

# 光纤光缆选型样本

Optical fiber cable catalogue





# INNOVATION MAKES EXCELLENT

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# 企业介绍

## company profile



安徽天康（集团）股份有限公司创建于1974年，总部位于“长三角”经济圈核心区域--天长市，历经四十多年的发展，集团现已是中国民营企业制造业500强企业、国家级高新技术企业、国家级守合同重信用企业、中国电子信息百强、中国质量诚信企业、银行资信AAA级企业、中国电子元件百强企业、中国电线电缆10强企业、安徽省重点骨干企业、“全国五一劳动奖状”获得者。

天康集团光电缆生产厂区面积近20万平方米，拥有光缆生产线、高压交联生产线、矿物绝缘电缆生产线、橡胶套电缆生产线、伴热电缆生产线、电子辐照加速器生产线、电力电缆生产线及特种电缆生产线200余台套。所生产的通信光缆、电力电缆、控制电缆、计算机电缆、新能源电动车用电缆、硅橡胶电缆、氟塑电缆、通信用数据电缆、核电站用电缆、船用电缆、机车电缆、光伏电缆、风能电缆、特种电缆等产品，凭借良好的质量和服务，产品被广泛应用于石油、电力、化工、运输、通讯、卫生、新能源汽车及储能等行业和领域。

作为皖东经济最具活力的骨干企业之一，天康集团以“追求卓越，缔造满意”为目标，依托一流的产品、一流的管理、一流的服务，不仅在国内市场中赢得了广泛赞誉；在国际市场中，天康产品远销欧洲、非洲、亚洲等46个国家和地区。

天康集团在发展中逐步形成了独特的品牌文化及着眼全球的经营布局，全力塑造“高科技、高品质、国际化”的品牌形象。始终秉承“有跨越才有卓越”的天康精神，在创建和谐企业的基础上，引进国际先进的构架与模式，组织企业的生产经营管理体系。在积极参与国际化竞争的基础上，不断把握市场发展脉搏，寻求经济战略联盟，与全球伙伴共同发展与进步。如今天康人将全新的投入化为无私的奉献，与世界共同发展，与人类一起进步。





Anhui Tiangkang (Group) Shares CO.,LTD was founded in 1974, the headquarters is located in the core area of the "Yangtze River Delta" economic circle-Tianchang, after more than 40 years development, the group has gained a lot of honor, such as the top 500 enterprises of Chinese private enterprise manufacturing industry, National high-tech enterprise, State-level contract heavy-Credit Enterprises , Top 100 Enterprises of Chinese Electronic Information, Chinese quality and integrity enterprises, Bank credit AAA Enterprises, Top 100 Enterprises of Chinese electronic components, Top 10 Enterprises of Chinese wire and cable, key enterprises in Anhui Province, and the National May 1 Labor Award. Tiangkang group optical cable production plant area is nearly 200 thousand square meters, has a high crosslinking production line, mineral insulated cable production line, rubber sheathed cable production line, heating cable production line, electron irradiation accelerator production line, power cable production line and special cable production line 200 sets. The products include power cable, control cable, computer cable, new energy electric cable, silicone rubber cable, fluorine plastic cable and the data cable for communication, nuclear power cable, marine cable, locomotive cable, photovoltaic cable, wind power cable, special cable and other products, with good quality and service, are widely used in petroleum, chemical, electric power, transportation, communications, health, new energy vehicles, energy storage and other industries and fields .

As one of the backbone enterprises of the East Anhui economy with the most vitality and contribution, " striving for excellence, create satisfaction" as the goal of group, relying on first-class products, first-class management and first-class service, it not only won extensive praise in the domestic market; in international market, the products are exported to Europe, Africa, Asia and other 46 countries and regions.

Tiengkang group has gradually formed the brand culture and global business layout unique during the development, to create "high-tech, high-quality, international" brand image. Always adhering to the "leap to excellence"spirit ,on the basis of creating a harmonious enterprise, introduce the international advanced framework and model, improve the enterprise's production and management system, the organization of enterprises. On the basis of actively participating in international competition, we constantly grasp the pulse of the market development, seek the economic strategic alliance, and joint development and progress with global partners.

**竭诚为客户提供一流的产品和至上的服务**  
Wholeheartedly Provide Customers With First-class Products and Service

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# 二氧化硅系匹配型普通单模光纤 (G652即B1类光纤)

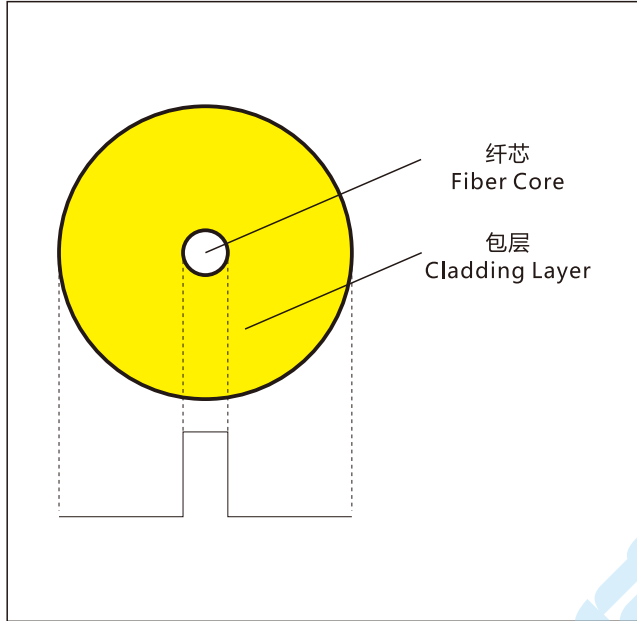
SiO<sub>2</sub> Matched-cladding Single Mode Optic Fiber (G.652/B1 Optic Fiber)

## 一、执行标准

GB/T9771.1-2008。

## Standard of execution

GB/T9771.1-2008



## 二、光纤几何尺寸

模场直径 (1310nm) : (8.6~9.5) ±0.6μm

包层直径 : 125±1.0μm

包层不圆度 : ≤1.0%

纤芯/包层同心度误差 : ≤0.6%

涂覆层直径 : 245±10μm (未着色)

包层/涂覆层同心度误差 : ≤12.5μm

光线翘曲度 : R≥4m

## Geological Sizes

Mode field Diameter (1310nm) : (8.6~9.5) ±0.5μm

Cladding Layer Diameter: 125±1.0μm

Cladding Layer Non-circularity: ≤1.0%

Core/Cladding Layer Concentricity Tolerance: ≤0.6μm

Coating Layer Diameter: 245±10μm (uncolored)

Cladding/Coating Layer Concentricity Tolerance: ≤12.5μm

Bending Radius: R≥4m

## 三、光纤光学及传输特性

1、群折射率 : 1.466 ;

2、衰减常数 : 1310nm——≤0.35dB/km ,

1550nm——≤0.21dB/km ,

1625nm——≤0.24dB/km ;

3、宏弯衰减 : Φ60mm , 100圈 , 1550nm≤0.10dB ;  
1625nm≤0.10dB ;

4、波长附加衰减

1285~1330nm 波长附件衰减系数 : ≤0.05dB/km ,

1525~1575nm 波长附件衰减系数 : ≤0.05dB/km ;

5、衰减不均匀性

在光纤后向散射曲线上, 任意500m长度上的实测衰减  
减值与全长上平均500m的衰减减值之差的最坏值不大于  
0.05dB ;

## Optic & Transmission Performance

1. Group Refraction Index: 1.466

2. Attenuation Constant: 1310nm——≤0.35dB/km

1550nm——≤0.21dB/km

1625nm——≤0.24dB/km

3. Macro bend Attenuation: Φ60mm , 100rings

1550nm≤0.10dB

1625nm≤0.10dB

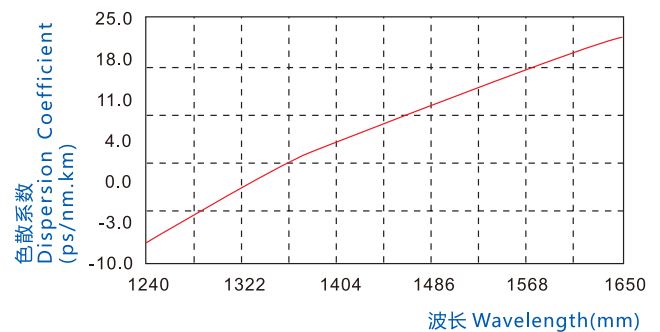
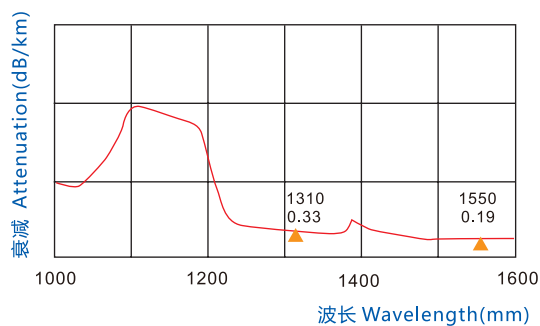
4. Wavelength Additional Attenuation

1285~1330nm Wavelength Additional Attenuation  
Constant 0.05dB/km.

1525~1575nm Wavelength Additional Attenuation  
Constant 0.05dB/km.

5. Attenuation Non-conformity

On fiber backward scattering curve, attenuation difference  
tolerance between any actual attenuation of 500m length and  
average 500m: no more than 0.05db.



### 6、截止波长

光缆截止波长： $\lambda_{cc} \leq 1260\text{nm}$ ，

光纤截止波长：对于最坏情形下光缆长度和弯曲的使用场合， $\lambda_c \leq 1250\text{nm}$ ；

### 7、色散

零色散波长范围 ( $\lambda_0$ )：1300~1324nm，

零色散斜率 ( $s_0$ )： $\leq 0.092\text{ps}/\text{nm}^2 \cdot \text{km}$ ，

色散系数绝对值：

1288~1339nm  $\leq 3.5\text{ps}/(\text{nm} \cdot \text{km})$ ，

1271~1360nm  $\leq 5.3\text{ps}/(\text{nm} \cdot \text{km})$ ；

### 8、1550nm波长范围

色散系数最大值： $\leq 18.0\text{ps}/\text{nm} \cdot \text{km}$ ，

从1200nm到1600nm波长范围内任何波长 ( $\lambda$ ) 处的色散都可用下式计算：

$$\text{色散} = D(\lambda) = \frac{S}{4} [\lambda - \lambda_0 - \lambda^3] \text{ps}/\text{nm} \cdot \text{km}$$

### 6.Cutoff Wavelength

Cutoff Wavelength of FOC:  $\lambda_{cc} \leq 1260\text{nm}$

Cutoff Wavelength of Optic Fiber:  $\lambda_c \leq 1250\text{nm}$

### 7.Dispersion

Zero Dispersion Wavelength Range: 1300~1324nm

Zero Dispersion Slope:  $\leq 0.092\text{ps}/\text{nm}^2 \cdot \text{km}$

Dispersion Coefficient Absolute Value:

1288~1339nm  $\leq 3.5\text{ps}/(\text{nm} \cdot \text{km})$ ，

1271~1360nm  $\leq 5.3\text{ps}/(\text{nm} \cdot \text{km})$

### 8.1550nm Wavelength Range

Dispersion Coefficient Absolute Value:  $\leq 18.0\text{ps}/\text{nm} \cdot \text{km}$

1200nm~1600nm Dispersion Calculation Formula:

$$\text{Dispersion} = D(\lambda) = \frac{S}{4} [\lambda - \lambda_0 - \lambda^3] \text{ps}/\text{nm} \cdot \text{km}$$

## 三、机械特性

筛选试验：1% (0.7GPa, 8.6N, 100KPSI)

动态疲劳系数： $nd \geq 20$

涂层剥离力峰值：1.0~8.9N

涂层外观：双涂层内无空隙和夹杂的气泡

### Mechanical Performance

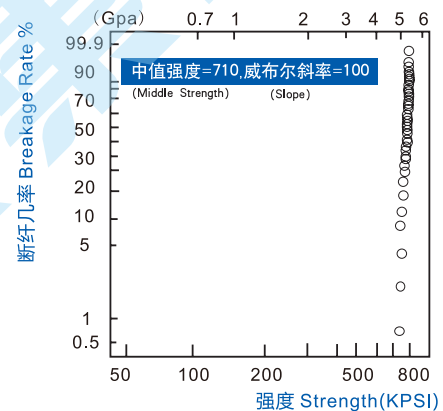
Selection Test: 1% (0.7GPa, 8.6N, 100KPSI).

Dynamic Fatigue Coefficient:  $nd \geq 20$ .

Coating Splitting Force Peak Value: 1.0~8.9N.

Coating Appearance: No gap and air bubble should be found.

within double coating layers.



## 四、环境特性

### 1、温度特性试验

温度范围为： $-60^\circ\text{C} \sim +85^\circ\text{C}$ ，两个循环周期，

1550nm波长下的附加衰减  $\leq 0.05\text{dB}/\text{km}$ ；

### 2、浸水试验

光纤试样在  $23^\circ\text{C} \pm 2^\circ\text{C}$  温度下浸泡在水中30天后，在1550nm波长允许附加衰减  $\leq 0.05\text{dB}/\text{km}$ ；

### 3、恒定湿热试验

光纤在  $85^\circ\text{C} \pm 2^\circ\text{C}$  和相对湿度  $\geq 85\%$  条件下放置30天后，在1550nm波长允许附加衰减  $\leq 0.05\text{dB}/\text{km}$ 。

## Environment & Performance

### 1. Temperature characteristic test

Temperature range:  $-60^\circ\text{C} \sim +85^\circ\text{C}$ , two cycle time.

Additional attenuation coefficient under 1550nm wavelength:  $\leq 0.05\text{dB}/\text{km}$ .

### 2. Submerging test

Fiber sample immersing in the water after 30 days under  $23^\circ\text{C} \pm 2^\circ\text{C}$ , allowed additional attenuation coefficient under 1550nm wavelength:  $\leq 0.05\text{dB}/\text{km}$ .

