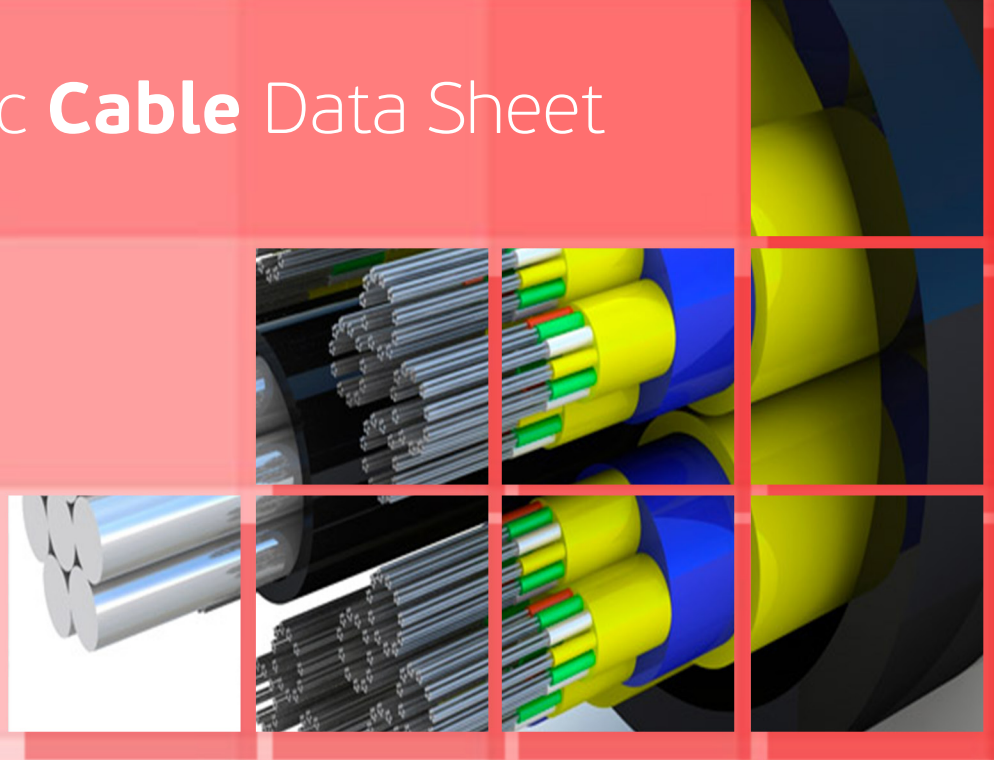




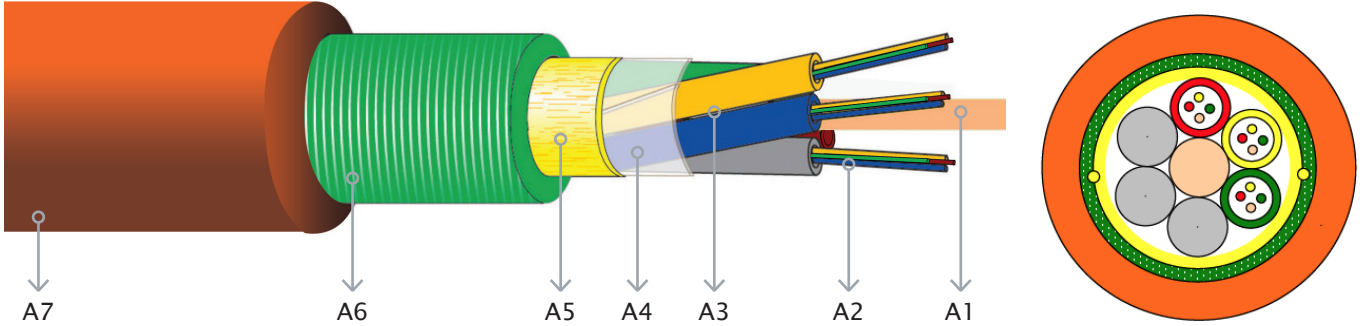
Data Sheet
For **TURKSAT**

Fiber Optic **Cable** Data Sheet



0.(352) 322 27 70
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12 Core SJ Armored Outdoor F/O Cable



A1 Central Str. Member
A2 Fibres
A3 Loose Tube
A4 Jelly Compound

A5 Aramid Yarn
A6 Corrugated Steel Tape
A7 Outer Jacket PE



Ürünleriniz Güvenli Bir Şekilde
 Sevkiyata Hazırlanır

Physical Description

- 12-24-36-48-60-72-96-144-192-216 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,
- Aramid yarn as strength elements,
- Corrugated steel armor,
- Outer jacket is made of medium density polyethylene,
- Ripcord is inserted for easy jackets removal.



