REAL OPTIC

Specification

For

ARMORED TYPE LOOSE TUBE CABLE

- Type : Dielectric Cable
  Single Jacket Single Armored
  Glass yarn Armored, LSZH
  G.652D / OM3 6F, 12F, 24F, 48F
- Spec. No. : OS2/OM3LTGYAxxUBK
- RealOptic

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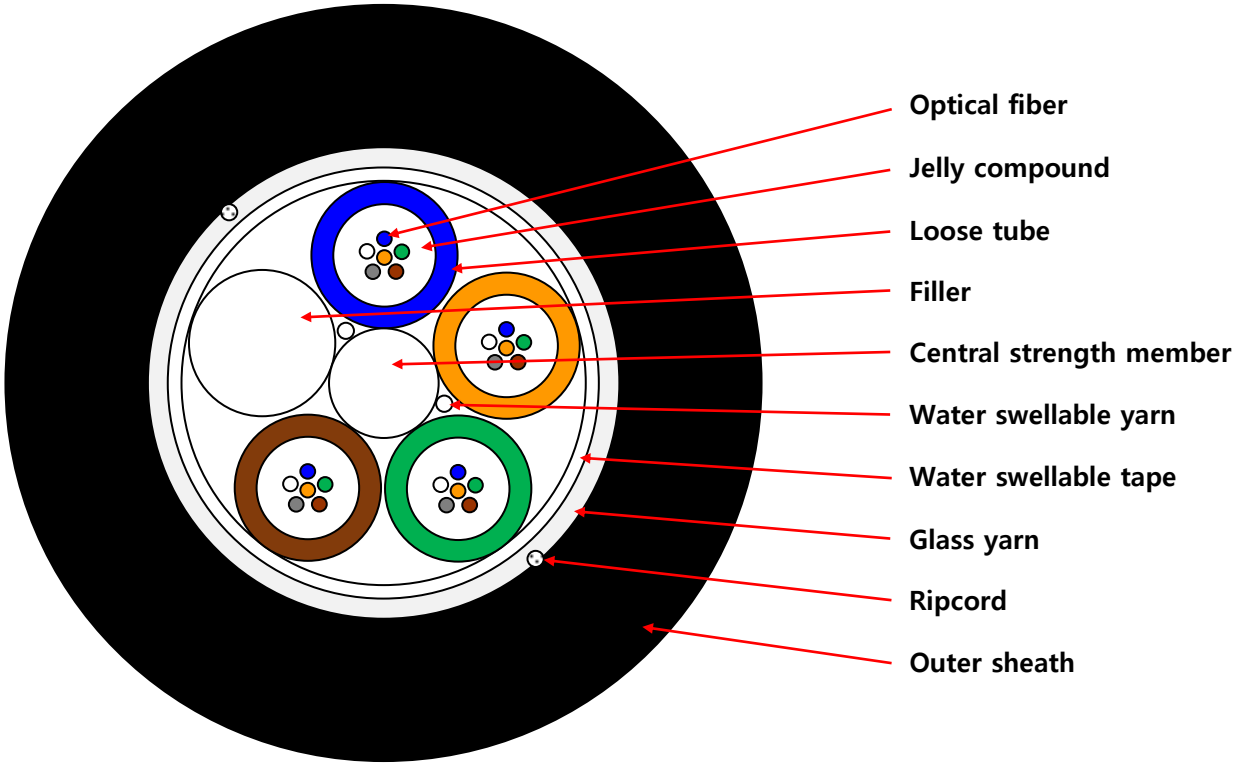
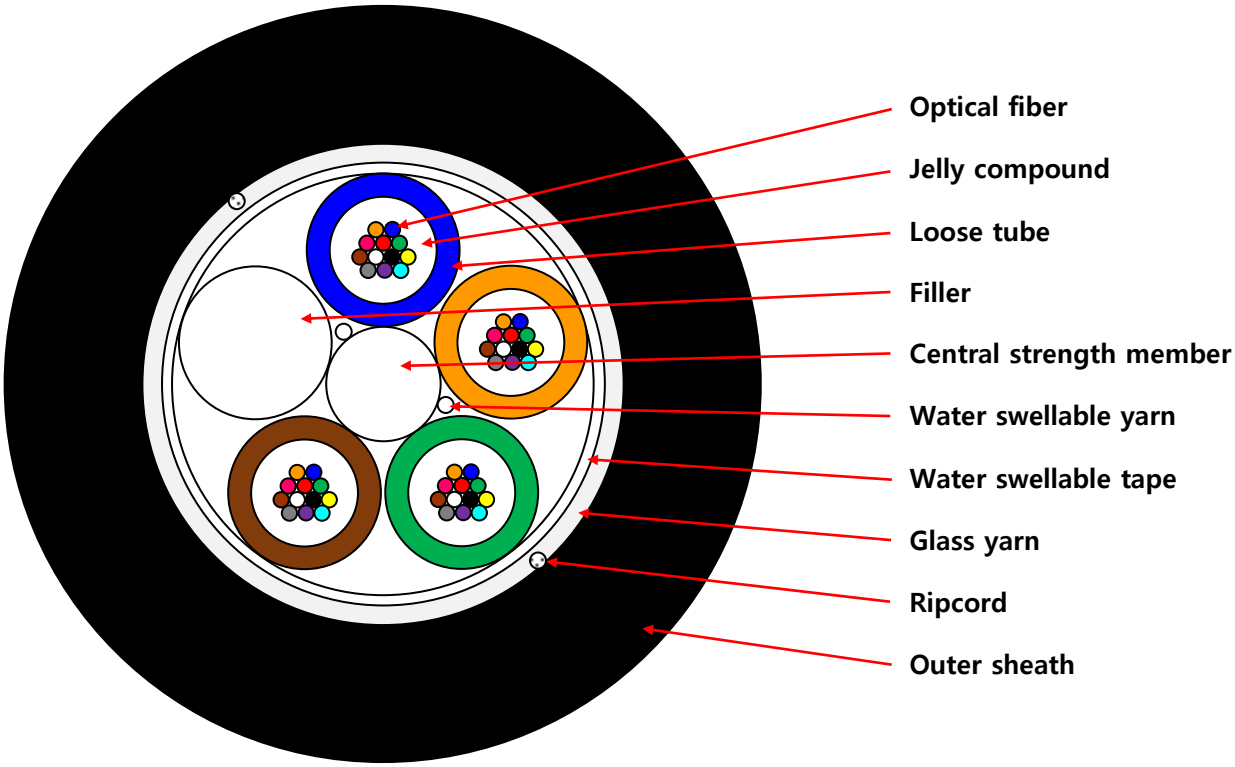
1. Cable Structure

