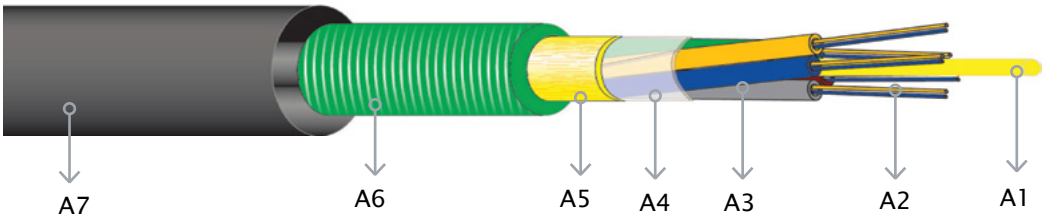
Çok Tüplü Tek Kılıflı Zırhlı Kablolar



A1 Merkez Elemanı
A2 Optik Fiber
A3 Buffer Tüp (MLT)
A4 Şeffaf Sargı
A5 Aramid İplik (Kevlar)
A6 Çelik Zırh
A7 Dış Kılıf

PHYSICAL DESCRIPTION

- 2-4-6-8-12-16-24-36-48-60-72-96-144-216-288 fibers armored outdoor fiber optic cable,
- Thixotropic jelly filled loose tubes,
- Loose tubes and filler (if any) are SZ stranded around the non- metallic central strength member (FRP),
- Jelly filled core,
- Polyester tape as core wrap,
- Corrugated steel armor,
- Outer jacket is made of halogen free fire retardant compound,
- Ripcord is inserted for easy jackets removal.

DESCRIPTION	
Fiber Type	SM G652 D, G657 A1, G657 A2, G655 MM 62.5 OM1, 50/125 OM2, 50/125 OM3, 50/125 OM4
Central strength member	All-dielectric FRP
Tube material	PBT (Polybutylene Terephthalate)
Color of loose tubes	Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose, Aqua
Color of loose tubes (for 216 F)	First layer; Blue, Orange, Green, Brown, Slate, White, Second layer; Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose, Aqua
Color of loose tube (288 fibers)	First layer: Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow Second layer: Violet, Pink, Aqua, Blue with black tracer, Orange with black tracer, Green with black tracer, Brown with black tracer, Slate with black tracer, White with black tracer, Red with black tracer, Black with white tracer, Yellow with black tracer, Violet with black tracer, Rose with black tracer, Aqua with black tracer
Color of fibers in per tube	Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose, Aqua
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	Polyester tape
Ripcord	Aramid cord
Strength elements	-
Identification tape marking	As a customer request
Armor	Corrugated steel tape
Outer jacket	Black HFFR, thickness nominal 1.5±0.1 mm.
Surface Marking	As a customer request

Fiber Count	Number of Tube	Nuber of Filler	Number of fiber in per tube	Central Strength Member OD(mm)	Central strength Member OD(mm)	Tube Out-er/Inner Diameter(mm)	Cable Diameter(mm)	Cable Weight(kg/km)
2	1	5	2	2.2	N/A	2.0/1.4*	11.7	158*
4	1	5	4	2.2	N/A	2.0/1.4*	11.7	159*
6	3	3	2	2.2	N/A	2.0/1.4*	11.7	159*
8	2	4	4	2.2	N/A	2.0/1.4*	11.7	159*
12	3	3	4	2.2	N/A	2.0/1.4*	11.7	160*
16	4	2	4	2.2	N/A	2.0/1.4*	11.7	160*
24	6	-	4	2.2	N/A	2.0/1.4*	11.7	162*
36	6	-	6	2.5	N/A	2.0/1.4*	12.8	193*
48	6	-	8	2.5	N/A	2.4/1.7*	12.8	194*
60	5	1	12	2.7	N/A	2.4/1.7*	13.4	210*
72	6	-	12	2.7	N/A	2.6/1.8*	13.4	211*
96	8	-	12	2.7	4.5*	2.6/1.8*	15.2	260*
144	12	-	12	2.7	8.0*	2.6/1.8*	18.7	371*
216	18	-	12	2.7	N/A	2.6/1.8*	18.6	383*
288	24	-	12	2.7	5.4*	2.6/1.8*	21.3	485*

