

# DATA SHEET of KOVINA Networks



2024

[www.kovina-networks.com](http://www.kovina-networks.com)

- 1. Patch Cables for DATA CENTER**
- 2. MPO/MTP Assemblies for DATA CENTER**
- 3. TPU 3.0mm FTTH Drop Cable**
- 4. Dual Jacket 4.5mm FTTH Drop Cable**
- 5. CPRI Cable(FTTA & Hybrid)**
- 6. Power & Fiber Hybrid Cable (12X24)**
- 7. Hybrid Cable(2x2)**
- 8. Hybrid Cable(2x2) with Micro Armor Fiber**
- 9. PLC Splitter & LGX Module for GPON**
- 10. Attenuator(Fixed& In Line)**
- 11. OTP/ODF**

## General Features

1. Compliant with JIS C-5973, IEC, Bellcore
2. Optical performance 100% factory tested
3. Standard length of SC, LC, FC, ST, MU and E2000 assemblies in stock
4. Customized assemblies available including various length, connector type and quality –level(Premium grade & Access grade)
5. Precision Ceramic ferrule with IEC protocol
6. TPU(Thermoplastic Polyurethane), PVC, LSZH, OFNP, OFNR and Armored jacket available
7. For FTTx, Data Center, Drop Cable, etc.

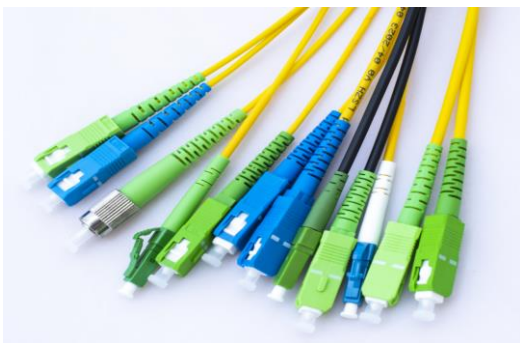
## Technical Specification

Parameters	Conditions	Values
Insertion loss	Against reference connector	$\leq 0.2, \leq 0.3\text{dB}$
Return loss	UPC	$\leq -55\text{dB}$
	APC	$\leq -65\text{dB}$
Durability	500 times	$\leq 0.2\text{dB}$
Temperature cycling	$-40 \sim + 80^{\circ}\text{C}(42 \text{ cycle})$	$\leq 0.2\text{dB}$
Humidity cycling	$75^{\circ}\text{C}, 93\%/336\text{Hr.}$	$\leq 0.2\text{dB}$
Vibration	$10 \sim 55\text{Hz} (2 \text{ Hr.})$	$\leq 0.2\text{dB}$
Flex test	$0^{\circ} \rightarrow 90^{\circ} \rightarrow 0^{\circ} \rightarrow 90^{\circ}, 50\text{Kgf}(100 \text{ cycle})$	$\leq 0.2\text{dB}$
Twist test	$0.9\text{mm} : 0.7\text{Kgf}, 2.0\text{mm} : 1.53\text{Kgf}$	$\leq 0.2\text{dB}$
Straight pull test	100N load	$\leq 0.2\text{dB}$
Impact test	1.5m drop, 8 times	$\leq 0.2\text{dB}$

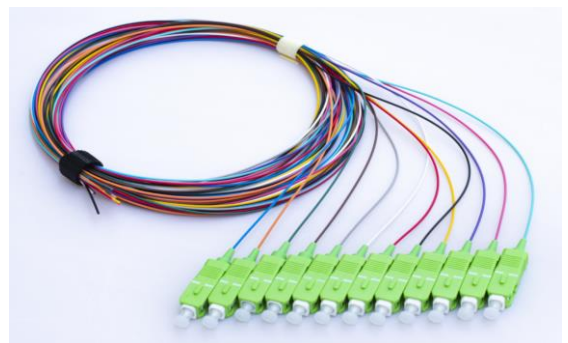
## Data Center



## Various type of Patch Cables



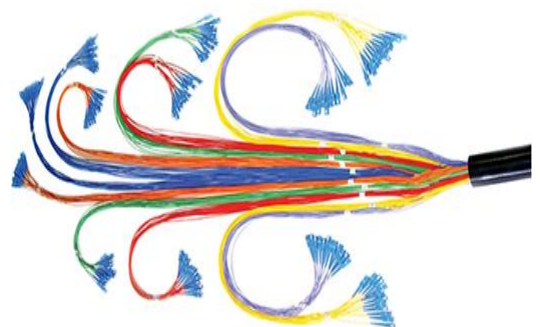
LC, SC, FC Patch Cable



12 Color Pigtail



Armored Breakout Cable



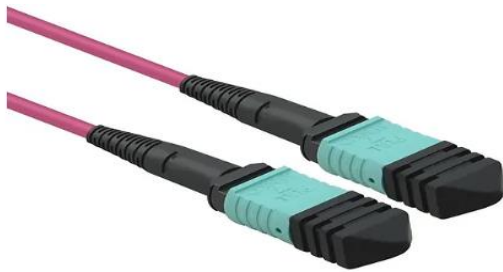
144fiber Loose Tube Cable

### General Features

1. SM and MM 8, 12 and 24fibers strands, UPC or APC available
2. Male or Female Connector(no guide pins)
3. Keying, position of the key, is Key Up.
4. Fiber-Polarity is Type A, B and C Reversed.

### Technical Specification

Parameters	Specification		
Wavelength	MM	850/1310nm	
	SM	1310/1550nm	
Fiber	8, 12, 24 fibers ( SM : G657 A1, A2, B5 / MM : OM 3, 4, 5)		
Cable Jacket	Ø3.0 Flat or Round, LSZH, OFNR, OFNP Jacket		
Jacket color	SM	Yellow	
	OM3	Aqua	
	OM4	Aqua/Violet	
	OM5	Lime green	
Insertion loss	MPO/MTP	Standard	≤ 0.70dB
		Low loss	≤ 0.35dB
	LC, SC, FC, MU	≤ 0.30dB	
Return loss	MM	≤ -25dB	
	SM(UPC)	≤ -55	
	SM(APC)	≤ -65	
Polarity	Type A, B and C		
Operating temperature	-10°C ~ +70°C		
	-40°C ~ +80°C		