### 3. Steady damp heat test

Fiber places in condition that temperature is  $85^\circ\text{C} \pm 2^\circ\text{C}$  and relative humidity  $\geq 85\%$  for 30 days, allowed additional attenuation coefficient under 1550nm wavelength:  $\leq 0.05\text{dB}/\text{km}$ .

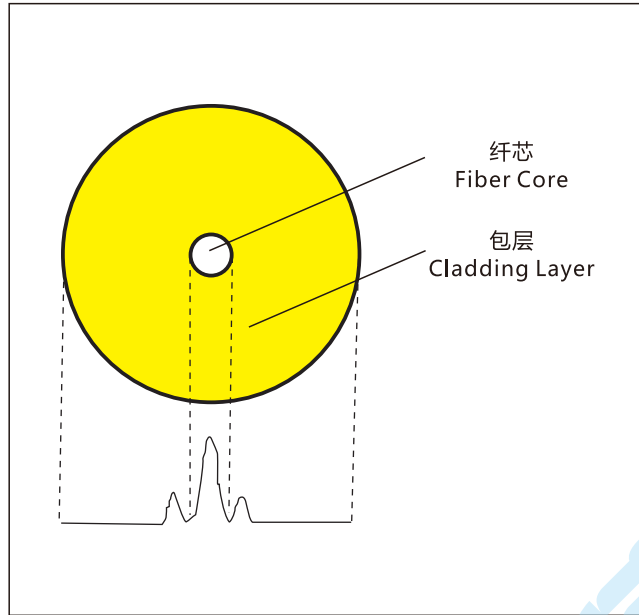


# 二氧化硅系非零色散单模光纤 ( G655即B4类光纤 )

SiO<sub>2</sub> Non-zero Dispersion Single Mode Optic Fiber (G.655/B4 Fiber)

## 一、执行标准

GB/T9771.5-2008。



## Standard of execution

GB/T9771.5-2008

## 一、光纤几何尺寸

模场直径 ( 1550nm ) : ( 8.0~11.0 ) ±0.6μm

包层直径 : 125±1.0μm

包层不圆度 : ≤1.0%

纤芯/包层同心度误差 : ≤0.6%

涂覆层直径 : 245±10μm ( 未着色 )

包层/涂覆层同心度误差 : ≤12.5μm

光线翘曲度 : R≥4m

## Geological Sizes

Mode field Diameter ( 1550nm ) : ( 8.0~11.0 ) ±0.5μm

Cladding Layer Diameter: 125±1.0μm

Cladding Layer Non-circularity: ≤1.0%

Core/Cladding Layer Concentricity Tolerance: ≤0.6μm

Coating Layer Diameter: 245±10μm ( uncolored )

Cladding/Coating Layer Concentricity Tolerance: ≤12.5μm

Bending Radius: R≥4m

## 二、光纤光学及传输特性

### 1、衰减常数

类别	型号	1550nm	1625nm
A类		≤0.22dB/km	≤0.27dB/km
B类		≤0.25dB/km	≤0.30dB/km

### 2、宏弯衰减 : Φ60mm , 100圈 ,

A/B/C类 1625nm ≤0.2dB ,

D/E类 1625nm ≤0.1dB ;

### 3、截止波长

跳线缆截止波长 ( λ<sub>cj</sub> ) : ≤1450nm ,

光缆截止波长 ( λ<sub>cc</sub> ) : ≤1450nm ;

### 4、色散

C波段色散区

非零色散区 ( nm ) 1530 ≤ λ<sub>min</sub> ≤ λ<sub>max</sub> ≤ 1565 ,

非零色散区色散系数绝对值 :

A类 , 0.1~6.0PS/ ( nm·km ) ,

B类 , 1.0~10.0PS/ ( nm·km ) .

偏振模色散系数 ( PMD ) :

A/B类 ≤0.5ps√km ,

C/D/E类 ≤0.2ps√km .

## Optic & Transmission Performance

### 1.Attenuation Coefficient

Category	Type	1550nm	1625nm
Type A		≤0.22dB/km	≤0.27dB/km
Type B		≤0.25dB/km	≤0.30dB/km

### 2.Nominal Attenuation: Φ 60mm, 100 rings,

Type A/B/C 1625nm ≤0.2dB,

Type D/E 1625nm ≤0.1dB.

### 3.Cutoff Wavelength

Jumper wire cutoff wavelength ( λ<sub>cj</sub> ) ≤1450nm,

Optic fiber cable cutoff wavelength ( λ<sub>cj</sub> ) ≤1450nm.

### 4.Dispersion

Dispersion zone at waveband C.

Non-zero dispersion zone ( nm ) 1530 ≤ λ<sub>min</sub> ≤ λ<sub>max</sub> ≤ 1565,

Dispersion absolute value of non-zero dispersion:

Type A, 0.1~6.0PS/ ( nm·km ) ,

Type B, 1.0~10.0PS/ ( nm·km ) .

Polarization mode dispersion coefficient ( PMD ):

Type A/B ≤0.5ps√km ,

Type C/D/E ≤0.2ps√km .

# 二氧化硅系50/125 $\mu\text{m}$ 多模光纤 (G651即A1a类光纤)

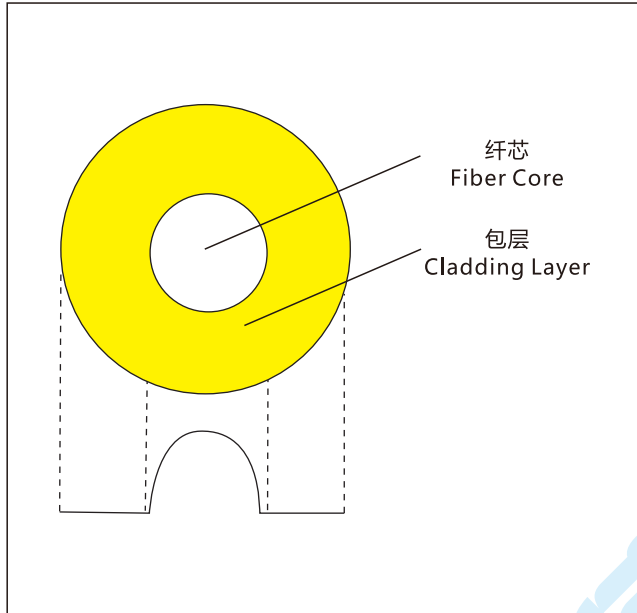
SiO<sub>2</sub> 50/125  $\mu\text{m}$  Multi-mode Optic Fiber (G.651/A1a Optic Fiber)

## 一、执行标准

GB/T12357.1-2004。

## Standard of execution

GB/T12357.1-2004



## 二、光纤几何尺寸

纤芯直径：50 $\pm$ 2.5 $\mu\text{m}$

包层直径：125 $\pm$ 2.0 $\mu\text{m}$

包层不圆度： $\leq$ 2.0%

纤芯/包层同心度误差： $\leq$ 1.5 $\mu\text{m}$

涂覆层直径：245 $\pm$ 10 $\mu\text{m}$

包层/涂覆层同心度误差： $\leq$ 12.5 $\mu\text{m}$

## Geological Sizes

Fiber Core Diameter: 50 $\pm$ 2.5 $\mu\text{m}$

Cladding Layer Diameter: 125 $\pm$ 2.0 $\mu\text{m}$

Cladding Layer Non-circularity: $\leq$ 2.0%

Core/Cladding Layer Concentricity Tolerance:  $\leq$ 1.5 $\mu\text{m}$

Coating Layer Diameter: 245 $\pm$ 10 $\mu\text{m}$

Cladding/Coating Layer Concentricity Tolerance: $\leq$ 12.5 $\mu\text{m}$

## 三、光纤光学及传输特性

### 1、衰减常数

850nm, 2.4~3.5dB/km;

1300nm, 0.55~1.5dB/km。

2、数值孔径：0.20 $\pm$ 0.02或0.23 $\pm$ 0.02。

### 3、模式带宽

850nm, 200~800MHz·km;

1300nm, 200~1200MHz·km;

零色散波长, 1295nm $\leq\lambda_0\leq$ 1365nm。

### 4、宏弯衰减

$\Phi$ 75mm, 100圈, 850nm $\leq$ 0.5dB,

1300nm $\leq$ 0.5dB;

## Optic & Transmission Performance

### 1.Attenuation Constant

850nm, 2.4~3.5dB/km

1300nm, 0.55~1.5dB/km

2.Nominal Aperture: 0.20 $\pm$ 0.02 or 0.23 $\pm$ 0.02.

### 3.Bandwidth

850nm, 200~800MHz·km

1300nm, 200~1200MHz·km

Zero Dispersion Wavelength: 1295nm $\leq\lambda_0\leq$ 1365nm。

### 4.Macro bend Attenuation

$\Phi$ 75mm, 100 rings, 850nm $\leq$ 0.5dB,

1300nm $\leq$ 0.5dB.

## 四、机械特性 Mechanical Performance

筛选试验：1% (0.69GPa, 8.8N, 100KPSI),

动态疲劳系数：nd $\geq$ 20,

涂层剥离力：1.0~8.9N。

Selection Test: 1%(0.69GPa,8.8N,100KPSI)

Dynamic Fatigue Coefficient: nd $\geq$ 20

Coating Splitting Force: 1.0~8.9N

## 五、环境特性 Environment & Performance

在850nm、1300nm波长下-60 $^{\circ}\text{C}$ ~85 $^{\circ}\text{C}$ 涂覆光纤相

对于室温允许的附加衰减 < 0.2dB/km。

The additional attenuation at wavelength of 1310nm, 1550nm under temperature of -60 $^{\circ}\text{C}$ ~85 $^{\circ}\text{C}$  should be less than 0.2dB/km.

# 二氧化硅系62.5/125 $\mu$ m多模光纤 ( G651即A1b类光纤 )

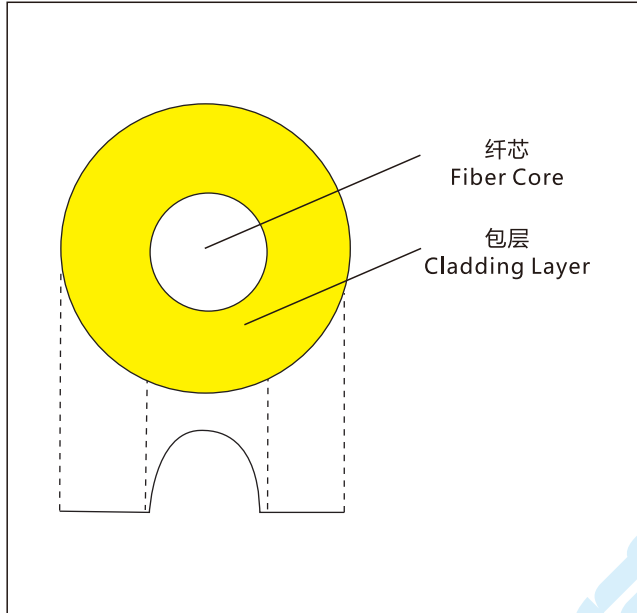
SiO<sub>2</sub> 62.5/125  $\mu$  m Multi-mode Optic Fiber (G.651/A1b Optic Fiber)

## 一、执行标准

GB/T12357.1-2004。

## Standard of execution

GB/T12357.0-2004



## 二、光纤几何尺寸

纤芯直径：62.5 $\pm$ 2.5 $\mu$ m

包层直径：125 $\pm$ 2.0 $\mu$ m

包层不圆度： $\leq$ 2.0%

纤芯/包层同心度误差： $\leq$ 1.5 $\mu$ m

涂覆层直径：245 $\pm$ 10 $\mu$ m

包层/涂覆层同心度误差： $\leq$ 12.5 $\mu$ m

## Geological Sizes

Fiber Core Diameter: 62.5 $\pm$ 2.5 $\mu$ m

Cladding Layer Diameter: 125 $\pm$ 2.0 $\mu$ m

Cladding Layer Non-circularity: $\leq$ 2.0%

Core/Cladding Layer Concentricity Tolerance:  $\leq$ 1.5 $\mu$ m

Coating Layer Diameter: 245 $\pm$ 10 $\mu$ m

Cladding/Coating Layer Concentricity Tolerance: $\leq$ 12.5 $\mu$ m

## 三、光纤光学及传输特性

### 1、衰减常数

850nm , 2.8~3.5dB/km ;

1300nm , 0.6~1.5dB/km。

### 2、数值孔径：0.275 $\pm$ 0.015。

### 3、模式带宽

850nm , 160~800MHz·km ;

1300nm , 200~1000MHz·km ;

零色散波长, 1295nm $\leq\lambda_0\leq$ 1365nm。

### 4、宏弯衰减

$\Phi$ 75mm , 100圈 , 850nm $\leq$ 0.5dB ,

1300nm $\leq$ 0.5dB ;

## Optic & Transmission Performance

### 1.Attenuation Constant

850nm , 2.4~3.5dB/km

1300nm , 0.55~1.5dB/km

### 2.Nominal Aperture: 0.275 $\pm$ 0.015.

### 3.Bandwidth

850nm , 160~800MHz·km

1300nm , 200~1000MHz·km

Zero Dispersion Wavelength: 1295nm $\leq\lambda_0\leq$ 1365nm。

### 4.Macro bend Attenuation

$\Phi$ 75mm , 100 rings , 850nm $\leq$ 0.5dB ,

1300nm $\leq$ 0.5dB.

