

# Content

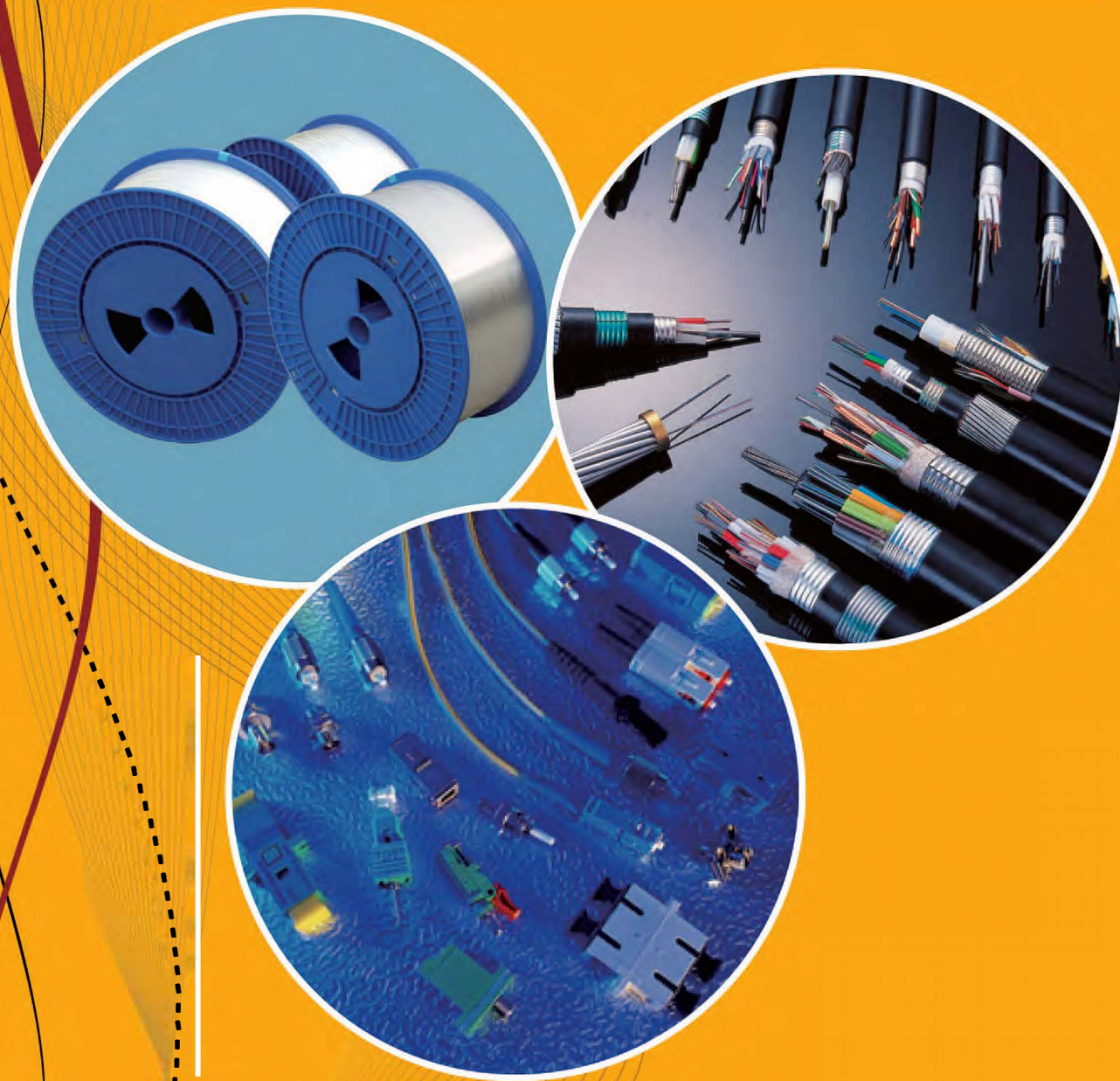
Optical Fiber -----	3-4
Indoor Optical Fiber-----	5-17
Indoor / Outdoor Optical Fiber-----	18-27
Outdoor Optical Fiber-----	28-47
Electric Power Optical Cable-----	48-52
Optical Components And Others---	53-60



# Optical Communication

CIW Telecom provides our customers a series of end-to-end optical communication products, services, and solutions in various application markets of the optical communication network. We specifically supply different types of optical fiber, optical cables and optical components, which have passed ISO9002 and DNVISO14001. Furthermore, the products are also widely used in the trunks of many parts and major projects, such as telecom operators, CATV, utilities network, etc. CIW Telecom is devoting itself to improving the development of optical communication industry, then bringing the benefit of social informationization to more people. We will keep on creating and civilizing!

**All the indoor optical cable products pass UL & RoHS certifications.**





## Optical Fiber

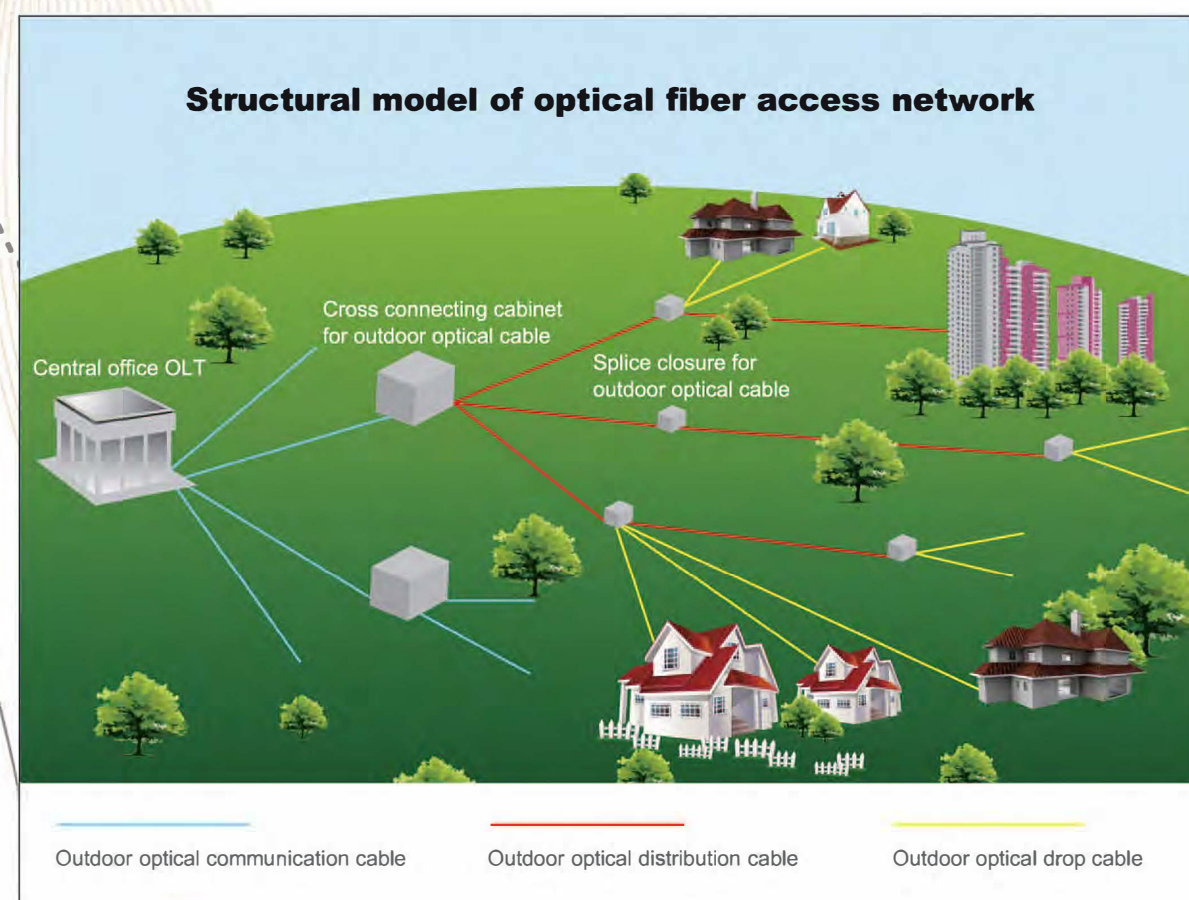
### Bend Insensitive Optical Fiber

#### G.657A

Type-A optical fiber complies with or exceeds the specification of ITU-T G.657 recommendation of type-A optical fiber. It has all characteristics of Hengtong's low water peak fiber, and complies with the requirements suggested by ITU-T G.652D and the standard of IEC80973-2.50 B1.3 type optical fiber. The fiber is a bend insensitive low water peak fiber with great resisting macro-bend ability. The appended attenuation of the 10mm bend radius is less than 0.3dB under the windows of 1550nm. It can meet the requirements of bend radius of FTTH fiber installment.

#### G.657B

Hengtong's bend insensitive type-B optical fiber complies with or exceeds the specification of ITU-T G.657 recommendation of type-B optical fiber. The fiber adopts the manufacture process of low water peak fiber with low attenuation at all wavelength (1260nm-1625nm). Compared with common single mode fiber, this fiber has better bend resistance. Under the windows of 1550nm, the appended attenuation of fibers with 7.5mm bend radius is less than 0.5dB, which can meet the special demand of bend capability of cables with smaller bend radius and optical components with small size.



## Optical Fiber

### Standard Single Mode Fiber

#### G.652B

Non-zero dispersion shift single mode fiber complies with or exceeds the specification of ITU-T G.652B and IEC80973-2-50 B1.1 type optical fiber. The standard zero dispersion wavelength is 1310nm, and there is a higher dispersion at 1550nm. It can be applied to either 1310nm or 1550nm. The best operating wavelength is around 1310nm.

### Low Water-peak Optical Fiber

#### G.652D

Low water peak non-zero dispersion shift single mode optical fiber, which complies with or exceeds the standard of ITU-T G.652D and IEC80973-2-50 B1.3 type optical fiber, is applied to the transmission system of full wavelength from 1260nm to 1625nm. It eliminates the assimilating water peak induced by OH-@ 1383nm of standard single mode optical fiber, and enlarges the work windows to E wavelength (1380nm-1480nm). The optical fiber eigenvalue of attenuation and dispersion is optimized at all wave length, which meets the transmission demand of multiple channel and high speed.





## Indoor Optical Cable



### Tight-buffered Fiber

#### Applications

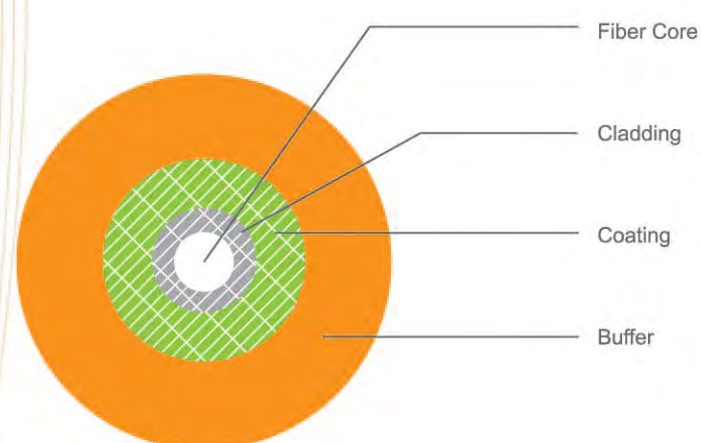
- ⊗ Directly used in pigtails to connect various optical active and passive devices.
- ⊗ Used in optical connections for instruments and terminal equipments.

#### Description

The tight-buffered fiber provides a multi-layer protection to the outside part of the fiber, so as to effectively prevent the immersion of moisture, achieve the life-saving, and increase the reliability. At the same time, the tight-buffered fiber will save a lot of human resource and material costs in the end-to-end connection.

#### Feature

- ⊗ It provides an excellent mechanical protection, anti-compression and bending performance.
- ⊗ It can prevent from the external environmental attack to increase the fiber's service life.
- ⊗ It has a wonderful moisture resisting performance.
- ⊗ The buffer layer can easily be stripped to the optical fiber core or to 250μm primary buffer layer.
- ⊗ The connector can be directly installed in the end of the cable or connected with the pigtail fiber.
- ⊗ It significantly reduces the cost of terminal connection.
- ⊗ Its flame retardance increases the safety factor and practicability.
- ⊗ It can be used for both indoor and outdoor applications.



## Indoor Optical Cable



### Simplex Round Indoor Cable (GJFJV/GJFJZY)

#### Applications

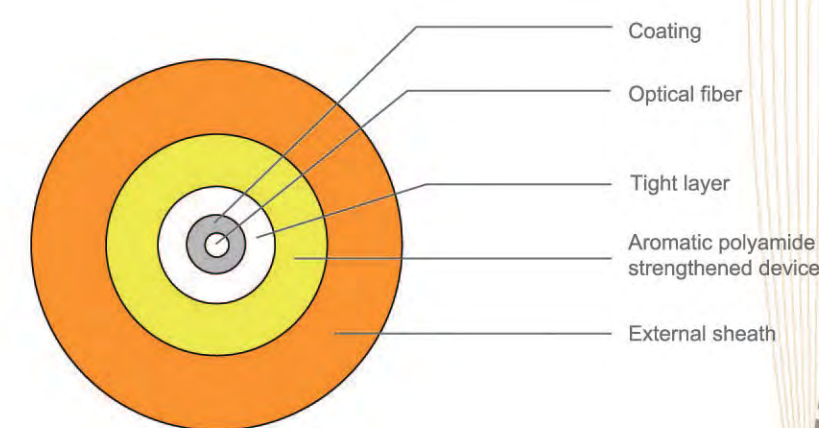
- ⊗ Ideal for interconnect applications for instruments and communication equipments.
- ⊗ Used in indoor cabling.

#### Description

The simplex tight-buffered fiber optical cable is cabled with a PVC sheath or LSZH material after the single-mode or multi-mode single-core tight-buffered optical fiber clad with a high-strength aramid yarn layer.

#### Feature

The HD aramid strengthened device ensures the non-stretching strain of the optical fiber and the long-term stable transmission properties of the optical fiber. The product is lightweight, flame-retardant, flexible, easy to be peeled with smaller outer diameter and lower attenuation. It also can be used for the direct connection between tight-buffered optical cable without reducer union and tail optical cable, which is easily to be operated and maintained.





## Indoor Optical Cable



### Duplex (Fig "8") Indoor Cable (GJFJBV/GJFJBZY)

#### Applications

- ④ Ideal for interconnect applications for instruments and communication equipments.
- ④ Used in indoor cabling.

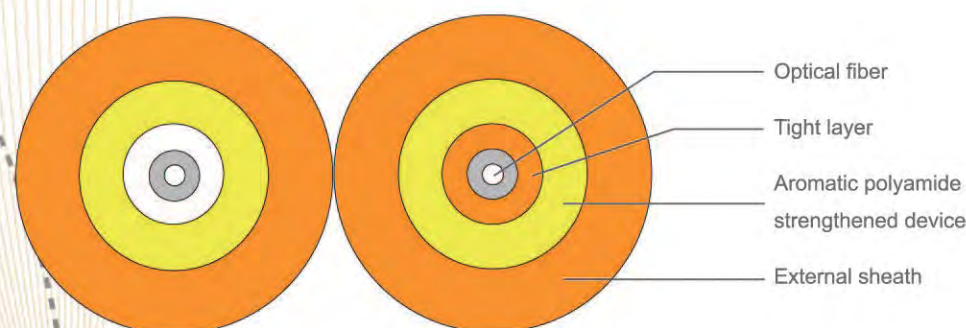
#### Description

The structure of GJFJBV (GJFJBZY) 【( flat indoor optical cable used for telecommunication with non-metallic central strength and tight-buffered PVC sheath (flat indoor optical cable used for telecommunication with non-metallic central strength and tight-buffered PE flame-retardant sheath)】 is covering the tight-buffered material of high cohesional strength out of the single mode and multi-mode optical fiber to become the tight-buffered optical cable. The cable takes high-strength aramid yarn as the strengthen device, and extrude a PVC sheath (LSZH sheath) out of the cable.