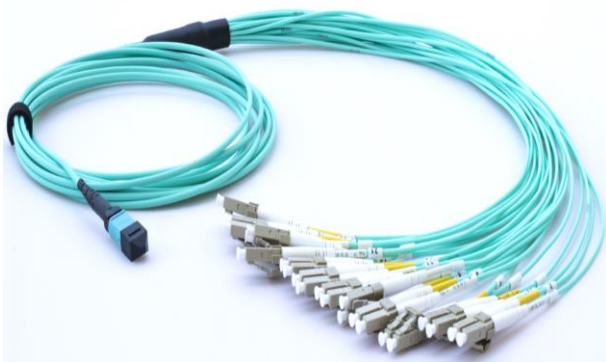
OM4 MPO



SM MPO



OM3 MPO-MPO 12 Fibers

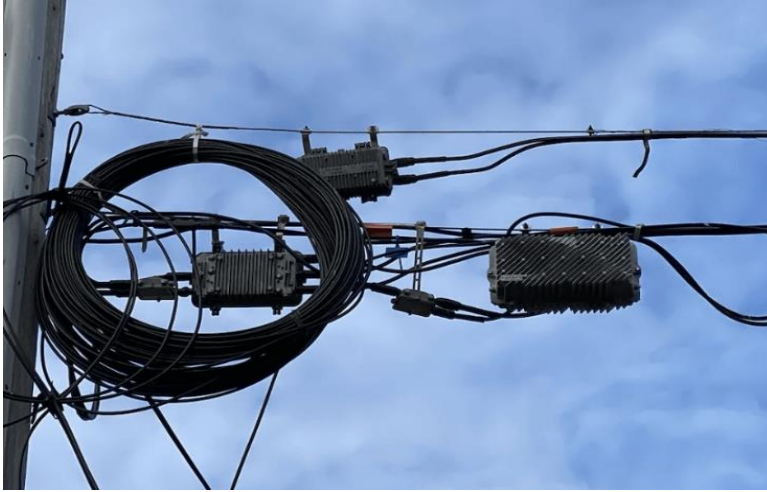


OM3 MPO – LC 24 Fiber Fanout Cable



OM4 MPO-MPO 24 fibers

## FTTH Network Connection



from Telephone Pole



TPU 3.0mm Drop Cable  
TPU : Thermoplastic Polyurethane



Dual Jacket 4.5mm Drop Cable



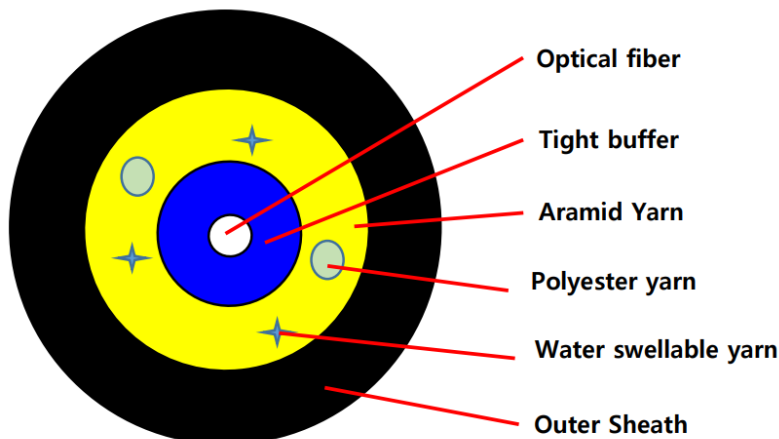
to Home(Subscriber)

## Applicable Standards

1. ITU-T G.650 Definition and test methods for the relevant parameters of SM fibers
2. ITU-T G.657 Characteristics of G.657A2 fiber and cable
3. IEC 60793-1 Optical fiber Part 1 : Generic specification
4. IEC 60793-2 Optical fiber Part 2 : Product specifications
5. IEC 60794-1 Standard for optical fiber outside plant communication cable

## Cable Structure

- ✓ LC/APC Boot length : 14.5mm or 17.0mm Available
- ✓ Guarantee : Tensile > 20~30kgf/  
200~300N  
Rivet Ring AL Alloy : Tensile > 20.0/kgf  
SUS 304 : Tensile > 30.0/kgf
- ✓ Develop Special LC Rivet Ring & Stopper for narrow behind the wall





## General Structure

Structure		Material	SPECIFICATIONS
Optical fiber		Fiber	- SMF : G.657A2
		Color	- Natural
Tight Buffer		LSZH	- 900 ± 50 μm
		Color	- Blue
Outer sheath	Strength member		- Aramid yarn - Polyester yarn
	Water proof		- Water swellable yarn
	sheath	FR-TPU	- Diameter : 2.95 ± 0.1mm - Thickness : 0.75 ± 0.1mm
		Color	- Black
Marking		Ink Jet	- White , 1m,
Weight (NET. Kg/km)			- 8.7

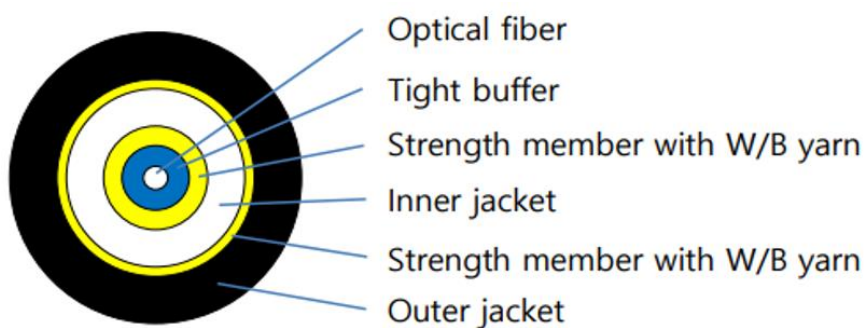
## Mechanical & Environment Requirements

NO	Item(Test Name)	Test Method	Specification
1	Tensile load IEC60794-1-2-E1	- Load: 800N - Mandrel dia.: ≥ 360mm - Length: 50m↑ - Time: 10 min.	-Loss change ≤ 0.1 dB @1550 nm
2	Crush test IEC60794-1-2-E3	- Load: 500 N - Plate: 100 x 100 mm - Time: 5 min.	-Loss change ≤ 0.1 dB @1550 nm
3	Impact test IEC60794-1-2-E4	- Radius of impacted surface: 12.5 mm - Impact load: 0.5 kg - Falling height: 150mm - Times : 10	-Loss change ≤ 0.1 dB @1550 nm
4	Torsion IEC60794-1-2-E7	- Length: 2 m - Load: 50 N - Twist angle: ±180° - No. of cycle : 5	-Loss change ≤ 0.1 dB @1550 nm
5	Temperature Cycling IEC60794-1-2-F1	- Length : 1,000m: - Temperature cycle: 20oC→-40oC→+70oC→40oC→+70oC→20oC - Number of cycle: 1 - Time per step: 12 hours	-Loss change ≤ 0.1 dB/km @1550 nm
6	Water penetration IEC60794-1-2-F5	- Cable length : 3m - Water height : 1m - Applied time : 24hour	-No leak

## Single Mode Fiber Characteristics(G657 A2)

Parameter	Specification
Attenuation coefficient @ 1310 nm @ 1550 nm	(Cabled) ≤ 0.40 dB/km ≤ 0.30 dB/km
PMD	≤ 0.2 ps/km <sup>1/2</sup>
Cable cut-off wavelength	≤ 1260 nm
Zero-dispersion wavelength	1300 ~ 1324 nm
Zero-dispersion slope	≤ 0.092 ps/(nm <sup>2</sup> .km)
Chromatic dispersion @ 1285 ~ 1330 nm @ 1550 nm	≤ 3.5 ps/(nm.km) ≤ 18.0 ps/(nm.km)
Mode field diameter @ 1310 nm	8.6 ± 0.4 μm
Core/Clad concentricity error	≤ 0.5 μm
Cladding diameter	125.0 ± 0.7
Cladding non-circularity	≤ 1.0 %
Primary Coating diameter	245 ± 10 μm
Proof test level	100 kpsi, 1%
Attenuation with bending Loss	(Fiber)
15 mm diameter, 1 turn	1550nm ≤ Δ 0.50 dB 1625nm ≤ Δ 1.00 dB
20 mm diameter, 1 turn	1550nm ≤ Δ 0.10 dB 1625nm ≤ Δ 0.20 dB
30 mm diameter, 10 turn	1550nm ≤ Δ 0.03 dB 1625nm ≤ Δ 0.10 dB

# 4. Dual Jacket 4.5mm FTTH Drop Cable



## Cable Structure

Structure		Materials	Specifications
			1 ~ 4 fibers
Optical Fiber		Single Mode	9/125µm(G657A2, G657B3)
		Color	Natural
Tight buffer		LSZH/Nylon	850µm ± 50µm
		Color conc.	Blue or white
Strengthen member			Aramid yarn or FRP
Water Proof			Water Swellable Yarn
Outer sheath	Sheath	OFNR, OFNP, LSZH or TPU	Diameter : 4.5~ 5.5mm ± 0.25mm Thickness : 0.7mm ± 0.15mm
		Color	Black
Inner Jacket		LSZH or LSOH	Low smoke zero halogen
Marking		Ink jet	White, 1m
Weight		Kg/km	25.0 ~ 26.0
Tensile Short Term			720N IEC 60794-1-21 E1
Tensile Long Term			350N IEC 60794-1-21 E1
Min. bending radius (mm)			(Static) 10D (Dynamic) 20D
Operating temperature range			-25°C to + 65°C