*:Tolerance is ±10%

Mechanical and Environmental Properties

Physical tests	Value	Standart
Tensile Strength	2000 N (during Installation) 1000 N (during Operation)	IEC 60794-1-E1
Impact Resistance	10J, 3 impacts	IEC 60794-1-E4
Crush Resistance	220 N/cm	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	IEC 60794-1-E11
Repeating Bending	20x cable diameter between	IEC 60794-1-E6
Flame Reterdancy	According to IEC 60332-3	IEC 60332-3
Operation Temperature	-40 to +70 C	
Storage and Transportation Temperature	-40 to +70 C	
Installation Temperature	-30 to +60 C	
Reel Marking	As a customer request	

STANDART SM FIBER ITU-T G 652 D

PROPERTIES	SPECIFIED Value
Attenuation (max)	0.40 dB/km (1310 nm) 0.25 dB/km (1550 nm)
MFD	9.2±0.4 µm (1310 nm) 10.4±0.5 µm (1550 nm)
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm) 18 ps/(nmxkm)(1550 nm)
Cladding diameter	125 ± 0.3 µm
Core/Clad Concentricity error	≤ 0.5 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity	≤ 0.7 %
Coating diameter	245 ± 10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	≥ 1% (100kpsi or 0.7GPa)

NON-ZERO DISPERSION SHIFTED SM FIBER ITU-T G 655

PROPERTIES	SPECIFIED Value
Attenuation (max)	0.25 dB/km (1550 nm)
MFD	9.6 ± 0.4 µm (1550 nm)
Chromatic Dispersion at 1530-1565 nm	2.0-6.0 ps/(nmxkm)nm)
Chromatic Dispersion at 1565-1625 nm	4.0-12.0 ps/(nmxkm)
Cladding diameter	125 ± 0.7 µm
Core/Clad Concentricity error (max)	0.6 µm
Cladding non-circularity (max)	% 0.7
Coating diameter	245 ± 5 nm
Cut Off Wavelength	≤ 1450nm
Proof Test	≥ 1% (100kpsi or 0.7GPa)

STANDARD SM FIBER ITU-T G 657 A

PROPERTIES	SPECIFIED Value
Attenuation (max)	0.40 dB/km (1310 nm) 0.25 dB/km (1550 nm)
MFD	9.0±0.4 µm (1310 nm) 10.1±0.5 µm (1550 nm)
Cladding diameter	125±0.7µm
Core/Clad Concentricity error (max)	0.5 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	% 0.7
Coating diameter	242±7 µm
Cut Off Wavelength	≤1260nm
Proof Tensile Test	≥ 1% (100kpsi or 0.7GPa)
Macro bending Attenuation : (10 turn on a 15 mm radius mandrel)	≤ 0.25 dB @1550 nm

SM FIBER ITU-T G 657 A2 Bend İnsensitive

PROPERTIES	SPECIFIED Value
Attenuation (max)	0.35 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	8.6 ± 0.4 µm (1310 nm)
Cladding diameter	125 ± 0.7µm
Core/Clad Concentricity error (max)	0.5 µm
Zero dispersion wavelength	1302nm≤ ≤1322nm
Cladding non-circularity (max)	% 1
Coating diameter	240 ± 5 µm
Cut Off Wavelength	≤ 1260nm
Proof Tensile Test	≥ 1% (100kpsi or 0.7GPa)
Macro bending Attenuation : (1 turn on a 7.5 mm radius mandrel)	≤ 0.5 dB @1550 nm

62.5/125 µm MM OM1 OPTICAL FIBER

PROPERTIES	SPECIFIED Value
Attenuation (max)	3.5 dB/km (850 nm) 1.5 dB/km (1300 nm)
Bandwidth (min)	200 MHz.km(850 nm) 600 MHz.km(1300 nm)
Numerical Aparature	0.275±0.015
Core Diameter	62.5 ± 2 µm
Cladding Diameter	125 ± 1µm
Core/Clad Concentricity error	≤ 1 µm
Cladding non-circularity	≤ 0.7 %
Coating Diameter	242 ± 5 µm
Proof Test	≥ 100kpsi or 0.7GPa