Duplex (Fig "8") Indoor Cable is made of two single-core fiber optical cables with the fig "8" structure.

#### Feature

The HD aramid strengthened device ensures the non-stretching strain of the optical fiber and the long-term stable transmission properties of the optical fiber. The products is lightweight, flame-retardant, flexible, easy to be peeled with smaller outer diameter and lower attenuation. It also can be used for the direct connection between tight-buffered optical cable without reducer union and tail optical cable, which is easily to be operated and maintained.



## Indoor Optical Cable



### Double Jacketed Duplex Flat Cable (GJFJBV/GJFJBZY)

#### Applications

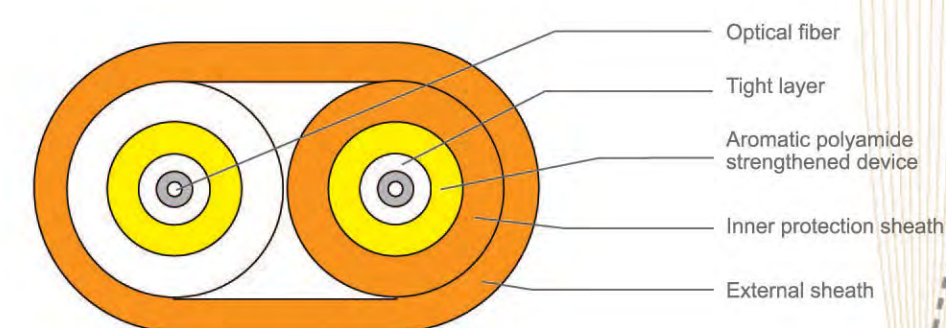
- ④ Ideal for interconnect applications for instruments and communication equipments.
- ④ Used in indoor cabling.

#### Description

The structure of GJFJBV (GJFJBZY) 【flat indoor optical cable used for telecommunication with non-metallic central strength and tight-buffered PVC sheath (flat indoor optical cable used for telecommunication with non-metallic central strength and tight-buffered PE flame-retardant sheath)】 is covering the tight-buffered material of high cohesional strength out of the single mode and multi-mode optical fiber to become the tight-buffered optical cable. The cable takes high-strength aramid yarn as the strengthen device, and extrude a PVC sheath (LSZH sheath) out of the cable.

#### Feature

The HD aramid strengthened device ensures the non-stretching strain of the optical fiber and the long-term stable transmission properties of the optical fiber. The product is lightweight, flame-retardant, flexible, easy to be peeled with smaller outer diameter and lower attenuation. It also can be used for the direct connection between tight-buffered optical cable without reducer union and tail optical cable, which is easily to be operated and maintained.





## Indoor Optical Cable



### Double Jacketed Duplex Round Cable (GJFJV/GJFJZY)

#### Applications

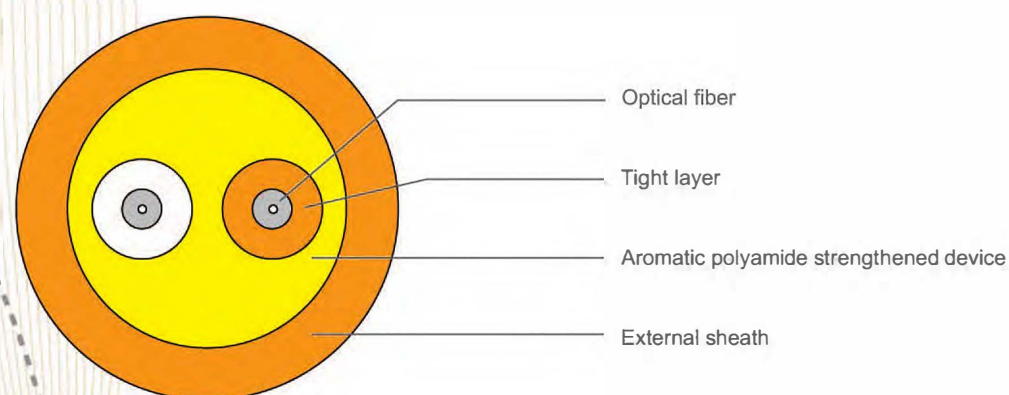
Used as drop cable at communication base stations.

#### Description

This cable utilizes two simplex cables and two fillers stranded, and then with an overall LSZH or low temperature resistance PVC jacket.

#### Feature

The HD aramid strengthened device ensures the non-stretching strain of the optical fiber and the long-term stable transmission properties of the optical fiber. The products is lightweight, flame-retardant, flexible, easy to be peeled with smaller outer diameter and lower attenuation. It also can be used for the direct connection between tight-buffered optical cable without reducer union and tail optical cable, which is easily to be operated and maintained.



## Indoor Optical Cable



### Multi-fiber Distribution Indoor Cable (GJPFJV/GJPFJH)

#### Applications

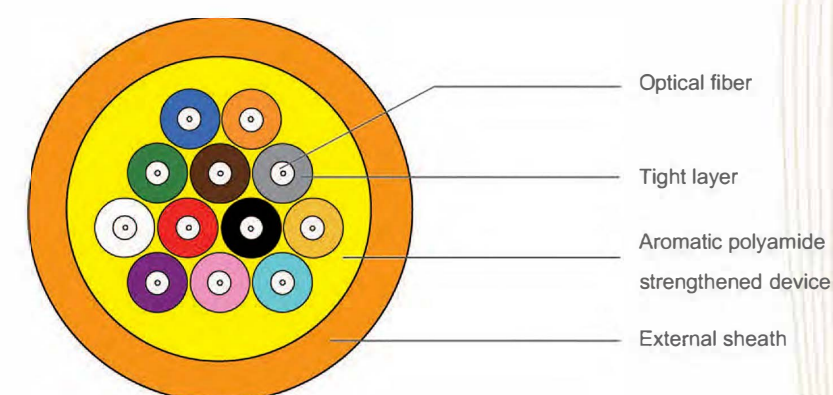
Ideal for bidirectional signal transmission for instruments and communication equipments.

#### Description

The multi-fiber distribution indoor cable is cabled with a PVC sheath or LSZH outer sheath after the single mode or multi-mode single-core tight-buffered optical fiber, and the cable core intertwined with several high-strength aramid yarns.

#### Feature

The HD aramid strengthened device ensures the non-stretching strain of the optical fiber and the long-term stable transmission properties of the optical fiber. The product is lightweight, flame-retardant, flexible, easy to be peeled with smaller outer diameter and lower attenuation. It also can be used for the direct connection between tight-buffered optical cable without reducer union and tail optical cable, which is easily to be operated and maintained.





## Indoor Optical Cable



### Multi-fiber Unitized Distribution Indoor Cable (GJPFJV/GJPFJH)

#### Applications

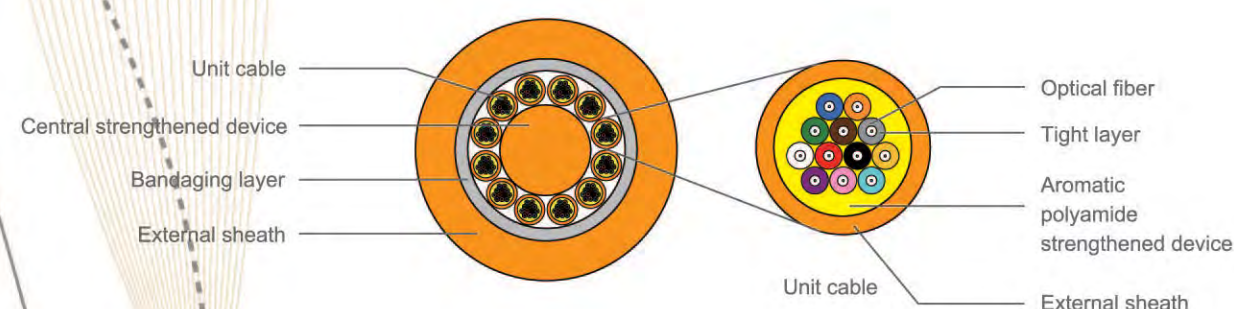
Ideal for intra-building backbone cabling including floors, terminal boxes and work stations.

#### Description

The multi-fiber unitized distribution indoor cable is cabled with a PVC sheath or LSZH outer sheath after the cable core has been intertwined by 2-12 single-mode multi-mode single-core sub-unit (or gasket for packing) around the central strengthened device, and the cable core intertwined with several high-strength aramid yarns.

#### Feature

The HD aramid strengthened device ensures the non-stretching strain of the optical fiber and the long-term stable transmission properties of the optical fiber. The products is lightweight, flame-retardant, flexible, easy to be peeled with smaller outer diameter and lower attenuation. It also can be used for the direct connection between tight-buffered optical cable without reducer union and tail optical cable, which is easily to be operated and maintained.



## Indoor Optical Cable



### Multi-fiber Breakout Indoor Cable (GJBFJV/GJBFJH)

#### Applications

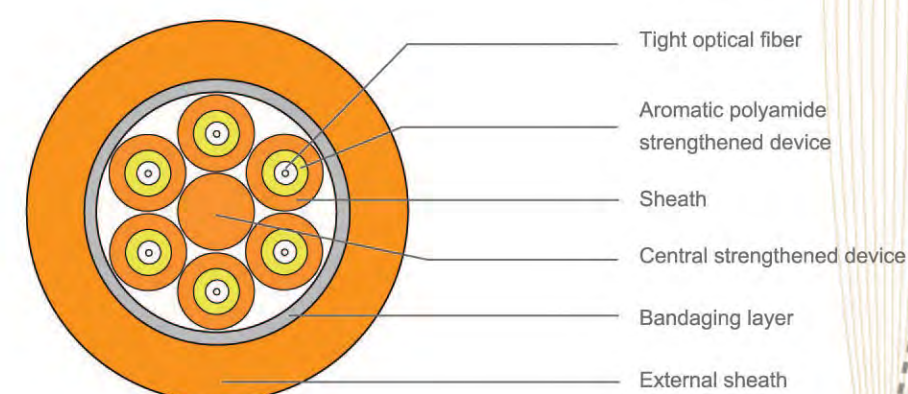
- ⊗ Ideal for intra-building backbone cabling including floors, terminal boxes and work stations
- ⊗ Ideal for short and middle distance direct terminals in intra-buildings and within different buildings, each sub-cable unit can be directly connected by standard connector

#### Description

Multifunctional indoor wiring optical cable utilizes several simplex cables and multimode simplex tight-buffered optical fiber, and then with an overall LSZH or PVC jacket.

#### Feature

- ⊗ Aramid strengthened fiber is contained in every optical cable system, which provides high strength, light weight, excellent flexibility. The non-oil jelly characteristic makes it easy to be operated and connected.
- ⊗ Every branch optical cable can be directly connected by nominal connectors.
- ⊗ It can be directly accessed into the buildings from backbone network to avoid the connections needed by the other optical cable subscribers.
- ⊗ The product is applicable to the indoor horizontal wiring, vertical wiring in the buildings, LAN, especially to the wiring of multi information points. It is recommended to be used in the direct connection with the end users.





## Indoor Optical Cable



### Optical Fiber Ribbon Indoor Cable (GJDFV/GJDFH)

#### Applications

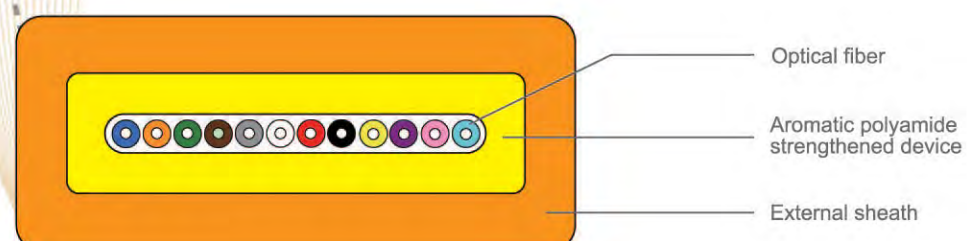
Ideal for intra-building interconnect applications including floors, terminal boxes and work stations.

#### Description

Optical-fiber ribbon optical cable uniformly covers high-modulus aramid around the optical-fiber ribbon, and lap it with an overall LSZH or square PVC jacket by special techniques.

#### Feature

- ⊗ It uses optical-fiber ribbon as the central unit, high-modulus aramid yarn uniform cover as the strengthen device; it is flexible, easy to be peeled; it has smaller bending radius and excellent performance of meeting the stress and emergency.
- ⊗ The fiber has high crowding level, compact structure, light weight; it is easy to be operated and also can achieve the multi-core one-off heat sealing.
- ⊗ The fiber has great geometric dimensional uniformity.



## Indoor Optical Cable



### Armored Optical Fiber Cable System for Emergency Condition Use

#### Applications

- ⊗ Live broadcast transmission
- ⊗ Project rush repair
- ⊗ Telecommunication equipment room transfer
- ⊗ Line test
- ⊗ Rush repair mainly for aerial, duct and direct buried temporary conditions.

#### Description

The cable in this system utilizes a PVC/LSZH tube that contains 4~12 tight-buffered fibers surrounded by aramid yarns strength member, and sheathed by a stainless steel hose and braided stainless steel layer, then with a PVC/LSZH jacket. It is wound on a specially designed reel for rush repair and terminated by standard connectors. This cable system can be used for emergency conditions to change the failure lines by repeated mechanical connection methods, and it is convenient returned and repeated used.

#### Feature

- ⊗ Stainless steel hose protected the fibers from unnecessary damage.
- ⊗ Excellent crush, bend and tensile performance, anti-ants and rodent resistance.
- ⊗ Soft and small diameter, compact and light weight; easy operating and convenient carrying.
- ⊗ Save rush repair time and maintenance costs, and the armored structure can protect the fiber from various stress, thus keep the stability of optical transmission.
- ⊗ No need to worry about construction damage to the optical fibers, double brake and transportation tie devices enable the system is very convenient use and easy carrying.
- ⊗ Each terminal has different color identified boot and robust branch device.
- ⊗ Standard connectors such as FC/SC/ST/MU/LC/E2000 are available upon request.