## 四、机械特性 Mechanical Performance

筛选试验：1% ( 0.69GPa , 8.8N , 100KPSI ) ,

动态疲劳系数：nd $\geq$ 20 ,

涂层剥离力：1.0~8.9N。

Selection Test: 1%(0.69GPa,8.6N,100KPSI)

Dynamic Fatigue Coefficient: nd $\geq$ 20

Coating Splitting Force:1.0~8.9N

## 五、环境特性 Environment & Performance

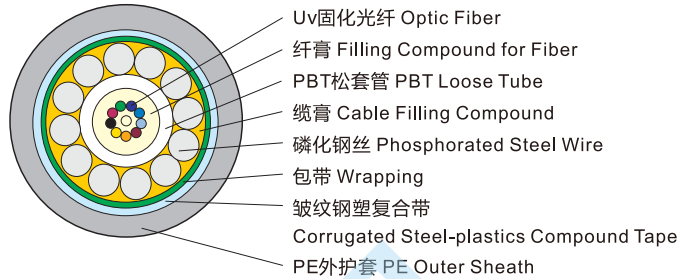
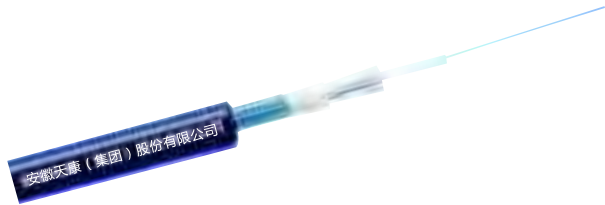
在850nm、1300nm波长下-60 $^{\circ}$ C~85 $^{\circ}$ C涂覆光纤相

对于室温允许的附加衰减 < 0.2dB/km。

The additional attenuation at wavelength of 1310nm, 1550nm under temperature of -60 $^{\circ}$ C~85 $^{\circ}$ C should be less than 0.2dB/km.

# 2~12芯中心束管式光缆（钢丝铠装）

2~12 Cores Central Tube Fiber Optic Fiber (Steel Wire Armored)



## 一、执行标准

YD/T769-2010.

## Standard of execution

YD/T769-2010

## 二、产品描述

### 1、产品型号：GYXTS

- 金属加强构件
- 中心管填充式
- 缆芯填充油膏
- 钢-聚乙烯粘接护层
- 通信用室外光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

管道、架空和直埋。

### 4、使用温度

-40°C~+60°C。

## Product description

### 1. Type:GYXTS

- Metallic strength member
- Filling type central tube
- Cable core filling compound
- Steel-PE filling compound layer
- Outdoor optic fiber cable for communication

### 2. Application Range

For long distance & local communications

### 3. Mounting Ways

In pipe, aerial or direct burial

### 4. Application Temperature

-40°C~+60°C

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、重量轻，敷设方便；
- 3、光缆柔韧性和抗弯曲能力优良；
- 4、钢丝铠装抗压力性能优良；
- 5、钢带纵包设计使光缆防潮效果更为优良。

## Features

1. With low transmission loss and dispersion.
2. With light weight and easy for laying.
3. Fiber cable flexibility and good bending resistance.
4. Steel wire armor ensures better crush-resistant performance.
5. Steel tape corrugated ensure better moisture-proof performance.

## 四、技术参数

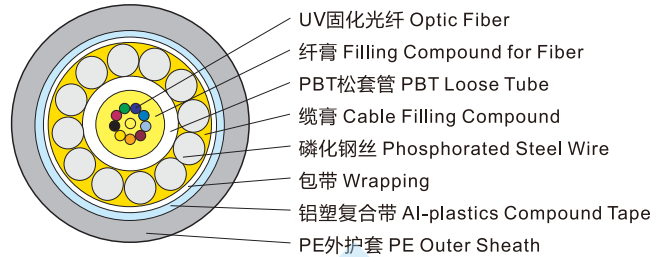
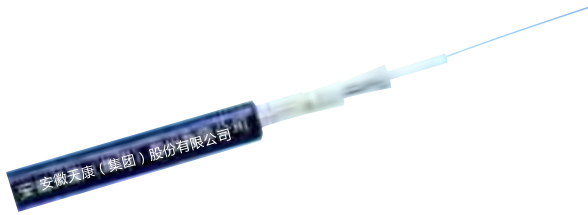
## Technical Parameters

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min.Bending Radius		允许拉伸力最小值 (N) Min.Tension Allowed		允许压扁力最小值 (N/100mm) Min.Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~12	2~12	110	220	1500	600	1000	300



# 2~12芯中心束管式光缆（钢丝铠装）

2~12 Cores Central Tube Fiber Optic Fiber (Steel Wire Armored)



## 一、执行标准

YD/T769-2010.

## Standard of execution

YD/T769-2010

## 二、产品描述

### 1、产品型号：GYXTA

- 金属加强构件
- 中心管填充式
- 铝-聚乙烯粘结护层
- 通信用室外光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

管道、架空。

### 4、使用温度

-40°C~+60°C。

## Product description

### 1. Type: GYXTA

- Metallic strength member
- Filling type central tube
- AL-PE compound layer
- Outdoor optic fiber cable for communication

### 2. Application Range

For long distance & local communications

### 3. Mounting Ways

In pipe, aerial or mounting

### 4. Application Temperature

-40°C~+60°C

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、重量轻，敷设方便；
- 4、光缆柔韧性和抗弯曲能力优良；
- 5、钢丝铠装抗压性能优良；

## Features

1. With low transmission loss and dispersion.
2. The reasonable design and precision control on fiber length in loose tube ensures better mechanical performance and adaptability to environment of FOC.
3. With light weight and easy for laying.
4. Fiber cable flexibility and good bending resistance.
5. Steel wire armor ensures better crush-resistant performance.

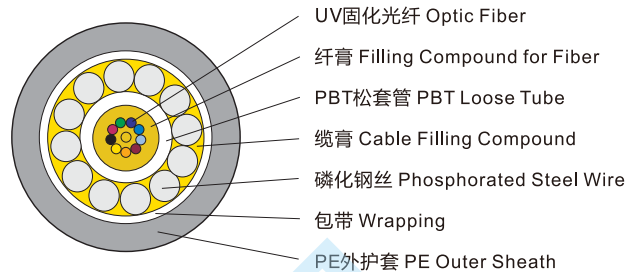
## 四、技术参数

## Technical Parameters

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min. Bending Radius		允许拉伸力最小值 (N) Min. Tension Allowed		允许压扁力最小值 (N/100mm) Min. Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~12	9.8	110	220	1500	600	1000	300

# 2~12芯中心束管式光缆（钢丝铠装）

2~12 Cores Central Tube Fiber Optic Fiber (Steel Wire Armored)



## 一、执行标准

YD/T769-2010。

## Standard of execution

YD/T769-2010

## 二、产品描述

### 1、产品型号：GYXTY

- 金属加强构件
- 中心管填充式
- 聚乙烯护层
- 通信用室外光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

管道、架空。

### 4、使用温度

-40°C~+60°C。

## Product description

### 1. Type: GYXTY

- Metallic strength member
- Filling type central tube
- PE layer
- Outdoor optic fiber cable for communication

### 2. Application Range

For local communications

### 3. Mounting Ways

In pipe, aerial or mounting

### 4. Application Temperature

-40°C~+60°C

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、重量轻，敷设方便；
- 4、光缆柔韧性和抗弯曲能力优良；
- 5、钢丝铠装抗拉性能优良；

## Features

1. With low transmission loss and dispersion.
2. The reasonable design and precision control on fiber length in loose tube ensures better mechanical performance and adaptability to environment of FOC.
3. With light weight and easy for laying.
4. Fiber cable flexibility and good bending resistance.
5. Steel wire armor ensures better crush-resistant performance.

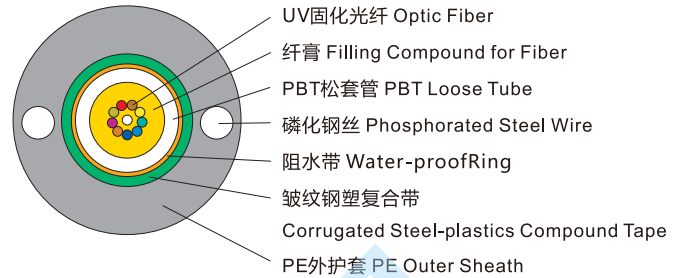
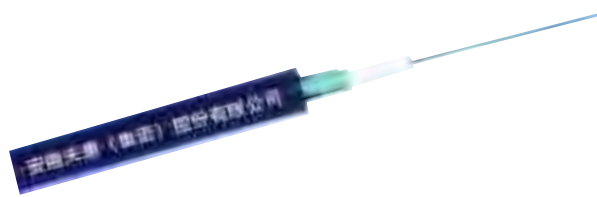
## 四、技术参数

## Technical Parameters

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min.Bending Radius		允许拉伸力最小值 (N) Min.Tension Allowed		允许压扁力最小值 (N/100mm) Min.Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~12	9.0	90	180	1500	600	1000	300

# 2~12芯中心束管式光缆（钢带铠装）

2~12 Cores Central Tube Fiber Optic Fiber (Steel Tape Armored)



## 一、执行标准

YD/T769-2010.

## Standard of execution

YD/T769-2010

## 二、产品描述

### 1、产品型号：GYXTW

- 金属加强构件
- 中心管填充式
- 夹带平行钢丝
- 钢-聚乙烯粘结护层
- 通信用室外光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

管道、架空。

### 4、使用温度

-40°C~+60°C。

## Product description

### 1. Type:GYXTW

- Metallic strength member
- Filling type central tube
- Entrainment parallel steel wire
- Steel-PE filling compound layer
- Outdoor optic fiber cable for communication

### 2. Application Range

For long-distance communication

### 3. Mounting Ways

In pipe, aerial.

### 4. Application Temperature

-40°C~+60°C

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、重量轻，敷设方便；
- 4、光缆柔韧性和抗弯曲能力优良；
- 5、钢带铠装抗压性能优良。

## Features

1. With low transmission loss and dispersion.
2. The reasonable design and precision control on fiber length in loose tube ensures better mechanical performance and adaptability to environment of FOC.
3. With light weight and easy for laying.
4. Fiber cable flexibility and good bending resistance.
5. Steel tape armor ensures better crush-resistant performance.

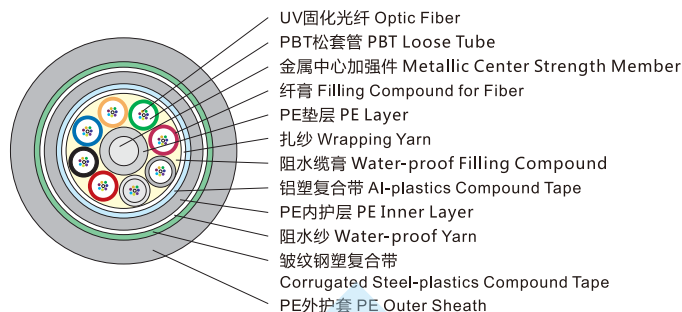
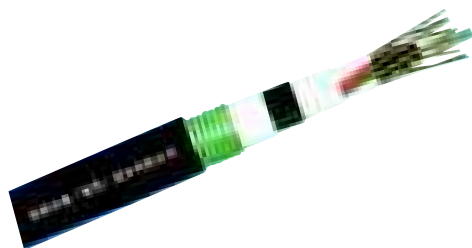
## 四、技术参数

## Technical Parameters

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min.Bending Radius		允许拉伸力最小值 (N) Min.Tension Allowed		允许压扁力最小值 (N/100mm) Min.Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~12	8.6	90	180	1500	600	1000	300

# 2~144芯直埋松套层绞式光缆

2~144 Cores Loose Tubes Stranded FOC for Direct Burial



## 一、执行标准

YD/T901-2009.

## 二、产品描述

### 1、产品型号：GYTA53

- 金属加强构件
- 松套层绞（半）干式
- 铝塑复合带粘结PE内护套
- 皱纹钢塑复合带粘结PE外护套
- 通信用室外光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

管道、电缆沟、槽道、进局。

### 4、使用温度

-40°C~+60°C。

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
- 4、加强件外和缆芯内充满阻水缆膏，确保了光缆防潮、阻水效果；
- 5、光缆柔韧性和抗弯曲能力优良；
- 6、双层金属带纵包，双层护套抗拉、抗侧压能力强，具有防啮齿类动物破坏的能力。

## 四、技术参数

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min.Bending Radius		允许拉伸力最小值 (N) Min.Tension Allowed		允许压扁力最小值 (N/100mm) Min.Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~30	13.1	170	340	3000	1000	3000	1000
32~60	14.5	170	340	3000	1000	3000	1000
62~72	15.0	180	360	3000	1000	3000	1000
74~96	16.6	210	420	3000	1000	3000	1000
98~144	19.5	230	460	3000	1000	3000	1000

## Standard of execution

YD/T901-2009

## Product description

### 1. Type:GYTA53

- Metallic strength member
- (Half) Dry type loose tube stranding
- Al-plastic compound with PE inner sheath
- Corrugated steel-plastic compound PE outer sheath
- Outdoor optic fiber cable for communication

### 2. Application Range

For long distance & local communications

### 3. Mounting Ways

Pipe, cable furrow, channel conduct, entrance.

### 4. Application Temperature

-40°C~+60°C

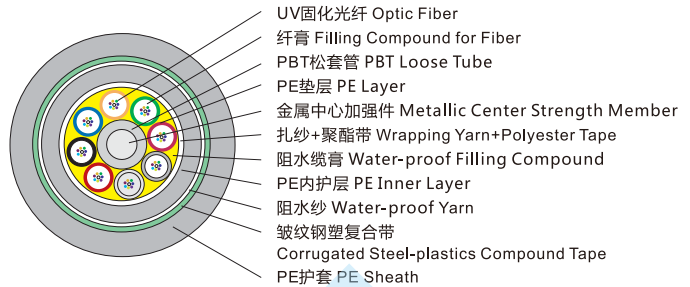
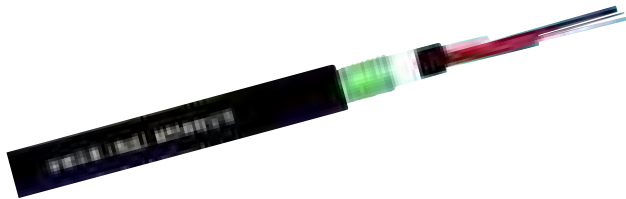
## Features

1. With low transmission loss and dispersion.
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC, with filling compound filled outside strength member and inside cable core.
5. Fiber cable flexibility and good bending resistance.
6. It could ensure high tensile strength, better performance of resisting side press and animal biting with double corrugated metallic layers wrapping & double sheaths.

