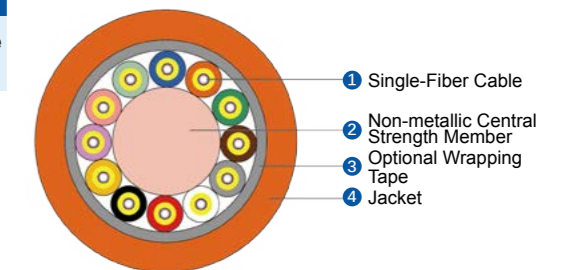
Fiber Performance				
Fiber Type	Attenuation(dB/km)			
	850	1300	1310	1550
SM Fiber	—	—	0.4	0.3
62.5	3.5	1.5	—	—
50	3.0	1.0	—	—



MECHANICAL PERFORMANCE				
Type Installation app.	Standard flat Indoor/Outdoor	Fig-8 flat Outdoor/Aerial		
Fiber count	1~2	1~2	4	8
Nominal outer diameter (mm)	2*3	2*5	2*5	2*5.8
Nominal cable weight (kg/km)	9	18	18	25
Maximum tensile strength(N)	200	1,200	1,200	1,200
Maximum crush resistance(N/10cm)	1,000	1,000	1,000	1,000

*Bending loss:0.05dB(R. 15nm, 5turns, @1550nm)

Technical Parameter							
Fiber Count	Cable Size (mm)	Cable Weight (kg/km)	Tensile Load (N)		Crush Load (N/100mm)		Temperature ()
			Long-term	Short-term	Long-term	Short-term	
4	6.6	38	200	400	300	1000	-20~+60
6	7.8	58	250	500	300	1000	
8	9	77	300	600	300	1000	
10	10.7	108	350	700	300	1000	
12	11.9	135	400	800	300	1000	



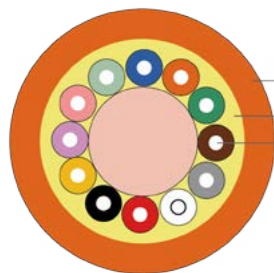


Multi-fiber Distribution Cable

Versatile indoor and outdoor cable, low emission fire protection in crowded spaces, some versions combine LSZH with riser rating for indoor performance.

- Easy Cable Installation & Termination
- 900µm tight-buffered fibers can be directly terminated
- Color-coded fibers & numbered sub-units simplify identification
- Colored rip cords for ease of identification and jacket removal
- Interlock armor option available

Fiber Performance				
Fiber Type	Attenuation(dB/km)			
	850	1300	1310	1550
SM Fiber	—	—	0.4	0.3
62.5	3.5	1.5	—	—
50	3.0	1.0	—	—



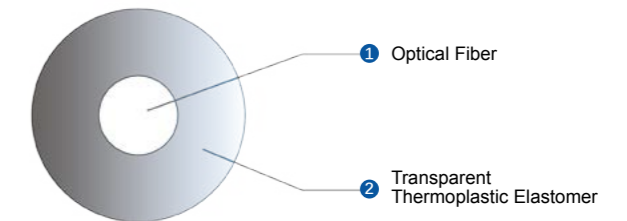
- ① Outer Jacket
- ② Strength Member
- ③ ColorCoded Fibers

Technical Parameter							
Fiber Count	Cable Size (mm)	Cable Weight (kg/km)	Tensile Load (N)		Crush Load (N/100mm)		Temperature ()
			Long-term	Short-term	Long-term	Short-term	
4	5.0	20	120	300	200	1000	-20~+60
6	5.2	22	120	300	200	1000	
8	5.5	26	150	350	200	1000	
12	6.5	36	200	500	200	1000	

This cable is completely transparent and is easily attached to a variety of wall surfaces saving cost of drilling and use of mechanical fasteners. Its properties make it very aesthetic and therefore increase customer satisfaction. The cable is attached to the wall surface using transparent clips which are affixed on the wall using a specialized glue.

Invisible Optical Cable(OFIC)

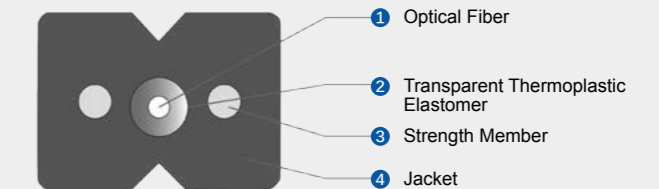
- Completely transparent drop cable
- Soft cable make an easy and quick installation
- No drilling or mechanical fasteners required
- Clips are compatible for any corner or edge
- Cable is glued at room temperature
- Excellent aesthetic properties – nearly invisible



Technical Parameter							
Fiber Count	Cable Size (mm)	Cable Weight (kg/km)	Tensile Load (N)		Crush Load (N/100mm)		Temperature ()
			Long-term	Short-term	Long-term	Short-term	
1	0.9	0.8	5	10	100	200	- 40 ~ +70

Flat-type Invisible Optical Cable(OFIC-GJXJH)

- Completely transparent cable with LSZH sheath
- Invisible cable can be stripped from LZSH sheath and be installed directly indoors
- Completely transparent drop cable
- Soft cable make an easy and quick installation
- No drilling or mechanical fasteners required
- Clips are compatible for any corner or edge
- Cable is glued at room temperature
- Excellent aesthetic properties – nearly invisible



Technical Parameter							
Fiber Count	Cable Size (mm)	Cable Weight (kg/km)	Tensile Load (N)		Crush Load (N/100mm)		Temperature Range ()
			Long-term	Short-term	Long-term	Short-term	
1	2.0×3.0	10.5	100	200	1000	2200	- 40 ~ +70

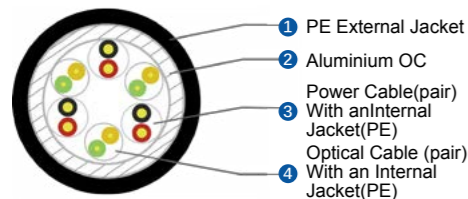
Note: H is minor axis of the optical cable, and L is major axis of the optical cable.



