NEX1 Technologies Co., Ltd

Duplex Armored Optical Fiber Cable Specifications

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Contents

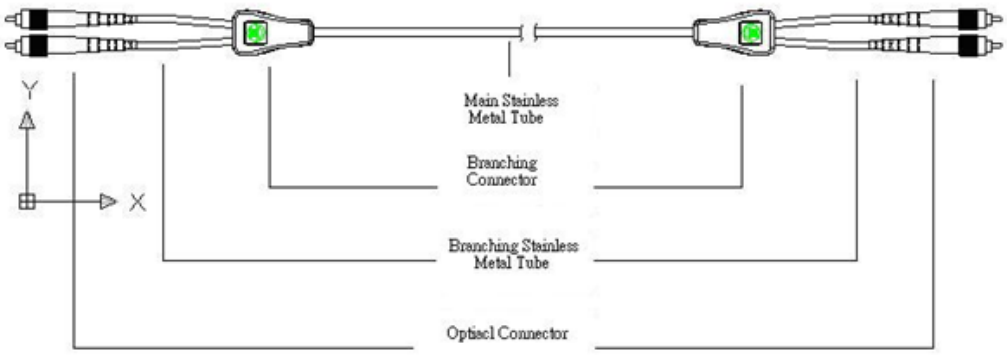
1.**Introductions**.....3

2.**Product Specifications** 4

2-1 Descriptions 4
2-2 Structures 4
2-3 Mechanical Characteristics.....7

3. Lable and Package..... 8

4. References.....8



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1. Introductions:

(1) These specifications describe the optical performances and mechanical characteristics of the "Duplex Armored Optical Fiber Cable". This "Duplex Armored Optical Fiber Cable" contains two fibers in a metal tube and its mechanical characteristics are much better than all the traditional optical fiber cables.

(2) Comparing with traditional optical fiber cables, the mechanical characteristics of NEX1's "Duplex Armored Optical Fiber Cable" are much stronger, electric cable–like handlings and easy installations.

(3) This latest "Duplex Armored Optical Fiber Cable" is different from the traditional cables in several characteristics. The most obvious advantages are the 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 conjunctions, relatively strong connectors are also applied. This unique design greatly reduces the installation difficulties while extending optical fiber's life.

(4) Like traditional cables, NEX1's "Duplex Armored Optical Fiber Cable" can be used as the connections between the ODF (Optical distribution frame) equipments, connections between floors or/and emergency field-testing connections.

2. Product Specification:

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

2-1 Descriptions:

The duplex armored optical fiber cable is mainly constructed of stainless metal tube, outer jacket, and two strands of optical fibers. The advantages include anti-tensile, anti-pressure and easy installations.

The duplex armored optical fiber cable can be used in the connections between the optical equipments in the indoor central offices, outdoor field-testing, or as a temperature sensor cable. The detailed specifications are shown in the following sections:

2-2 Structures:

As shown in Fig. 1, the duplex armored optical fiber cable is constructed of the following parts: Two strands of optical fibers, stainless metal tube, Kevlar, metal braiding and outer jacket. The diagram below shows the detailed structures:

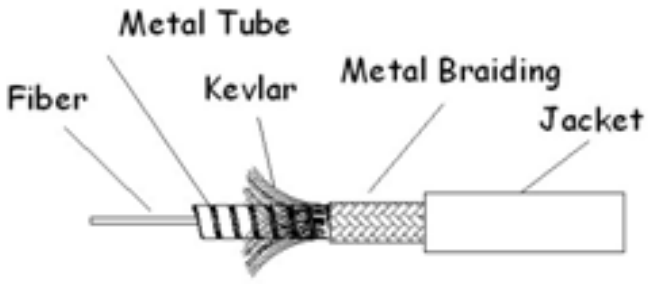

Fig.1 The schematic diagram of duplex armored optical fiber cable

2-2-1 Optical fiber:

The geometric characteristics, optical performances and mechanical properties of optical fiber must meet the conditions listed in the table 1.

Table 1: The geometric, optical and mechanical characteristic of the 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	---	≥500Mhz-km @850nm ≥500Mhz-km @1300nm	≥160Mhz-km @850nm ≥200Mhz-km @1300nm
Zero – dispersion shift	0.092 ps/ nm²-km.	0.101 ps/ nm²-km.	0.097 ps/ nm²-km.
Cut-off wavelength	λ cutoff≦1260nm	---	---
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 pair of the 250um bare-fibers are coated with PVC tight, or semi-tight jacket. The outer diameter is 600um. Different colors are used for identifications. The standard color codes are blue and white colored jacket.

2-2-2 Stainless metal tubes with Kevlar, metal braiding and jacket:
Two 600um optical fibers are securely protected by a flexible, stainless metal tube. The material of this tube is 304 stainless metal. The corresponding diameters and mechanical characteristics are listed in Table 2.

Table 2.: Diameters 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

In order to increase the tensile strength of this main stainless metal tube, stainless metal tube is wrapped with Kevlar and metal braiding as shown in Fig.1.

It is possible to coat this braiding metal tube with PVC or PE jacket based on customer's requirements. The standard metal tube jacket material is PVC. And the jacket color is blue for Single-mode fiber and grey for Multi-mode fiber respectively.

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℃

3. Labeling and Package:

3-1 We distinguish each fiber with the color coatings. Different color coatings correspond to each different optical fibers. For duplex armored optical fiber cable, one coating color is blue, the other is white color. It is easy for customer's identification.

3-2 Each armored optical fiber cable is printed with markings on the outer jacket or adhered to an additional tape. The markings on the outer jacket or tapes show the following information:

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

The marked intervals are no less than 1-m throughout the cable length.

4. References:

1. GR-326-CORE Generic Requirements for Single mode Optical Connectors and Jumper Assemblies.

2. GR-409-CORE Generic Requirements for Premises Fiber Cables.

Notice:

All the above specifications are subjected to change without prior notice. Customized specifications are possible upon request. The manufacturer also reserves the right to make improvements to the products.