## Technical Parameters

# 2~144芯松套层绞式光缆（钢带铠装）

2~144 Cores Loose Tubes Stranded FOC(Steel Tape Armored)



## 一、执行标准

YD/T901-2009.

## 二、产品描述

### 1、产品型号：GYTY53

- 金属加强构件
- 松套层绞（半）干式
- PE内护层
- 皱纹钢塑复合带粘结PE外护套
- 通信用室外光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

管道、架空、直埋、进局、槽道、电缆沟。

### 4、使用温度

-40°C~+60°C。

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
- 4、加强件外和缆芯内充满阻水纤膏，确保了光缆防潮、阻水效果；
- 5、光缆柔韧性和抗弯曲能力优良；
- 6、双护套结构抗侧压能力强。

## 四、技术参数

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min.Bending Radius		允许拉伸力最小值 (N) Min.Tension Allowed		允许压扁力最小值 (N/100mm) Min.Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~30	12.2	150	300	3000	1000	3000	1000
32~60	13.2	170	340	3000	1000	3000	1000
62~72	13.8	180	360	3000	1000	3000	1000
74~96	15.2	210	420	3000	1000	3000	1000
98~144	18.4	230	460	3000	1000	3000	1000

## Standard of execution

YD/T901-2009

## Product description

### 1. Type:GYTY53

- Metallic strength member
- (Half) Dry type loose tube stranding
- PE inner layer
- Corrugated steel-plastic compound PE outer sheath
- Outdoor optical fiber cable for communication

### 2. Application Range

For long distance & local communications

### 3. Mounting Ways

In pipe, for aerial mounting or direct burial, in cable furrow, etc.

### 4. Application Temperature

-40°C~+60°C

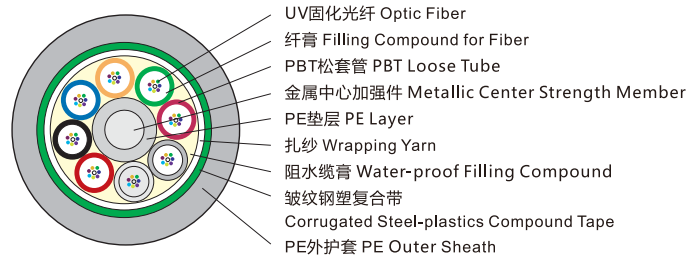
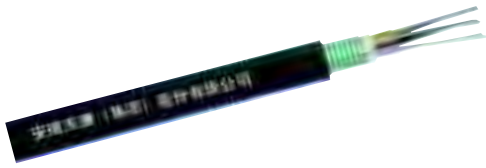
## Features

1. With low transmission loss and dispersion.
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC. with filling compound filled outside strength member and inside cable core.
5. Fiber cable flexibility and good bending resistance
6. Double sheath structure has strong anti lateral pressure.

## Technical Parameters

# 2~144芯松套层绞式光缆（钢带铠装）

2~144 Cores Loose Tubes Stranded FOC (Steel Tape Armored)



## 一、执行标准

YD/T901-2009。

## Standard of execution

YD/T901-2009

## 二、产品描述

### 1、产品型号：GYTS

- 金属加强构件
- 松套管层绞填充式
- 钢-聚乙烯粘结护套
- 通信用室外光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

管道、架空、槽道、电缆沟、直埋。

### 4、使用温度

-40°C~+60°C。

## Product description

### 1. Type:GYTS

- Metallic strength member
- Loose tube stranded filled with jelly
- Steel-PE filling compound layer
- Outdoor optic fiber cable for communication

### 2. Application Range

For long distance & local communications

### 3. Mounting Ways

In pipe, for aerial mounting or direct burial, in cable furrow, etc.

### 4. Application Temperature

-40°C~+60°C

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
- 4、加强件外和缆芯内充满阻水缆膏，确保了光缆防潮、阻水效果；
- 5、光缆柔韧性和抗弯曲能力优良。

## Features

1. With low transmission loss and dispersion
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC with filling compound filled outside strength member and inside cable core.
5. Fiber cable flexibility and good bending resistance.

## 四、技术参数

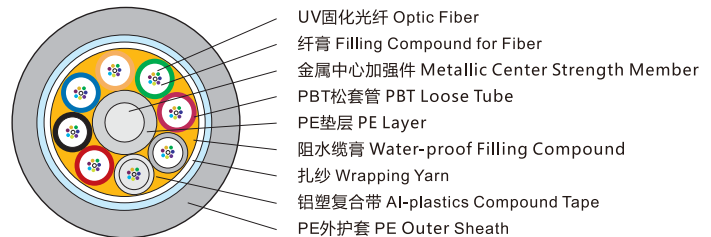
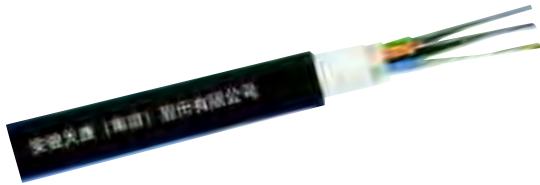
## Technical Parameters

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min. Bending Radius		允许拉伸力最小值 (N) Min. Tension Allowed		允许压扁力最小值 (N/100mm) Min. Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~30	10.0	120	240	1500	600	1000	300
32~60	11.3	130	260	1500	600	1000	300
62~72	12.0	140	280	1500	600	1000	300
74~96	13.3	170	340	1500	600	1000	300
98~144	16.6	190	380	1500	600	1000	300



# 2~144芯松套层绞式光缆（铝带纵包）

2~144 Cores Loose Tubes Stranded FOC (With Corrugated Al Tape)



## 一、执行标准

YD/T901-2009.

## Standard of execution

YD/T901-2009

## 二、产品描述

### 1. 产品型号：GYTA

- 金属加强构件
- 松套层绞填充式
- 铝-聚乙烯粘结护套
- 通信用室外光缆

### 2. 应用范围

适用于长途通信和局间通信。

### 3. 敷设方式

管道、架空、进局、槽道、电缆沟。

### 4. 使用温度

-40°C ~ +60°C.

## Product description

### 1. Type: GYTA

- Metallic strength member
- Loose tube stranded filled with jelly
- AL-PE compound layer
- Outdoor optic fiber cable for communication

### 2. Application Range

For long distance & local communications

### 3. Mounting Ways

For direct burial.

### 4. Application Temperature

-40°C ~ +60°C

## 三、产品特点

1. 光纤传输损耗小、色散低；
2. 光缆具有优良的机械性能和环境性能；
3. 光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
4. 加强件外和缆芯内充满阻水缆膏，确保了光缆防潮、阻水效果；
5. 光缆柔韧性和抗弯曲能力优良；
6. 涂塑铝带纵包缆芯使光缆防潮效果更为优良。

## Features

1. With low transmission loss and dispersion
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC with filling compound filled outside strength member and inside cable core.
5. Fiber cable flexibility and good bending resistance.
6. It could ensure much better moisture-proof performance of FOC with corrugated plastics-coated Al tape wrapping .

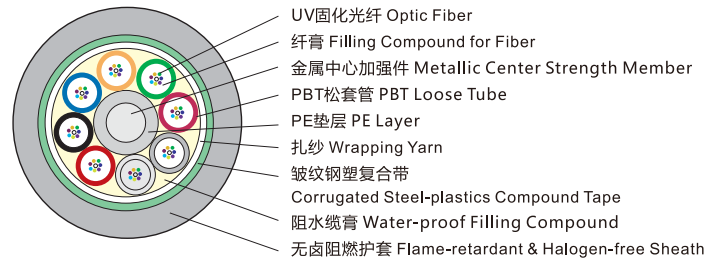
## 四、技术参数

## Technical Parameters

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min.Bending Radius		允许拉伸力最小值 (N) Min.Tension Allowed		允许压扁力最小值 (N/100mm) Min.Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~30	9.8	120	240	1500	600	1000	300
32~60	11.2	130	260	1500	600	1000	300
62~72	11.6	140	280	1500	600	1000	300
74~96	12.9	170	340	1500	600	1000	300
98~144	16.1	190	380	1500	600	1000	300

# 2~144芯阻燃松套管层绞式光缆（钢带铠装）

2~144 Cores Flame-retardant Loose Tubes Stranded FOC (Steel Tape Armored)



## 一、执行标准

YD/T901-2009.

## Standard of execution

YD/T901-2009

## 二、产品描述

### 1、产品型号：GYTZS

- 金属加强构件
- 松套管层绞填充式
- 钢-聚乙烯粘结护套
- 低烟无卤聚烯烃
- 通信用室外光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

进局、隧道、架空。

### 4、使用温度

-40°C~+60°C。

## Product description

### 1. Type: GYTZS

- Metallic strength member
- Loose tube stranded filled with jelly
- Steel-PE compound layer
- LSOH polyolefin
- Outdoor optical fiber cable for communication

### 2. Application Range

For long distance & local communications

### 3. Mounting Ways

In tunnel, for aerial mounting, etc.

### 4. Application Temperature

-40°C~+60°C

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
- 4、加强件外和缆芯内充满阻水缆膏，确保了光缆防潮、阻水效果；
- 5、光缆柔韧性和抗弯曲能力优良；
- 6、钢带纵包缆芯使光缆防潮效果更为优良。

## Features

1. With low transmission loss and dispersion
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC with filling compound filled outside strength member and inside cable core.
5. Fiber cable flexibility and good bending resistance.
6. It could ensure much better moisture-proof performance of FOC with corrugated steel tape wrapping.

## 四、技术参数

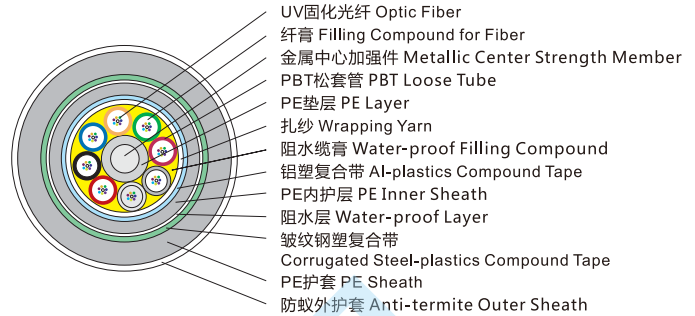
## Technical Parameters

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min.Bending Radius		允许拉伸力最小值 (N) Min.Tension Allowed		允许压扁力最小值 (N/100mm) Min.Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~30	10.0	120	240	1500	600	1000	300
32~60	11.3	130	260	1500	600	1000	300
62~72	12.0	140	280	1500	600	1000	300
74~96	13.3	170	340	1500	600	1000	300
98~144	16.6	190	380	1500	600	1000	300



# 2~144芯防蚁直埋松套管层绞式光缆

2~144 Cores Anti-termite Loose Tubes Stranded FOC for Direct Burial



## 一、执行标准

YD/T901-2009。

## 二、产品描述

### 1、产品型号：GYTA54

- 金属加强构件
- 松套管绞填充式
- 铝-聚乙烯粘结护套
- 钢-聚乙烯粘结护套
- 防蚁外护套
- 通信用室外光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

直埋。

### 4、使用温度

-40°C~+60°C。

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
- 4、加强件外和缆芯内充满阻水纤膏，确保了光缆防潮、阻水效果；
- 5、光缆柔韧性和抗弯曲能力优良；
- 6、双层金属带纵包，三层护套抗拉、抗侧压能力强。
- 7、最外层护套采用尼龙，防白蚁破坏能力优良。

## 四、技术参数

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min.Bending Radius		允许拉伸力最小值 (N) Min.Tension Allowed		允许压扁力最小值 (N/100mm) Min.Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~36	14.5	170	340	3000	1000	3000	1000
38~72	16.0	190	380	3000	1000	3000	1000
74~144	22.0	240	480	3000	1000	3000	1000

## Standard of execution

YD/T901-2009

## Product description

### 1. Type: GYTA54

- Metallic strength member
- Loose tube stranded filled with jelly
- Al-PE compound layer
- Steel-PE compound layer
- Anti-termite outer sheath
- Outdoor optic fiber cable for communication

### 2. Application RANGE

For long distance & local communications

### 3. Mounting Ways

In pipe, for aerial mounting or in cable furrow, etc.

### 4. Application Temperature

-40°C~+60°C

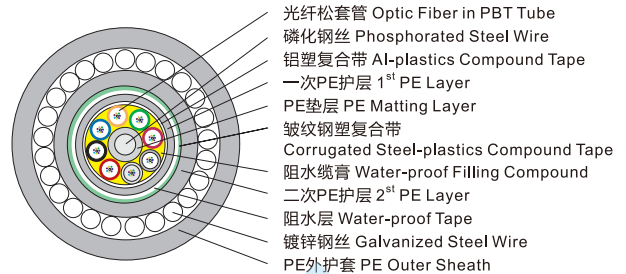
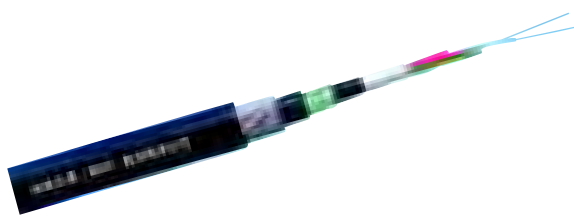
## Features

1. With low transmission loss and dispersion
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC with filling compound filled outside strength member and inside cable core.
5. Fiber cable flexibility and good bending resistance.
6. It could ensure high tensile strength, better performance of resisting side press and animal biting with double corrugated metallic layers wrapping & double sheaths.

