FTTH OPTICAL FIBER CABLE

OptoWire-ID-FL(D)

Fiber count	N	FRP
1/2/4FO	150	1

Description

Indoor cable,suitable for wall installation.

1.1 Scope

This listed specification covers the design requirements and performance standard for the supply of optical fiber cable in the industry. It also includes OptoWire premium designed cable with optical, mechanical and geometrical characteristics

1.2 Cable name

OptoWire-ID-FL 1/2/4FO – G.657A2

1.3 Cable description

OptoWire cable possesses high tensile strength and flexibility in compact cable sizes. At the same time, it provides excellent optical transmission and physical performance.

1.4 Quality

Excellent quality control is achieved through intense in-house quality check and stringent audit acceptance by ISO 9001.

1.5 Reliability

Initial and periodic product qualification tests for performance and durability are performed rigorously to ensure product reliability.

1.6 Reference

The cable which OptoWire offered are designed, manufactured and tested according to international standards as follows:

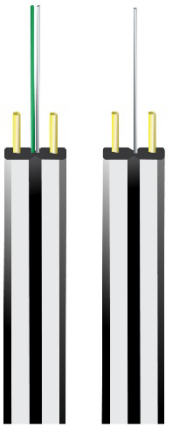
IEC 60793-1	Optical fiber Part 1: Generic specifications
IEC 60793-2	Optical fiber Part 2: Product specifications
IEC 60794-2	Optical fiber cables-part 2 indoor cables-sectional specification
ITU-T G.650	Definition and test methods for the relevant parameters of single-mode fibers
ITU-T G.657	Characteristics of a bending loss insensitive single-mode optical fiber and cable
EIA/TIA 598	Color code of fiber optic cables

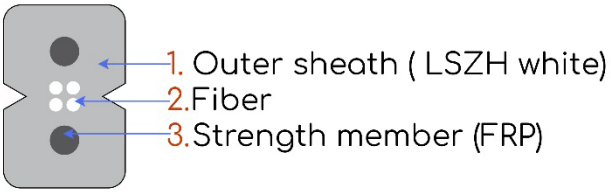
2. Optical Fiber

The optical fiber is made of high pure silica and germanium doped silica. UV curable acrylate material is applied over fiber cladding as optical fiber primary protective coating. The detail data of optical fiber performance are shown in the following table.

G. 657A2			
Category	Description	Specifications	
		Before cable	After cable
Optical Specifications	Attenuation @1310 nm	≤0.35 dB/km	≤0.4dB/km
	Attenuation @1550 nm	≤0.21 dB/km	≤0.3dB/km
	Zero Dispersion Wavelength	1300~1324 nm	
	Zero Dispersion Slope	≤0.092 ps/nm2·km	
	Macro bending Loss (10 turns; Φ30 mm) @1550 nm (10 turns; Φ30 mm) @1625 nm (1 turns; Φ20 mm) @1550 nm (1 turns; Φ20 mm) @1625 nm (1 turns; Φ15 mm) @1550 nm (1 turns; Φ15 mm) @1625 nm	≤ 0.03 dB ≤ 0.10 dB ≤ 0.10 dB ≤ 0.20 dB ≤ 0.50 dB ≤ 100 dB	
	Mode Field Diameter @1310 nm	8.6±0.4μm	
Dimensional Specifications	Cladding Diameter	125±1μm	
	Cladding non circularity	≤1.0%	
	Core/clad concentricity error	≤0.5μm	
Mechanical Specifications	Proof stress	≥1.05%	

3. Cable structure





OptoWire ID-FL-1/2/4FO-150N

Physical	Fiber count	1/2/4 G.657A2
	FRP diameter	0.5±0.1mm
	Cable dimension (width*heigth)	3.0(±0.1mm)*2.0±(0.1mm)
	Cable weight	9.8kg/km±15%
	Operation temperature range	-20 deg C to + 70 deg C
	Installation temperature range	-10deg C to + 60 deg C
	Transport and storage temperature range	-20 deg C to + 70 deg C
Mechanical	Max. tensile load	150N
	Crush resistance	1000 N/10cm
	Minimal installation bending radius	40mm
	Minimal operation bending radius	20mm