1.1 Cross Section

1.1.1 Example for 24F



1.1.2. Example for 48F



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1.2 Construction

Structure			Material	Specifications
Optical Fiber			Fiber	- SMF : G.652D - MMF : 50/125㎛ OM3
			Color	- Reference 1.3.1
Loose tube			Material	- PBT
			Water proof	- Jelly Compound
			Diameter	- 6F/Tube : 1.8 ± 0.1㎜ - 12F/Tube : 2.0 ± 0.1㎜
			Color	- Reference 1.3.1
Outer sheath	Central strength member			- FRP
	Water proof			- Water swellable yarn
	Filler		PE Rod	- 6F, 12F, 24F : Nom. 1.8㎜ - 48F : Nom. 2.0㎜
	Water proof			- Water swellable tape
	Armored (Rodent protection)			- Glass yarn
	Ripcord			- 2ea
	Sheath		Material	- LSZH, black
			Diameter	- Reference 1.3 - Thickness : Nom. 1.8㎜
Marking				- Indent or Ink-jet , 1m interval

1.3 Cable diameter & Construction details

Fiber Count	Outer Diameter(mm)	Loose tube Diameter(mm)	Construction (fiber/tube * tube)	Filler (ea)	Weight (NET. Kg/km)
6C	9.3 ± 0.5	1.8 ± 0.1	6F * 1Tube	4	90
12C	9.3 ± 0.5	1.8 ± 0.1	6F * 2Tube	3	90
24C	9.3 ± 0.5	1.8 ± 0.1	6F * 4Tube	1	90
48C	9.9 ± 0.5	2.0 ± 0.1	12F * 4Tube	1	105

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- **Color of fiber in the loose tube**

No.	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

- **Tube / fiber arrangement details : Tube color(No. of fiber)**

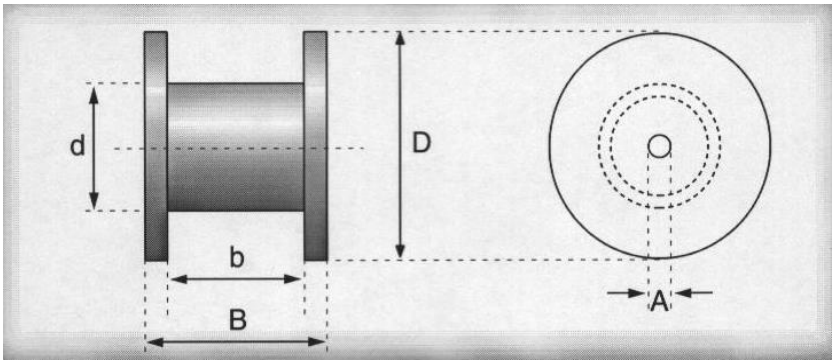
No.	1	2	3	4	5
6C	Blue(6)	*Filler*	*Filler*	*Filler*	*Filler*
12C	Blue(6)	Orange(6)	*Filler*	*Filler*	*Filler*
24C	Blue(6)	Orange(6)	Green(6)	Brown(6)	*Filler*
48C	Blue(12)	Orange(12)	Green(12)	Brown(12)	*Filler*

1.4 Marking

- Followed by customer request.
- The marking is printed every 1 meter.

1.5 Packing

- Wooden drum
- End cap, Wrapping, Wooden seal
- 4km/drum



*Note: The value "D" doesn't contain the seal dimension.

Cable Type	Drum Length(m)	Drum Dimensions				Drum Type
		D(mm)	d(mm)	B(mm)	b(mm)	
ARMORED 6F, 12F, 24F	4,000	1,000	400	680	630	Wooden
ARMORED 48F	4,000	1,100	450	680	630	Wooden

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2. Optical fiber property

2.1 The properties of single mode fiber (ITU.G.652D)

Parameter	Specification
Attenuation coefficient @ 1310 nm @ 1550 nm	 ≤ 0.36 dB/km ≤ 0.22 dB/km
PMD	≤ 0.2 dB(ps/km$^{1/2}$)
Cable cut-off wavelength	≤ 1260 nm
Zero-dispersion wavelength	1300 ~ 1324 nm
Zero-dispersion slope	≤ 0.092 ps/(nm^2.km)
Chromatic dispersion @ 1288 ~ 1339 nm @ 1550 nm	 ≤ 3.5 ps/(nm^2.km) ≤ 18.0 ps/(nm^2.km)
Mode field diameter @ 1310 nm	9.2 ± 0.4 um
Core/Clad concentricity error	≤ 0.5 um
Cladding diameter	125.0 ± 0.7 um
Cladding non-circularity	≤ 1.0 %
Primary Coating diameter	245 ± 10um
Refractive index	1.4690 @ 1310 nm 1.4695 @ 1550 nm
Proof test level	100 kpsi, 1%

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2.2 The properties of multi mode fiber (ITU. 50/125um OM3)