## Indoor Optical Cable



### Mini-cable Installed by Blowing (GCYFXTY/GCYMXTY)

#### Applications

Duct, tunnel, indoor, and direct buried

#### Description

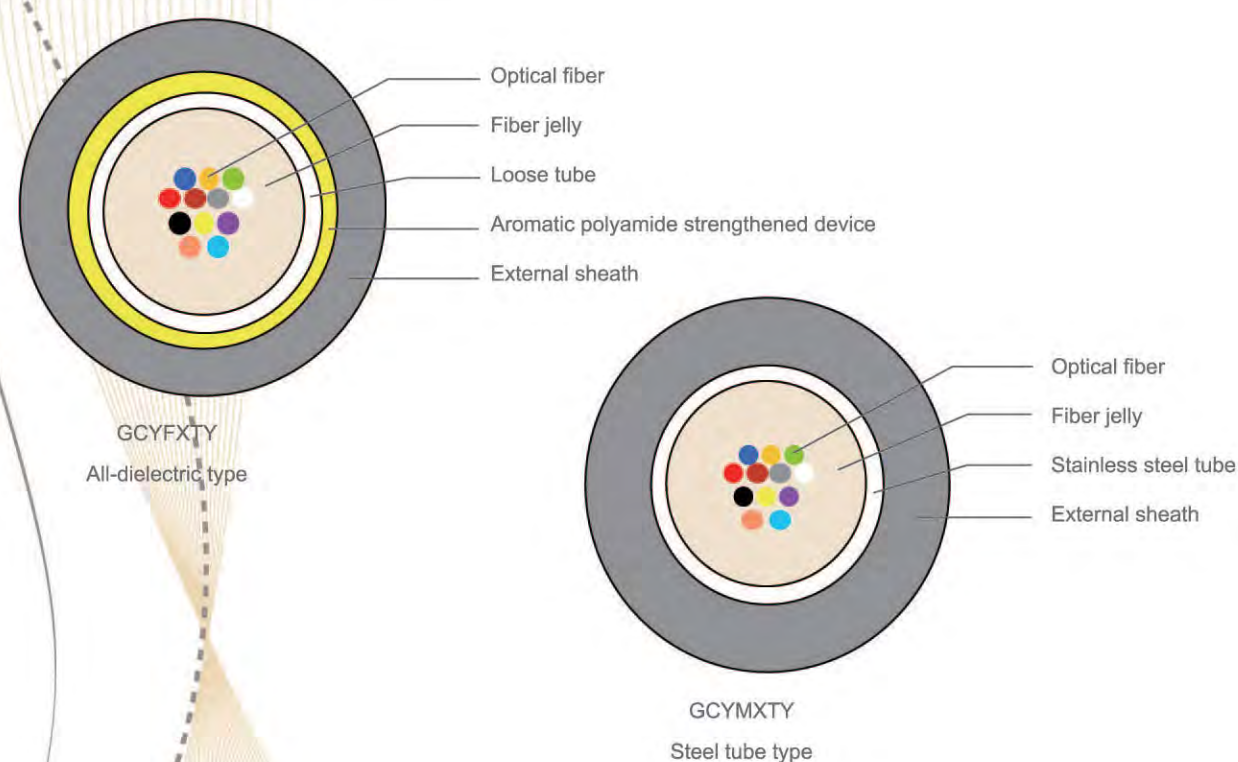
Mini-cable system installed by blowing is a new fiber optic network technology that can save a lot of costs. This system utilizes a tube bundle contains one or more sub-tubes and extremely light weighted mini-cable units that can installed at any time. The main advantage of this technology is the cheap tube, which can be conveniently installed in direct buried mini-tube, may contain one or more 2~48 fiber mini-cable(s). Each mini-cable can be installed by blowing to the sub-tube. This technology can help us to save a lot of costs since you can install fibers at any time without preparing for unexpected increasing needs. At the same time, the carriers will benefit from quickly capacity increasing without paying for outdate loss caused by installing new ducts and cables.

Mini-cables are available with steel tube type and all dielectric type. Steel tube type utilizes a stainless wire tube filled with gel and 245μm optical fibers, and then sheathed by high density polyethylene.

All dielectric type utilizes an all dielectric tube filled with gel and 245μm optical fibers, and then surrounded by aramid yarns with sheathed by high density polyethylene.

#### Feature

- ① Reduce primary construction costs through lot by lot installation according to actual needs.
- ② High speed blowing, long distance, high installation efficiency.
- ③ Flexibly distribute the mini-cables and improve operation and maintenance quality.
- ④ High fiber density, save space effectively.



## Indoor Optical Cable



### Optical/Electric Hybrid Cable

#### Application

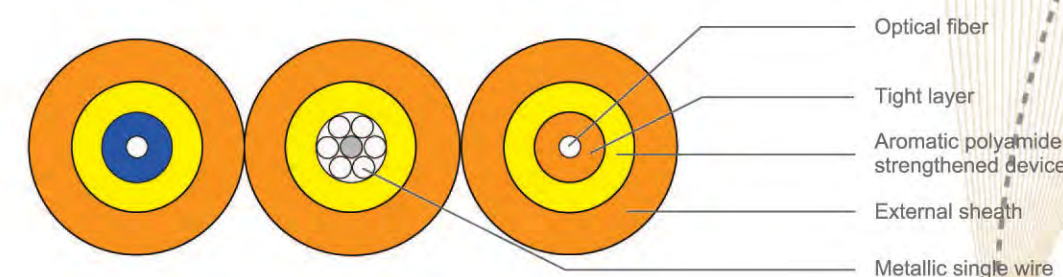
The cable is a new type of accession, it's a combination of optical fiber and power transmission copper wire. The product's accession to the residential building not only solve the problem of broadband accession, but also the power supply for the equipments and the signal transmission at the same time. It is applicable to the transmission wire in the broadband access network system.

#### Description

This new type cable integrates optical fibers with electrical wires, thus can solve broadband access, electric power transmission and data transmission at the same time. This cable has small diameter, light weight, small space occupation (Only install this composite cable instead of installing many wires and cables), and can help to reduce sourcing, installation and network construction costs. It has excellent bending and crush performance, convenient installation, multiple transmissions, good expansibility, high compatibility to equipments and wide applications. This cable can not only provide vast broadband access capacity, but also provide electric power to the equipments during network construction. It is ideal for transmission line applications in broadband access systems.

#### Feature

- ① This product has small outer diameter, light weight and space-saving(an integrated optical cable can be used to solve the problem replacing several wires and cables in the common situation).
- ② It provides our customers a lower procurement costs, construction costs, network construction cost. Furthermore, it has superior bending performance and good anti-side compression performance. It is easy to construct.
- ③ It provides various of transmission technologies at the same time. It has a high scalability, expandability and wide-range property, which can provide significant broadband access, and solve the problem of equipment's power supply (avoid the duplication of release).





## Indoor Optical Cable



### High Temperature Proof Armored Cable for Oil Field Usage

#### Applications

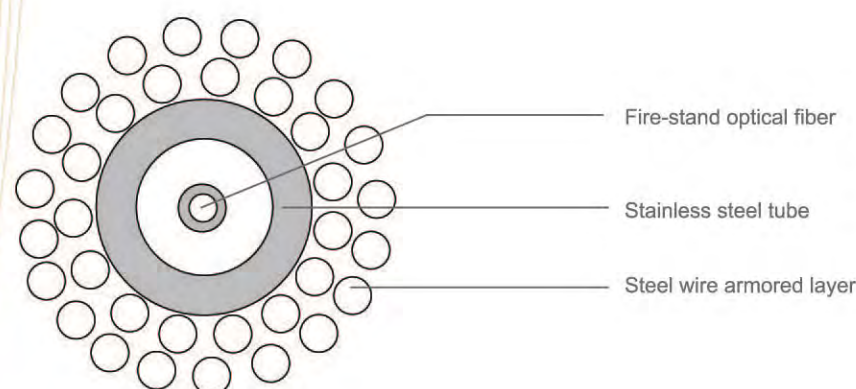
This cable is ideal for applications under high temperature environments such as oil well.

#### Description

It uses the high temperature-resist optical fiber as the transmission medium in a stainless steel tube, while stranding the strengthened steel wire out of the stainless steel tube.

#### Feature

- ② The cable is corrosion-resistant, high mechanical strengthened, heat resistance, and low temperature embrittled. It has a wide range of temperature and long service life.
- ② The product has a superior performance of gas separating permeability, and good pressure resisting performance.
- ② It is flame-retardant, easy to construct and flexible.



## Indoor/Outdoor Optical Cable



### Water-proof Cable (GYFTA)

#### Applications

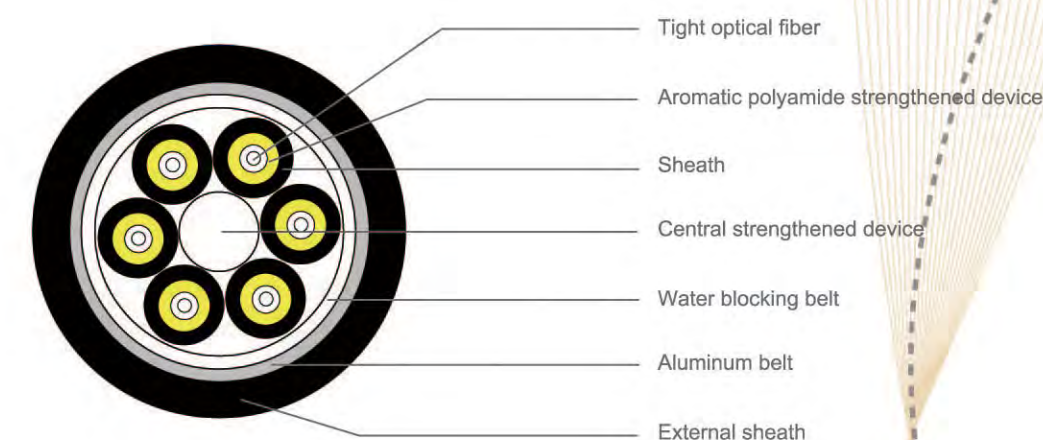
Water-proof cable is used as the tail optical fiber of the optical cable for the equipment's connection, it is also applicable to the equipment's connection between the indoor equipments or the equipment's connection between different floors.

#### Description

This cable utilizes several simplex cables stranded around a central strength member, with water blocking tape and aluminum tape armored, and then uses suitable material as jacket. It has good mechanical, environmental and fire protection performance, very easy splicing and laying, and supports big capacity data transmission. Water-proof cable is mainly used as interconnect pigtail cable for equipments, as well as interconnect cable for equipments within different floors.

#### Feature

- ② This product has great mechanical and environmental properties, the flame-retardant property meets the requirements of the standard; the equipment is easy to be connected and wired, which can support the digital transmission with high capacity.
- ② The soft optical cable is easy to be stretched because they just use the aramid as the anti-stretching device.
- ② It has bad anti-side compression property for its non-armored layer, which has made an impact on the transmission property of the optical fiber. However, we add the devices such as aramid, steel wire, Al tape into the waterproof pigtail cable to upgrade the stretching and anti-compression properties.
- ② There is no water-blocking unit in the soft optical cable's unit, which produces a worse water-blocking property.
- ② This optical cable has excellent performance of bending resistance, it can be uses as the optical transmission wire indoor, and the optical transmission wire outdoor as well with the wide range of application.
- ② It has smaller outer diameter, light weight and easy to be wired.





## Indoor/Outdoor Optical Cable



RoHS  
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### Outdoor Armored Drop Cable (GYFJS)

#### Applications

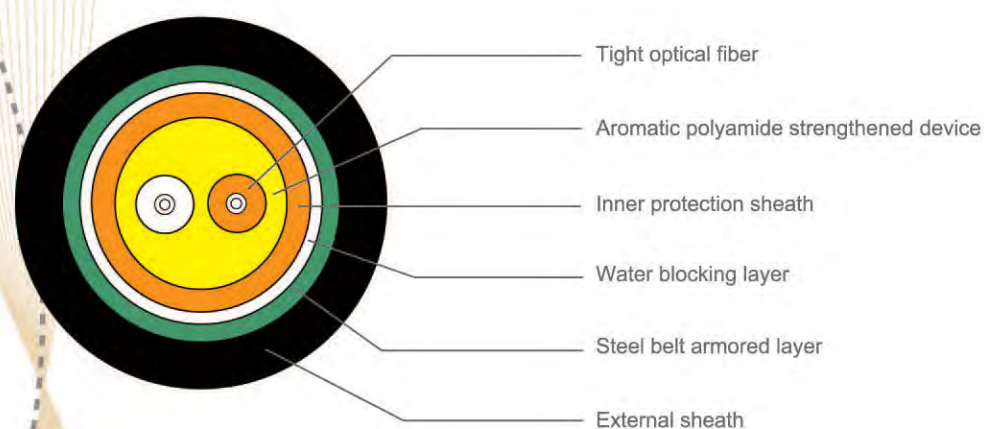
This cable is ideal for interconnect applications for instruments and equipments in extreme bad environments caused by nature or human damage, and have requirements of excellent tensile, crush performance, and rodent and improper torsion resistance.

#### Description

It is a special optical cable, which takes multi-core bunchy indoor optical cable as the basic components. 2-12 single-core optical cable is arranged by a clockwise circle around the metallic or non-metallic central strengthened components centers around the order followed by a clockwise circle, then longitudinally cover a water blocking tape out of the cable core. After that, we use the steel tape as the metal armored layer to strengthen and seal the cable and finally cover the PE material as the sheath.

#### Feature

- ④ It has an outstanding Anti-side pressure performance.
- ④ It has excellent performance of bending resistance. It can be used as the optical transmission wire indoor and outdoor as well with the wide range of application.
- ④ It has smaller outer diameter, light weight and easy to be wired.



## Indoor/Outdoor Optical Cable



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### Drop Optical Cable

#### Applications

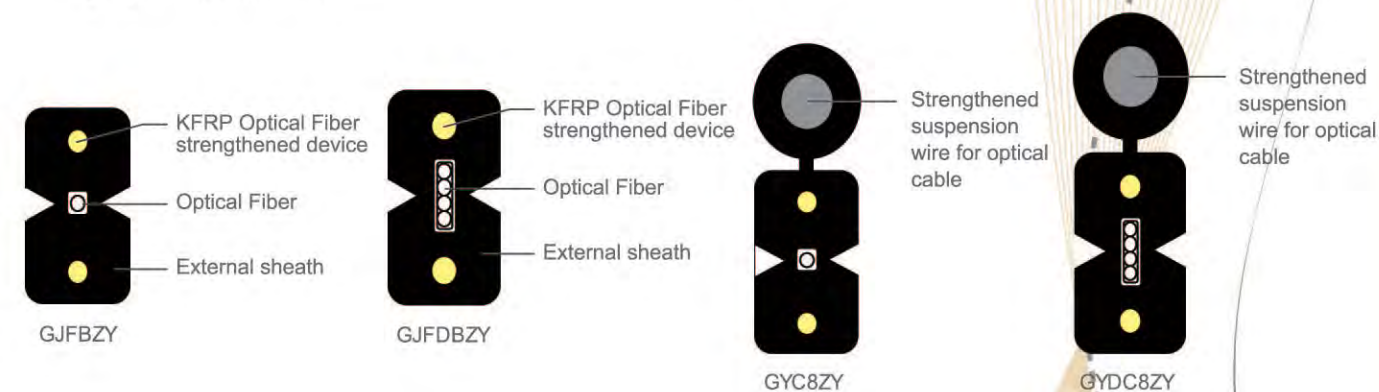
With the development of the telecommunications industry, the communications networks develop from the unitary voice service to the full-service integrated communications network with various digital services of voice, data, and video. The construction of optical networks develops from the backbone network, core network to the MAN and access networks. Since the fiber with frequency bandwidth has the strengths of high transmission capacity and low attenuation, FTTH supports various kinds of services, the features such as wider bandwidth, convenient maintenance are the foundation for our company to design the drop optical cable, which is applicable to the accession of the user's end in the broadband access network.

#### Description

The structure of drop optical cable is as following : put the optical fiber unit into the middle of two non-metallic strengthening devices, then squeeze and lay a layer of LSZH out of it. The structure of self-supporting drop optical cable is: add the metal hanging line, which is tight and has an excellent performance of high & low temperature resistance. The strengthened hanging line is made of high-carbon steel wire with great tensile resistance. The fiber strengthen device has outstanding bending property. In addition, the sheath is consist with LSZH material with good flame-retardance.

#### Feature

- ④ The optical cable has small diameter, lightweight, low cost, low construction cost.
- ④ It is suitable for mechanical splicing technology, fast, and flexible.
- ④ The optical cable has high-tension and anti-squash force, self-supporting structure can meet the requirement of 50 meters pull-fly.
- ④ It uses aromatic polyamide materials to be the strengthen material.
- ④ The optical cable is soft, good bending performance, and ensure that the bending performance can meet the requirements.
- ④ It uses low smoke zero-halogen material, ensure that the cable can meet the requirements for the flame-retardant materials indoor.
- ④ The optical fiber is the bend insensitive fiber which can meet requirement of ITU-T G.657.
- ④ High-carbon steel wire should be used for Self-supporting strengthen device of optical cable, superior tensile properties contented.