Physical Specifications

Physical Specifications	
Fiber Type	SM G652 D
Central strength member	All-dielectric FRP
Tube material	PBT (Polybutylene Terephthalate)
Color of loose tubes	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Color of fibers in per tube	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	-
Strength elements	Aramid yarns
Ripcord	Aramid cord
Identification tape marking	As a customer request
Inner jacket	-
Armor	Corrugated steel tape
Outer jacket	Orange MDPE, thickness nominal 2.2±0.2 mm. (with armor)
Surface marking	As a customer request

SPECIFICATIONS

Fiber Count	Number of Tube	Number of Filler	Number of fiber in per tube	Central Strength Member OD (mm)	Central strength member coated OD (mm)	Tube Outer/ Inner Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg/km)
12	3	3	4	2.2	N/A	2.0/1.4*	12.9*	163*

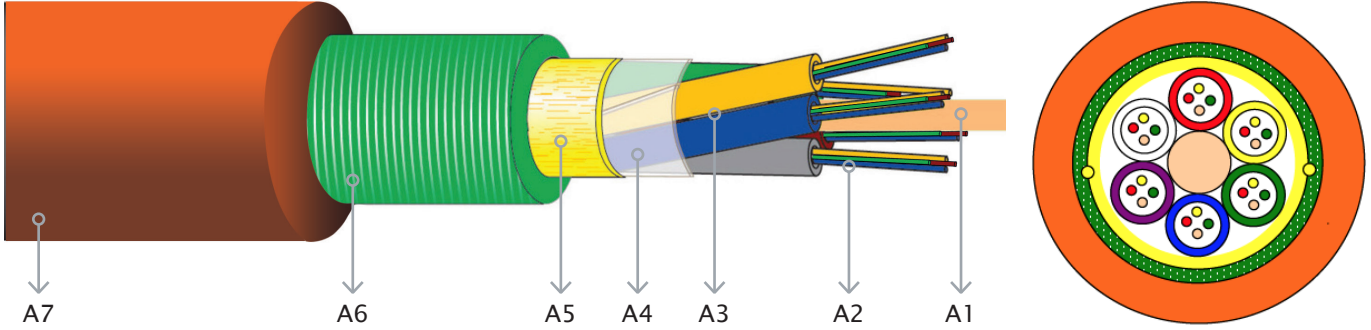
Mechanical and Environmental Properties

Physical tests	Conditions	Requirement	Standard
Tensile Strength	2700 N (during Installation) 900 N (during Operation)	Maximum fiber strain: %0.33	IEC 60794-1-E1
Impact Resistance	30Nm , 3 impacts , 300mm	No fiber break	IEC 60794-1-E4
Crush Resistance	4000 N/10cm	No fiber break	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	Maximum loss:0.05 dB	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Repeating Bending	20xcable diameter	Maximum loss:0.05 dB	IEC 60794-1-E6
Water Penetration	1 m length in 24 hour	No water leak	IEC 60794-1-F5
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-20 to +60 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

STANDARD SM FIBER ITU-T G 652 D

FPROPERTIES	SPECIFIED VALUES
Attenuation (max.)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	9.2±0.4 µm(1310 nm) 10.3±0.5 µm(1550 nm)
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm) 17 ps/(nmxkm)(1550 nm)
Cladding diameter	125±0.7µm
Core Concentricity error (max)	0.6 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%1
Coating diameter	250±10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

24 Core SJ Armored Outdoor F/O Cable



A1 Central Str. Member
A2 Fibres
A3 Loose Tube
A4 Jelly Compound

A5 Aramid Yarn
A6 Corrugated Steel Tape
A7 Outer Jacket PE



Ürünleriniz Güvenli Bir Şekilde
Sevkiyata Hazırlanır

Physical Description



- 12-24-36-48-60-72-96-144-192-216 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,
- Aramid yarn as strength elements,
- Corrugated steel armor,
- Outer jacket is made of medium density polyethylene,
- Ripcord is inserted for easy jackets removal.