Parameter	Specification
Attenuation coefficient @ 850 nm @ 1300 nm	 ≤ 3.0 dB/km ≤ 1.0 dB/km
Bandwidth @ 850 nm @ 1300 nm	 ≥ 1500 Mhz.km ≥ 500 Mhz.km
10Gb/s Ethernet Link Distance SX 850nm	 ≤ 300m
Numerical Aperture	0.200 ± 0.015
Core diameter @ 1300 nm	50.0 ± 2.5 um
Core / Cladding concentricity error	≤ 1.5 um
Core non-circularity	≤ 6 %
Cladding diameter	125.0 ± 1.0 um
Cladding non-circularity	≤ 1.0 %
Primary Coating diameter	245 ± 10 um
Proof test level	100 kpsi, 1%

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3. Cable Property

3.1 Mechanical & Environmental properties

3.1.1 Cable bending radius: 10 x cable diameter (during operation)
20 x cable diameter (during installation)

3.1.2 Operating temperature range : -40°C to +70°C
Installation temperature range : -20°C to +60°C
Storage temperature range : -40°C to +70°C

3.2 Mechanical & Environmental requirements

No	Item	Test method	Specification
1	Tensile load IEC60794-1-2-E1	- Load : 1,500N - Length of cable under load : 50 m - Load time : 1min.	- Loss change ≤ 0.1 dB @1550 nm for G.652D - Loss change ≤ 0.2 dB @1300 nm for OM3 - No jacket cracking & No fiber breakage
2	Crush IEC60794-1-2-E3	- Load : 1,000N/100*100mm - Time : ≥1mins.	- Loss change ≤ 0.1 dB @1550 nm for G.652D - Loss change ≤ 0.2 dB @1300 nm for OM3 - No jacket cracking & No fiber breakage
3	Impact IEC60794-1-2-E4	- Points of impact : 3 - Times of per point : 1 - Impact energy : 4.5Nm	- Loss change ≤ 0.1 dB @1550 nm for G.652D - Loss change ≤ 0.2 dB @1300 nm for OM3 - No jacket cracking & No fiber breakage
4	Repeated Bending IEC60794-1-2-E6	- Bending radius : 25 x cable diameter - Load : 150N - Flexing rate : 3sec/cycle - No. of cycle : 30	- Loss change ≤ 0.1 dB @1550 nm for G.652D - Loss change ≤ 0.2 dB @1300 nm for OM3 - No jacket cracking & No fiber breakage
5	Torsion IEC60794-1-2-E7	- Length : 1m - Load : 150N - Twist rate : 1min/cycle - Twist angle : ±180° - No. of cycle : 10	- Loss change ≤ 0.1 dB @1550 nm for G.652D - Loss change ≤ 0.2 dB @1300 nm for OM3 - No jacket cracking & No fiber breakage
6	Water Penetration IEC60794-1-2-F5	- Height of water : 1m - Sample length : 3m - Test time : 24hours	- No water shall have leaked from the opposite end of cable.
7	Temperature Cycling IEC60794-1-2-F1	- Length : 1,000m +20℃→-40℃ →+70℃→+20℃ - Time per step: 12hours - No. of cycle : 2	- Loss change ≤ 0.1 dB @1550 nm for G.652D - Loss change ≤ 0.2 dB @1300 nm for OM3 - No jacket cracking & No fiber breakage
8	Compound Flow IEC60794-1-2-E14	- Sample length : 30 cm - Temperature : 70°C ± 2°C - Time : 24hours	- No compound flow

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9	QUV TEST KS M ISO 11507, Method A	Test conditions : - Light source (XENON LAMP): 0.77 W/(㎡.nm) @ 340 nm Repeat condition : - 4hr UV @(60±3)℃ BPT/ 4hr condensation at (50±3) BPT	For 750hrs test change rate of Tensile strength ± 25% change rate of Elongation ± 25%

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