- ✓ LC/APC Boot length : 14.5mm or 17.0mm Available
- ✓ Guarantee : Tensile > 20~30kgf/ 200~300N Rivet Ring  
AL Alloy : Tensile > 20.0/kgf  
SUS 304 : Tensile > 30.0/kgf
- Excellent bend performance
- Non-Flammable and LSHF
- UV resistant , RoHS Compatible
- CPR rated to CCA

## Applicable Standards

1. ITU-T G.650 Definition and test methods for the relevant parameters of SM fibers
2. ITU-T G.657 Characteristics of G.657A2 fiber and cable
3. IEC 60793-1 Optical fiber Part 1 : Generic specification
4. IEC 60793-1 Optical fiber Part 2 : Product specifications
5. IEC 60794-1 Standard for optical fiber outside plant communications cable

## Single Mode Fiber Characteristics

Parameter	Unit	Specification	
		G.657A2	G.657B3
Attenuation coefficient of cabled @ 1310nm @ 1550nm	dB/km	≤ 0.40	
		≤ 0.30	
Cable cut-off wavelength	nm	≤ 1260	
Zero-dispersion wavelength	nm	1300 ~ 1324	
Zero-dispersion slope	ps/nm <sup>2</sup> -km	≤ 0.092	
Chromatic dispersion @ 1285 ~ 1330nm @ 1550nm	ps/nm <sup>2</sup> -km ps/nm <sup>2</sup> -km	≤ 3.5 ≤ 18.0	
Mode field diameter @ 1310nm	μm	8.6 ± 0.4	8.6 ± 0.4
Core/Clad concentricity error	μm	≤ 0.5	
Cladding diameter	μm	125.0 ± 0.7	
Cladding non-circularity	%	≤ 0.7	
Primary Coating diameter	μm	245 ± 10	
Proof test level	-	100 kpsi, 1%	

## Single Mode Macro Bending Loss

Parameter			Unit	Specification
Radius	Turn	Wavelength		G.657A2
15mm	10	@ 1550nm	dB	≤ 0.03
		@ 1625nm		≤ 0.1
10mm	1	@ 1550nm	dB	≤ 0.1
		@ 1625nm		≤ 0.2
7.5mm	1	@ 1550nm	dB	≤ 0.5
		@ 1625nm		≤ 1.0



Antenna Base Station(RRU)

CPRI : Common Public Radio Interface  
RRU : Remote Radio Unit  
BBU : Base Band Unit  
RRH : Remote Radio Head



Various CPRI Cable



BBU

## Various CPRI Cables for RRU & BBU

- 1. Branching with armor tube available
- 2. 5.0 ~ 7.0 mm LSZH Jacket with 2 fibers
- 3. DLC SM & MM available
- 4. 100% Waterproof



SENKO ODVA(Hybrid)



FullAXS



Corning



NSN Nokia

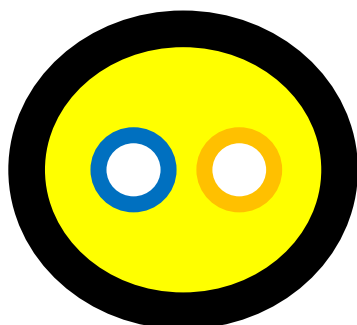
## General Features

1. 1, 2 and 4 fibers SM(G657 A1, A2, B3) & MM(OM3, OM4) available
2. All type connectors including SC, LC, FC, E2000, MPO ... can be assembled
3. Screw locking possible
4. Spot easy and simple installation
5. Waterproof, dust proof and corrosion resistant(IP65, IP68)
6. RoHS compliant
7. Customer designed connector available
8. Meets performance standard IEC 61753-1 Cat. E
9. TPU(Thermoplastic Polyurethane), PVC, LSZH, OFNP, OFNR and Armored jacket available

## Technical Specification

Characteristics	SM	MM
LC Connector	Typical	Typical
Insertion Loss	0.2db	0.2db
Return Loss	≤ -55dB	-
Durability	Cycling rate > 3 Sec	< 0.2dB
Temperature Cycling	-40 ~ +70°C	
IP Rating	IP68	

## Cable Structure(Outdoor & Indoor)



**5.0mm LSZH Jacket  
with 2 Tight Buffers(SM or MM)**



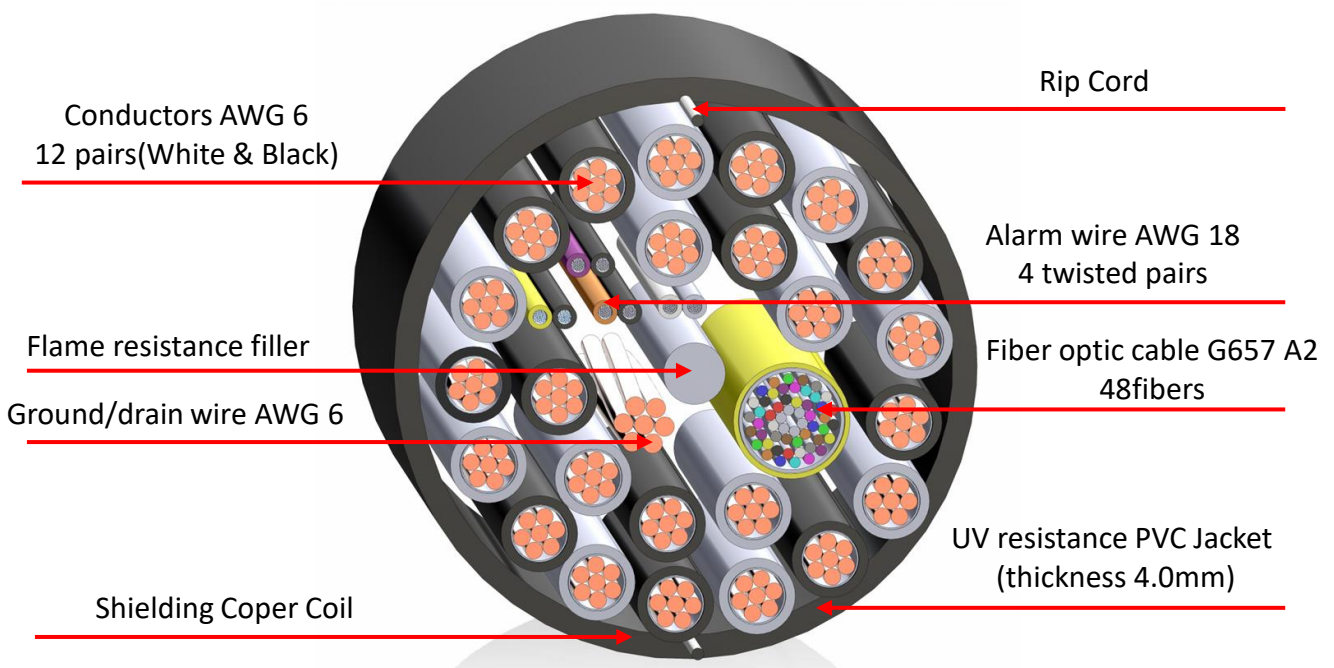
**7.0mm LSZH Jacket  
with Two 2.0mm SM or MM Fibers  
& Two Stuffing Cable**

## General Features

- 12 Pair Electric conductors (AWG 6 standard)
- 4 Twisted pair Alarm Wire (AWG 18 standard)
- 24 Fiber Optic Duplex LC Connector (Uni-boot 2.0mm)