Physical Specifications

Physical Specifications	
Fiber Type	SM G652 D
Central strength member	All-dielectric FRP
Tube material	PBT (Polybutylene Terephthalate)
Color of loose tubes	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Color of fibers in per tube	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	-
Strength elements	Aramid yarns
Ripcord	Aramid cord
Identification tape marking	As a customer request
Inner jacket	-
Armor	Corrugated steel tape
Outer jacket	Orange MDPE, thickness nominal 2.2±0.2 mm. (with armor)
Surface marking	As a customer request

SPECIFICATIONS

Fiber Count	Number of Tube	Number of Filler	Number of fiber in per tube	Central Strength Member OD (mm)	Central strength member coated OD (mm)	Tube Outer/ Inner Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg/km)
24	6	-	4	2.2	N/A	2.0/1.4*	12.9*	165*

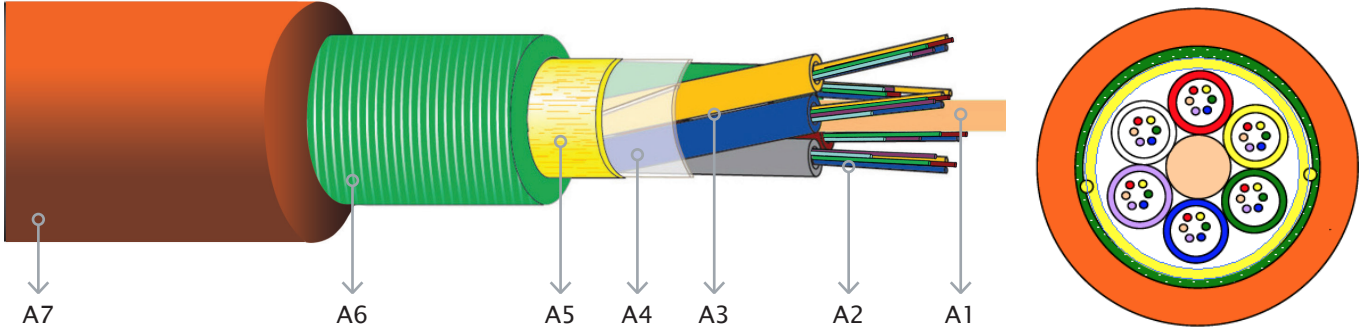
Mechanical and Environmental Properties

Physical tests	Conditions	Requirement	Standard
Tensile Strength	2700 N (during Installation) 900 N (during Operation)	Maximum fiber strain: %0.33	IEC 60794-1-E1
Impact Resistance	30Nm , 3 impacts , 300mm	No fiber break	IEC 60794-1-E4
Crush Resistance	4000 N/10cm	No fiber break	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	Maximum loss:0.05 dB	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Repeating Bending	20xcable diameter	Maximum loss:0.05 dB	IEC 60794-1-E6
Water Penetration	1 m length in 24 hour	No water leak	IEC 60794-1-F5
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-20 to +60 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

STANDARD SM FIBER ITU-T G 652 D

FPROPERTIES	SPECIFIED VALUES
Attenuation (max.)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	9.2±0.4 µm(1310 nm) 10.3±0.5 µm(1550 nm)
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm) 17 ps/(nmxkm)(1550 nm)
Cladding diameter	125±0.7µm
Core Concentricity error (max)	0.6 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%1
Coating diameter	250±10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

36 Core SJ Armored Outdoor F/O Cable



A1 Central Str. Member
A2 Fibres
A3 Loose Tube
A4 Jelly Compound

A5 Aramid Yarn
A6 Corrugated Steel Tape
A7 Outer Jacket PE



Ürünleriniz Güvenli Bir Şekilde
Sevkiyata Hazırlanır

❖ Physical Description



- 12-24-36-48-60-72-96-144-192-216 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,
- Aramid yarn as strength elements,
- Corrugated steel armor,
- Outer jacket is made of medium density polyethylene,
- Ripcord is inserted for easy jackets removal.