## Technical Parameters

# 2~144芯松套管层绞式水线光缆

2~144 Cores Loose Tubes Stranded FOC underwater



## 一、执行标准

YD/T901-2009。

## 二、产品描述

### 1、产品型号：GYTA53+33

- 金属加强构件
- 松套管绞填充式
- 铝-聚乙烯粘结护套
- 钢-聚乙烯粘结护套
- 镀锌钢丝铠装
- 聚乙烯外护套
- 通信用室外光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

水下。

### 4、使用温度

-40°C~+60°C。

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
- 4、加强件外和缆芯内充满阻水缆膏，确保了光缆防潮、阻水效果；
- 5、铝带纵包缆芯使光缆防潮效果更优良；
- 6、钢丝铠装具有抗拉和抗压能力。

## 四、技术参数

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min. Bending Radius		允许拉伸力最小值 (N) Min. Tension Allowed		允许压扁力最小值 (N/100mm) Min. Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~30	17.0	500	750	20000	10000	5000	3000
32~60	18.4	530	790	20000	10000	5000	3000
62~72	18.9	540	810	20000	10000	5000	3000
74~96	20.5	600	880	20000	10000	5000	3000
98~144	23.4	640	960	20000	10000	5000	3000

## Standard of execution

YD/T901-2009

## Product description

### 1. Type: GYTA53+33

- Metallic strength member
- Loose tube stranded filled with jelly
- Al-PE compound layer
- Steel-PE compound layer
- Galvanized steel wire armor
- PE outer sheath
- Outdoor optic fiber cable for communication

### 2. Application Range

For long distance & local communications

### 3. Mounting Ways

Underwater.

### 4. Application Temperature

-40°C~+60°C

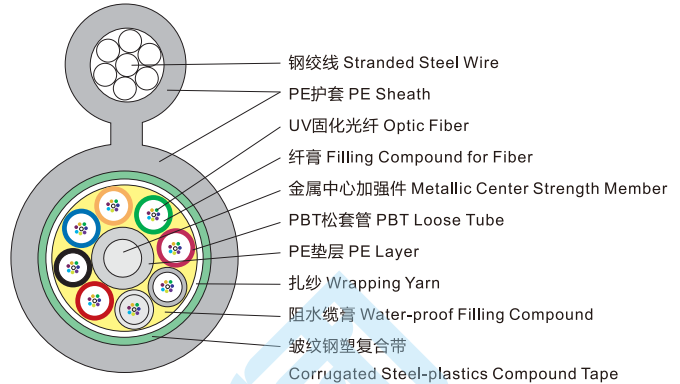
## Features

1. With low transmission loss and dispersion
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC with filling compound filled outside strength member and inside cable core.
5. It could ensure much better moisture performance of FOC with corrugated steel tape wrapping.
6. Steel wire armour has the ability of tensile and compression.

## Technical Parameters

# 8字型自承式光缆

8-shape Self Supporting FOC



## 一、参照标准

YD/T901-2009.

## Reference standard

YD/T901-2009

## 二、产品描述

### 1、产品型号：GYSTCS

- 光纤松套管
- 金属中心加强件
- SZ层绞缆芯内填充油膏
- 双面涂塑钢带粘PE护套
- 自承式光缆

### 2、应用范围

适用于长途通信和局间通信。

### 3、敷设方式

架空。

### 4、使用温度

-40°C~+60°C。

## Product description

### 1. Type: GYSTCS

- Fiber loose tube
- Metallic central strength member
- Filling compound for SZ strande cable cores
- Double coating steel tape compound PE sheath
- Self supporting foc

### 2. Application Range

For long distance & local communications.

### 3. Mounting Ways

Aerial.

### 4. Application Temperature

-40°C~+60°C

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
- 4、加强件外和缆芯内充满阻水缆膏，确保了光缆防潮、阻水效果；
- 5、钢绞线作自承件满足极高的抗拉强度。

## Features

1. With low transmission loss and dispersion
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC with filling compound filled outside strength member and inside cable core.
5. It could ensure high tensile strength with stranded steel wire as self-supporting unit.

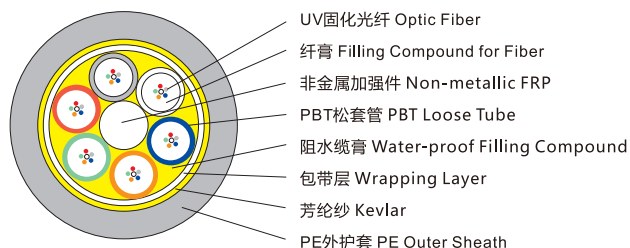
## 四、技术参数

## Technical Parameters

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	最小弯曲半径 (mm) Min. Bending Radius		允许拉伸力最小值 (N) Min. Tension Allowed		允许压扁力最小值 (N/100mm) Min. Flattening Force Allowed	
		静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~30	/	120	240	8000	6000	3000	1000
32~60	/	120	240	8000	6000	3000	1000
62~72	/	140	280	8000	6000	3000	1000

# 2~144芯非金属松套管层绞式光缆

2~144 Cores Non-metallic Loose Tubes Stranded FOC



## 一、执行标准

YD/T901-2009.

## 二、产品描述

### 1、产品型号：GYFTY

- 光纤松套管
- 非金属中心加强件 (FRP)
- SZ层绞缆芯内填充油膏
- PE外护套
- 芳纶纱加强

### 2、应用范围

适用于长途通信、局间通信和强电磁场所。

### 3、敷设方式

架空、管道、进局、槽道、电缆沟。

### 4、使用温度

-40°C~+60°C。

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
- 4、加强件外和缆芯内充满阻水纤膏，确保了光缆防潮、阻水效果；
- 5、光缆柔韧性和抗弯曲能力优良；
- 6、光缆全为非金属结构，重量轻，敷设方便，抗电磁能力强。

## Standard of execution

YD/T901-2009

## Product description

### 1.Type:GYFTY

- Optic fiber in loose tube
- Non-metallic FRP
- Filling compound for SZ stranded cable cores
- PE Outer sheath
- Kevlar reinforcement

### 2. Application Range

For long distance & local communications with strong electromagnetic field effect.

### 3. Mounting Ways

For aerial mounting or in pipe, tunnel, cable furrow, etc.

### 4. Application Temperature

-40°C~+60°C

## Features

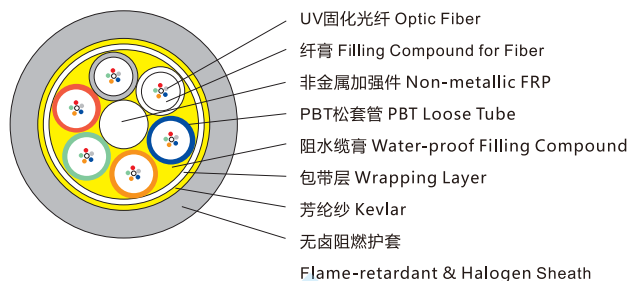
1. With low transmission loss and dispersion
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC with filling compound filled outside strength member and inside cable core.
5. Fiber cable flexibility and good bending resistance.
6. The cable is of non-metallic structure, light and convenient for mounting, with better performance against electromagnetic effect.

## Technical Parameters

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	重量参考值 (kg/km) FOC Weight	最小弯曲半径 (mm) Min.Bending Radius		允许拉伸力最小值 (N) Min.Tension Allowed		允许压扁力最小值 (N/100mm) Min.Flattening Force Allowed	
			静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~30	9.0	98	110	220	1500	600	1000	300
32~60	10.0	130	130	260	1500	600	1000	300
62~72	10.5	130	130	260	1500	600	1000	300

# 2~144芯阻燃非金属松套管层绞式光缆

2~144 Cores Flame-retardant, Non-metallic Loose Tubes Stranded FOC



## 一、执行标准

YD/T901-2009.

## Standard of execution

YD/T901-2009

## 二、产品描述

### 1、产品型号：GYFTZY

- 光纤松套管
- 非金属中心加强件 (FRP)
- SZ层绞缆芯内填充油膏
- 低烟无卤阻燃护套
- 芳纶纱加强

### 2、应用范围

适用于长途通信、局间通信和强电磁场所。

### 3、敷设方式

架空、进局、隧道。

### 4、使用温度

-40°C~+60°C。

## Product description

### 1.Type:GYFTZY

- Optic fiber in loose tube
- Non-metallic FRP
- Filling compound for SZ stranded cable cores
- Flame-retardant, low smoke & halogen-free sheath
- Kevlar reinforcement

### 2. Application Range

For long distance & local communications with strong electromagnetic field effect.

### 3. Mounting Ways

For direct mounting or in tunnel, etc.

### 4. Application Temperature

-40°C~+60°C

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
- 4、加强件外和缆芯内充满阻水纤膏，确保了光缆防潮、阻水效果；
- 5、光缆柔韧性和抗弯曲能力优良；
- 6、光缆全为非金属结构，重量轻，敷设方便，抗电磁能力强。
- 7、阻燃效果好。

## Features

1. With low transmission loss and dispersion
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC with filling compound filled outside strength member and inside cable core.
5. Fiber cable flexibility and good bending resistance.
6. The cable is of non-metallic structure, light and convenient for mounting, with better performance against electromagnetic effect.
7. With better flame-retardant performance.

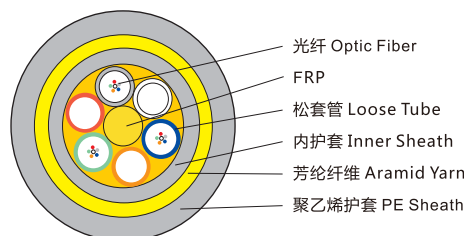
## 四、技术参数

## Technical Parameters

光缆芯数 FOC Core(s)	外径参考值 (mm) FOC Outer Diameter	重量参考值 (kg/km) FOC Weight	最小弯曲半径 (mm) Min. Bending Radius		允许拉伸力最小值 (N) Min. Tension Allowed		允许压扁力最小值 (N/100mm) Min. Flattening Force Allowed	
			静态 Static	动态 Dynamic	短期 Short Term	长期 Long Term	短期 Short Term	长期 Long Term
2~30	9.0	126	110	220	1500	600	1000	300
32~60	10.0	155	130	260	1500	600	1000	300
62~72	10.5	160	130	260	1500	600	1000	300

# 全介质自承式光缆 (ADSS)

All Dielectric Self-Supporting FOC(ADSS)



## 一、执行标准

DL/T788-2016.

## Standard of execution

DL/T788-2016.

## 二、产品描述

### 1、产品型号：ADSS

- 非金属加强件
- PE内护套
- 松套管绞填充式
- 芳纶纤维加强
- 聚乙烯护套

### 2、应用范围

可与高压电力线路同塔架设，也可用于架设跨大江大河、崇山峻岭等复杂地形。

### 3、敷设方式

架空。

### 4、使用温度

-40°C~+70°C。

## Product description

### 1.Type:ADSS

- Non-metallic FRP
- PE inner sheath
- loose tube stranded filled with jelly
- Aramid yarn reinforcement
- PE Sheath

### 2. Application Range

It could be installed on the same tower for high voltage power line, or used for telecom system lines spanning rivers and mountains.

### 3. Mounting Ways

For aerial mounting.

### 4. Application Temperature

-40°C~+70°C

## 三、产品特点

- 1、光纤传输损耗小、色散低；
- 2、光缆具有优良的机械性能和环境性能；
- 3、光缆结构紧凑，采用SZ层绞结构，确保光缆在恶劣的环境下，光纤不受到应力；
- 4、加强件外和缆芯内充满阻水缆膏，确保了光缆防潮、阻水效果；
- 5、光缆柔韧性和抗弯曲能力优良；
- 6、光缆全为非金属结构，重量轻，敷设方便，抗电磁能力强。

## Features

1. With low transmission loss and dispersion
2. Optical fiber cable has excellent mechanical and environmental properties.
3. The close structure of SZ layer stranding prevents optic fiber from stress under bad environment.
4. It could ensure moisture & water resistant performance of FOC with filling compound filled outside strength member and inside cable core.
5. Fiber cable flexibility and good bending resistance.
6. The cable is of non-metallic structure, light and convenient for mounting, with better performance against electromagnetic effect.

跨距 ( m ) Span	最小抗断力 ( kN ) Min. Breaking Force	最大安全运行张力 ( kg/km ) FOC Weight	光缆模量 ( 10 <sup>4</sup> N/mm <sup>2</sup> ) Cable Module	光缆参考外径 ( mm ) Reference Cable Outer Diameter	缆重 ( kg/km ) Cable Weight
100	14.1	6.6	0.4	13	170
200	22.3	10.5	0.6		
300	28.2	13.2	0.8		
400	44.7	17.6	1.2		
500	50.2	19.8	1.4	14	190
600	55.9	22.0	1.5		
700	61.4	24.2	1.7		
800	67.0	26.4	2.1		
900	72.6	28.6	2.2	15	220

参考气象条件：风速10m/s，冰5mm；风速25m/s，冰0mm。

Weather Conditions for Reference: wind 10m/s, ice 5mm, wind 25m/s, ice 0mm.