## Indoor/Outdoor Optical Cable



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### Double Jacketed Duplex Round Cable I (GYFJZY/GYFJV)

#### Applications

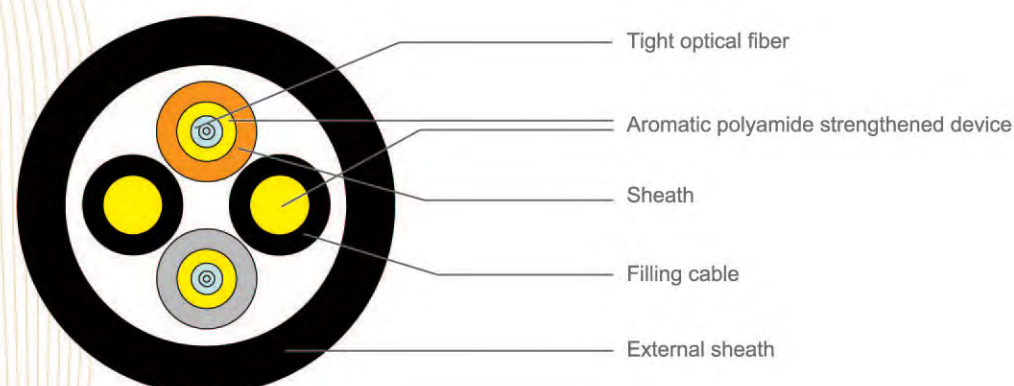
Used as drop cable at communication base stations

#### Description

This cable utilizes two simplex cables and two fillers stranded, and then with an overall LSZH or low temperature resistance PVC jacket.

#### Feature

- ⊗ It has excellent mechanical and environmental performance.
- ⊗ Fire protection properties meet relevant standards.
- ⊗ Mechanical properties of jacket material meet relevant standards.
- ⊗ It is soft, flexible, convenient splicing, easy to strip, and supports big capacity data transmission.
- ⊗ Each sub-cable unit can be directly terminated by standard connectors.



## Indoor/Outdoor Optical Cable



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### Double Jacketed Duplex Round Cable II (GYFJZY/GYFJV)

#### Applications

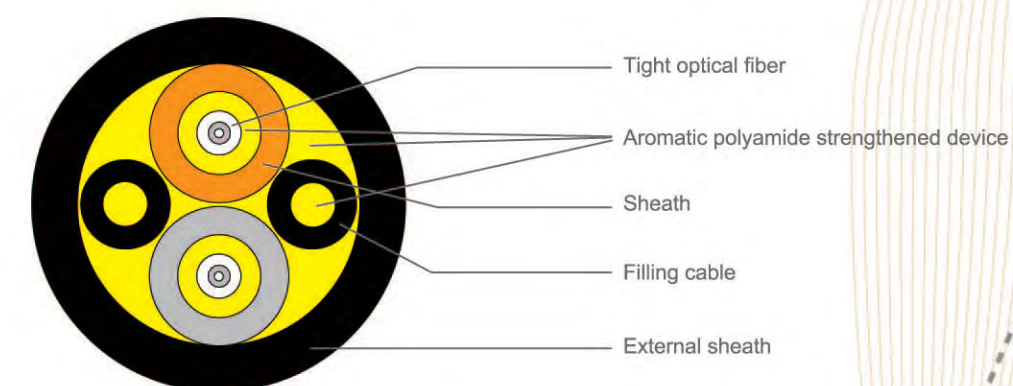
Used as drop cable at communication base stations

#### Description

This cable utilizes two simplex cables and two fillers stranded with aramid yarns, and then with an overall LSZH or low temperature resistance PVC jacket.

#### Feature

- ⊗ It has excellent mechanical and environmental performance.
- ⊗ Fire protection properties meet relevant standards.
- ⊗ Mechanical properties of jacket material meet relevant standards.
- ⊗ It is soft, flexible, convenient splicing, easy to strip, and support big capacity data transmission.
- ⊗ Each sub-cable unit can be directly terminated by standard connectors.





## Indoor/Outdoor Optical Cable



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### Double Jacketed Duplex Round Cable III (GYFJZU)

#### Applications

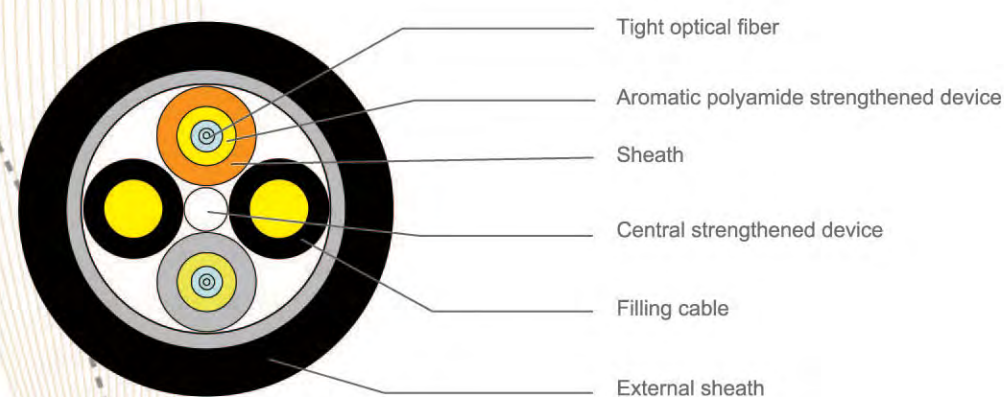
Used as drop cable at communication base stations

#### Description

This cable utilizes two simplex cables and two fillers stranded around a central strength member, and then with a TPU jacket.

#### Feature

- It has excellent mechanical and environmental performance.
- Fire protection properties meet relevant standards.
- Mechanical properties of jacket material meet relevant standards.
- It is soft, flexible, convenient splicing, easy to strip, and support big capacity data transmission.
- Each sub-cable unit can be directly terminated by standard connectors.



## Indoor/Outdoor Optical Cable



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### Triple Jacketed 4-fiber Flat Cable (GYFJBZY)

#### Applications

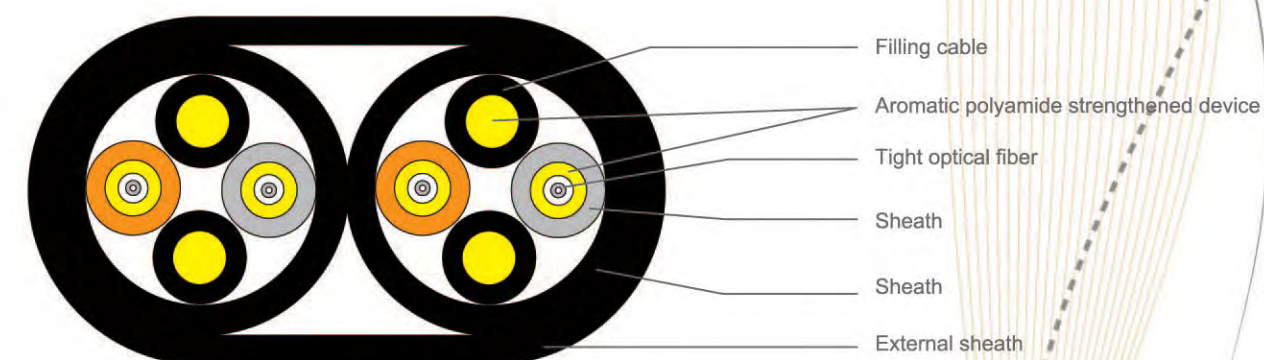
Used as drop cable at communication base stations

#### Description

This cable consists of two parallel double jacketed sub-units and LSZH jacket. Each sub-unit utilizes two simplex cables and two fillers stranded, and then with LSZH jacket.

#### Feature

- It has excellent mechanical and environmental performance.
- Fire protection properties meet relevant standards.
- Mechanical properties of jacket material meet relevant standards.
- It is soft, flexible, convenient splicing, easy to strip, and support big capacity data transmission.
- Each sub-cable unit can be directly terminated by standard connectors.





## Indoor/Outdoor Optical Cable



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### Central Tube Type Double Jacketed Cable (GYFJXZU)

#### Applications

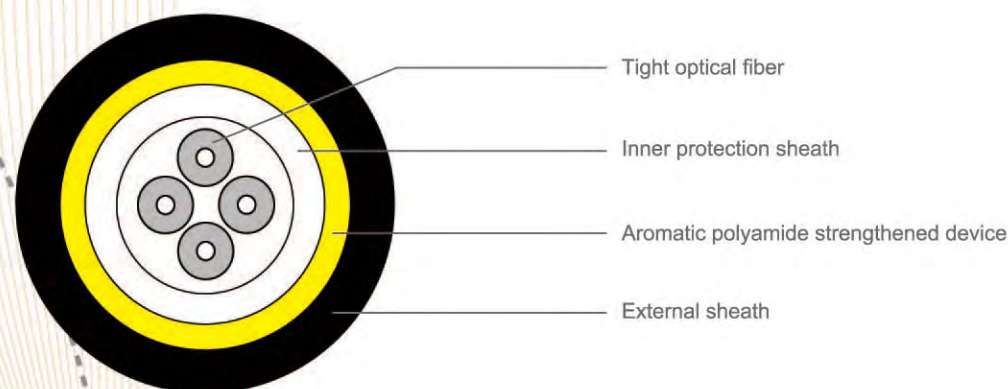
Used as drop cable at the third generation (3G) communication base stations

#### Description

This cable utilizes LSZH tube that consists of two to four  $\Phi 0.7$  tight-buffered fibers surrounded by aramid yarns strength member, and then with a TPU outer jacket.

#### Feature

- It has excellent mechanical and environmental performance.
- Fire protection properties meet relevant standards.
- Mechanical properties of jacket material meet relevant standards.
- It is soft, flexible, convenient splicing, easy to strip, and supports big capacity data transmission.



## Indoor/Outdoor Optical Cable



RoHS  
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### Light Emergency Cable I (GYFJZU)

#### Applications

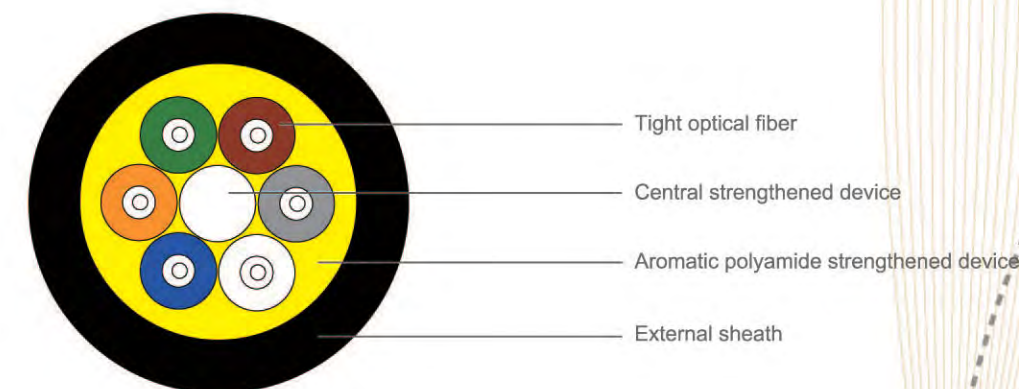
It is applicable to the occasions with harsh conditions, such as the fast wiring of military field communication systems, radar, aviation and naval vessel, oil fields, mines, ports, live broadcast, and first-aid repairmen of communications line. This optical cable is dedicated to those occasions of installation, repeat receive and release in the fields or the other special environment.

#### Description

This optical uses the tight-buffed fiber as the basic device, the tight-buffered optical fiber in the cable should be ordered and stranded circularly around the central strengthened device. Then we use the aramid as the strengthened device and sheathed with polyurethane or the equal material.

#### Feature

- It is lightweight, flexible, anti-bending and easy to carry.
- It has high tensile strength, high anti-pressure ability, and high pull weight.
- It is oil retardant, wear-resistant, fire-retardant with a wide range of applicable temperature.
- It is convenient to be connected and wired, and supports large-capacity data transmission.





## Indoor/Outdoor Optical Cable



RoHS  
compliant

### Light Emergency Cable II (GYFJZU)

#### Application

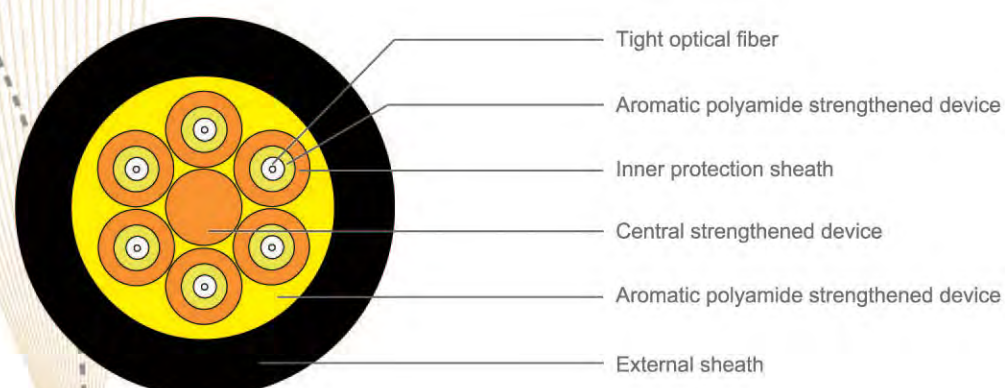
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## Outdoor Optical Cable

### Layer Stranded Optical Cable

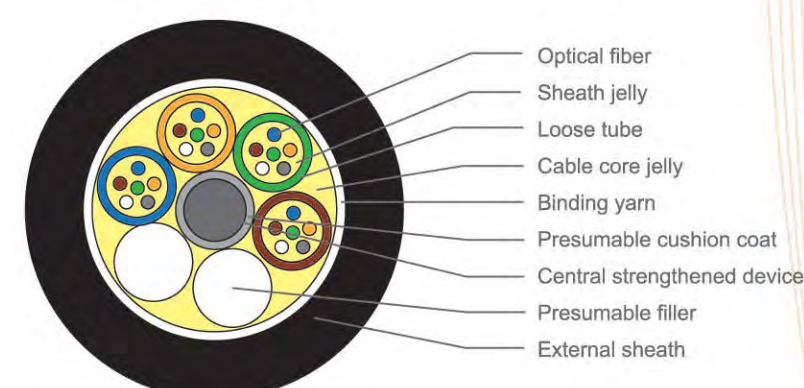
#### Application

With the development of the demand of telecommunication, the requirement of optical cable in some kinds of industries like multimedia, internet and videoconference which need high transmission speed makes optical cable become the basic media of transmission. We use the normal and nonzero dispersion single mode optical fiber for the optical cables to run the transmission mode like SDH/SONET, ATM and the transmission system like WDM, DWDM efficiently. The excellent design of the twist-layer structure for the loose tube and the material with good quality provide the overall protection of our optical fiber to resistant the terrible whether and environment. The products are especially suitable for the urban backbone transmission network and the accessing network of the users.

### GYTY Optical Cable

#### Description

The structure of GYTY (outdoor optical cable used for telecommunication with metallic central strength, loose and layer-stranded tube style, PE cover) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. The center of the cable's core is steel wire. For some optical cables with certain number of core, this steel wire could be a strand, or covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. The optical cable is made of PE sheath.





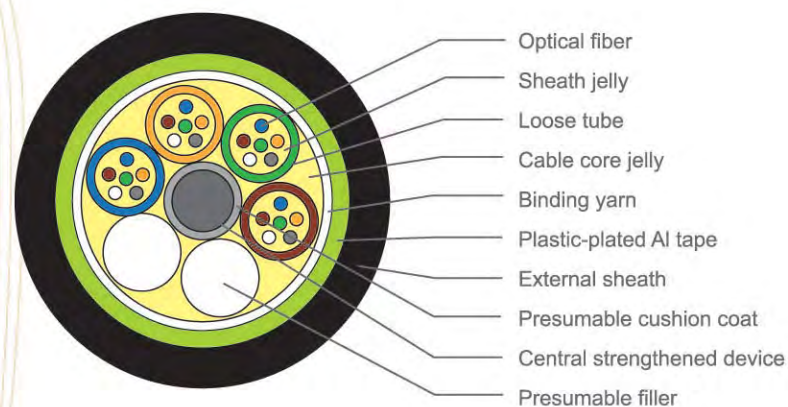
## Outdoor Optical Cable

### Layer Stranded Optical Cable

#### GYTA Optical Cable

##### Description

The structure of GYTA (outdoor optical cable used for telecommunication with metallic central strength, loose and layer-stranded tube style, and aluminum - polyethylene cover) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. There is a steel wire in the middle of the optical cable core. For some optical cables with certain number of core, this steel wire could be a strand, or covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. The polyethylene overlayer will become optical cable after the plastic-plated Aluminum belt is covered vertically.