50/125 µm MM OM2 OPTICAL FIBER

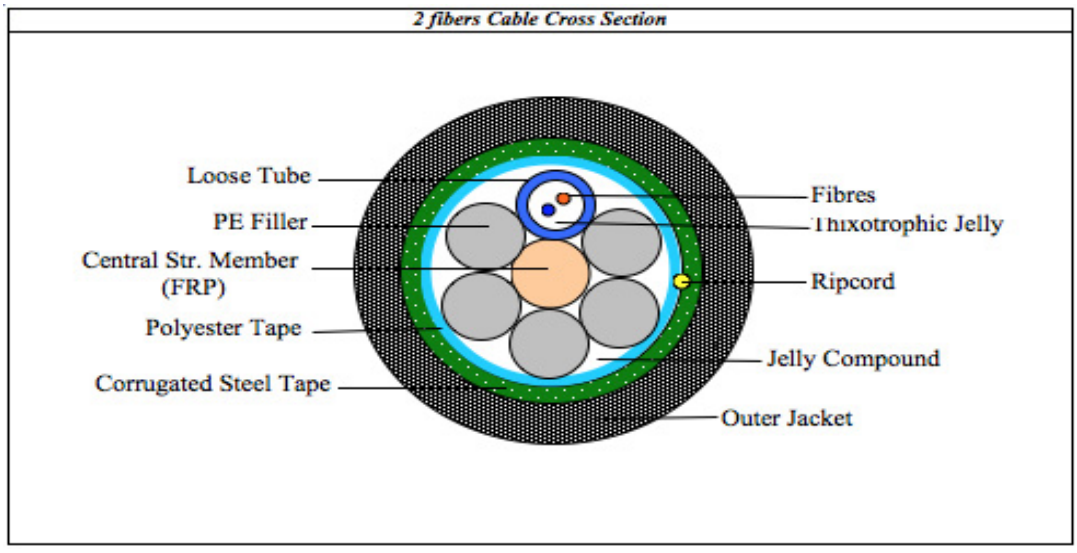
PROPERTIES	SPECIFIED Value
Attenuation (max)	3.5 dB/km (850 nm) 1.5 dB/km (1300 nm)
Bandwidth (min)	700 MHz.km(850 nm) 500 MHz.km(1300 nm)
Numerical Aparature	0.200±0.015
Core Diameter	50 ± 2 µm
Cladding Diameter	125 ± 1µm
Core/Clad Concentricity error	≤ 1 µm
Cladding non-circularity	≤ 0.7 %
Coating Diameter	242 ± 5 µm
Proof Test	≥ 100kpsi or 0.7GPa

50/125 µm MM OM3 OPTICAL FIBER

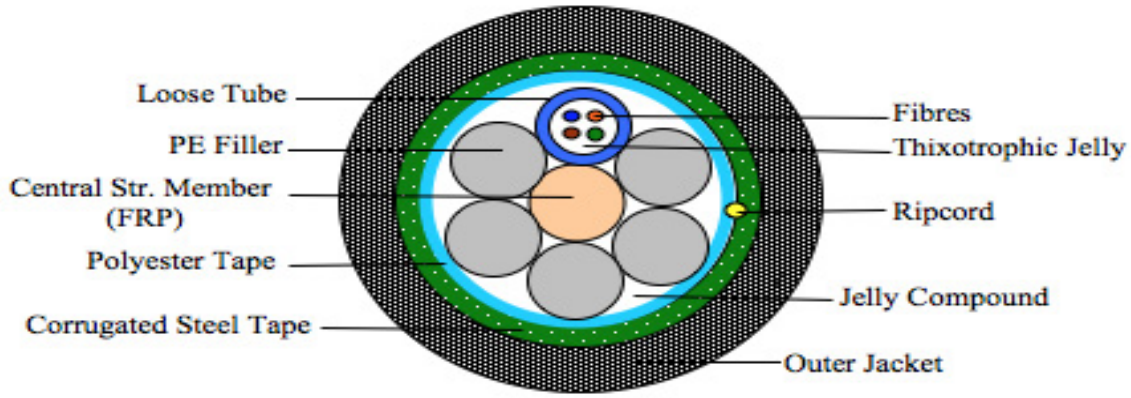
PROPERTIES	SPECIFIED Value
Attenuation (max)	3.5 dB/km (850 nm) 1.5 dB/km (1300 nm)
Bandwidth (Laser EMB)	2000 MHz.km(850 nm) 500 MHz.km(1300 nm)
Bandwidth (Overfilled)	1500 MHz.km(850 nm) 500 MHz.km(1300 nm)
Numerical Aparature	0.200±0.015
Core Diameter	50 ± 2 µm
Cladding Diameter	125 ± 1µm
Core/Clad Concentricity error	≤ 1 µm
Cladding non-circularity	≤ 0.7 %
Coating Diameter	242 ± 5 µm
Proof Test	≥ 100kpsi or 0.7GPa