## ADSS允许承受的拉伸力及光纤性能要求 ADSS Allowed tension and fiber performance

检测项目 Testing items	拉伸力 Tension strength	光纤应变 Optic fiber strain		光纤附加衰减 Additional attenuation	
		中心管式 Central tube	层绞式 Tube stranded	中心管式 Central tube	层绞式 Tube stranded
光缆的年平均运行张力 ( EDS ) Amual average operation tesion	25%RTS	无明显应变 With no obvious strain	无明显应变 With no obvious strain	无明显附加衰减 With no additional attenuation	无明显附加衰减 With no additional attenuation
光缆最大允许张力 ( MAT ) Max allowed tension	40%RTS	≤0.1	≤0.05	无明显附加衰减 With no additional attenuation	无明显附加衰减 With no additional attenuation
光纤的极限运行张力 ( UOS ) Fiber ultimate tension	60%RTS	≤0.5	≤0.35	该拉力取消后, 光纤无明显残余附加衰减 Without this tension, the fiber with no obvious residual additional attenuation	

## ADSS允许承受的压扁力及光纤性能要求 Allowed flattening pressure and fiber performance requirement of ADSS

结构 Structure	技术要求 Technial requirement	
	允许压扁力 N/100mm Allowed flattening pressure	光纤附加衰减 dB Fiber additional attenuation
含内垫层 With inner layer	2200	≤0.1
不含内垫层 Without inner layer	1000	≤0.1

项目 Items	实验条件 Test Conditions	指标 Indices	附加衰减 Additional Attenuation		
温度循环试验 Temperature Cycle	-40°C~+65°C	两个循环 2 Cycles	1级 Class 1	≤0.05dB/km	
风激振动试验	振动频率	82.92/D ( Hz ) D为光缆外径 ( cm ) D:Outer diameter of FOC	振动周期 10 <sup>9</sup> Period of vibration	2级 Class 2	≤0.10dB/km
	试验张力	25%RTS			
渗水试验 Water Penetration	1m缆1m水柱24h全截面 1m cable, 1m water depth, 24h, full cross section	无水渗出 No water seepage	/		
耐电痕试验 Electric Corrosion Resistance	4kV, 3000SNaCL溶液+ 0.1%活性剂 > 100次喷射 More than 100 times spray of 3000SNaCL solution plus 0.1% activator under 4kV	护套无腐蚀痕迹 Sheath without corrosion trace	/		
允许弯曲半径 Allowed Bending Radius	敷设时 For installation	20倍缆径 20 times of cable diameter	/		
	运行时 For operation	10倍缆径 10 times of cable diameter	/		
允许侧压力 ( N/100mm ) Allowed Side pressure	短期 Short-term	≥4000	/		
	长期 Long-term	≥2000	/		

注：

1、适用温度：-40°C~+70°C，在此温度范围内，1310nm和1550nm衰减系数变化≤0.05dB/km。

2、电气及环境性能

光缆渗水性能：全截面阻水（可接受L型水槽测试）。

Remarks:

1.Application Temperature:-40°C~+70°C.

Attenuation coefficient change at 1310nm and 1550nm remains no more than 0.05dB/km within the range.

2.Electric & Environmental Performance

Water Penetration Performance:Water block for whole cross section (tested in L-shaped water rough).

# 通信用室（局）内软光缆

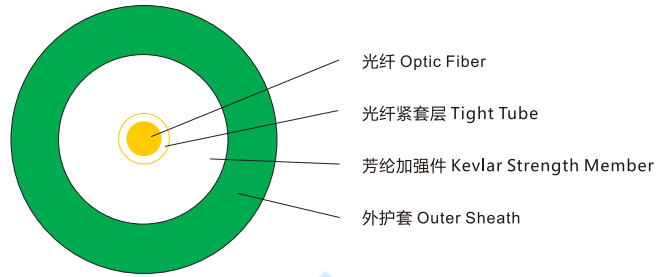
## Soft Indoor FOC

### 一、产品型号 Type

GJFJV

### 二、应用范围 Application Range

适用于尾纤及跳线，也可作为通信系统的光传输线。  
It is suitable with pigtail and connector, or used as optic transmission media of communication system.



光纤 Optic Fiber

光纤紧套层 Tight Tube

芳纶加强件 Kevlar Strength Member

外护套 Outer Sheath

### 三、技术参数 Technical Parameters

光缆芯数 Cable Core(s)	光缆外径 (mm) Outer Diameter	短暂拉伸 (N) Short Time Tension	长期拉伸 (N) Long-time Tension	短暂压扁 (N/10cm) Short-time Flattening Press	长期压扁 (N/10cm) Long-time Flattening Press	动态弯曲半径 Dynamic Bending Radius	静态弯曲半径 Static Bending Radius
1	2.0~2.8	150	80	500	100	20D	10D

注：D表示光缆外径

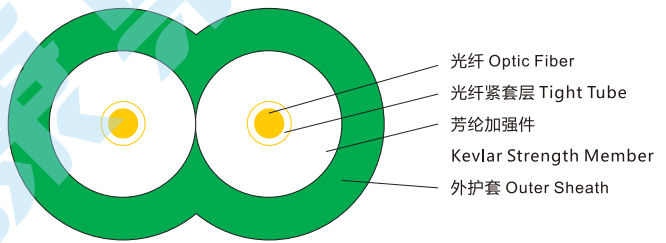
Remarks: D refers to outer diameter of FOC.

### 一、产品型号 Type

GJFVV

### 二、应用范围 Application Range

适用于尾纤及跳线，也可作为通信系统的光传输线。  
It is suitable with pigtail and connector, or used as optic transmission media of communication system.



光纤 Optic Fiber

光纤紧套层 Tight Tube

芳纶加强件

Kevlar Strength Member

外护套 Outer Sheath

### 三、技术参数 Technical Parameters

光缆芯数 Cable Core(s)	光缆外径 (mm) Outer Diameter	短暂拉伸 (N) Short Time Tension	长期拉伸 (N) Long-time Tension	短暂压扁 (N/10cm) Short-time Flattening Press	长期压扁 (N/10cm) Long-time Flattening Press	动态弯曲半径 Dynamic Bending Radius	静态弯曲半径 Static Bending Radius
2	6.6~3.7	300	160	1000	200	20H	10H

注：D表示光缆外径

Remarks: D refers to outer diameter of FOC.

### 一、产品型号 Type

GJFJVV

### 二、应用范围 Application Range

适用于尾纤及跳线，也可作为通信系统的光传输线。  
It is suitable with pigtail and connector, or used as optic transmission media of communication system.



紧套光纤 Tight Optic Fiber

FRP 中心加强芯 FRP

包带隔离层 Wrapping Isolation Layer

外护套 Outer Sheath

### 三、技术参数 Technical Parameters

光缆芯数 Cable Core(s)	光缆外径 (mm) Outer Diameter	短暂拉伸 (N) Short Time Tension	长期拉伸 (N) Long-time Tension	短暂压扁 (N/10cm) Short-time Flattening Press	长期压扁 (N/10cm) Long-time Flattening Press	动态弯曲半径 Dynamic Bending Radius	静态弯曲半径 Static Bending Radius
2~12	用户协定	600	300	1000	200	20D	10D

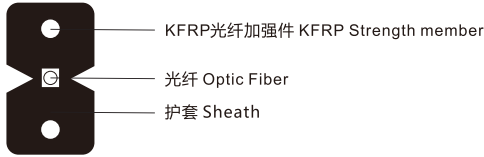
注：D表示光缆外径

Remarks: D refers to outer diameter of FOC.



# 皮线光缆

## FTTH Cable



GJFBZY

### 一、产品描述

皮线光缆的结构是将单模或多模光纤放置在两非金属加强件中间后挤包一层阻燃聚乙烯护套（LSZH）。自承式引入皮线光缆的结构是增加金属吊线。

### 二、产品特点

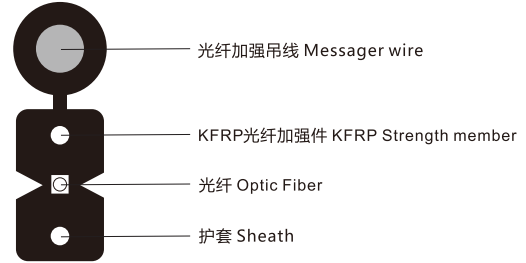
- 1、光缆外径小、重量轻、成本低、施工成本低；
- 2、采用冷接技术，速度快、灵活便捷；
- 3、光缆有很高的抗压扁力和抗张力，自承式结构能满足50米以下飞跨拉设；
- 4、采用玻璃增强纤维（G-FRP）或芳纶增强纤维（K-FRP）加强材料，光缆柔软、弯曲性能好，确保光缆弯曲半径复合要求；
- 5、采用低烟无卤阻燃材料，达到光缆在室内使用对阻燃性能的要求；
- 6、光纤采用复合ITU-T G657A技术要求的抗弯曲光纤，最小弯曲半径达15mm；
- 7、自承式光缆加强件采用高碳钢丝，具有优越的抗拉性能。

### 三、产品型号

GJFVV

### 四、应用范围

适用于尾纤及跳线，也可作为通信系统的光传输线。



GYC8ZY

### Product description

The optical fiber unit(single or multi mode) is positioned in the centre. Two parallel Fiber Reinforced Plastics (FRP) are placed at the two sides. Then the cable is completed with LSZH sheath. Self-supporting FTTH cable is to add a steel wire as the additional strength.

### Product characteristics

1. Small outer diameter, light weight, low cost, low construction cost.
2. Adopt cold-jointing technique, fast, flexible.
3. Excellent crush and tensile strength, self-supporting structure can allow 50m below span length.
4. Reinforced with G-FRP or K-FRP to make cable flexible, ensure good performance of bending, meet the requirement of bend radius.
5. LSZH sheath can meet the requirement of flame retardant for indoor use.
6. To satisfy with low-bend-sensitivity fiber requirement of ITU-TG657 A, the minimum bend radius of cable is 15mm.
7. Carbon steel wire as the additional strength member of self-supporting optical cable ensures good performance of tensile strength.

### Product type

GJFVV

### Application range

It is suitable with pigtail and connector, or used as optic transmission media of communication system.

编号 Item	规格型号 Type	说明 Notes	备注 Remark
1	GJFBZY-1B1	1芯不带钢丝 1core without steel wire	FTTH光缆 FTTH FOC 抗弯曲光纤 Low bend sensitivity cable 进口芳纶棒 Import aramid fiber 内无加强件 Non-metallic FRP
2	GJFBZY-2B1	2芯不带钢丝 2core without steel wire	
3	GYC8ZY-1B1	1芯带钢丝 1cores with steel wire	FTTH光缆 FTTH FOC 抗弯曲光纤 Low bend sensitivity cable 进口芳纶棒 Import aramid fiber 钢丝加强件 Steel wire strength member
4	GYC8ZY-2B1	2芯带钢丝 2 cores with steel wire	

## 五、光缆技术参数

### 1、光缆的机械性能

光缆的机械性能包括拉伸、压扁、冲击、弯曲项目，光缆经各项机械性能试验后符合下列要求：

- A. 光缆全部光纤都不断裂；
- B. 护套无目力可见的裂纹；
- C. 护套内缆芯的各个元件无目力可见的破坏；
- D. 试验后的光纤无残余附加衰减。

#### 光缆允许弯曲半径、拉力和压扁力

## Technical Parameters of FOC

### 1. Mechanical Performance

Mechanical performance includes tests of tensile strength, crush, bend radius, it should be in accord with following requirements:

- No fiber break
- No visible sheath damage
- No visible damage of each element
- No residual additional attenuation

Allowed bend radius, tension, crush should confirm to following table

型号 Type	芯数 Core Number	光缆外径 (高 H*宽 W) Outer Diameter mm	光缆重量 kg/km FOC Weight	最小弯曲单位 mm Min. Bending Radius	允许拉力 N Tension Allowed	允许压扁力 N/100mm Flattening Force Allowed
GJFBZY	1	3.1*2.0	9.6	15	70	1000
GYC8ZY	1	5.3*2.0	21.5	120	700	1000
GJFBZY	2	3.1*2.0	9.6	15	70	1000
GYC8ZY	2	5.3*2.0	21.5	120	700	1000

a. 光缆在经受上表中规定的允许拉力下，光缆中光纤应变不超过0.3%，光纤附加衰减 < 0.10dB；

b. 光缆在经受上表中规定的允许压扁力下，光纤附加衰减应 < 0.10dB。

a. Under allowed tension of above table, optical fiber strain should be no more than 0.3%, additional attenuation should be no more than 0.1dB.

b. Under allowed crush of above table, additional attenuation of optical fiber should be no more than 0.1dB.

### 2、光缆的环境性能

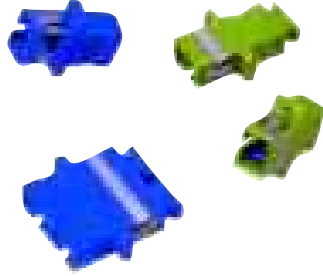
光缆在-30℃、+70℃恒温8小时的衰减与20℃的衰减变化 ≤ 0.1dB。

### 2. Environmental Characteristics

FOC Attenuation should be no more than 0.1dB both at -30℃ or +70℃ 8 hours of constant temperature and 30℃.

# 适配器

Adapter



## 一、SC适配器

颜色：PC为蓝色，APC为绿色。  
可以在插座体上为客户制作标记。  
插入损耗 < 0.3dB。

## SC Adapter

Color:blue for PC,green for APC  
We may add mark designated by customer onto socket body.  
Insert Loss < 0.3dB



## 二、FC适配器

可供圆形插座体。  
原装日本瓷套管。  
插入损耗 < 0.3dB。

## FC Adapter

That with circular socket is also available.  
Imported Japanese Ceramic Tube  
Insert Loss < 0.3dB



## 三、ST适配器

防尘帽以蓝色为基本色。  
插入损耗 < 0.3dB。

## ST Adapter

Blue for Ditt-proof Cap  
Insert Length < 0.3dB



## Junction Box & Terminal Box for FOC



### 一、执行标准

YD/T814-2013.

### Standard of execution

YD/T814-2013.

### 二、产品介绍

光缆接续盒适用于各种结构光缆的架空、管道、直埋等敷设方式之直通和分支连接。箱体采用进口增强塑料，强度高、耐腐蚀，终端盒适用于各种结构光缆的终端机房内的接续，结构成熟、密封可靠、施工方便。

### Product description

The junction box is suitable for connection of FOC of various structure mounted aerially, in pipe or for direct burial. The box is made of imported reinforced plastics of high strength with corrosion-resistant performance. The terminal box closely sealed with sound structure, is suitable for connection of various FOC inside terminal machine room, and convenient for mounting.

