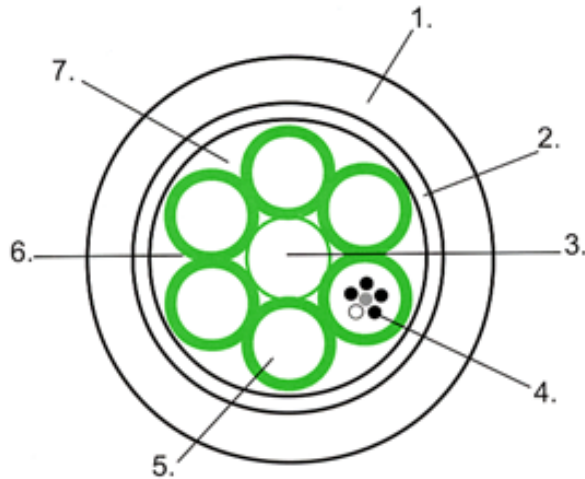


## DUCT INSTALLATION OPTICAL FIBER CABEL SIGNLE MODE AND MULTI MODE

### 1. Applications

1. This type of cable is generally installed in HDPE ducting
2. Used for long haul communication system.
3. Local area network system.

### 2. Cable Cross Section



- PE sheath
- Water Blocking Tape
- Fiber reinforced Plastic
- Optical Fiber
- Jelly Filling
- PBTP Loose Tube
- Jelly Filling  
(Or Water Sweelable Yarn)

### 3. ABLE MATERIAL SPECIFICATION AND CONSTRUCTION

ABLE MATERIAL SPECIFICATION AND CONSTRUCTION	
Central Strength Member	Fiber Reinforced Plastic Rod.
Loose tubes	Polybutylene Terehthalate and Masterbatch The loose tubes are filled with Thixotropic get together with between 1-12 fibers per tube.
Filler Rods	Polyethylene
Standing	The SZ stranding method is used to strand the required number of fiber filled loose tubes, filler rods and central strength member that are then binder together.
Flooding Gel	The cable core interstices are flooded with petrolrum Jelly
Water Blocking Tape	Top Swell Non-Conductive Tape applied Longitudinally to prevent water.
Rip Cord	Polyaramid ripcord is placed before the Sheath.
Outer Sheath	Black Polyethylene.

#### 4. IDENTIFICATION OF OPTICAL FIBER AND LOOSE TUBE

Fibers in each tube are colored with UV cured coloring ink. The color codes will change according to customer's specification.

Number	Fiber	Tube
1	Blue	Blue
2	Yellow	Yellow
3	Green	Green
4	Red	Red
5	Violet	Violet
6	Brown	Brown
7	Natural/White	White
8	Orange	Orange
9	Pink	-
10	Black	-
11	Grey	-
12	Aqua	-

#### 5. OPTICAL FIBER CHARACTERISTICS IN CABLE

The optical fiber is made of high purity synthetic quartz and coated with UV cured acrylate material which meets standard set by ITU-T.

PARAMETER	VALUE	
-	9/125 $\mu\text{m}$	50 or 62.5/125 $\mu\text{m}$
Type of Fiber	Non-Dispersion Shifted Single Mode Optical Fiber-Step Index	Non-Dispersion Shifted Multi mode Optical Fiber-Graded Index
Fiber Core	$\text{GeCl}_4 + \text{SiCl}_4$	$\text{GeCl}_4 + \text{SiCl}_4$
Fiber Cladding	$\text{SiCl}_4$	$\text{SiCl}_4$
Core Diameter	$8 \pm 1.0 \mu\text{m}$	$50 \pm 3.0 \mu\text{m}$ $62.5 \pm 3.0 \mu\text{m}$
Cladding Diameter	$125 \pm 1 \mu\text{m}$	$125 \pm 2 \mu\text{m}$
Numerical Aperture	$0.12 \pm 0.01$	50 / 125 : $0.200 \pm 0.015$ 62.5/125: $0.275 \pm 0.015$
Bandwidth	Not Application	50/125 $\mu\text{m}$ 850 nm: $\geq 400 \text{ MHz/KM}$ 1300 nm: $800 \text{ MHz/KM}$ 62.5/125 $\mu\text{m}$ 850 nm: $\geq 200 \text{ MHz/KM}$ 1300 nm: $\geq 600 \text{ MHz/KM}$
Average Attenuation	1310 nm: $\leq 0.35 \text{ dB/KM}$ 1550 nm: $\leq 0.25 \text{ dB/KM}$	850 nm : $\leq 3.0 \text{ dB/KM}$ 1300 nm: $\leq 1.0 \text{ dB/KM}$
Maximum Attenuation	1310 nm: $\leq 0.40 \text{ dB/KM}$ 1550 nm: $\leq 0.30 \text{ dB/KM}$	850 nm : $\leq 3.5 \text{ dB/KM}$ 1300 nm: $\leq 1.2 \text{ dB/KM}$

## 6. MECHANICAL CHARACTERISTICS OF CABLE

ITEMS	STANDARDS	PARAMETER	SPECIFICATION
TENSILE STRENGTH	IEC 794-E1	Load	2500-3500N
		Sample length	150 meters
		Loops	3
CRUSH RESISTANCE	IEC 794-E3	Load	3000 N
		Sample length	1 meter
		Plate diameter	100 mm
TORSION ANGLE	IEC 791-E7	Turing angle	$\pm 180^\circ/2$ meters
		No.of cycles	10
		Weight	10 kgs
REPEATED BENDING	IEC 794-E6	Bending radius	100 mm
		Bending angle/Load	$\pm 90^\circ/10$ kg
		No. of turns	4 ( 0.2 cycle/sec)
WATER PENETRATION	IEC794-1-F1	Water pressure	1 meter column
		Sample length/Exposed	3 meters/25 mm
		Test period/Environment	24 hours/20°C
IMPACT STREGNTH	IEC 794-E4	Impact height	540 mm
		No. of impacts	3
		Radius of impact	20 mm
		Load	3.75 kgs

## 7. ENVIRONMENTAL CONDITIONS OF CABLE

### A. Temperature Range:

Operating	-20°C~+70°C
Installation	-20°C~+70°C
Storage	-20°C~+80°C

### B. Humidity Range:

Operating	0-100% non-condensing
Installation	0-100% non-condensing

## **8. CABLE IDENTIFICATION**

- Length Marking:  
Length marking will be hot foiled printed onto the cable surface of intervals of 1 meter and printing will either be white or yellow referring to specifications provided.
- Marking:  
Outer sheath will be marked "HOLD KEY", XXC SM, Year of manufacture. The marking can be changed subject to customer's requirements.

## **9. PACKING**

The cable will be wound onto a chemically treated wooden drum. Both ends of the cable will be shrink-capped.