## 1. Cable structure

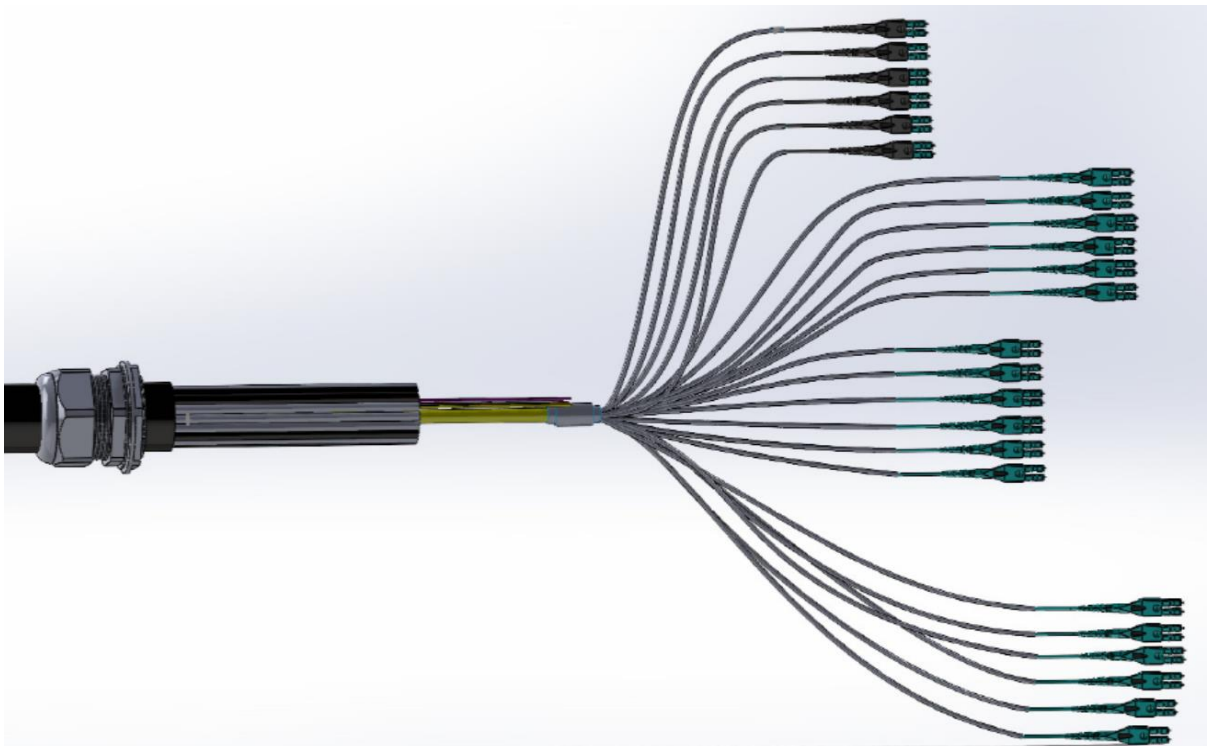




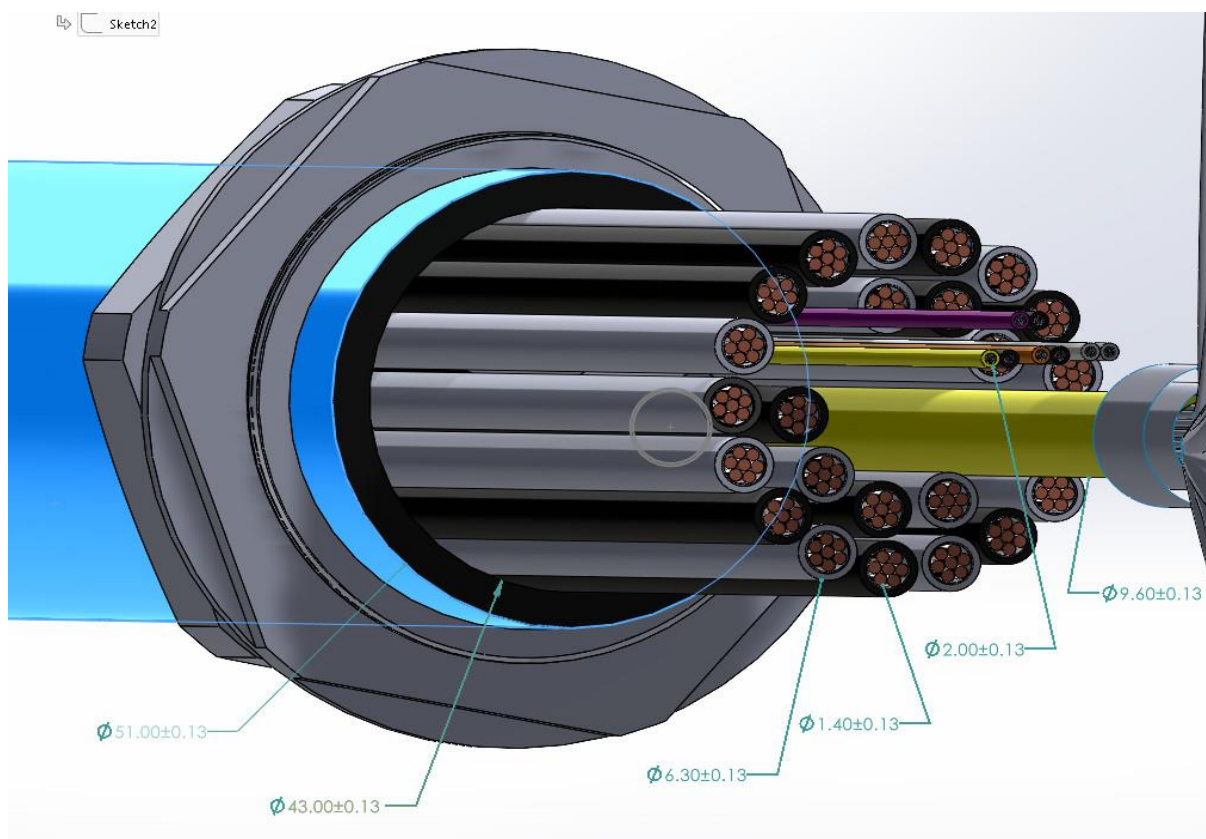
## 1.1 Cable design and specification

Composite	
Outer Diameter of Cable	51.0 ± 1.5mm (2.007" ± 0.059")
Outer Jacket Materials	PVC heat, moisture and sunlight resistant
Outer Jacket Thickness	Nom. 4.0mm +1.5mm (0.157" ± 0.059")
Out Jacket Color	Black
Weight	Nom. 11,287.67lbs/ft (5,120kg/km)
Screen Material	Coper coil 0.07mm (0.003")
Flame resistance filler	Flame resistance filler can be except, if not necessary.
Alarm wire	4 Twisted pairs AWG 18 standard
Alarm wire channeling	Channeling tube
Drain wire/Earth conductor	Copper AWG 6 (1x7 stranded conductor)
Rip Cord	2ea
Operating Temperature	-40°C ~ + 80 °C
Bending Radius (during Installation)	9.0 N
Bending Radius (fixed Installation)	4.0 N
Standards	To be supplied
Standard Reel Length	Max. 1,640.42ft (500m)