Physical Specifications

Fiber Type	SM G652 D
Central strength member	All-dielectric FRP
Tube material	PBT (Polybutylene Terephthalate)
Color of loose tubes	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Color of fibers in per tube	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	-
Strength elements	Aramid yarns
Ripcord	Aramid cord
Identification tape marking	As a customer request
Inner jacket	-
Armor	Corrugated steel tape
Outer jacket	Orange MDPE, thickness nominal 2.2±0.2 mm. (with armor)
Surface marking	As a customer request

SPECIFICATIONS

Fiber Count	Number of Tube	Number of Filler	Number of fiber in per tube	Central Strength Member OD (mm)	Central strength member coated OD (mm)	Tube Outer/ Inner Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg/km)
36	6	-	6	2.2	N/A	2.0/1.4*	12.9*	165*

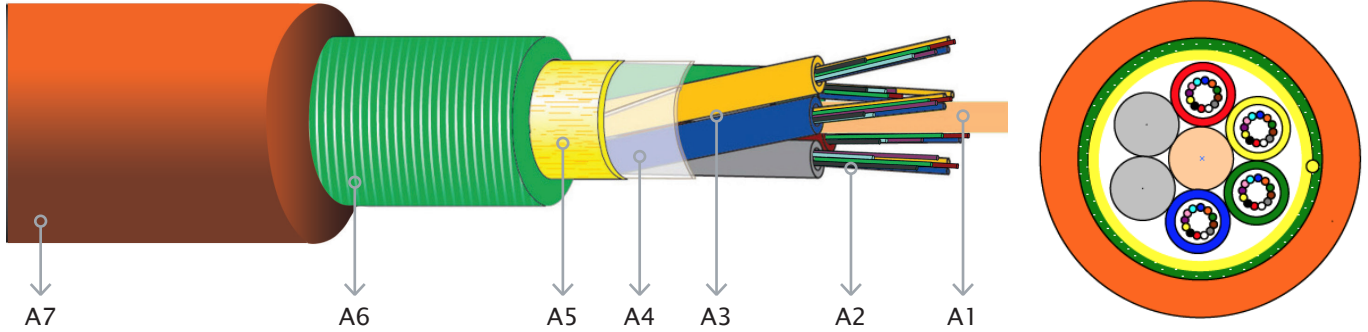
Mechanical and Environmental Properties

Physical tests	Conditions	Requirement	Standard
Tensile Strength	2700 N (during Installation) 900 N (during Operation)	Maximum fiber strain: %0.33	IEC 60794-1-E1
Impact Resistance	30Nm , 3 impacts , 300mm	No fiber break	IEC 60794-1-E4
Crush Resistance	4000 N/10cm	No fiber break	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	Maximum loss:0.05 dB	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Repeating Bending	20xcable diameter	Maximum loss:0.05 dB	IEC 60794-1-E6
Water Penetration	1 m length in 24 hour	No water leak	IEC 60794-1-F5
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-20 to +60 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

STANDARD SM FIBER ITU-T G 652 D

FPROPERTIES	SPECIFIED VALUES
Attenuation (max.)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	9.2±0.4 µm(1310 nm) 10.3±0.5 µm(1550 nm)
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm) 17 ps/(nmxkm)(1550 nm)
Cladding diameter	125±0.7µm
Core Concentricity error (max)	0.6 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%1
Coating diameter	250±10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

48 Core SJ Armored Outdoor F/O Cable



A1 Central Str. Member
A2 Fibres
A3 Loose Tube
A4 Jelly Compound

A5 Aramid Yarn
A6 Corrugated Steel Tape
A7 Outer Jacket PE



Ürünleriniz Güvenli Bir Şekilde
Sevkiyata Hazırlanır

❖ Physical Description



- 12-24-36-48-60-72-96-144-192-216 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,
- Aramid yarn as strength elements,
- Corrugated steel armor,
- Outer jacket is made of medium density polyethylene,
- Ripcord is inserted for easy jackets removal.