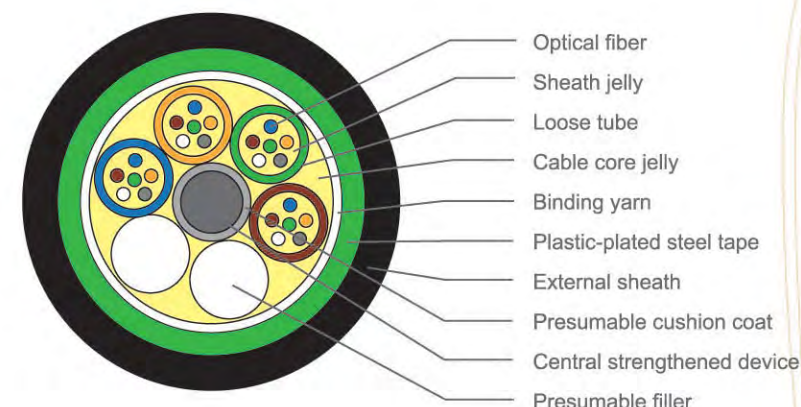
## Outdoor Optical Cable

### Layer Stranded Optical Cable

#### GYTS Optical Cable

##### Description

The structure of GYTS (outdoor optical cable used for telecommunication with metallic central strength, loose and layer-stranded tube style, and Steel-cover) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. There is a steel wire in the middle of the optical cable core. For some optical cables with certain number of core, this steel wire could be a strand, or covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound and the vertically covered water retarding belt. The polyethylene overlayer will be made after the plastic-plated steel belt is covered vertically.





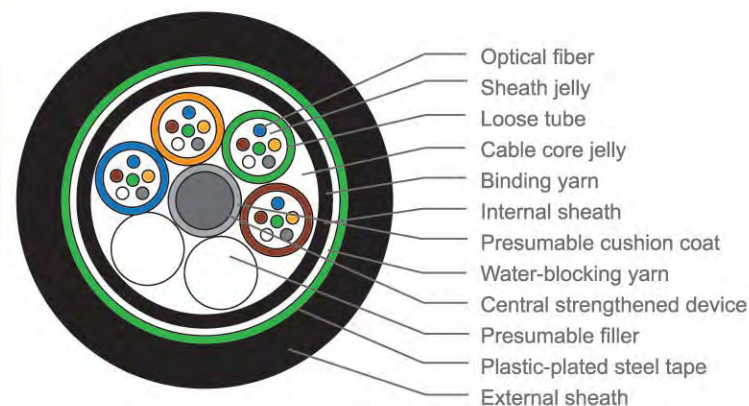
## Outdoor Optical Cable

### Layer Stranded Optical Cable

#### GYTY53 Optical Cable

##### Description

The structure of GYTY53 (outdoor optical cable used for telecommunication with metallic central strength, loose and layer-stranded tube style, aluminum - polyethylene cover, and vertically corrugated steel tape armored) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. The center of the cable's core is a steel wire. For some optical cables with certain number of core, this steel wire could be a strand, or covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. The polyethylene overlayer will be made after the steel belt is covered vertically. The PE sheath should be covered on the optical cable core, The polyethylene overlayer will be made after the double-side plastic-plated steel belt is covered vertically.



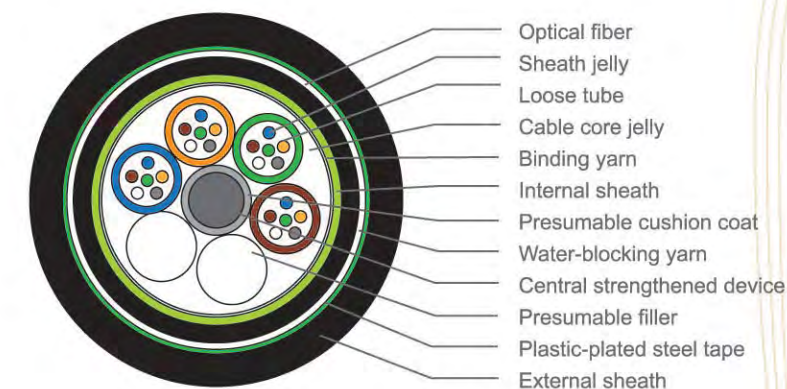
## Outdoor Optical Cable

### Layer Stranded Optical Cable

#### GYTA53 Optical Cable

##### Description

The structure of GYTA53 (outdoor optical cable used for telecommunication with metallic central strength, loose and layer-stranded tube style, aluminum - polyethylene cover, and vertically corrugated steel tape armored) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. The center of the cable's core is a steel wire. For some optical cables with certain number of core, this steel wire could be a strand, or covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. (the core number of the vertical-laid moisture retarding belt out of the cable core is over 96 ). The PE sheath will appear after being vertically covered with the plastic-plated aluminum belt, The polyethylene overlayer will be made after the double-side plastic-plated Aluminum belt is covered vertically.





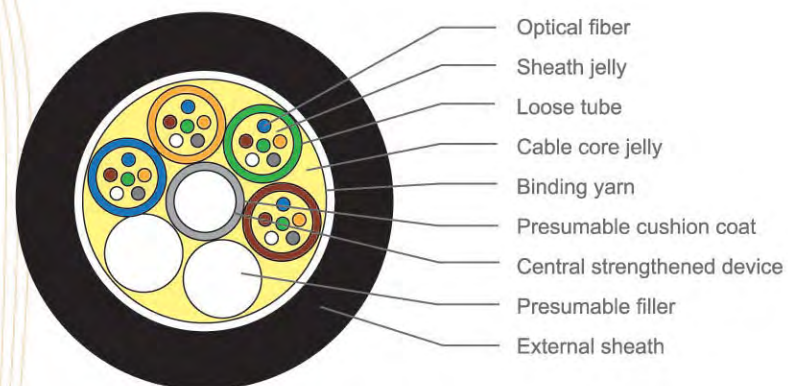
## Outdoor Optical Cable

### Layer Stranded Optical Cable

#### GYFTY Optical Cable

##### Description

The structure of GYFTY (outdoor optical cable used for telecommunication with non-metallic central strength, loose and layer-stranded tube style) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. There is a FRP in the middle of the optical cable core. For some optical cables with certain number of core, the FRP should be covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. The optical cable is made of PE sheath.



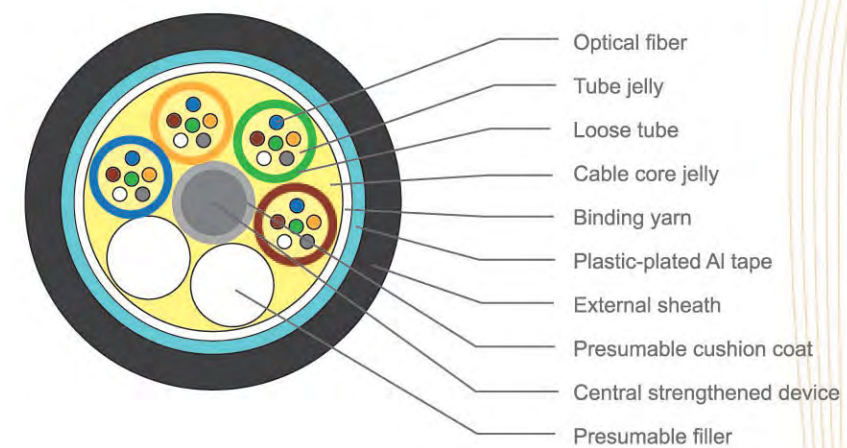
## Outdoor Optical Cable

### Layer Stranded Optical Cable

#### GYFTA Duct, Aerial Optical Cable

##### Description

The structure of GYFTA (outdoor optical cable used for telecommunication with non-metallic central strength, Al-PE cementing sheathed, loose and layer-stranded tube style) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. There is a FRP in the middle of the optical cable core. For some optical cables with certain number of core, the FRP should be covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. The optical cable is made of PE sheath after plastic-plated Al tape being longitudinal covered.





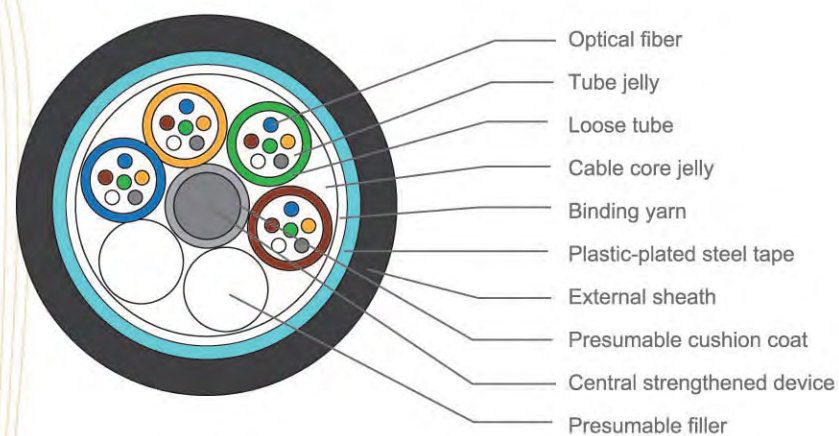
## Outdoor Optical Cable

### Layer Stranded Optical Cable

#### GYFTS Duct, Aerial Optical Cable

##### Description

The structure of GYFTS (outdoor optical cable used for telecommunication with non-metallic central strength, Steel-PE cementing sheathed, loose and layer-stranded tube style) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. There is a FRP in the middle of the optical cable core. For some optical cables with certain number of core, the FRP should be covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. The optical cable is made of PE sheath after plastic-plated steel tape being longitudinal covered.



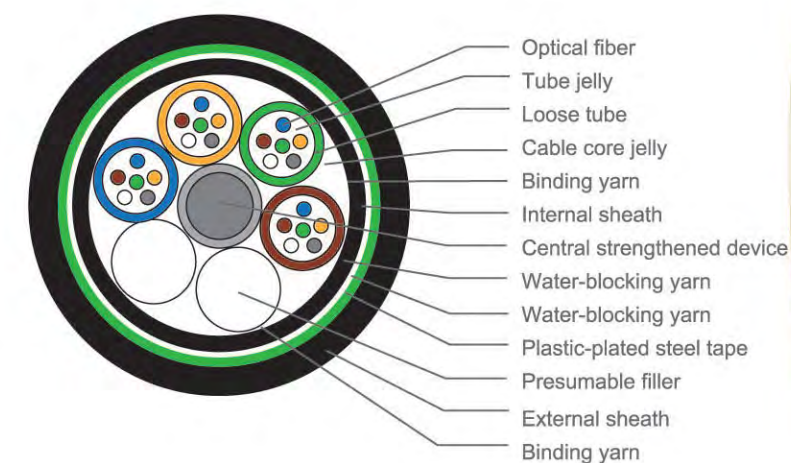
## Outdoor Optical Cable

### Layer Stranded Optical Cable

#### GYFTY53 Aerial, Direct-buried Optical Cable

##### Description

The structure of GYFTY53 (outdoor optical cable used for telecommunication with non-metallic central strength, PE sheathed, steel tape armored and longitudinally coved, loose and layer-stranded tube style) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. There is a FRP in the middle of the optical cable core. For some optical cables with certain number of core, the FRP should be covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. The optical cable is made of PE sheath after double sides plastic-plated steel tape being longitudinal covered.





## Outdoor Optical Cable

### Layer Stranded Optical Cable

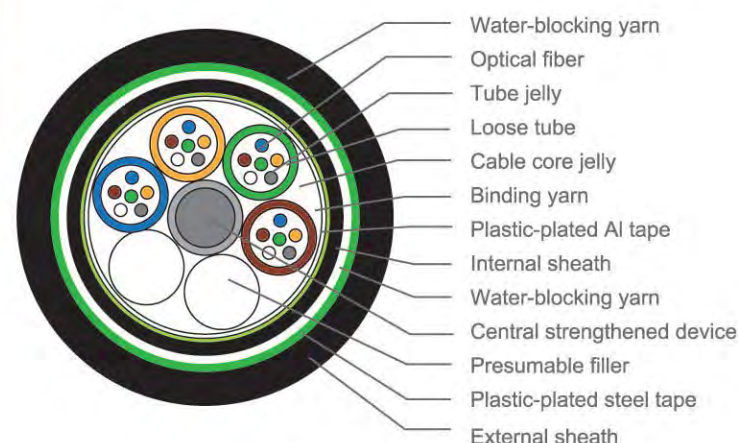
#### GYFTA53 Direct-buried Optical Cable

##### Description

The structure of GYFTA53 (outdoor optical cable used for telecommunication with non-metallic central strength, Al-PE sheathed, steel tape armored and longitudinally coved, loose and layer-stranded tube style) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. There is a FRP in the middle of the optical cable core. For some optical cables with certain number of core, the FRP should be covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. The optical cable is made of PE sheath after double sides plastic-plated steel tape being longitudinal covered.

##### Feature

- ① It controls the extra length of the optical fiber precisely to ensure the good performance of stretch-proof and temperature characteristic of the optical cable.
- ② The PBT loose tube material has good performance of hydrolyze-proof, the special oily jelly is filled with the tube to protect the optical fiber.
- ③ The smooth outer sheath provides a smaller friction coefficient in the installation of the optical cable.
- ④ The PE sheath has excellent performance of radiation-proof of sun.
- ⑤ We take the steps as follow to ensure the waterproofness of the optical cable :
  - The special water-proof compound filled in the loose tube.
  - Complete filled with the core of the optical cable.



## Outdoor Optical Cable

### Central-tubed Optical Cable

##### Application

With the development of the demand of telecommunication, the requirement of optical cable in some kinds of industries like multimedia, internet and videoconference which need high transmission speed makes optical cable become the basic media of transmission. We use the normal and nonzero dispersion single mode optical fiber for the optical cables to run the transmission mode like SDH/SONET, ATM and the transmission system like WDM, DWDM efficiently. The excellent design of the twist-layer structure for the loose tube and the material with good quality provide the overall protection of our optical fiber to resistant the terrible whether and environment. We can wire more optical cable by making use of the limited channel resources, at the same time, reduce the optical cable's size and weight or save the cabling material on the basis of ensuring the cable's basic optical transmission property and mechanical property, to decrease the cost of the cable, raise the efficiency of production and construction, make full use of the channel resource to cut down the construction cost. The products are especially applicable for the toll communication and interoffice communication.

##### Feature

- ① It controls the extra length of the optical fiber precisely to ensure the good performance of stretch-proof and temperature characteristic of the optical cable.
- ② The PBT loose tube material has good performance of hydrolyze-proof, the special oily jelly is filled with the tube to protect the optical fiber.
- ③ The smooth outer sheath provides a smaller friction coefficient in the installation of the optical cable.
- ④ The PE sheath has excellent performance of radiation-proof of sun.
- ⑤ We take the steps as follow to ensure the waterproofness of the optical cable :
  - The special water-proof compound filled in the loose tube.
  - Complete filled with the core of the optical cable.
  - Plastic-plated (steel) Al tape moistureproof layer.