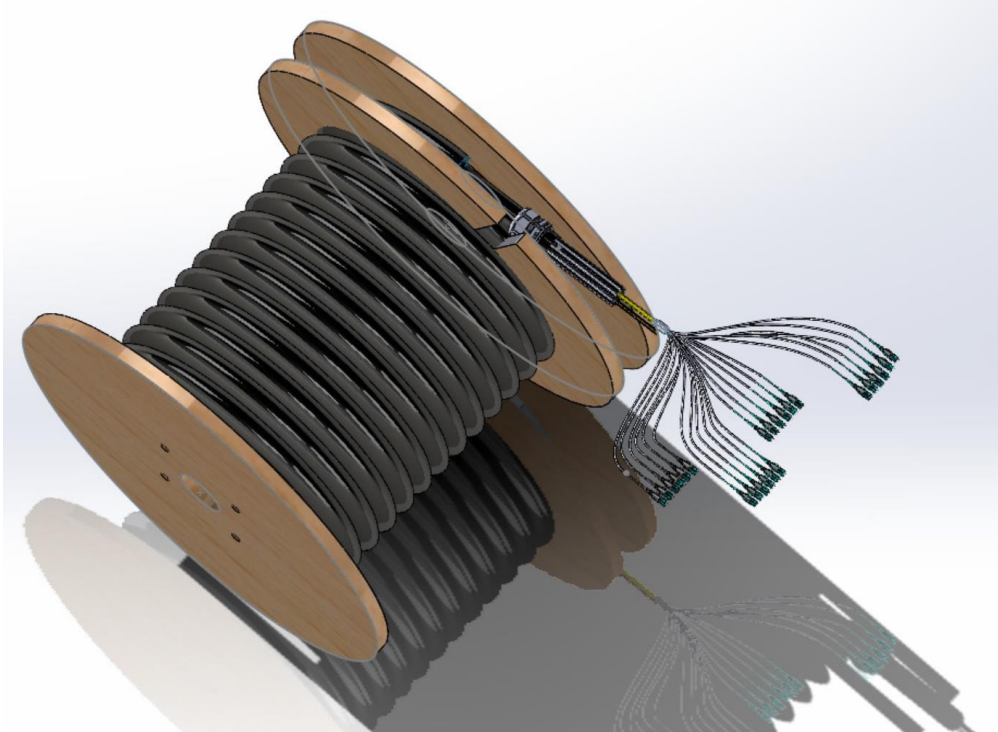
Fiber Optic Cable	
Cable type	PBT Loose tube multi-fiber unit jelly-filled or 0.9mm x 48 breakout cable
Fiber type	Single-mode G652 D or G657 A1, A2 or B3
Outer diameter of cable	9.6 ± 1.5mm (0.377" ± 0.059")
Outer jacket materials	LSZH
Outer jacket thickness	4.0mm +1.5mm (0.157" ± 0.059")
Out jacket color	Black or Yellow
Armored	Aramid Yard
Bending radius (Installation/fixed)	140mm /100 mm
Tension (Installation/Fixed)	9.0 N/4.0 N



Conductors	
Number of conductors	24 (12 Pairs)
Conductor class	AWG 6 Stranded C Class
Conductor diameter	Nom. dia. 4.115mm ( 0.162") 1.56mm x 7
Conductor jacket color	White 12, Black 12 with Channeling
Insulation material	PVC white / black
Insulation diameter	Nom. 6.3mm ± 1.0mm (0.248" ± 0.039")
Color coding	Black number 1 to 12 on white insulation and white numbers 1 to 12 on black insulation
Conductor jacket material	PVC
Inductance	< 0.2 $\mu$ H/m
Core resistance(+20°C )	1.31 $\Omega$ /km
Max. voltage	600V



## 2. Wooden Bobbin Packing



Flange Diameter : 90cm/50cm (35.433"/19.685")

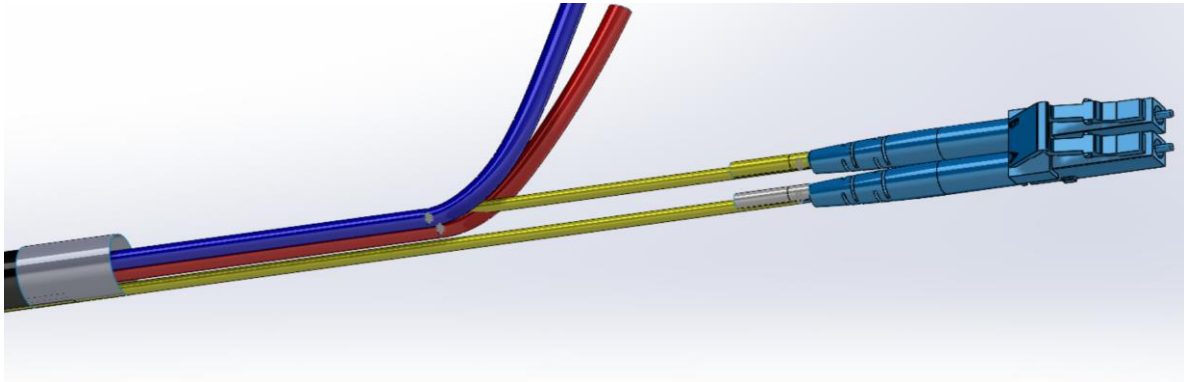
Width : 70cm : 10cm (27.59" : 3.937")

Thickness of wooden : 3cm (1.181")

# 7. Hybrid Cable 2x2

- 1 Pair electric conductor (AWG 16, 14, 12 standard)
- 2 Single-mode fiber optic 2.0mm cable
- Low inductance cable

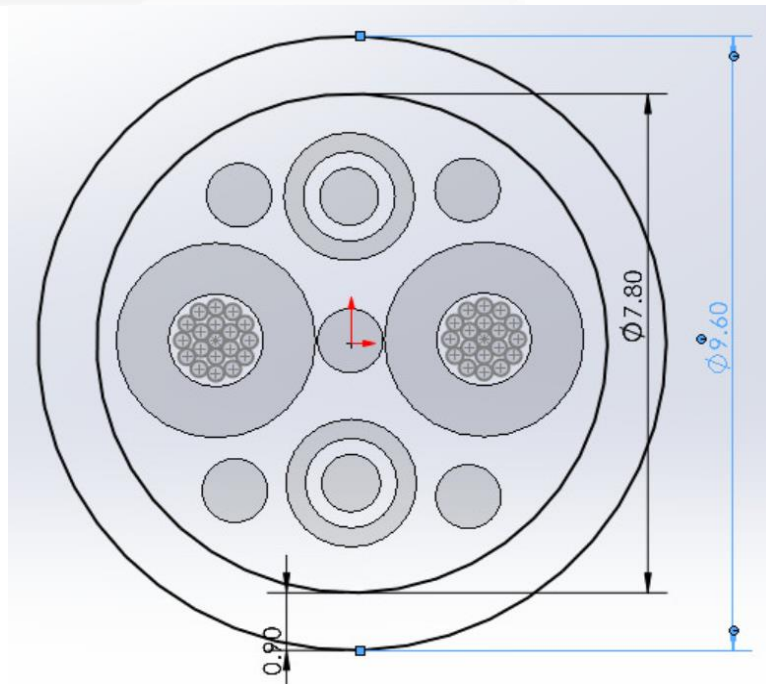
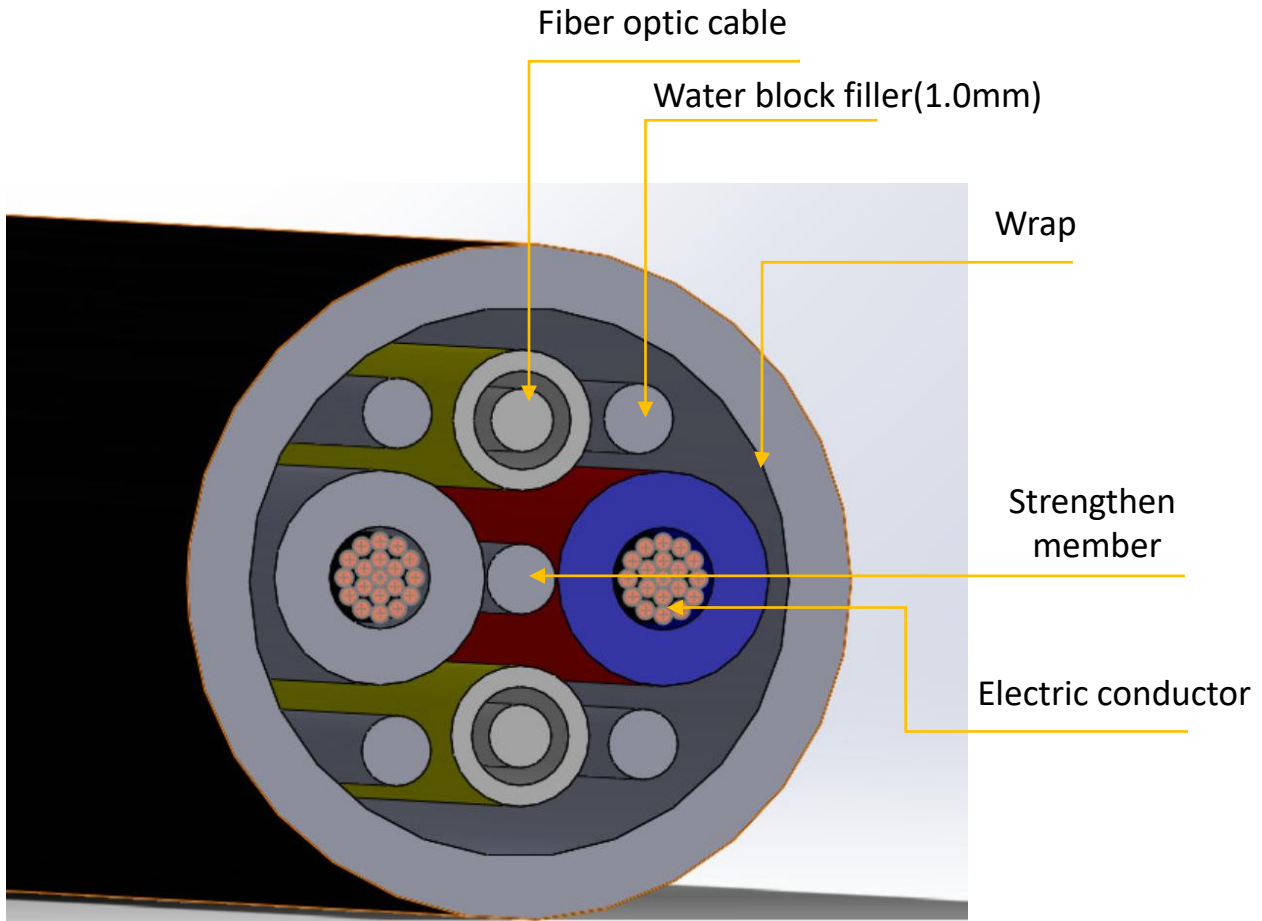
## 1. Cable General