Physical Specifications

Fiber Type	SM G652 D
Central strength member	All-dielectric FRP
Tube material	PBT (Polybutylene Terephthalate)
Color of loose tubes	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Color of fibers in per tube	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	-
Strength elements	Aramid yarns
Ripcord	Aramid cord
Identification tape marking	As a customer request
Inner jacket	-
Armor	Corrugated steel tape
Outer jacket	Orange MDPE, thickness nominal 2.2±0.2 mm. (with armor)
Surface marking	As a customer request

SPECIFICATIONS

Fiber Count	Number of Tube	Number of Filler	Number of fiber in per tube	Central Strength Member OD (mm)	Central strength member coated OD (mm)	Tube Outer/ Inner Diameter (mm)	Cable Diameter (mm)	Cable Weigth (kg/km)
48	4	2	12	2.5	N/A	2.4/1.7*	14.0*	193*

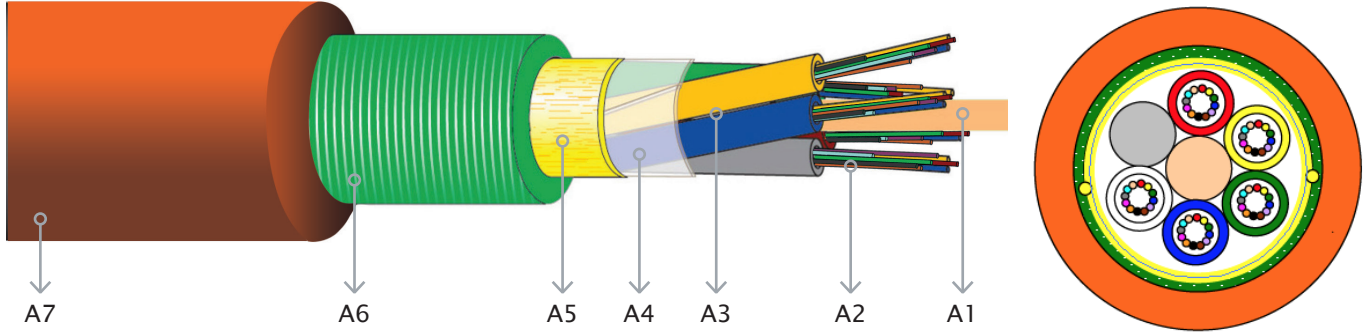
Mechanical and Environmental Properties

Physical tests	Conditions	Requirement	Standard
Tensile Strength	2700 N (during Installation) 900 N (during Operation)	Maximum fiber strain: %0.33	IEC 60794-1-E1
Impact Resistance	30Nm , 3 impacts , 300mm	No fiber break	IEC 60794-1-E4
Crush Resistance	4000 N/10cm	No fiber break	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	Maximum loss:0.05 dB	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Repeating Bending	20xcable diameter	Maximum loss:0.05 dB	IEC 60794-1-E6
Water Penetration	1 m length in 24 hour	No water leak	IEC 60794-1-F5
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-20 to +60 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

STANDARD SM FIBER ITU-T G 652 D

FPROPERTIES	SPECIFIED VALUES
Attenuation (max.)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	9.2±0.4 µm(1310 nm) 10.3±0.5 µm(1550 nm)
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm) 17 ps/(nmxkm)(1550 nm)
Cladding diameter	125±0.7µm
Core Concentricity error (max)	0.6 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%1
Coating diameter	250±10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

60 Core SJ Armored Outdoor F/O Cable



A1 Central Str. Member
A2 Fibres
A3 Loose Tube
A4 Jelly Compound

A5 Aramid Yarn
A6 Corrugated Steel Tape
A7 Outer Jacket PE



Ürünleriniz Güvenli Bir Şekilde
Sevkiyata Hazırlanır

❖ Physical Description



- 12-24-36-48-60-72-96-144-192-216 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,
- Aramid yarn as strength elements,
- Corrugated steel armor,
- Outer jacket is made of medium density polyethylene,
- Ripcord is inserted for easy jackets removal.

