

# Optical Fibre Cable Technical Specification

## **Duct Cable**

### **LTC-RP LSZH 2,5KN -24/48 OM2/OM3/OM4**

NextraCom Optical Fibre Cable

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## 1. General

### 1.1 Scope

This Specification covers the design requirements and performance standard for the supply of optical fibre cable in the industry. NextraCom ensures a stable quality control system for our cable products through several programs including ISO 9001, ISO 14001 and OHS.

Cable type	Application
LTC-RP LSZH 2,5KN-24/48 OM2/OM3/OM4	Duct installation

### 1.2 Reference

The cable offered by YOFC are designed, manufactured and tested according to the standards as follows:

ITU-T G.651	Characteristics of a multi-mode optical fibre
IEC 60794-1-1	Optical fibre cables-part 1-1: Generic specification-General
IEC 60794-1-21	Optical fiber cables- part1-2-Generic specification-Basic optical cable test procedure-Mechanical test methods
IEC 60794-1-22	Optical fiber cables- part1-2-Generic specification-Basic optical cable test procedure-Environmental test methods
IEC 60794-3	Optical fibre cables-part 3: Sectional specification-Outdoor cables
IEC 60794-3-10	Optical fibre cables-part 3-10: Outdoor cables-Family specification for duct and direct buried optical communication cables
IEC 60794-3-11	Optical fibre cables-Part 3-11: Outdoor cables-Detailed specification for duct and directly buried single-mode optical fibre telecommunication cables

### 1.3 Life Time

Optical fibre cables supplied in compliance with this specifications is capable to withstand the typical service condition for a period of thirty (30) years without detriment to the operation characteristics of the cable.

### 1.4 Application

Item	Value
Operation temperature	-40 °C~+70 °C
Installation temperature	-40 °C~+70 °C
Storage temperature	-40 °C~+70 °C
Static bending radius	10 times the cable diameter
Dynamic bending radius	20 times the cable diameter

## 2. Optical Fibre

Optical Fibres supplied in this specification meet the requirements of ITU-T G651

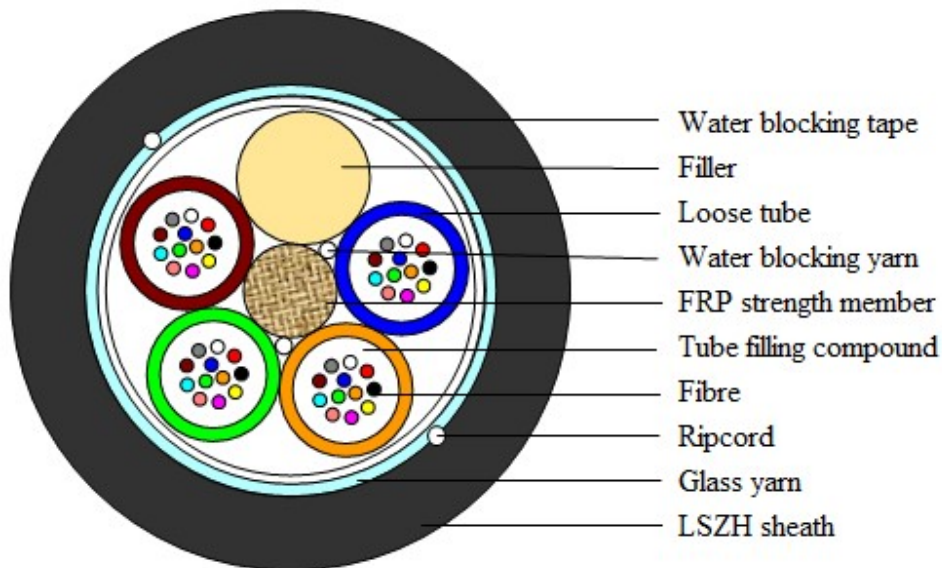
Parameters		Specification				
		OM1	OM2	OM3	OM4	OM5
		62.5/125um	50/125um	50/125um	50/125um	50/125um
Attenuation after cable (dB/km)	850nm	≤3.5	≤3.0	≤3.0	≤3.0	≤3.0
	1300nm	≤1.0	≤1.0	≤1.0	≤1.0	≤1.0
Overfilled Modal Bandwidth after cable (MHz·km)	850nm	≥200	≥500	≥1500	≥3500	≥3500
	1300nm	≥500	≥500	≥500	≥500	≥500

### 3. Optical Cable

#### 3.1 Technical Characteristics

- The unique second coating and stranding technology provide the fibres with enough space and bending endurance, which ensure good optical property of the fibres in the cable
- Accurate process control ensures good mechanical and temperature performance
- High quality raw material guarantees the long service life of cable
- Glass yarn can be used as rodent-protected material.
- The black LSZH sheath shall be uv-resistant.