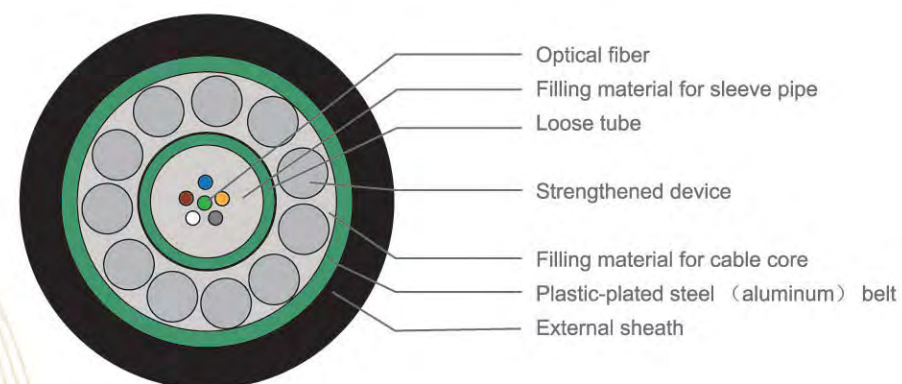
## Outdoor Optical Cable

### Central-tubed Optical Cable

#### GYXTS (A) Optical Cable

##### Description

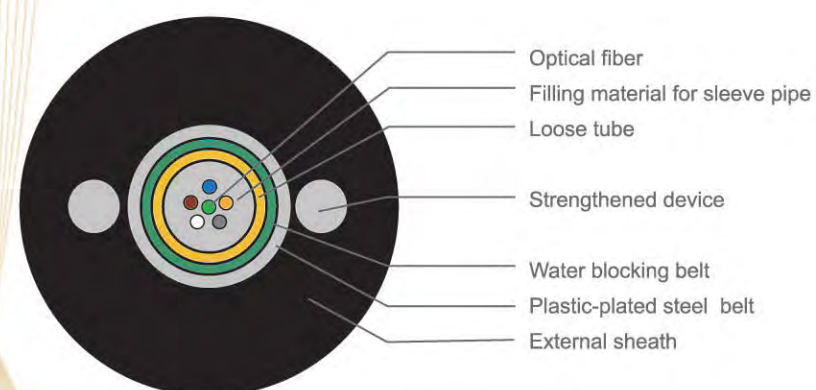
The structure of GYXTS (A) (outdoor optical cables used for telecommunication with metallic central strength, steel(aluminum)-PE layer central tube all-fulfilled) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. The steel wire strengthen core, central tube is wrist laid and surrounded by the steel wire strengthen core to become a tight and round shape cable core. The gap of the cable core is fulfilled with the water retarding material. The PE layer will become the optical cable after the vertical cover of plastic steel (aluminum)-plated belt.



#### GYXTW Optical Cable

##### Description

The structure of GYXTW (outdoor optical cables used for telecommunication with metallic central strength, the steel-PE central tube complete all-filled with steel wire) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single-mode optical fiber. The waterproof belt and steel belt covered vertically out of the loose tube, two parallel steel wire on the both sides of the cable core are be used as the strengthen part to retard the flame and become the optical cable.



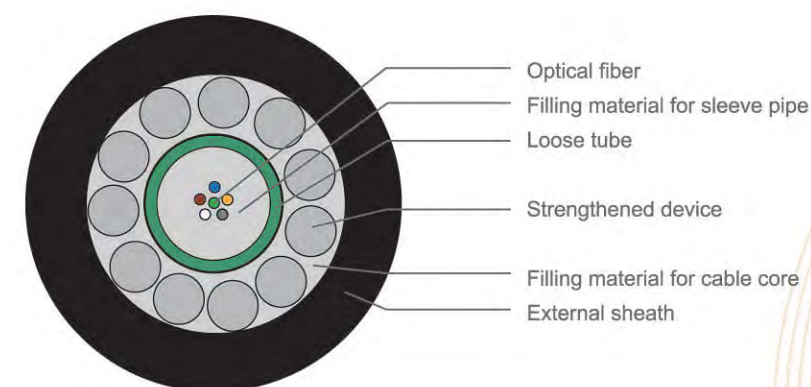
## Outdoor Optical Cable

### Central-tubed Optical Cable

#### GYXTY Optical Cable

##### Description

The structure of GYXTY (outdoor optical cables used for telecommunication with metallic central strength, the PE central beam tube complete fulfilled) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. The steel wire strengthen core, central tube is wrist laid and surrounded by the steel wire strengthen core to become a tight and round shape cable core. The gap of the cable core is fulfilled with the water retarding material. The PE layer will become the optical cable after the vertical cover of plastic (aluminum)-plated belt.





## Outdoor Optical Cable

### Ribbon Optical Cable

#### Application

With the development of the demand of telecommunication, the requirement of optical cable in some kinds of industries like multimedia, internet and videoconference which need high transmission speed makes optical cable become the basic media of transmission. We use the normal and nonzero dispersion single mode optical fiber for the optical cables to run the transmission mode like SDH/SONET, ATM and the transmission system like WDM, DWDM efficiently. The excellent design of the twist-layer structure for the loose tube and the material with good quality provide the overall protection of our optical fiber to resistant the terrible whether and environment. The products are especially suitable for the urban backbone transmission network and the accessing network of the users.

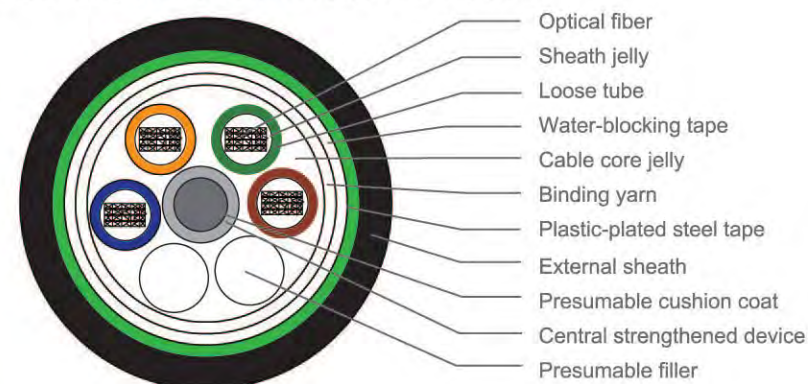
#### Feature

- ④ It controls the extra length of the optical fiber precisely to ensure the good performance of stretch-proof and temperature characteristic of the optical cable.
- ④ The PBT loose tube material has good performance of hydrolyze-proof, the special oily jelly is filled with the tube to protect the optical fiber.
- ④ Optical cable has small diameter, optical fiber has high density, light weight.
- ④ PE sheath has excellent performance of radiation-proof of sun.
- ④ We take the steps as follow to ensure the waterproofness of the optical cable :
  - The special water-proof compound filled in the loose tube.
  - Plastic-plated steel/Al belt moisture barrier.

### GYDTA Duct, Aerial Optical Cable

#### Description

The structure of GYDTA (outdoor optical cable used for telecommunication with metallic central strength, Al-PE cementing sheathed, loose and layer-stranded tube style,) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. There is a steel wire in the middle of the optical cable core. For some optical cables with certain number of core, the steel wire should be a steel stranded line covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. It is cabled after the plastic-plated Al tapes has been covered of PE sheath.

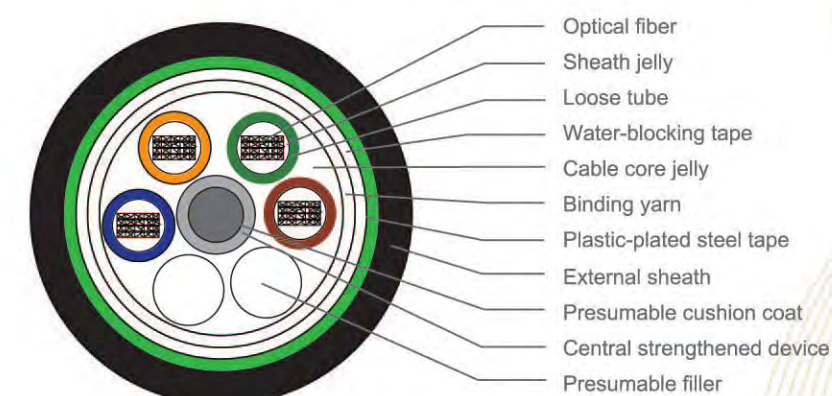


## Outdoor Optical Cable

### GYDTS Duct, Aerial Optical Cable

#### Description

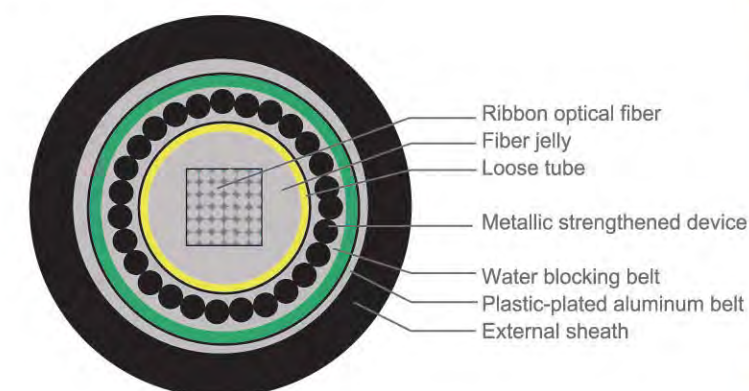
The structure of GYDTS (outdoor optical cable used for telecommunication with metallic central strength, Steel-PE cementing sheathed, loose and layer-stranded tube style,) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. There is a steel wire in the middle of the optical cable core. For some optical cables with certain number of core, the steel wire should be a steel stranded line covered with a tight pack of polyethylene (PE). The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. It is cabled after the plastic-plated steel tapes has been covered of PE sheath.



### GYDXTA Duct, Aerial Optical Cable

#### Description

The structure of GYDXTA (outdoor optical cables used for telecommunication with metallic central strength, optical fiber belt central tube filling style, and aluminum - polyethylene cover) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode optical fiber. The thin round shape steel wire will be used as a strength devise armored outside the loose tube. The aluminum-PE cover will become the optical cable.





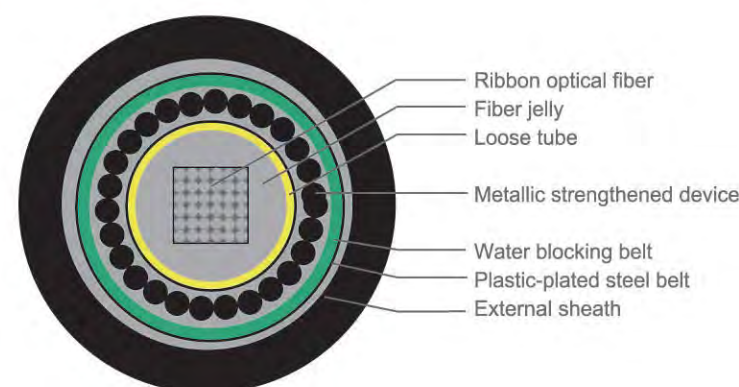
## Outdoor Optical Cable

### Ribbon Optical Cable

#### GYDXTS Duct, Aerial Optical Cable

##### Description

The structure of GYDXTS (outdoor optical cables used for telecommunication with metallic central strength, optical fiber belt central tube filling style, and steel- polyethylene cover) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode optical fiber. The thin round shape steel wire will be used as a strength devise armored outside the loose tube. The steel-PE cover will become the optical cable.

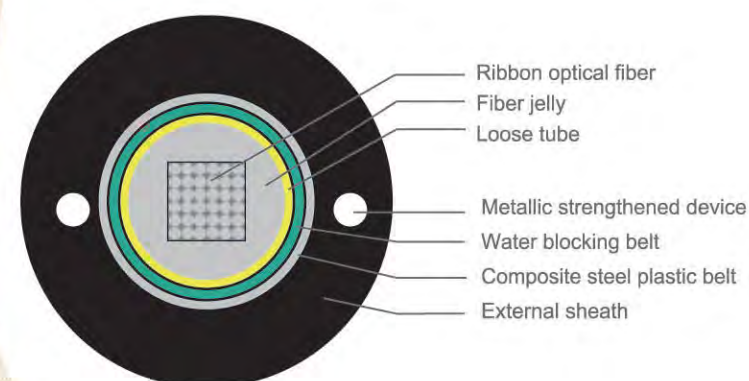


### Central-tubed Optical Cable

#### GYDXTW Duct, Aerial Optical Cable

##### Description

The structure of GYDXTZW (outdoor optical cable used for telecommunication with metallic central strength, optical fiber belt central tube layer-stranded style, steel-PE cover with steel wire) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode optical fiber. The waterproof belt and steel belt covered vertically out of the loose tube, two parallel steel wire on the both sides of the cable core are be used as the strengthen part to retard the flame and become the optical cable.



## Outdoor Optical Cable

### Self-supporting Optical Cable

#### Self-supporting Loose-tubed Stranded Padding Outdoor Communication Cable with Metallic Strengthened Hanging Line and Steel-PE Cementing Sheath

##### Application

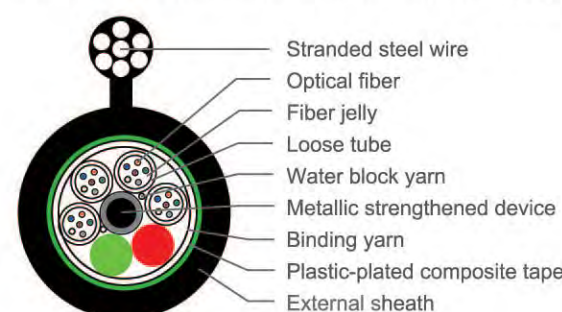
The product is applicable for long-distance and interoffice communication.

##### Description

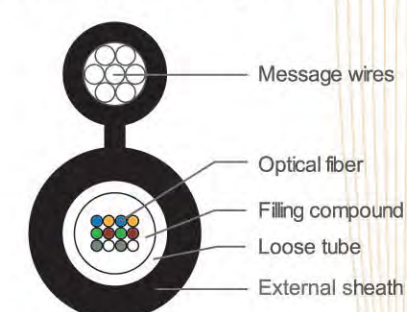
The structure of the cable (self-supporting loose-tubed stranded padding outdoor communication cable with metallic strengthened hanging line and steel-PE cementing sheath) is covering the inner-fulfilled waterproof compound loose tube, which is made of high modulus plastic, with the single mode and multi-mode optical fiber. There is a FRP in the middle of the optical cable core. The compact and round shape cable core is a combination of the loose sleeve pipe (gasket for packing) and center-strengthened core, the gap in the cable core is filled with water retarding compound. PE sheath will be cabled after the metal strengthened hanging line is parallelly installed with the cable core, which is longitudinally covered with plastic-plated steel tape.

##### Feature

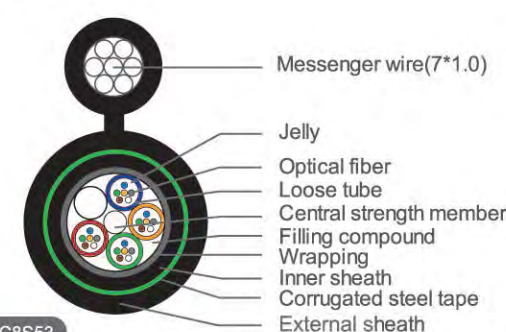
- It controls the extra length of the optical fiber precisely to ensure the good performance of stretch-proof and environmental characteristic of the optical cable.
- The double side plastic-plated steel tape provides an excellent of moisture proof and side compression resistance.
- The Zn-plated steel stranded wire ensures the anti-stretch intensity, which is required by the self-supporting cable installation.
- The cable is application the self-supporting aerial wiring with the span of 100m or below. It provides a more efficient construction, and saves the hanging lines and cable drop hangers at the same time.