## 2. Photoelectric Hybrid Cable Specification

Composite	
Cable Type	Photoelectric Hybrid Cable (2 Fibers + 2 Conductors)
Outer Diameter of Composite	9.6mm, 10.0mm, 11.0mm
Outer Jacket Materials	PE Heat, Moisture and Sunlight resistant(LSZH)
Outer Jacket Thickness	0.9mm ± 0.05mm
Out Jacket Color	Black
Weight	60 ~ 76~kg/km
Screen Material	Wrap coil 0.03mm
Tensile(N) Short term	600
Tensile(N) Long term	200
Crush Resistance(N/100m) Short term	1000
Crush Resistance(N/100m) Long term	300
Bending Radius(cm) Dynamic	20 x Cable Diameter
Bending Radius(cm) Static	10 x Cable Diameter

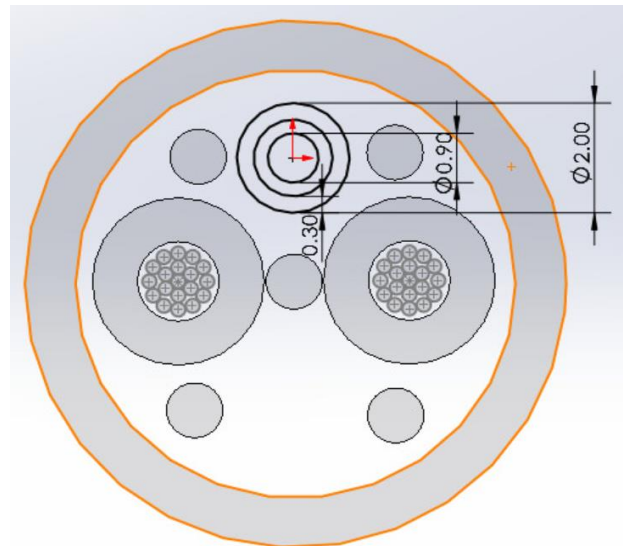
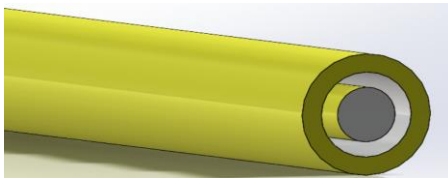
## 3. Cross Section of Cable



## 4. Fiber Optic Cable Specification(2 x 2.0mm)

Fiber Optic Cable	
Cable Type	<b>Fiber Optic Indoor Cable X 2</b>
Fiber Type	Single-mode G652 D or G657 A1,A2 or B3 fiber Available
Buffer Type	Tight 0.9mm ± 0.05mm
Outer Diameter of Cable	<b>2.0 ± 0.2mm</b>
Outer Jacket Materials	LSZH PVC
Outer Jacket Thickness	0.4 mm + 0.1
Out Jacket Color	Yellow
Strengthen Member	Aramid Yard
Bending Radius (Installation/Fixed)	100mm /7mm
Attenuation(dB/km)	≤ 0.4/1310nm, 0.3/1550nm
Connector Type	Duplex LC 2.0 SM with White and Yellow tube
Max. Loss	IL ≤ 0.35dB/150m, RL ≤ -50dB
Operating and Storage Temperature	-20°C ~ +60°C

Fiber optic cable 2.0mm

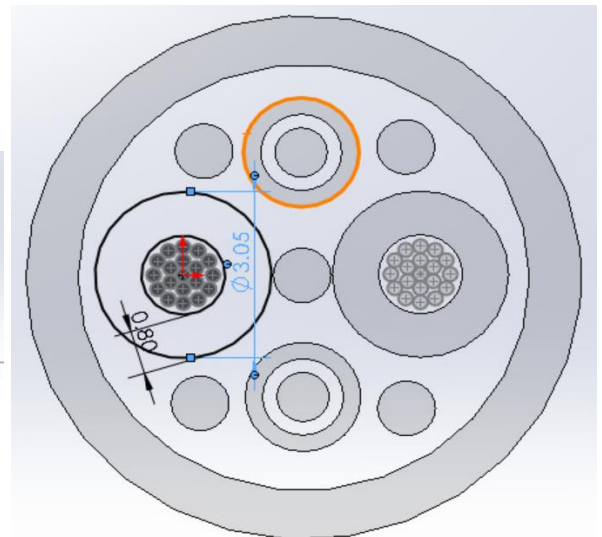
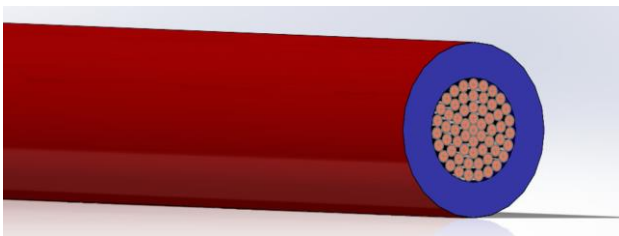


## 5. Conductor Cable Specification

Conductors	
Number of Conductors	2
Conductor AWG/Diameter	AWG 16/1.49mm, AWG 14/1.88mm, AWG 12/2.36m
Conductor Type	AWG Standard Class K
Insulation Jacket Diameter	AWG 16/3.05mm, AWG 14/3.45mm AWG 12/3.95mm
Insulation Material	PVC Jacket
Color Coding	Red and Blue
Allowable Current(A)	22.8 ~ 40.6
Max. Conductor Resistance(+20°C/Ω·km)	5.64 ~ 14.6