50/125 µm MM OM4 OPTICAL FIBER

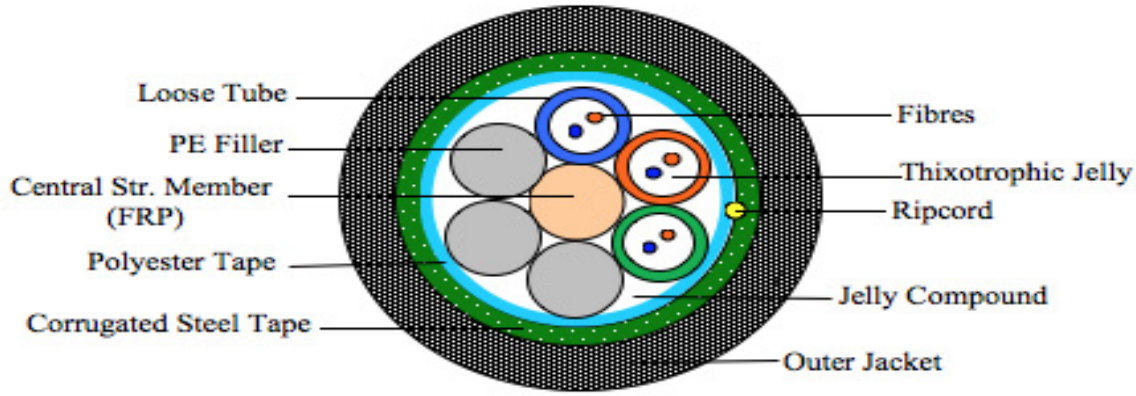
PROPERTIES	SPECIFIED Value
Attenuation (max)	3.0 dB/km || 1.0 dB/km
Bandwidth (Laser EMB)	4700 MHz.km(850 nm) 500 MHz.km(1300 nm)
Bandwidth (Overfilled)	3500 MHz.km(850 nm) 500 MHz.km(1300 nm)
Numerical Aparature	0.2±0.015
Core Diameter	50 ± 3µm
Cladding Diameter	125 ± 3µm
Core/Clad Concentricity error	≤ 1 µm
Cladding non-circularity	≤ 0.7 %
Coating Diameter	242 ± 5 µm
Proof Test	≥ 100kpsi or 0.7GPa