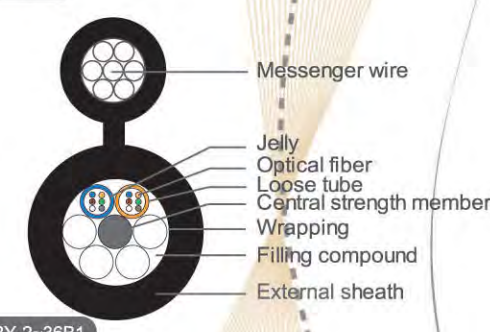
GYTC8S



GYXTC8Y-16B1



GYFTC8S53



GYFTC8Y-2~36B1



## Outdoor Optical Cable

### Composite Drop Optical Cable

#### Application

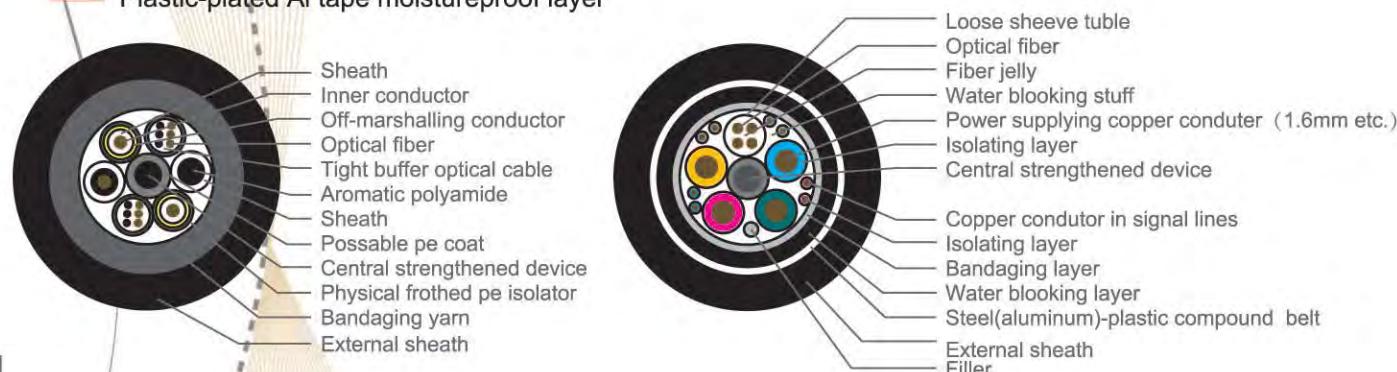
The composite drop optical cable is specially designed to solve the synchronal problems of broadband access, equipment's power, signal transmission for the customers. It is applicable for being used as the transmission wire for the broadband access network system. The cable is a new type of accession, it's a combination of optical fiber and power transmission copper wire. The product's accession to the residential building not only solves the problem of broadband accession, but also the power supply for the equipments and the signal transmission at the same time. The diameter of the signal wire, the diameter of the transmission steel wire, and the fiber number can be designed according to the customer's requirements. The composite drop optical cable not only keeps the features of the common fiber optical cable, but also complies with the standards of communication cable for local calls.

#### Description

The composite drop optical cable is specially designed to solve the synchronal problems of broadband access, equipment's power, signal transmission for the customers. The composite drop optical cable is used as the transmission line for the broadband access system, it is a new method of accessing and combination of optical fiber, transmission copper line and signal line, which can be accessed in the residential buildings and solve the synchronal problems of broadband access, equipment's power, signal transmission for the customers. The diameter of the signal line, transmission copper line and the number of the optical fiber can be designed according to the actual needs of the customers. The composite drop power cable not only maintain the features of the ordinary optical fiber and cable, but also comply with the relative standards of the urban communication optical cable.

#### Feature

- ② It controls the extra length of the optical fiber precisely to ensure the good performance of stretch-proof and temperature characteristic of the optical cable.
- ③ The PBT loose tube material has good performance of hydrolyze-proof, the special oily jelly is filled with the tube to protect the optical fiber.
- ④ The cable has small diameter, high density optical fiber and lightweight.
- ⑤ The PE sheath has excellent performance of radiation-proof of sun.
- ⑥ We take the steps as follow to ensure the waterproofness of the optical cable:
  - The special water-proof compound filled in the loose tube.
  - HP expending water-blocking tape is longitudinal covered out of the cable's core.
  - Plastic-plated Al tape moistureproof layer



## Outdoor Optical Cable

### Under-water Optical Cable

#### Application

Under-water optical cable is another structure which is different from undersea optical cable. It is applicable for the installation in the seacoast and shallow water. It doesn't need the junction, and can be used for the wiring under the water with shorter communication distance (for example: for islands and the coastal cities). This cable is different from the environment of the undersea optical cable, it doesn't need plenty of fiber. Comparing to the undersea optical cable, the under-water optical cable is simple structured, low cost, easy installed and transported. It is also easy to be repaired and maintained.

#### Description

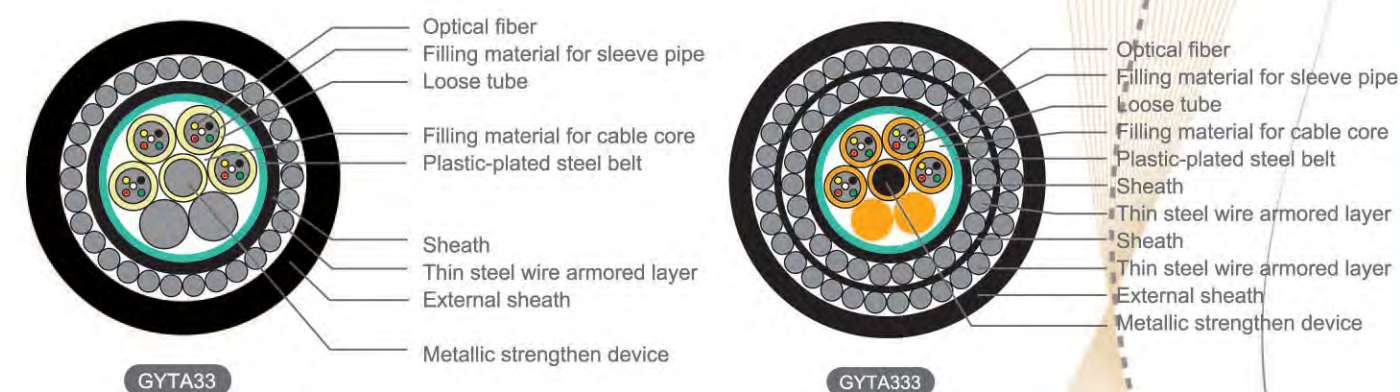
The under-water optical cables Hengtong manufactured are used in the shallow-water, and climbing lay. The drainage optical cable is suitable for laying in the drainage duct. They not only have excellent mechanical property and humidity resistance, but have chemical property and the function of rodent-proof and termite-proof as well. The structure of this optical cable is not complicated, the low total cost provides every telecom operators a new solution.

#### Feature

- ② It controls the extra length of the optical fiber precisely to ensure the good performance of stretch-proof and temperature characteristic of the optical cable.
- ③ The PBT loose tube material has good performance of hydrolyze-proof, the special oily jelly is filled with the tube to protect the optical fiber.
- ④ The PE sheath has excellent performance of radiation-proof of sun.
- ⑥ We take the steps as follow to ensure the waterproofness of the optical cable :
  - The special water-proof compound in the loose tube.
  - Complete cable core fulfilled
  - Plastic-plated aluminum belt moisture barrier
- ⑥ The mechanical and environmental character are in accord with YD/T 901-2001.

#### Model

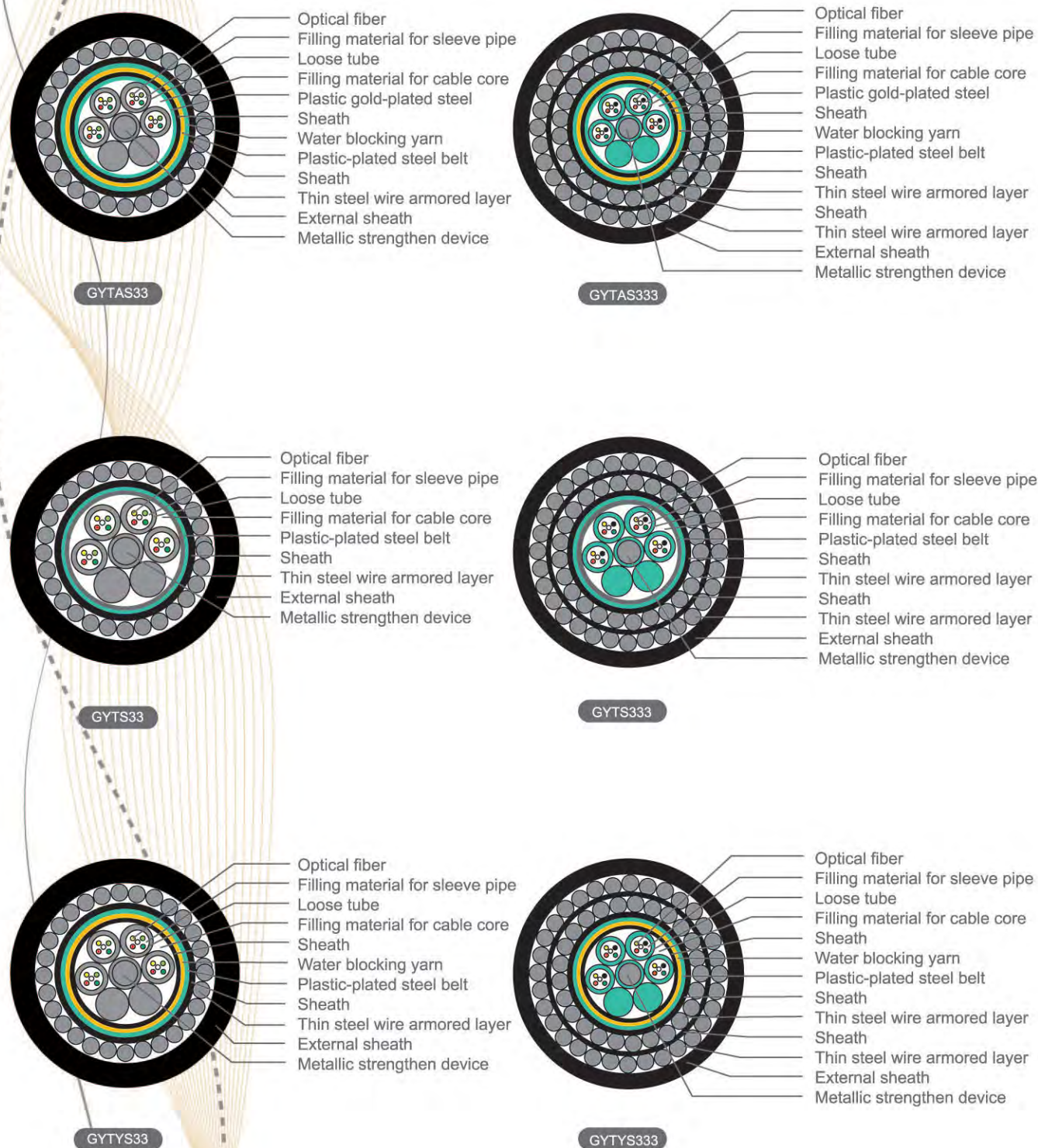
GYTY33、GYTA33、GYTS33、GYTY333、GYTA333、GYTS333、GYTYS33、GYTAS33、GYTYS333、GYTAS333





## Outdoor Optical Cable

### Under-water Optical Cable



## Electric Power Optical Cable

### OPGW

#### Application

OPGW is mainly applicable to the aerial transmission lines with rated voltage 110KV or above, which provides a solution of electric power optical fiber communication to power operators. When using OPGW, the capacity of power fiber communication is much larger than that of the traditional carrier wave and microwave communication; comparing with the common direct-buried optical cable, it saves routing source and construction investment; it has more reliability and longer service life than ADSS optical cable.

#### Description

OPGW is stranded of one or several stainless steel tubes containing optical fibers and several different kinds of metal wires.

The stainless steel tube isThe confined anti-putrescent sheath will be formed when the SUS304 tape used by stainless steel tube fiber unit has got through the longitudinal laser welding. Optical fiber and fiber jelly are contained in the cable. The jelly protects the fiber from being influenced by the external shock and water corrosion. The number of fiber will be defined by our customers' needs. The number of stainless steel tube will not more than three usually, its position can be the central position (central-tubed OPGW) or the starting stranded layer ( layer-stranded OPGW). When highly requiring anti-corrosion, the aluminum can be cladded out of the stainless steel tube to become a Al-clad stainless steel tube.

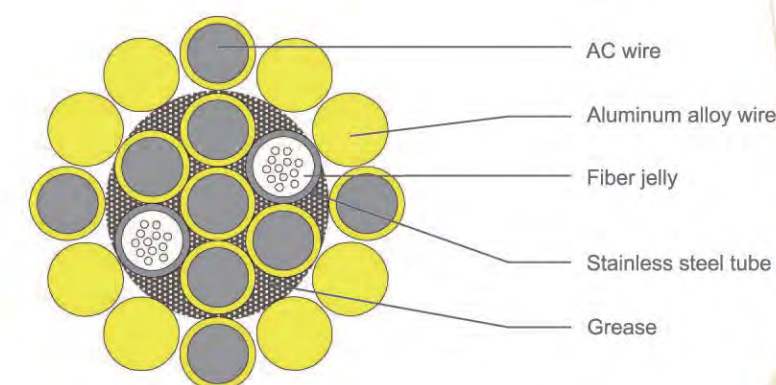
The other metal wire can be Al-clad steel wire, or the combination of Al-clad wire and aluminum alloy wire; aluminum and aluminum alloy are used for power conduction, steel is used for tension taking;

Product design principles: We will manage to make OPGW's physical dimension, mechanical and physical property, electric property approach to those of an aerial ground wire through the product optimization considering the requirements of communication.

The section within the stranded wire of outer layer is padded with anti-corrosive jelly to isolate the moisture outside, which will upgrade the anti-corrosive property of the product.

#### Feature

- It uses optical fiber as transmission medium, which provides a larger message capacity.
- The optical fiber is well protected and reliable.
- The metallic structure gives it 30-year service life.
- Comparing with the matching design of traditional aerial ground wire, it is easy to be constructed.





## Electric Power Optical Cable

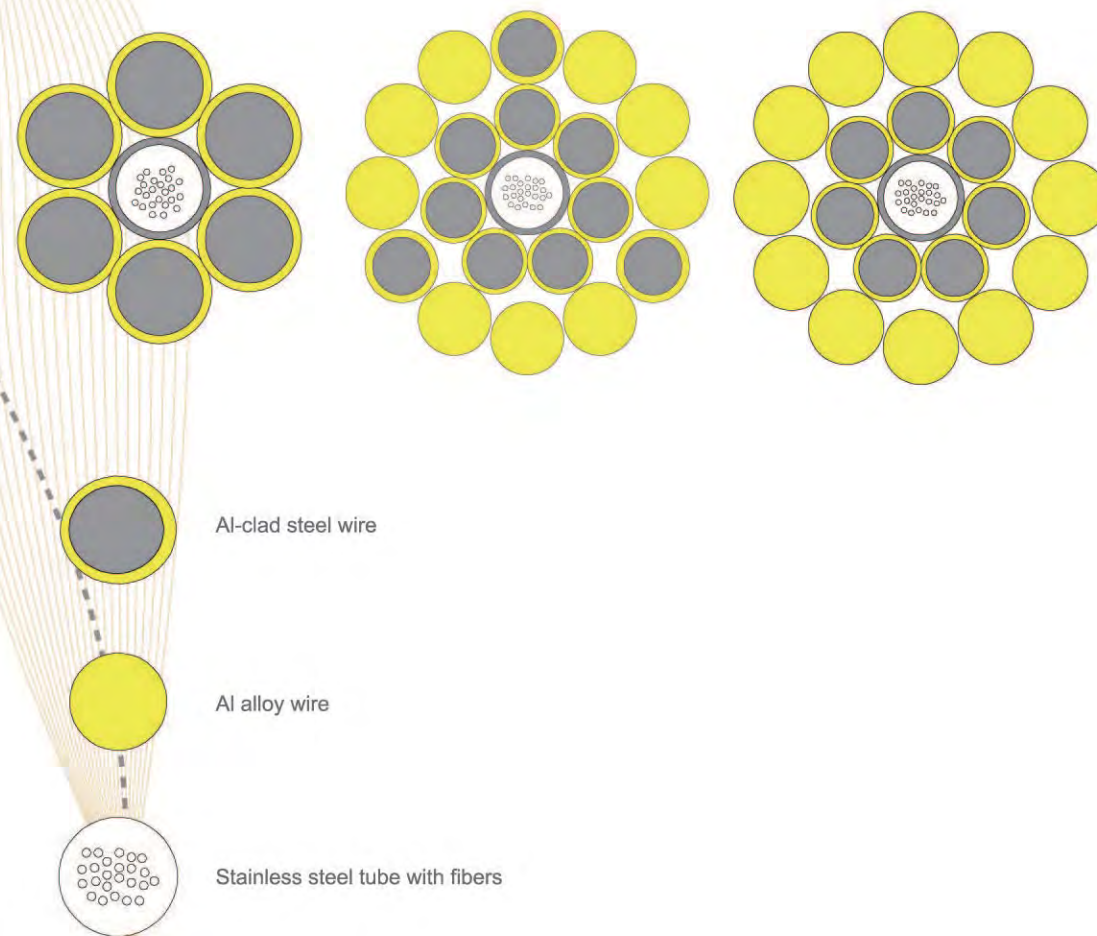
### Central-tubed OPGW

#### Description

- 2-48 colored optical fibers are arranged in a loose tube
- The loose tube is fully fulfilled of packing CMPX (fiber jelly).
- The tube is put in the central place, the outer sheath is stranded by the Al alloy wire or Al-clad steel wire.