### AWG 16

Diameter of conductor : 1.5mm  
 Diameter of Insulation: 3.05mm  
 Outer Diameter of Composite : 9.6mm



### AWG 14

Diameter of conductor : 1.88mm  
 Diameter of Insulation: 3.45mm  
 Outer Diameter of Composite : 10.0mm

### AWG 12

Diameter of conductor : 2.36mm  
 Diameter of Insulation: 3.95mm  
 Outer Diameter of Composite : 11.0mm

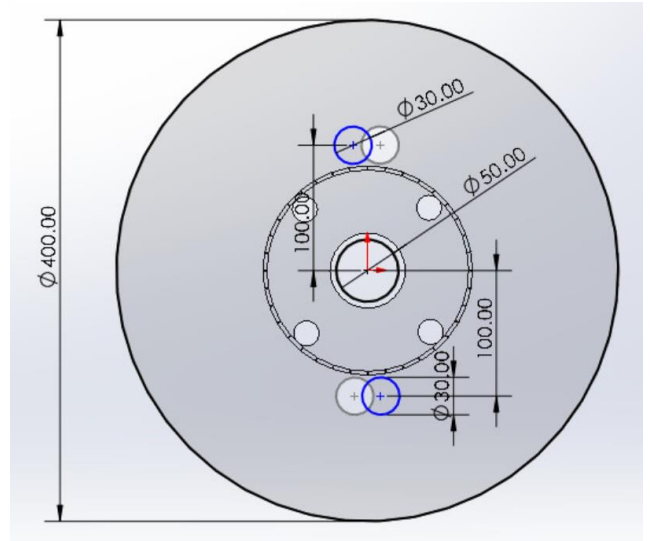
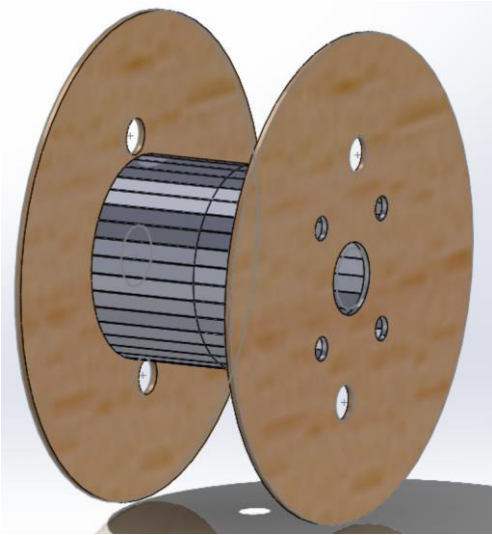


## 6. Wooden Bobbin Packing

Flange Diameter : 40cm

Width : 20cm

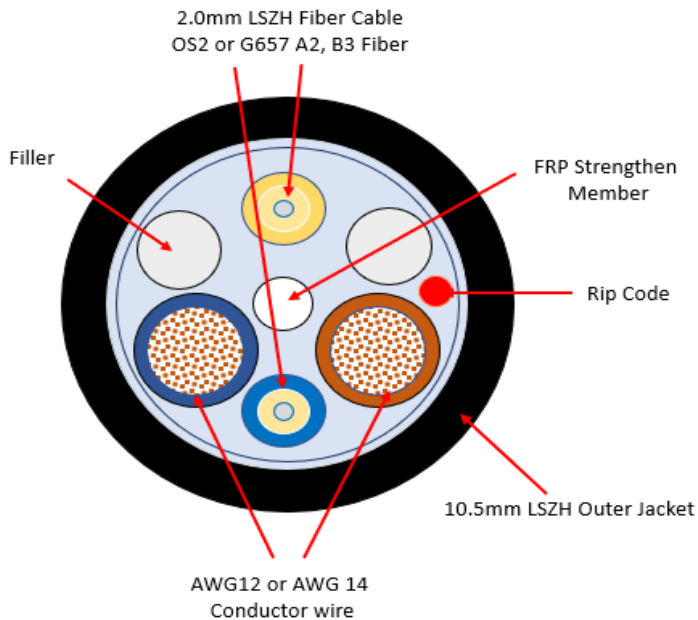
Thickness of wooden : 0.5~0.6cm



## General Features of Customized ODVA

1. Hybrid cable 1.0~ 2.0 for FTTA and FTTH
2. LC, SC and MPO connector available
3. IP rate IP64, 67, 68
4. Low IL & RL and PDL
5. Armored sheath available

### Hybrid cable Cross Section



Cable Jacket	OFNR or TPU
IP rating	IP67
Min. working temperature	-40 °C
Max. working temperature	+80 °C
Diameter	4.0~7.5mm
Fiber cable	0.9 ~2.0mm *2
Power cable	2.0~3.5mm *2



Hybrid cable 1.0  
(Separated fiber from power)



Hybrid cable 2.0  
(Integrated fiber and power)

## Senko ODVA



- IP68 rated hybrid connector
- LC 2 fibers and 2\*12AWG power
- Ruggedized 100lbf pull power
- For simplified cable development



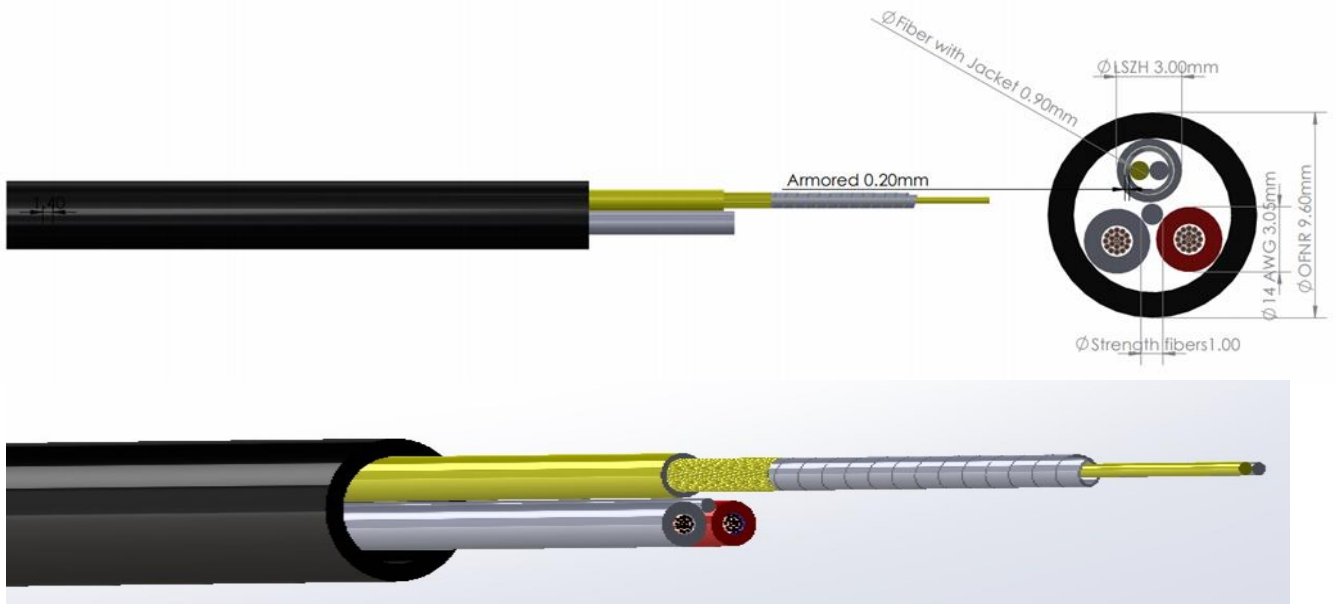
Metal Reel up to 200m



Paper bobbin up to 100m

# 8. Hybrid Cable 2x2 with Micro Armor Fiber

- 1 Pair electric conductor (AWG 16, 14, 12 standard)
- 2 Single-mode fiber optic(OS2, G657 A1 A2 or B3) 3.0mm cable
- 3. Low inductance cable