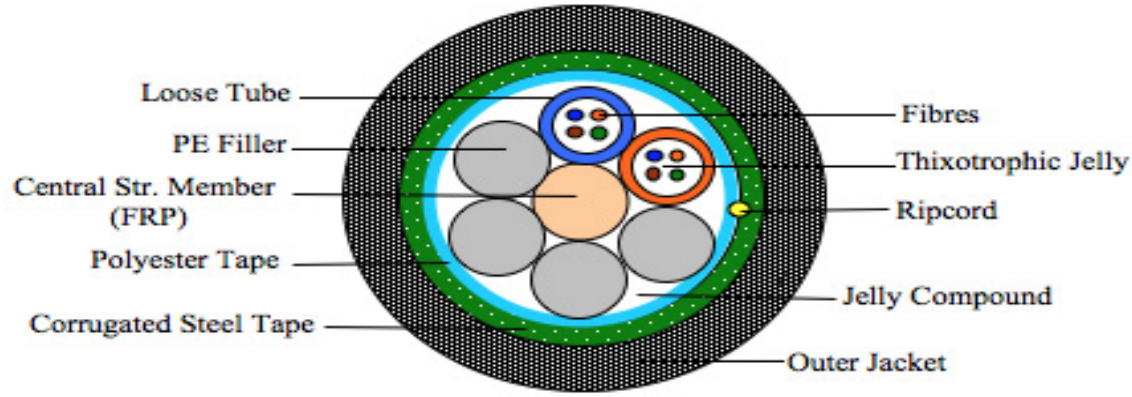
4 fibers Cable Cross Section



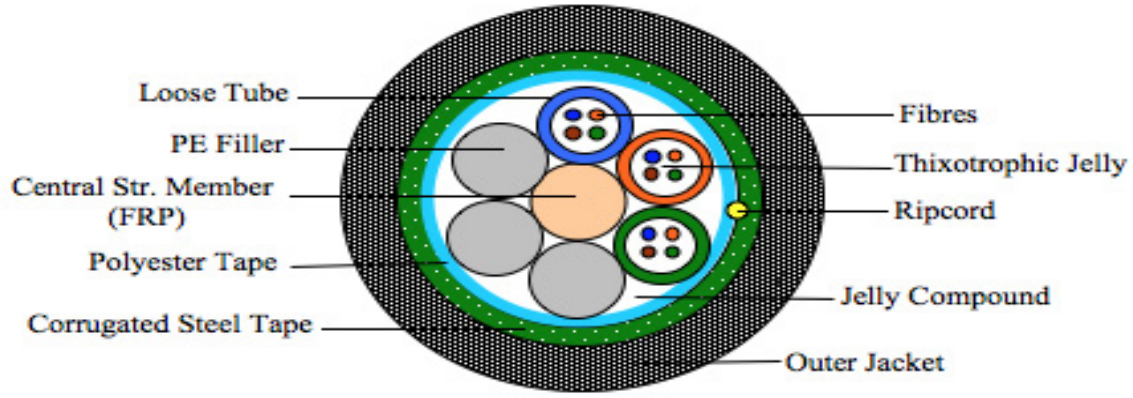
6 fibers Cable Cross Section



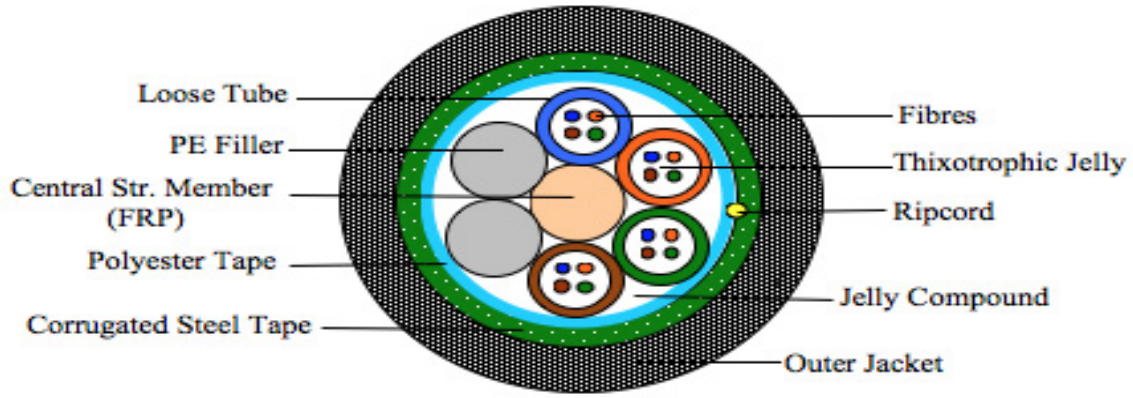
8 fibers Cable Cross Section



