

<b>Products Specification</b>	<b>Duplex Armored Optical Fiber Cable</b>	
Kaiphone Communication Company	Version	Written Date
	v.3	2006.04

# Duplex Armored Optical Fiber Cable Specification

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## 1. Introduction

- (1) This specification describes the optical performance and mechanical characteristics of the “ Duplex Armored Optical Fiber Cable” The “Duplex Armored Optical Fiber Cable” contains two fibers in the metal tube and it’s mechanical characteristics are better than the traditional optical fiber cable.
  
- (2) Compare with the traditional optical fiber cable ,the mechanical characteristics of Kaiphone’s “Duplex Armored Optical Fiber Cable”. are much stronger, electric cable –like handling and easy to installation.
  
- (3) This latest “Duplex Armored Optical Fiber Cable” is different from the traditional cable for the characteristics that it has been developed with a micro diameter stainless flexible metal tube with flame-resistance PVC or PE jacket to protect these fragile optical fibers. In order to ensure the firmly conjunction, we also offer relative strong connectors. This unique design reduce the difficulties of installation and extend the fiber’s life.
  
- (4) Like the traditional cable, Kaiphone’s “Duplex Armored Optical Fiber Cable” can be used as the connection between the ODF (Optical Distribution Frame ) and equipments, connection between floor and floor or emergency field testing connection.

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## 2.Product Specification

The specification of duplex armored optical fiber cable described in the following sections.

### 2-1 Description

The duplex armored optical fiber cable was mainly constructed of stainless metal tube with jacket and two counts of optical fibers .It's advantages are anti-tensile , anti-pressure and easy to install. The duplex armored optical fiber cable can be used in the connection between the optical equipments in the indoor central office ,outdoor field testing or as a temperature sensor cable.. It's detailed specifications was described in the following sections:

### 2-2 Structure

As shown in Fig.1. The duplex armored optical fiber cable was constructed of the following parts : 2 counts of optical fibers , stainless metal tube, Kevlar ,metal braiding and outer jacket. The followings are their detailed specification description.

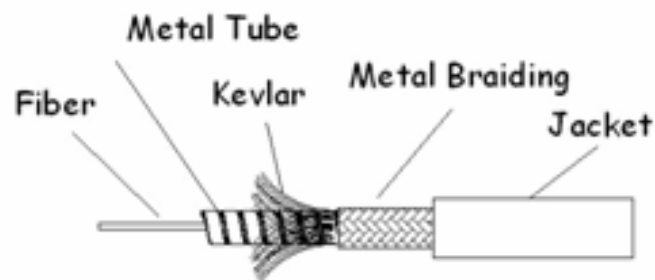


Fig.1 The schematic diagram of duplex armored optical fiber cable

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**2-2-1 Optical fiber**

The geometric characteristics ,optical performance and mechanical properties of optical fiber must meet the table 1.

Table 1 The geometric ,optical and mechanical characteristic of optical fiber

Item	Single Mode	Multi-Mode	
Core/Mode Diameter	9.2±0.4μm @1310nm 10.4±0.8μm @1550nm	50±2.5μm	62.5±2.5μm
Cladding Diameter	125±1μm	125±1μm	125±1μm
Attenuation	0.4 db/km @1310nm 0.3 db/km @1550nm	3.0dB/km @850nm 1.0dB/km @1300nm	3.2dB/km @850nm 1.0dB/km @1300nm
Bandwidth	---	≥200Mhz-km @850nm ≥400Mhz-km @1300nm	≥160Mhz-km @850nm ≥200Mhz-km @1300nm
Zero –dispersion shift	0.092 ps/ nm <sup>2</sup> -km.	0.101 ps/ nm <sup>2</sup> -km.	0.097 ps/ nm <sup>2</sup> -km.
Cut-off wavelength	λ cutoff 1260nm	---	---

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Numerical Aperture	0.13	0.200±0.015	0.275±0.015
Coating	245±10µm	245±10µm	245±10µm
Working Temperature	-40 ~+85	-40 ~+85	-40 ~+85

Each two 250um bare fibers coated with PVC tight or semi-tight jacket and it's outer diameter is 600um. We distinguish these two fibers with different colors, usually blue and white colored jacket.

### 2-2-2 Stainless metal tubes with Kevlar, metal braiding and jacket

The two 600um optical fibers were protected by the stainless flexible metal tube. The material of this tube is 304 stainless metal. It's corresponding diameters and mechanical characteristics are as table 2.

Table 2. Diameter and mechanical characteristic of stainless metal tube with metal braiding and jacket

Number of fiber	2
Metal tube inner diameter (mm)	1.5 +/- 0.05
Metal tube outer diameter (mm)	2.1 +/- 0.05
Overall diameter with jacket (mm)	3.3 +/- 0.1
Tensile strength (Kgf)	20
Anti-pressure (Kgf/100mm)	300

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In order to increase the tensile strength of this main stainless metal tube, we surround the stainless metal tube with Kevlar and metal braiding as shown in fig.1. We coat this braiding metal tube with PVC or PE jacket according to the customer's requirements. In the normal situation, we use the PVC material as the metal tube jacket and the jacket color is blue for single mode fiber and grey for multi-mode fiber.

### 2-3.Mechanical Characteristics:

The mechanical characteristics of armored optical fiber cable are shown in table 3.

Table 3 The mechanical characteristics of armored optical fiber cable

No	Item	Specification
1	Stainless metal tube tensile strength (Kgf)	20Kgf
2	Anti-pressure (Kgf/100mm)	300Kgf
3	Weight	22.5Kg/Km
4	Operating temperature	-40~+85

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### 3.Lable and Package

3-1 We distinguish each fibers with the colors of their coating. Each different color of coating corresponds to each different optical fibers. For duplex armored optical fiber cable, one fiber's coating is blue ,the other one is white. It is easy for customers to tell from each fibers. .

3-2 Each armored optical fiber cables should have marking on the outer jacket or adhere to an additional tapes. The marking on the outer jacket or tapes shall appear the following details :

- (a)Manufacturer's name
- (b)Type and numbers of optic fiber e.g. :SM-2C
- (c)Date of manufacture

The marked intervals are not less than 1 m throughout the cable length

### 4.Reference

1. GR-326-CORE Generic Requirements for Single mode Optical Connectors and Jumper Assemblies.
2. GR-409\_CORE Generic Requirements for Premises Fiber Cable.

#### Notice:

**All above specifications may be adjusted according to customer requirements .The manufacturer also reserves the right to make improvements to the products.**