Color code scheme:

Fiber Color	Blue	Orange	Green	Brown

4. Test Requirements

Approved by various professional optical and communication product institution, OptoWire also conduct various in-house testing in its own Laboratory and Test Center. OptoWire also conduct test with special arrangement with the Chinese Government Ministry of Quality Supervision & Inspection Center of Optical Communication Products (QSICO). OptoWire possess the technology to keep its fiber attenuation loss within Industry Standards.

The cable is in accordance with applicable standard of cable and requirement of customer. The following test items are carried out according to corresponding reference.

Routine tests of optical fiber	
Mode field diameter	IEC 60793-1-45
Core/clad concentricity	IEC 60793-1-20
Cladding diameter	IEC 60793-1-20
Cladding non-circularity	IEC 60793-1-20
Attenuation coefficient	IEC 60793-1-40
Chromatic dispersion	IEC 60793-1-42
Cable cut-off wavelength	IEC 60793-1-44

4.1 Tension Loading test	
Test Standard	IEC 60794-1-21 E1
Sample length	No less than 50 meters
Load	Breaking tensile force
Duration time	1 minute
Test results	After test, change of attenuation: ≤0.4dB/km
	No damage to outer jacket and inner elements

4.2 Crush/Compression Test	
Test Standard	IEC 60794-1-21 E3
Load	Crush load
Duration time	1 minute
Test number	3
Test results	After test, change of attenuation: ≤0.4dB/km
	No damage to outer jacket and inner elements

4.3 Impact Resistance Test	
Test Standard	IEC 60794-1-2 E4
Impact energy	1J
Radius	300m
Impact points	3
Impact number	1
Test result	After test, change of attenuation: ≤0.4dB/km
	No damage to outer jacket and inner elements

4.4 Repeated Bending Test	
Test Standard	IEC 60794-1-21 E6
Bending radius	20 X diameter of cable
Cycles	30 cycles
Test result	After test, change of attenuation: ≤0.4dB/km
	No damage to outer jacket and inner elements

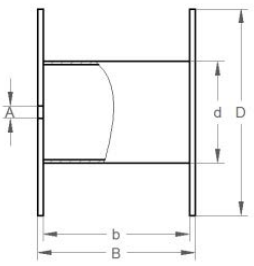
5. Packing and Drum

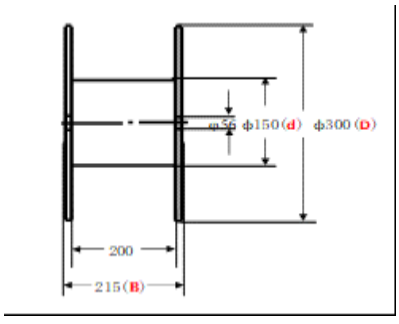
5.1 OptoWire cables are coiled on playwood drum. During transportation, right tools should be used to avoid damaging the package and to handle with ease. Cables should be protected from moisture; kept away from high temperature and fire sparks; protected from over bending and crushing; protected from mechanical stress and damage.

Playwood Drum

OptoWire Cable	D*d*B mm（weights kg） D: including seal plate thickness
Length Type	1Km/reel
OptoWire-ID-FL-1/2/4FO-G657A2	300*150*215

Description	Value
Flange diameter（mm）	300（0~+10）
Barrel diameter（mm）	150（±10）
Outer diameter width（mm）	215（-10~0）
Inner diameter width（mm）	200（±10）
Shaft hole diameter（mm）	56（0~+3）





Note: The drum size & cable weight as above is estimated and final size & weight shall be confirmed before shipment.

5.2 The color of cable marking is black. (The printing shall be carried out at interval of 1 meter on the outer sheath of cable) Outer sheath marking legend can be changed according to user's requests.

5.3 Indoor cable packing

Playwood drum