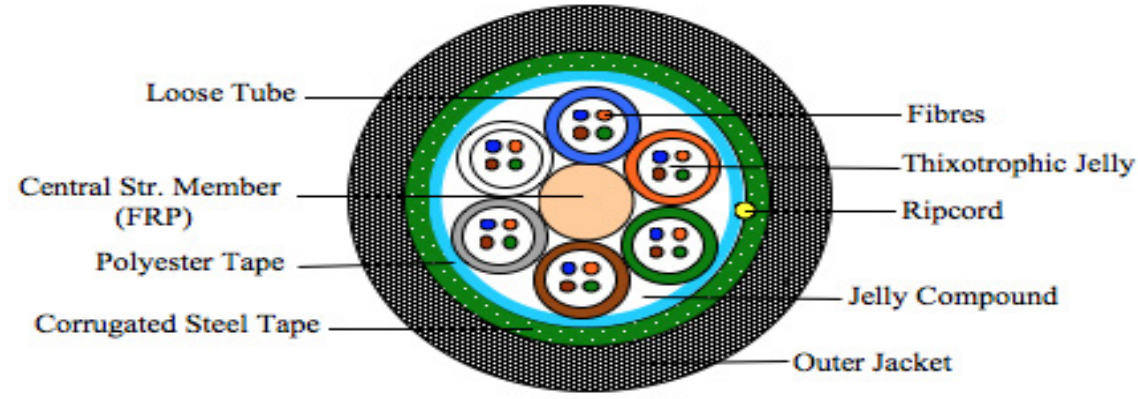
12 fibers Cable Cross Section



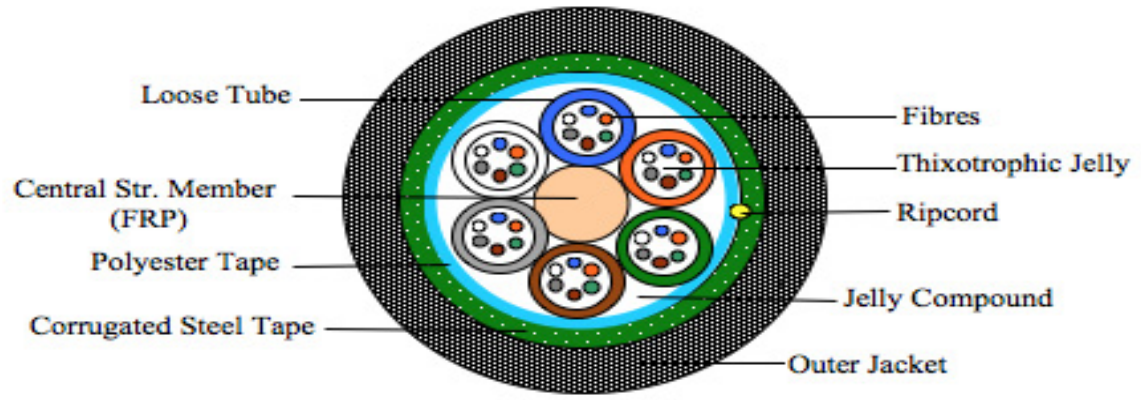
16 fibers Cable Cross Section



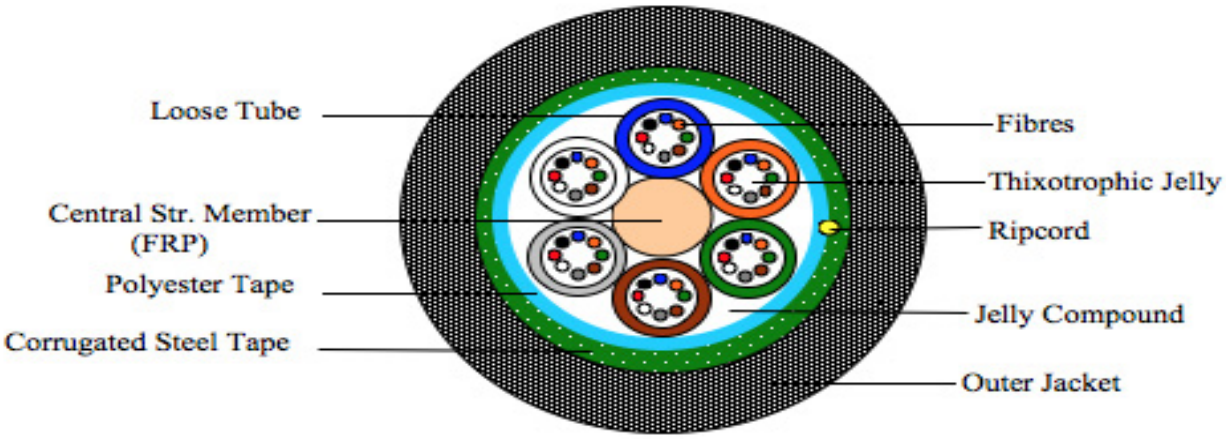
24 fibers Cable Cross Section