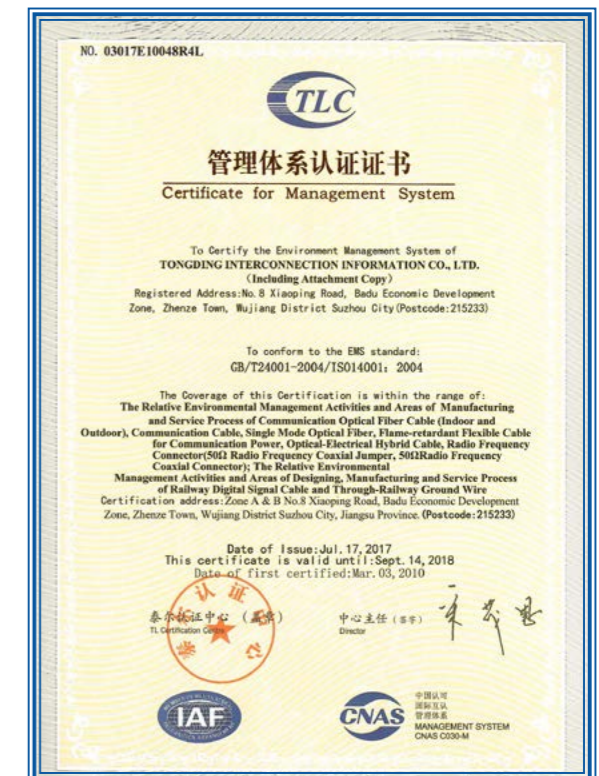
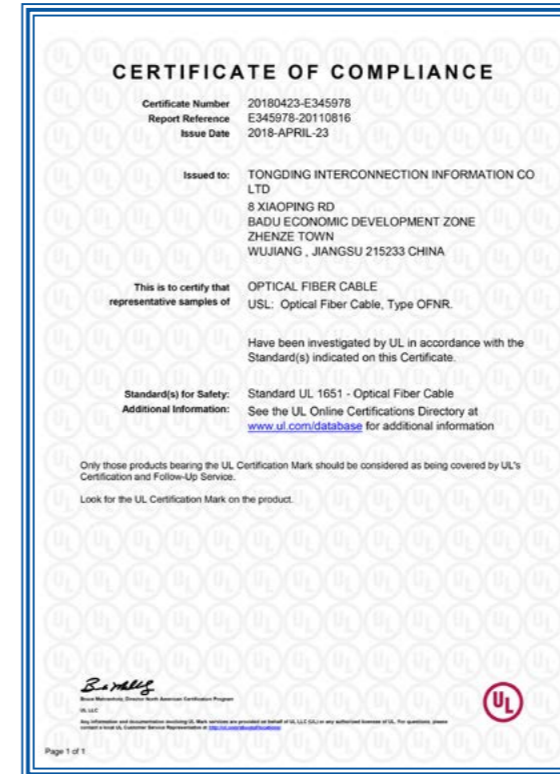
Hybrid Feeder Cable

Hybrid feeder cabling solution combines optical fiber and DC power for RRHs in single corrugated aluminum tube, reduce installation complexity and costs at cellular sites.

- Reduce wind and weight load on towers
- Avoid high cost tower cable upgrade
- Reduce installation cost through fewer cables sheaths (70% less) compared to Coax.
- Reduce installation time
- Fast and easy connection and upgrade via tower-top terminal
- Pre-provision for future equipment additions (spare ports)
- Field-proven technology successfully deployed in FTTH



Structure	1-Sector cable	3-Sector cable
Diameter corrugated aluminum armor, mm	13.80	24
Diameter over jacket nominal, mm	15.80	26.6
UV-protection	Yes	Yes
Individual jacket thickness, mm	0.8	0.8
External jacket thickness, mm	1.0	1.3
Optical Unit Diameter, mm	4.6*8.4	4.6*8.4
Power Unit Diameter, mm	5.2*9.6	5.2*9.6
Mechanical properties		
Single bending radius, mm (in)	70 (3)	120 (5)
Multiple bending radius, mm (in)	125 (5)	250 (10)
Cable weight, kg/m (lb/ft)	0.22 (0.15)	0.55 (0.37)
Recommended/Maximum clamp spacing, m (ft)	0.6 / 1.0 (2.0 / 3.25)	0.8 / 1.0 (2.75 / 3.25)
Connectors protection during hoisting process	Bubble wrap	Bubble wrap
Electrical properties		
DC-resistance aluminum armor, Ω/km (Ω/1000ft)	2.78 (0.85)	1.42 (0.43)
DC-resistance power cable, Ω/km (Ω/1000ft)	2.5mm ² = 8.21 (2.5)	2.5mm ² = 8.21 (2.5)
Insulation thickness	0.8 mm	0.8 mm
Insulation diameter	3.6 mm	3.6 mm
Fiber optic properties	Fiber optic properties	Fiber optic properties
Fiber type	Multi-mode or single-	Multi-mode or single-
Fiber optic secondary protection (PVC/LSZH) (μm)	mode	mode
Environment	900	900





Tongding Interconnection Information Co., Ltd.

Tel: +86-512-63873510 / Email: sales@tongdinggroup.com / Website: www.tdgd.com.cn
Add: 8 Xiaoping Rd., Badu Economic Development Zone, Zhenze, Wujiang, Suzhou, Jiangsu, China 215233