#### Feature

- It uses the structure of stainless steel-tube with fibers, which provides a superior protection from high voltage interference and larger message capacity.
- It has a better mechanical strength and excellent conductivity.
- It is hung on the top of the high voltage power circuit's tower to prevent from being attacked by the external force, which is safe and reliable.
- The stainless steel tube is well protected by the metal material. It has an outstanding temperature property.



## Electric Power Optical Cable

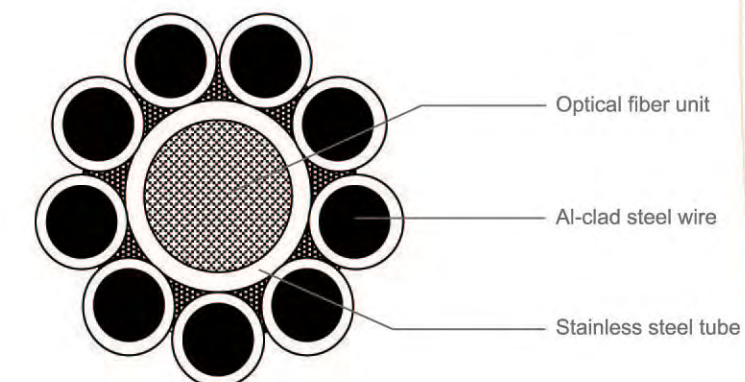
### Central-tubed OPGW (Al-clad Stainless Steel Tube)

#### Description

- 2-48 colored optical fibers are arranged in a loose tube
- The loose tube is fully fulfilled of packing CMPX (fiber jelly).
- The outer layer of the tube is covered by Al tube.
- The tube is put in the central place, the outer sheath is stranded by the Al alloy wire or Al-clad steel wire of 1 layer or 2 layers.

#### Feature

- It uses the structure of stainless steel tube with fibers, which provides a superior protection from high voltage interference and larger message capacity.
- It has a better mechanical strength and excellent conductivity.
- It is hung on the top of the high voltage power circuit's tower to prevent from being attacked by the external force, which is safe and reliable.
- The stainless steel tube is well protected by the metal material. It has an outstanding temperature property.





## Electric Power Optical Cable

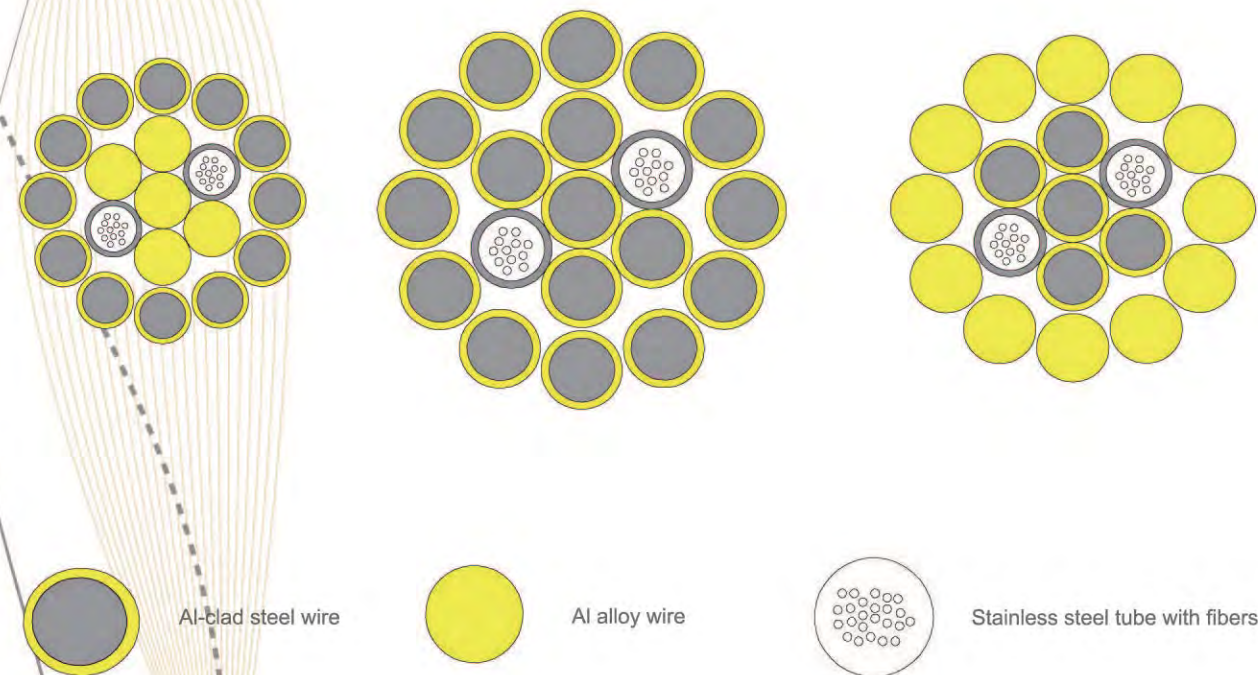
### Layer-stranded OPGW

#### Description

- ② 2-48 colored optical fibers are arranged in a loose tube
- ② The loose tube is fully fulfilled of packing CMPX (fiber jelly).
- ② The central wire is Al-clad steel wire, the tube is put in the inner layer(it can be one, two, or three tubes).
- ② The inner and outer sheath can be stranded by the Al alloy wire or Al-clad steel wire (cable jelly fulfilled).

#### Feature

- ② It uses the structure of stainless steel tube with fibers, which provides a superior protection from high voltage interference and larger message capacity.
- ② It has a better mechanical strength and excellent conductivity.
- ② It is hung on the top of the high voltage power circuit's tower to prevent from being attacked by the external force, which is safe and reliable.
- ② The stainless steel tube is well protected by the metal material. It has an outstanding temperature property.



## Electric Power Optical Cable

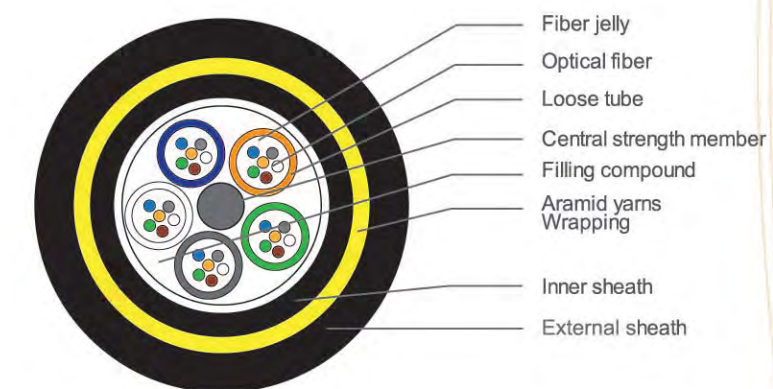
### ADSS

#### Description

This optical cable uses 6 loose tubes (or partial gasket for packing) to wind around the FRP and become the a complete round cable core, which is stranded of certain number of Kevlar with potentiation after being covered with PE internal sheath. Finally, the PE external sheath will be squeezed. The loose tube is made of the materials with great temperature properties. Several single mode or multi mode optical fiber (2-8 core) of a proper extra length and the oil jelly used for moistureproof optical fiber are put into the tube. The slits of the cable core are fulfilled with water-blocking compound.

#### Feature

- ② It is applicable for the transmission wavelength 1310 nm and 1550 nm.
- ② The biggest advantage of ADSS optical cable is that the cable doesn't need the suspender by taking the advantage of the existing pole.
- ② It is applicable for the different span from 50-1000 m, it mainly uses Kevlar as the strengthening device, has good tensile strength, bullet-proof performance and good performance in high and low temperature.
- ② The cable design and experiment can comply with the IEEE P1222.





## Optical Components and the Others

Hengtong Group devotes to building up a complete optical communication industrial chain. It specifically manufactures optical passive device, optical media convertor, Protocol Converter, Ethernet Switch Series and Generic Cabling System Products and xDSL Equipment & Wireless Access Equipment.

### xDSL Equipment & Wireless Access Equipment

#### TM-U/F ADSL Modem

##### Description

TM-U/F ADSL modem is the terminal equipment for ADSL access service. Compared with cable modems, ADSL has unique advantages. It provides specific lines service, and compare to the proliferation of large numbers of cable modem users and the drop performance of cable modems, ADSL Internet rate is very stable.



TM-U/F ADSL Modem

## Optical Components and the Others

### xDSL Equipment & Wireless Access Equipment

#### 32-port VDSL equipment

##### Description

It can be used to build expansion, maintenance, management, operation of broadband data access network, for instance it can be used for the large-scale telecom, and it can also be used by industries users such as electricity and oil industries, or used by large, medium-sized enterprises. The application has good range and high-performance.



HTVL-3232 VDSL Infrastructure Equipment



HTVL-4211 VDSL CPE



## Optical Components and the Others

### Optical Passive Device

#### Description

Hengtong Group provides customers fiber optical connectors such as FC, SC, ST, LC, MT-RJ and MU, and variety of pigtail and jumper products, single-mode / multi-mode and PC / UPC/APC for instance.



### Optical Media Convertor

#### Description

Hengtong Group provides TR-U Series photoelectric conversion transceivers for infrastructure users such as telecom operators, broadband intelligent building and intelligent community broadband users to adapt to the construction of BMAN and the development of broadband subscriber network, in order to achieve the interconversion between transmission signal on the UTP and the optical signal transmitted on the optical fiber.

This series includes: single-mode TR-U transceiver, multi-mode TR-U-M transceiver, small-sized TR-U-S transceiver, and TR-U-SF single fiber two-way rack-mounted transceiver. These products have great performance of convenience, reliability, flexibility of operation and price quality.



## Optical Components and the Others

### Interface Converter

#### 10BASE-T/10BASE-TX Protocol Converter

#### Description

Widely used in computer network interconnection, DDN data network access, SDH public networks, mobile telephone network transmission optimization, and the E1 PCM-based network of transmission access, the LAN interconnection among routers through E1 digital channel.

#### 4E1 Series Protocol Converter

#### Description

4E1-10BASE-T/100BASE-TX protocol converter achieves the conversion between 1-4 road and E1 Ethernet interface, and supports 1-4 road access and flexible configuration, and can automatically detect and select the available number of E1. When the four E1 channels work at the same time, the bandwidth will be up to 8.192 M bandwidth, Ethernet (RJ45) signals will be transmitted point-to-point to remote RJ45 interface, and with which, E1 Channel and Ethernet could be interconnected and composed net bridge. It could meet needs of real-time video, audio and data transmission.





## Optical Components and the Others

### Interface Converter

#### 10BASE-T/100BASE-TX Protocol Converter

##### Description

E1-10BASE-T/100BASE-TX protocol converter's main function is for converting between G.703/E1 and Ethernet interface and conversion. And it is a high-performance, self-type long-range Ethernet Bridge. It has small size, low cost, and is very suitable for cost-sensitive bridging applications, or used as a bit-stream infrastructure on the LAN extension or sectionalizer. Equipment can be connected with the ongoing study of the MAC address on the LAN and in accordance with the purpose of data frame to determine whether filter the MAC address or not. FE1-10BASE-T/100BASE-TX protocol converter's function is to taking from G.703 E1 in any slot, and composing Ethernet data channel of bandwidth as  $N \times 64K$  ( $N = 1-32$ ). It makes use of spare time slot in E1, and provides bandwidth as  $N \times 64K$  for equipment such as HUBER, and transmitting through transmission equipment, fiber port devices for instance.



## Optical Components and the Others

### Interface Converter

#### Protocol Converter

##### Description

E1-V.35 protocol converter's main function is to convert the interface between G.703/E1 and V.35/2.048M. And it implements the connection between the transmission equipment does not have G.703 port and fiber port device equipment.

FE1-V.35 interface converter's main function is extracted from the slot G.703E1 in any order and forms broadband as  $N \times 64K$  ( $N = 1 \sim 32$ ) of the V.35 data channel. It makes use of the spare slot of E1, provides  $N \times 64K$  transmission bandwidth for routers, and transmits through transmission equipment such as fiber port device.

#### Optical Fiber MODEM

##### Description

E1/FE1 fiber MODEM (framing / non-framing optional) main function is to use optical fiber transmission  $N \times 64K$  of E1 data signals, data terminal equipment to achieve the long-distance transmission. It can be used for the extension of the user population of ATM or DDN.



## Optical Components and the Others

### Ethernet Switch Series

The Ethernet switch series of products Hengtong can provide include: OS3824 all-optical ports Switch, ES2008 8 Ports Switch, ES2016 16 Ports Switch, and ES2024 24 Ports Switch.

#### ES2024 Ethernet Switch

##### Description

ES2024 Ethernet switch is a non-blocking, low-power Ethernet switches, integrated 24 10/100 Mbps switch ports (RJ-45 port). It comes with virtual local area network (VLAN) settings, port link clustering (TRUNK) function, port mirroring, port security features (MAC address filtering, static MAC address, port lock), the broadcasting storm control. Application: it is applicable to the enterprise workgroup users' accession and IP broadband access for telecom operators, providing 10 M/100Mbps Ethernet exchange rate and access for financial institutions, colleges, universities, government and any other enterprises working groups.



## Optical Components and the Others

### Generic Cabling System Products

#### HTZD Optical Cable Terminal Box

##### Description

Optical cable terminal box can be installed on the wall, and its function is to provide fiber and fiber with weld, fiber and pigtail with weld, and the exchange of connector. And it will provide mechanical protection and environment protection to optical fiber and the surroundings, and it allows proper inspection in order to maintain the highest standards of optical fiber management.



#### Series of Optical Cable Connecting Box

##### Description

The optical cable connecting boxes manufactured by Hengtong combines the completely new sealed system and the efficient optical fiber management functions together. It is applicable to cable systems sealed linear optical cable connecting boxes, and products are re-operable. At the same time, it is also applicable to the direct or bridge connection. The body is boxed with O-ring seals to ensure that the products being sealing. Cable and fixed pieces are installed in a metal tray. The connecting box can be compatible with the products.

#### Integrated Wiring Category

##### Description

The product meets the voice transmission standard, it is applicable to the connection between devices and communication socket connectors. It also meets or better than the existing ultra-five transmission. The product is applicable to the scene connection for equipment or subsystem level of termination.