## 2. Photoelectric Hybrid Cable Specification

Composite	
Cable Type	Photoelectric Hybrid Cable (2 Fibers + 2 Conductors)
Outer Diameter of Composite	9.6mm, 10.5mm, 11.0mm
Outer Jacket Materials	TPE Heat, Moisture and UV resistant(LSZH)
Outer Jacket Thickness	0.9~1.2mm ± 0.2mm
Out Jacket Color	Black
Weight	100~110kg/km
Strengthen Member	FRP
Tensile(N) Short term	600
Tensile(N) Long term	200
Crush Resistance(N/100m) Short term	1000
Crush Resistance(N/100m) Long term	300
Bending Radius(cm) Dynamic	20 x Cable Diameter
Bending Radius(cm) Static	10 x Cable Diameter

## 3. Fiber Optic Cable Specification(2 x 2.0mm)

Fiber Optic Cable	
Cable Type	<b>2–Strand micro armor fiber Optic Cable</b>
Fiber Type	Single-mode OS2 or G657 A1,A2 or B3 fiber Available
Buffer Type	Tight 0.65 or 0.9mm ± 0.05mm
Outer Diameter of Cable	<b>3.0 ± 0.3mm</b>
Outer Jacket Materials	LSZH
Outer Jacket Thickness	0.4 mm + 0.1
Out Jacket Color	Yellow or Black
Strengthen Member	Aramid Yard
Bending Radius (Installation/Fixed)	100mm /7mm
Attenuation(dB/km)	≤ 0.4/1310nm, 0.3/1550nm
Connector Type	Duplex LC 2.0 SM with White and Yellow tube
Max. Loss	IL ≤ 0.35dB/150m, RL ≤ -50dB
Operating and Storage Temperature	-20°C ~ +60°C

### 2-strand micro armor fiber optic cable

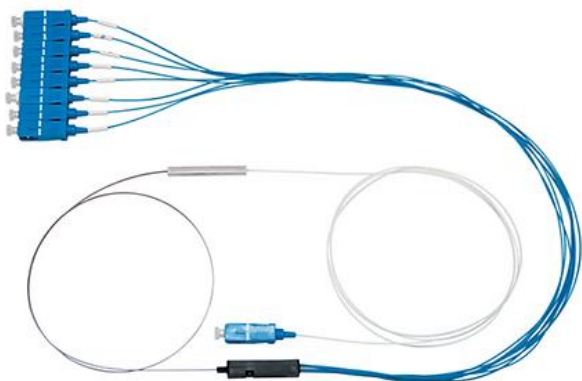


## General Features

1. Single mode 1XN , 2XN PLC Splitter
2. Optical Splitters can also be available Multi mode splitter, ITU-T G652D or G657 Fiber Available.
3. Comply with GR1209-CORE, GR-1221-CORE Testing
4. Low IL & RL and PDL
5. High Uniformity

## Technical Specification

Parameters	Unit	1x4	1x6	1x8	1x16	1x32	1x64	2x4	2x8	2x16	2x32
Wavelength	nm	1260 ~ 1650									
Insertion loss	dB	7.6	8.5	10.5	13.9	17.2	20.6	7.8	11.2	14.5	18.0
Return loss	dB	≤ -55									
PDL(DL)	dB	≤ 0.3									≤ -0.4
Uniformity	dB	0.8	0.9	1.0	1.5	1.8	1.8	1.2	1.5	2.0	2.5
Directivity	dB	≤ -55									
Operation Temp.	dB	-40 ~ + 80°C									



**PLC Splitter Module**



**PLC Splitter Package**



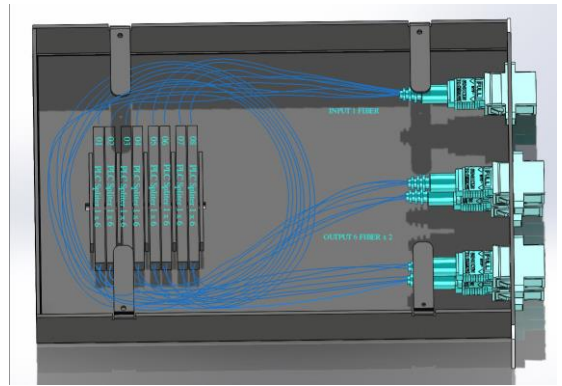
Cassette Type



LGX



19" Rack Type(SC 64 Fibers  
LC 128 fibers)



Customized LGX Module(MPO and Splitter)



## General Features

1. Optical Performance 100% factory tested
2. PC, UPC and APC available
3. Polarization insensitive
4. Compact design fits in existing connections or patch panels
5. Convenience and easy of handing

## Technical Specification

Parameters	Conditions	Values
Insertion loss	1 ~ 30dB	Attenuation 1 ~ 10dB( $\pm 0.5$ ), 11 ~ 30dB( $\pm 10\%$ )
Return loss	UPC	$\leq -55$ dB
	APC	$\leq -65$ dB
Durability	500 times	$\leq 0.2$ dB
Temperature cycling	-40 ~ + 80°C(42 cycle)	$\leq 0.2$ dB
Humidity cycling	75°C, 93%/336Hr.	$\leq 0.2$ dB
Vibration	10 ~ 55Hz (2 Hr.)	$\leq 0.2$ dB
Straight pull test	100N load	$\leq 0.2$ dB
Impact test	1.5m drop, 8 times	$\leq 0.2$ dB

### Fixed Type







**Patch Cord Type(In Line Attenuator)**

## 1. OTP

1. Fusin Splicing
2. PLC Splitter Installation
3. Connection of Micro Duct with Blowing Fiber
4. Port for Main Cable Entrance & Mid-pan & 8-12 Port for Subscriber
5. Saving Time by Simple Fixing Method of SC, LC Adapters
6. Choice of Versatile Cable IN/OUT Panel according Customers to Need
7. Complied with IP65
8. Easy & Simple Field Installation by Factory Pre-assembling



**OTP 04**



**OTP 08**



**OTP 16A**

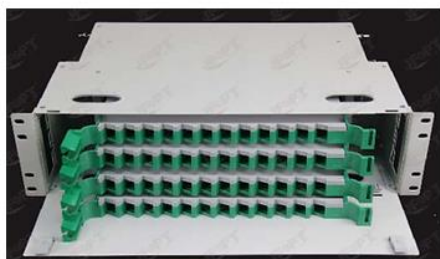


**OTP 16B**

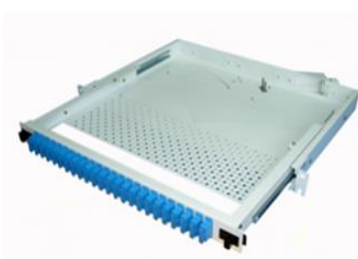


## 2. ODF/FDF

1. Capacity: SC adapter 12~48 fibers(F4 In & 4 Out), if it is LC duplex adapter, the capacity can be double
2. With changeable adapter plate and can be with SC, LC, ST and FC adapter
3. The box will be with accessory such as fiber tray, fiber winding wheel, fiber protection sleeve, cable tie and so on
4. Widen working space and easy for splicing, slack storage and distribution
5. With lock on the door
6. Individual adapter plate and easy for installation and back out
7. Steel plates and aluminum alloy
8. Up to 4 Splicing tray(ABS Plastic) installable
9. Suitable for both loose tube and ribbon cable management
10. The customer is able to order completed set with adapter and pigtail
11. Materials : Powder coated steel or Aluminum
12. Comply with IP65(out door)



**KN-ODF-CT48**



**KN-ODF-DR24(Drawer Type)**