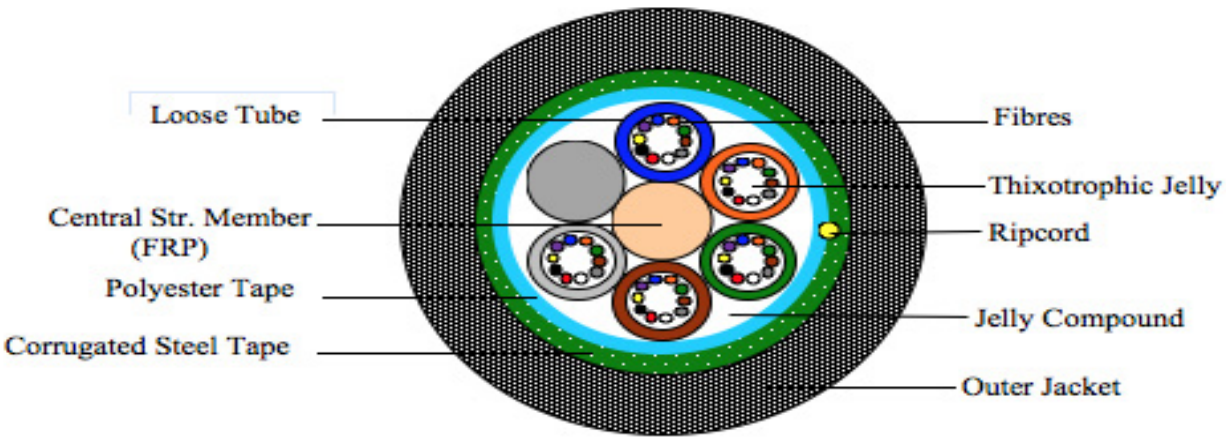
36 fibers Cable Cross Section



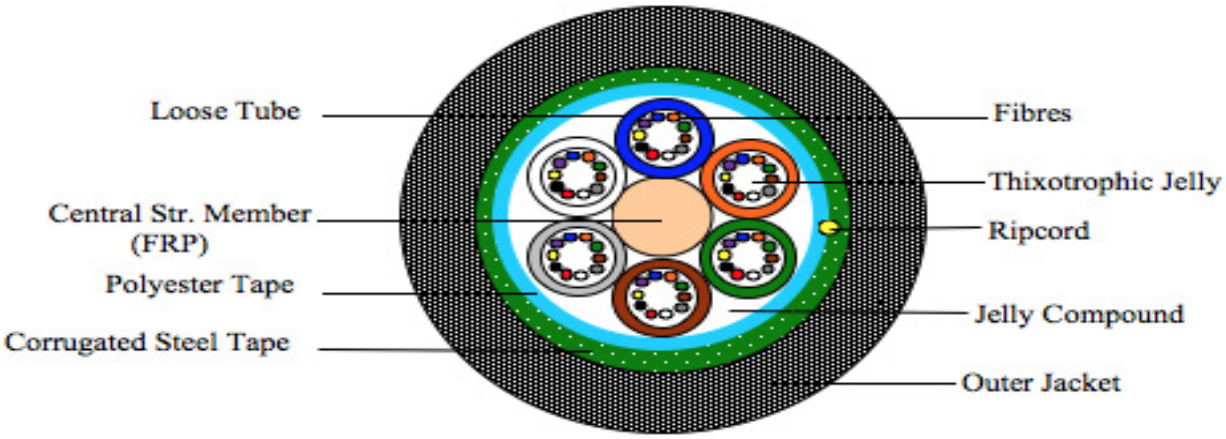
48 fibers Cable Cross Section



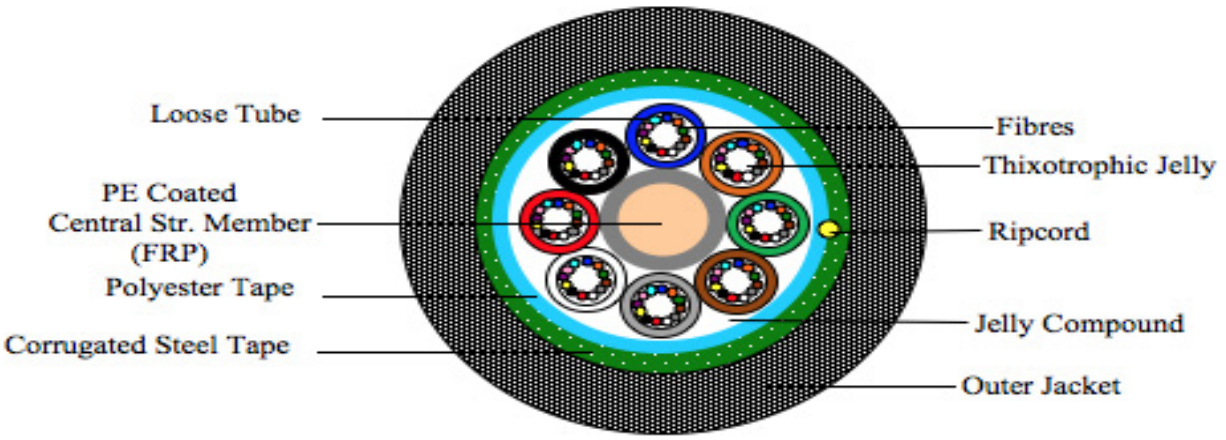
60 fibers Cable Cross Section