#### 3.2 Cross Section of Cable



**LTC-RP LSZH 2,5KN-48OM2/OM3/OM4**

Structure of other fibre counts refer to 3.4

*Schematic for reference only*

#### 3.3 Fibre and Loose Tube Identification

The color code of fibres and loose tube will be identification in accordance with the following color sequence, other sequence also is available.

	1	2	3	4	5	6
Color Code	Blue	Orange	Green	Brown	Grey	White
	7	8	9	10	11	12
	Red	Black	Yellow	Purple	Pink	Aqua

The color of the fillers will be black.

### 3.4 Dimensions and Descriptions

The standard optical cable structure is shown in the following table, other structure and fibre count are also available according to customer requirements.

Item	Contents	Value
		24/48
Structure	Type	1+5
Loose tube	Max Fiber counts/tube	12
	Outer diameter (mm)	2.4
Central strength member	Material	FRP
	Diameter (mm)	1.8
	PE Layer Diameter (mm)	--
Water blocking	Material	Water blocking tape & yarn
Peripheral strength member	Material	Glass yarn
Outer Sheath	Material	LSZH
	Color	Black
	Thickness (mm)	Nominal: 1.5
Ripcord	Number	2
Cable diameter(mm) Approx.		9.8
Cable weight(kg/km) Approx.		105

### 3.5 Main Mechanical and Environmental Performance

Item	Tension(N)	Crush(N/100mm)
24/48	2500	1500

#### 4. Mechanical, Physical and Environmental Test Characteristics

The mechanical and environmental performance of the cable are in accordance with the following table. Unless otherwise specified, all attenuation measurements required in this section shall be performed at 1300nm.

Items	Test Method	Requirements
<b>Tension</b>	<u>IEC 60794-1-21-E1</u> Load: According to 3.5 Sample length: Not less than 50m. Duration time: 1min.	Additional attenuation: $\leq 0.4$ dB after test No damage to outer jacket and inner elements
<b>Crush</b>	<u>IEC 60794-1-21-E3A</u> Load: According to 3.5 Duration of load: 1min	Additional attenuation: $\leq 0.4$ dB after test No damage to outer jacket and inner elements
<b>Impact</b>	<u>IEC 60794-1-21-E4</u> Radius: 300 mm Impact energy: 10 J Impact number: 1 Impact points: 3	Additional attenuation: $\leq 0.4$ dB No damage to outer jacket and inner elements
<b>Repeated bending</b>	<u>IEC 60794-1-21-E6</u> Bending radius: 20*D Cycles: 25 Load: 150N	Additional attenuation: $\leq 0.4$ dB No damage to outer jacket and inner elements
<b>Torsion</b>	<u>IEC 60794-1-21-E7</u> Cycles:10 Length under test: 1m Turns: $\pm 180^\circ$ Load:150N	Additional attenuation: $\leq 0.4$ dB No damage to outer jacket and inner elements
<b>Water Penetration</b>	<u>IEC 60794-1-22-F5B</u> Time : 24 hours Sample length : 3m Water height : 1m	No water leakage.
<b>Temperature cycling</b>	<u>IEC 60794-1-22-F1</u> Sample length: at least 1000m Temperature range:-40 °C~+70 °C Cycles:2 Temperature cycling test dwell time: 12 hours	The change in attenuation coefficient shall be less than 0.4 dB/km.
<b>Other parameters</b>	According to <u>IEC 60794-1</u>	

## **5. Packaging and Drum**

### **5.1 Cable Sheath Marking**

Unless otherwise specified, the cable sheath marking shall be as follows:

- Color: white
- Contents: NEXTRA OPTICAL CABLE, the type of cable, the year of manufacture, length marking
- Interval: 1 m

Outer sheath marking legend can be changed according to user's requests.

### **5.2 Reel Length**

Standard reel length: 2/4 km/reel, other length is also available.

### **5.3 Cable Drum**

The cables are packed in fumigated wooden drums.

### **5.4 Cable Packing**

Both ends of the cable will be sealed with suitable plastic caps to prevent the entry of moisture during shipping, handling and storage. The inner end is available for testing.