### 三、产品特性

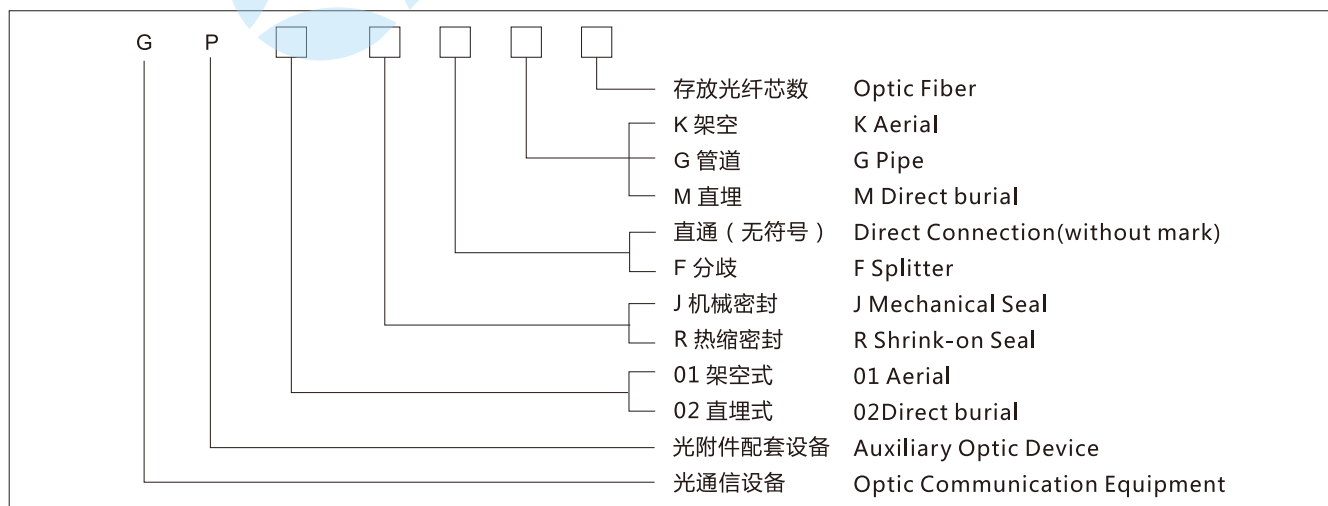
- 材料坚固耐用，可抵御各种恶劣环境；
- 适用于架空、管道、直埋；
- 可供12芯、24芯、48芯及144芯以上的光缆接续工程；
- 光纤曲率半径：≥50mm；
- 环境温度：-40℃~+55℃；
- 大气压力：70kPa~106kPa；
- 使用寿命：20年；
- 终端盒型号：GP05-芯数。

### Product characteristics

- The material of the boxes is durable for usage with strong adaptability to various bad environmental conditions.
- It is suitable for various projects of FOC mounted aerially, in pipe or for direct burial.
- The boxes for FOC with 12 cores, 24 cores, 48 cores or 144 cores more are also available.
- Optic Fiber Bending Radius: ≥50mm
- Environment Temperature: -40℃~+55℃
- Air pressure: 70kPa~106kPa
- Life Expectancy: 20 years
- Terminal Box Type: GP05-core number

### 四、接续盒命名方法

### Type naming



# 光纤连接器

## Optic Fiber Connector

### 执行标准

IEC874-10、CECCBPOCO/2.5。

### 特性

- PC球面研磨 / UPC球面研磨 / APC斜面研磨；
- 插入损耗低；
- 反射衰减高；
- 标准金属件，二氧化锆陶瓷插芯；
- 光缆外径：3.0mm，2.0mm，0.9mm。

### Characters

- PC Spherical Surface Polish/UPC Spherical Surface Polish/APC Spherical Surface Polish
- Low insert loss
- High reflection attenuation
- Standard metallic part, ZO<sub>2</sub> ceramic insert core
- FOC Outer diameter

### Standard of execution

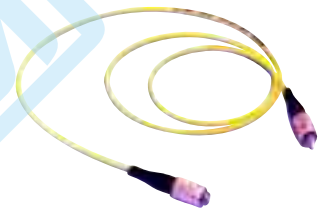
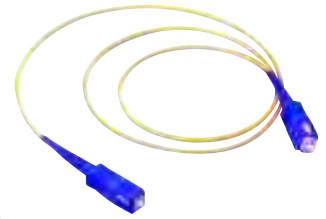
IEC874-10, CECCBPOCO/2.5.

### 用途

- 通信网络；
- 数据传输网；
- 仪器仪表；
- 计算机网络；
- 室内布线。

### Application

- Communication network
- Data transmission network
- Optic instruments
- Computer network
- Wiring indoor



### 特性

- 在ODF配线架实现分线；
- 插入损耗低；
- 反射衰减高；
- 互换性好。

### Characters

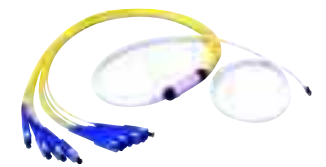
- Splitting on ODF
- Low insert loss
- High reflection attenuation
- Better exchangeability

### 用途

- 通信网络；
- 数据传输网；
- 仪器仪表；
- 计算机网络。

### Application

- Communication network
- Data transmission network
- Optic instruments
- Computer network



### 特性

- 插入损耗低；
- 高回波损耗；
- 高可靠性和稳定性。

### Characters

- Low insert loss
- High return wave loss
- High reliability and stability

### 用途

- 光纤通信系统；
- 光纤数据传输；
- 光纤接入网；
- 局域网；
- 光纤CATV；
- 测试设备；
- 光纤传感。

### Application

- Optic fiber communication system
- Optic fiber data transmission
- Optic fiber connection network
- LAN
- Optic fiber CATV
- Testing devices
- Optic fiber sensor



## 技术参数

## Technical Parameters

### 1、ST规格

类型 Type	单模 (典型) Single mode (typical)	单模 (最大值) Single mode (maximum)	多模 (最大值) Multimode (maximum)
插入损耗 Insertion loss	≤0.2dB	≤0.3dB	≤0.3dB
回波损耗 Return loss	≥55dB	≥50dB	≥35dB
工作温度 Working temperature	-40°C~+80°C	-40°C~+80°C	-40°C~+80°C

### 2、LC规格

类型 Type	单模 (典型) Single mode (typical)	单模 (最大值) Single mode (maximum)	多模 (最大值) Multimode (maximum)
插入损耗 Insertion loss	≤0.2dB	≤0.3dB	≤0.3dB
回波损耗 Return loss	≥65dB	≥55dB	≥30dB
工作温度 Working temperature	-40°C~+80°C	-40°C~+80°C	-40°C~+80°C

### 3、SC/PC规格

类型 Type	单模 (典型) Single mode (typical)	单模 (最大值) Single mode (maximum)	多模 (最大值) Multimode (maximum)
插入损耗 Insertion loss	≤0.2dB	≤0.3dB	≤0.3dB
回波损耗 Return loss	≥55dB	≥50dB	≥35dB
工作温度 Working temperature	-40°C~+80°C	-40°C~+80°C	-40°C~+80°C

### 4、ST规格

类型 Type	单模 (最大值) Single mode (maximum)
插入损耗 Insertion loss	≤0.2dB
回波损耗 Return loss	≥70dB
工作温度 Working temperature	-40°C~+80°C

## 可靠性测试试验 Reliability compliance test

试验项目 Testing Items	试验条件 Testing Condition
温湿老化 Temperature and Humidity Resistance	温度85°C, 85%相对湿度, 14天 插入损耗变化≤0.1dB Temperature 85°C, relative humidity 85%, last for 14 days, variation of insertion loss ≤0.1dB
温度循环 Temperature Cycle	温度-40°C ~ +75°C, 10%~80%相对湿度, 42个循环, 14天插入损耗变化≤0.1dB Temperature -40°C~+75°C, relative humidity 10%~80%, last for 42 circulations and 14 days, variation of insertion loss ≤0.1dB
浸水 Submerging Test	温度43°C, PH5.5, 7天 插入损耗变化≤0.1dB Temperature 43°C, PH5.5, last for 7 days, variation of insertion loss ≤0.1dB
振动 Vibration	振幅1.52mm, 频率10Hz~55Hz, X、Y、Z三个方向各2小时插入损耗变化≤0.1dB Amplitude 1.52mm, frequency 10Hz~55Hz, for X、Y、Z three directions, each last 2h, variation of insertion loss ≤0.1dB
负载弯曲 Bending under load	0.454kg负载100周期 (加套) 插入损耗变化≤0.1dB 0.454kg loading for 100 cycles(with covering), variation of insertion loss ≤0.1dB
负载扭转 Reversing under load	0.454kg负载10周期 (加套) 插入损耗变化≤0.1dB 0.454kg loading for 100 cycles(with covering), variation of insertion loss ≤0.1dB
抗张力 Tension Stress	0.23kg拉力 (裸纤), 1.0kg(加套) 插入损耗变化≤0.1dB 0.23kg tension(bare fiber), 1.0kg(with covering), variation of insertion loss ≤0.1dB
冲击 Impact	1.8m高, 三个方向, 8次/方向插入损耗变化≤0.1dB 1.8m height, three directions, 8 times per direction, variation of insertion loss ≤0.1dB
参考标准 Reference Standard	TA-NWT-001209 插入损耗变化≤0.1dB Bellcore TA-NWT-001209, variation of insertion loss ≤0.1dB

# 防水尾缆

## Water-proof FOC Pigtail



### 特性

- 可连接各种型号的连接器；
- 采用耐用的防水接头，安装方便、可靠；
- 可根据需要选择不同的芯数。

### 技术指标

- 光纤连接器类型：FC、SC；
- 插入损耗 < 0.2dB；
- 回波损耗：PC > 40dB，  
UPC > 40dB，  
APC > 40dB；
- 工作温度：-40°C ~ +80°C；
- 光缆芯数：2、4、6、8芯；
- 光缆外径：φ12mm；
- 光缆长度：5米。

### 应用

- 有线电视光纤网络；
- 电信光纤用户网；
- 计算机局域网。

### Characters

- It is suitable for various connectors.
- The water-proof joint is stable and durable and convenient for installation.
- The number of cores can be selected according to the needs.

### Technical Indices

- Connector Type: FC, SC
- Insert loss: < 0.2dB
- Return Wave Loss: PC > 40dB  
UPC > 50dB  
APC > 60dB.
- Working Temperature: -40°C ~ +80°C
- Cable Cores: 2, 4, 6, 8 cores
- FOC Outer Diameter: φ12mm
- FOC Length: 5 meters

### Application

- CATV Network
- Telecommunication Network
- Local Area Network

# 光缆型号的编制方法

## Type Naming Method of FOC

### 一、型号构成

光缆型号由光缆型式的代号和规格的代号构成，用一空格分开。

### 二、型式

#### 型式的构成

光缆型式由5个部分构成，如下所示，其中结构特征指缆芯结构和光缆派生结构。各部分均用代号表示。

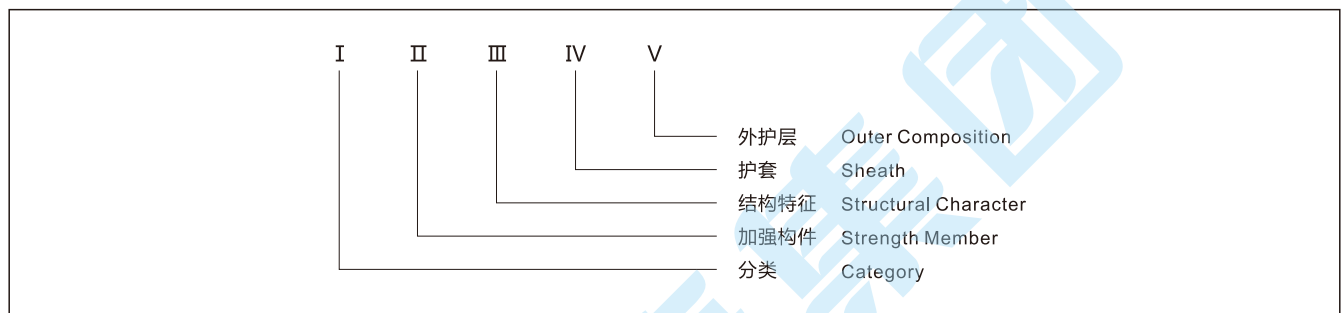
### Type Code Composition

FOC code consists of code of cable type and that of specification with space mark for separation.

### Type

#### Type Composition

FOC type code consists of five parts as follows among which structural character refers to cable structure and derived characters.



#### 分类代号

GY, 通信用室(野)外光缆;  
GJ, 通信用室内光缆。

#### Category Code

GY, Communication Field FOC  
GJ, Indoor FOC

#### 加强构件代号

(无符号) ..... 金属加强构件  
F ..... 非金属加强构件  
G ..... 金属重型加强构件  
H ..... 非金属重型加强构件

注：加强构件指护套以内用于增强光缆抗拉能力的构件。如果同时有金属和非金属的加强构件，则只表示为金属构件特征。

#### Strength Member Code

(Without mark) ..... Metallic Strength Member  
F ..... Non-metallic Strength Member  
G ..... Heavy Type Metallic Strength Member  
H ..... Heavy Type Non-metallic Strength Member

Remark: Strength member refers to that for improvement of tensile strength of FOC underneath sheath. Only metallic strength member is indicated with code if FOC has both metallic and non-metallic strength member.

#### 结构特征代号

J ..... 光纤紧套被覆结构  
D ..... 光纤带结构  
S ..... 光纤松套被覆结构，可省略  
(无符号) ..... 层绞式  
X ..... 中心束管式结构  
G ..... 骨架式结构  
T ..... 石膏填充式结构  
C ..... 自承式结构  
Z ..... 阻燃结构  
E ..... 护套椭圆截面（无符号为圆截面）

注：当光缆形式有几个特征需要注明时，其组合代号为相应的各代号依上列顺序排列。

#### Strength Character Code

J ..... Tight Tube Structure  
D ..... Optic Fiber Ribbon Structure  
S ..... Loose Tube Structure, omissible  
(Without mark) ..... Tubes Stranded Structure  
X ..... Central Tube Structure  
G ..... Framework Structure  
T ..... Filling Compound Filling Structure  
C ..... Self-supporting Structure  
Z ..... Flame-retardant Structure  
E ..... Sheath with Oval Cross Section  
(without E for that of circular cross section)

Remark: When certain codes are added to indicate characters of FOC, they should be arranged in code order above.