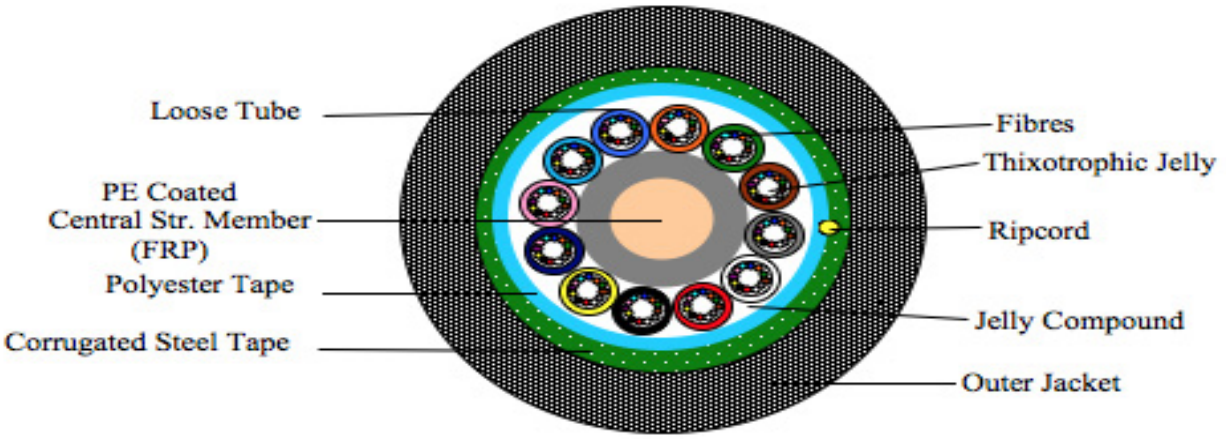
72 fibers Cable Cross Section



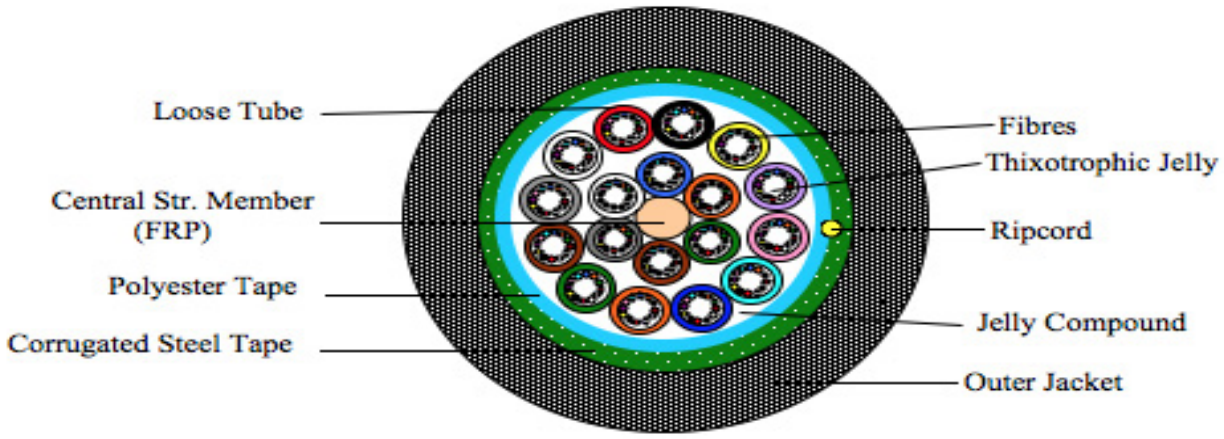
96 fibers Cable Cross Section



144 fibers Cable Cross Section



216 fibers Cable Cross Section



288 fibers Cable Cross Section