### 护套代号

Y	聚乙烯护套
W	夹带钢丝钢聚乙烯粘结护层
A	铝聚乙烯粘结护套 (简称A护套)
S	钢聚乙烯粘结护套 (简称S护套)
G	钢护套
V	聚氯乙烯护套
L	铝护套
U	聚氨酯护套

### Type Code Composition

Y	PE Sheath
W	PE & Steel Wire Binding Layer
A	PE & Al Tape Binding Layer(Abbreviated as Sheath A)
S	PE & Steel Tape Binding Layer(Abbreviated as Sheath S)
G	Steel Sheath
V	PVC Sheath
L	AL Sheath
U	Polyurethane Sheath

### 外护层代号

参照GB/T2952.0中表1的规定，用数字表示光缆常用代号。

### Outer Sheath Type

We adopt digits for outer sheath code in form 1 with reference to GB/T2952.1 standard.

表1 光缆常用外护层代号

Form 1 FOC Outer Sheath Codes

代号 Code	铠装层 Armor Layer	外被层或外套 Outer Layer/Sheath
0	无铠装层 (有外被层或外套) No Armor(With Outer Layer/Sheath)	/
1	/	纤维外被 Fiber Layer
2	绕包双钢带 Double Wrapping Steel Tape	聚氯乙烯套 PVC Sheath
3	单粗圆钢丝 Single Thick Circular Steel Wire	聚乙烯套 PE Sheath
33	双粗圆钢丝 Double Thick Circular Steel Wire	聚乙烯套 PE Sheath
4	单粗圆钢丝 Single Thick Circular Steel Wire	聚乙烯套加聚尼龙套 PE Sheath & Nylon Sheath
44	双粗圆钢丝 Double Thick Circular Steel Wire	聚乙烯套加聚尼龙套 PE Sheath & Nylon Sheath
5	皱纹钢带 Corrugated Steel Tape	聚乙烯保护套 PE Sheath

### 三、规格

#### 规格的构成

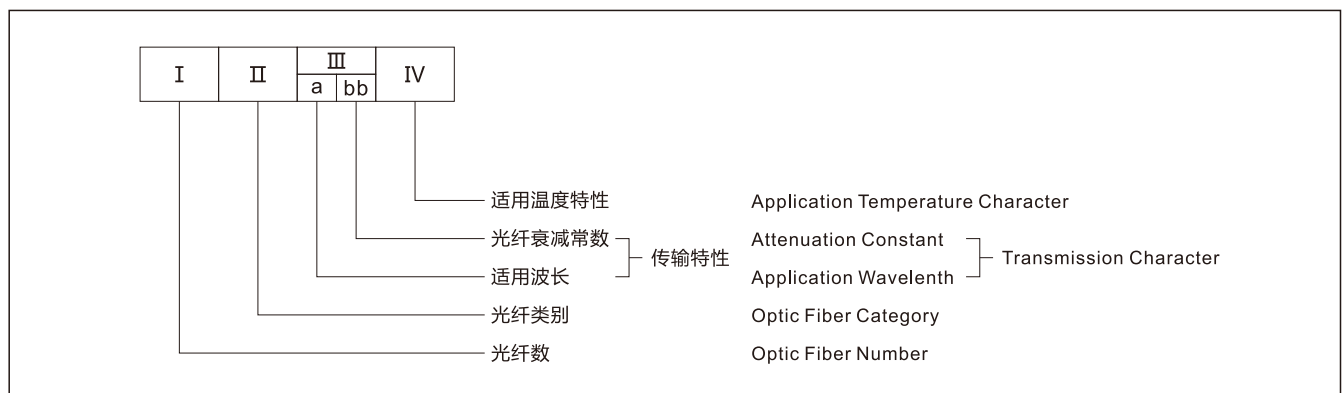
光缆规格由大部分构成，如下图所示。

各部分均用代号表示，相邻的各大部分的代号都是数字时，用规定符号把它们隔开。

### Specification

#### Composition

The specification code consists of four major parts as the following. If the digits of the code are neighboring, the stipulated symbol should be adopted for their separation.



## 光纤数代号

用光缆中类别光纤的实际有效数目的数字表示。必要时，也可用以松套管数和每管光纤数为基础的计算式并加圆括号来表示。

例如：18可用 $(3 \times 6)$ 或 $(2 \times 8 + 1 \times 2)$ 等表示。

## 光纤类别代号

单模光纤类别就采用它的产品分类代号B表示，多模光纤采用产品分类号A表示，再以数字表示不同种类的光纤。

## Optic Fiber Number Code

It is indicated with the actual figured of optic fiber in FOC. It is also indicated with the calculation formula in circular brackets as the example if necessary. For example:  $(3 \times 6)$  of  $(2 \times 8 + 1 \times 2)$  for 18.

## Optic Fiber Category Code

Code B means single-mode optic fiber, and code A means multi-mode optic fiber.

The digits as the following should be attached to the code to further indicate different category of optic fiber.

### 常用代号如下

B1.1 .....二氧化硅（普通）单模光纤（B1.1可简称为B1）  
B1.2 .....二氧化硅系1550nm低损耗单模光纤  
B2 .....二氧化硅系色散位移单模光纤  
B4 .....二氧化硅系非零色散位移光纤  
A1a .....二氧化硅系50/125 $\mu$ m多模光纤  
A1b .....二氧化硅系62.5/125 $\mu$ m多模光纤

必要时在光纤类别代号后，可注明单模光纤模场直径标称值（ $\mu$ m），并用“/”与类别代号划开。

### Common Code

SiO<sub>2</sub>(Common)Single-mode Optic Fiber(or abbreviated as B1)  
SiO<sub>2</sub> 1550nm Low Loss Single-mode Optic Fiber  
SiO<sub>2</sub> Dispersion Shift Single-mode Optic Fiber  
SiO<sub>2</sub> Non-zero Dispersion Shift Single-mode Optic Fiber  
SiO<sub>2</sub> 50,125 $\mu$ m Multi-mode Optic Fiber  
SiO<sub>2</sub> 62.5/125 $\mu$ m Multi-mode Optic Fiber

The nominal mode field diameter of optic fiber may be marked following the category code above with symbol “/” if necessary.

## 光纤传输特性代号

单模光纤传输特性的代号由a及bb两组数字代号构成，放在圆括号内。

其中，a表示使用波长的代号，是一位数。

其数字代号规定如下：

- 2——使用波长的1310nm区域；
- 3——使用波长在1550nm区域。

bb表示衰减系数的代号，是一位数。其数字依次为光缆中单模光纤的衰减系数（dB/km）分类数值的十分位和百分位数字。

例如：使用波长在1310nm区域，光缆中光纤衰减常数 $\leq 0.36$ dB/km的单模光纤，传输特性代号为236。同一光缆适用于两种及以上波长，并具有不同传输特性时，应同时列出各波长上的规格代号，并用“/”划开（例如236/322）。

## 光纤类别代号

适用温度特性的代号由表1所列温度范围代号（A，B，C）和一个数字代号组成，该数字代号为在此温度范围内光缆允许附加衰减级分号为0，可省略。

例1：在 $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$ 温度范围内，光缆最大允许附加衰减值为1级（0.10dB/km），则代号为C1。

例2：在 $-40^{\circ}\text{C} \sim +60^{\circ}\text{C}$ 温度范围内，光缆无明显衰减，则代号为A0，可省略为A。

## Transmission Characters Code

The code of single-mode optic fiber consists of “a”, one-digit figure and “bb”, a two digit figure in circular brackets.

“a” represents wavelength in application as follows:

- 2 at wavelength 1310nm
- 3 at wavelength 1550nm

“bb” represents attenuation coefficient, and is 100 times of the actual attenuation coefficient value(dB/km).

For example: If the attenuation constant of optic fiber in FOC is no more than 0.36dB/km at wavelength 1310nm, the code (236) should be adopted. If the same FOC has different transmission characters at two or more kinds of wavelength, all codes at different wavelengths should be indicated and marked with “/” for their separation.

## Application Temperature Characters Code

The code consists of a code of temperature range listed in Form 1(A,B,C) and a digit code. The digit code is omissible if the allowed additional attenuation grade within the temperature range is “0”.

Example 1: If the allowed additional attenuation grade within temperature range of  $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$  is “1”, the code “C1” should be adopted.

Example 2: If the FOC has no obvious additional attenuation within temperature range of  $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$ , the code “A0” may be adopted or omitted as “A0”.

# 光缆运输、敷设及安装注意事项

## Cautions in Transportation & Mounting of FOC

- 1、装有光缆的光缆盘应按盘侧板面所标示的方向进行滚动，滚动距离不宜过长，一般不宜超过20米，滚动式应注意防止障碍物损坏包装板；
  - 2、装卸光缆时应使用铲车等起重设备或特别台阶，严禁光缆盘从车上直接滚下或抛下；
  - 3、严禁装有光缆的光缆盘平放或叠放，在车厢内的光缆盘均需设防滑木块；
  - 4、光缆不宜多次倒盘，以免影响光缆内部结构的完好性，光缆敷设前应进行外观检查、核对规格型号、数量、测试长度和衰减等单盘检验和验收，每盘光缆在护板上附有产品出厂检验合格证书（应妥善保管，以便日后查询），拆卸光缆护板时谨防损坏光缆；
  - 5、在施工过程中应注意光缆的弯曲半径不得小于施工规定，光缆不允许出现过度弯曲；
  - 6、布放架空光缆应通过滑轮牵引，架空光缆应避免与建筑物、树木及其它设施摩擦，避免拖地或与其它物体摩擦而损伤光缆外皮，必要时应采取防护措施。严禁光缆跳出滑轮后强行牵引，以防光缆被压扁损坏；
  - 7、在光缆线路设计时应尽量避开易燃建筑物，如无法避免，光缆应采取防火保护措施；
  - 8、在段长比较长的光缆布放中，如需倒盘，光缆必须遵循“8”字盘放，使其光缆完全处于无扭状态；
  - 9、光缆接头终端盒的选用必须符合YD/T814-2013和YD/T925-2009标准要求的合格接头终端盒，确保光纤在盒内的曲率半径 $\geq 37.5\text{mm}$ ，光纤在盒内余留长度 $\geq 1.6\text{m}$ ，光缆的加强件牢固地固定在盒上，保证光缆与盒之间不会发生扭动，盒体要求密封，能够阻止水气的进入；
  - 10、在光缆接续时，接头衰减应以OTDR双向测试平均值为准；
  - 11、光缆敷设时，如不能及时连续处理，应将光缆两端头密封，以防止水气侵害光纤；
  - 12、在光缆接续时，若多次接续不好，建议剪掉一段后再接续（因为施工时光缆端头有可能受到机械损伤）；
  - 13、光缆连接完成，宜在光缆接头盒两端预留适量的光缆，并且牢固的盘在余缆架上。
1. The user should roll cable from with FOC in the direction indicated on drum flange board within short distance of no more than 20 meters on alert against damage of barriers on package wooden board.
  2. The user should adopt lifting machines such as fork lift of special steps for loading and unloading cable drum with FOC. Direct rolling or throwing of cable drum with FOC from the truck should be strictly forbidden.
  3. It should be strictly forbidden to lay down or pile up cable drum with FOC. The woodboard should be put under drum wheels to prevent drum from sliding in truck carriage.
  4. The user should avoid repeatedly reeling out FOC in order to keep cable inner structure intact. The user should check outer appearance, type & specification, quantity, length, and attenuation of FOC drum flange board. (The certificate should be kept well for further check later.) The user should keep alert against damage on FOC in dismantling protection package board.
  5. The user should avoid over bending FOC in mounting with paying attention to the bending radius of FOC, which should be no smaller than that stipulated for mounting.
  6. In mounting aerial FOC, the user should draw cable on pulley and avoid friction with building, tree, and other facilities and drawing cable on the ground or friction with sharp-edged objects to keep cable from damage on its outer sheath. The protection measures should be taken if necessary. It is strictly forbidden to roughly draw cable after FOC slide out from pulley in order to keep cable from damage.
  7. The user should keep it from inflammable buildings as possible as you can in FOC line design. If it is unavoidable, the measures should be taken to keep FOC from fire.
  8. The user should lay down the cable in 8 shape to keep it from twisting for pieces of long FOC in installation.
  9. The user should adopt qualified connection and terminal boxes stipulated in YD/T814-2013 & YD/T925-2009 to ensure that bending radius of optic fiber in the boxes be no smaller than 37.5mm, remaining fiber length no smaller than 1.6m, and strength member of FOC strongly fixed to the box. The boxes should be moisture-proof with better sealing performance.
  10. The average tested value with OTDR in double direction should be adopted as connection attenuation value in FOC connection.
  11. After completion of laying FOC, if the user could not timely connect the cable, both ends of FOC should be sealed to keep cable from moisture.
  12. If the user fails many times in FOC connection, it is suggested to cut off a section of FOC for connection again, (There is possibility that FOC heads suffered mechanical damage during installation.)
  13. After connection completion, the user had better reserve suitably long FOC at both ends of connection box and fixed it strongly to the rack.



地址：安徽省天长市仁和南路20号

ADD:NO.20 South Renhe Road, Tianchang City, Anhui Province

邮编(ZIP)：239300

电话(TEL)：0550-7777777 7038698 7308802

传真(FAX)：0550-7028077 7038699

网址(HTTP)：/www.tiankang.com

电子信箱(E-mail)：xsc@tiankang.com