Physical Specifications

Fiber Type	SM G652 D
Central strength member	All-dielectric FRP
Tube material	PBT (Polybutylene Terephthalate)
Color of loose tubes	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Color of fibers in per tube	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	-
Strength elements	Aramid yarns
Ripcord	Aramid cord
Identification tape marking	As a customer request
Inner jacket	-
Armor	Corrugated steel tape
Outer jacket	Orange MDPE, thickness nominal 2.2±0.2 mm. (with armor)
Surface marking	As a customer request

SPECIFICATIONS

Fiber Count	Number of Tube	Number of Filler	Number of fiber in per tube	Central Strength Member OD (mm)	Central strength member coated OD (mm)	Tube Outer/ Inner Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg/km)
60	5	1	12	2.5	N/A	2.4/1.7*	14.0*	192*

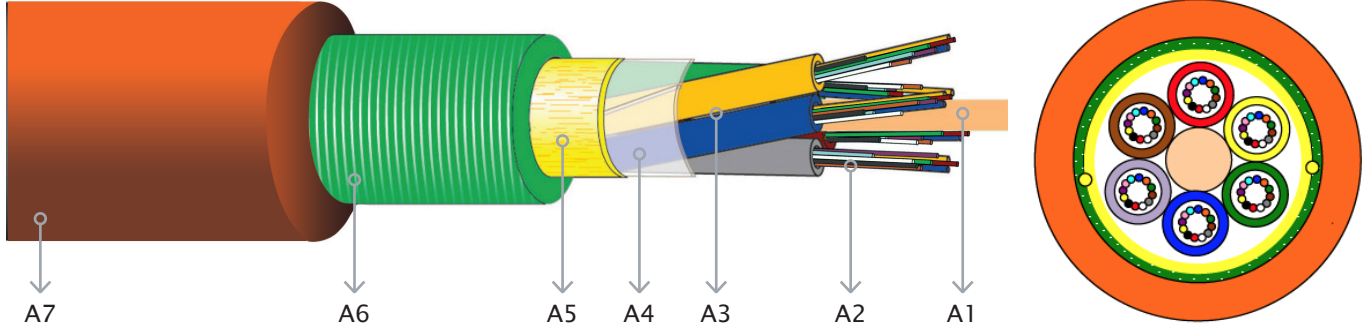
Mechanical and Environmental Properties

Physical tests	Conditions	Requirement	Standard
Tensile Strength	2700 N (during Installation) 900 N (during Operation)	Maximum fiber strain: %0.33	IEC 60794-1-E1
Impact Resistance	30Nm , 3 impacts , 300mm	No fiber break	IEC 60794-1-E4
Crush Resistance	4000 N/10cm	No fiber break	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	Maximum loss:0.05 dB	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Repeating Bending	20xcable diameter	Maximum loss:0.05 dB	IEC 60794-1-E6
Water Penetration	1 m length in 24 hour	No water leak	IEC 60794-1-F5
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-20 to +60 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

STANDARD SM FIBER ITU-T G 652 D

FPROPERTIES	SPECIFIED VALUES
Attenuation (max.)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	9.2±0.4 µm(1310 nm) 10.3±0.5 µm(1550 nm)
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm) 17 ps/(nmxkm)(1550 nm)
Cladding diameter	125±0.7µm
Core Concentricity error (max)	0.6 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%1
Coating diameter	250±10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

72 Core SJ Armored Outdoor F/O Cable



A1 Central Str. Member
A2 Fibres
A3 Loose Tube
A4 Jelly Compound

A5 Aramid Yarn
A6 Corrugated Steel Tape
A7 Outer Jacket PE



Ürünleriniz Güvenli Bir Şekilde
Sevkiyata Hazırlanır

❖ Physical Description



- ✦ 12-24-36-48-60-72-96-144-192-216 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,
- ✦ Aramid yarn as strength elements,
- ✦ Corrugated steel armor,
- ✦ Outer jacket is made of medium density polyethylene,
- ✦ Ripcord is inserted for easy jackets removal.

Physical Specifications

Fiber Type	SM G652 D
Central strength member	All-dielectric FRP
Tube material	PBT (Polybutylene Terephthalate)
Color of loose tubes	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Color of fibers in per tube	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	-
Strength elements	Aramid yarns
Ripcord	Aramid cord
Identification tape marking	As a customer request
Inner jacket	-
Armor	Corrugated steel tape
Outer jacket	Orange MDPE, thickness nominal 2.2±0.2 mm. (with armor)
Surface marking	As a customer request

SPECIFICATIONS

Fiber Count	Number of Tube	Number of Filler	Number of fiber in per tube	Central Strength Member OD (mm)	Central strength member coated OD (mm)	Tube Outer/ Inner Diameter (mm)	Cable Diameter (mm)	Cable Weigth (kg/km)
72	6	-	12	2.5	N/A	2.4/1.7*	14.0*	193*

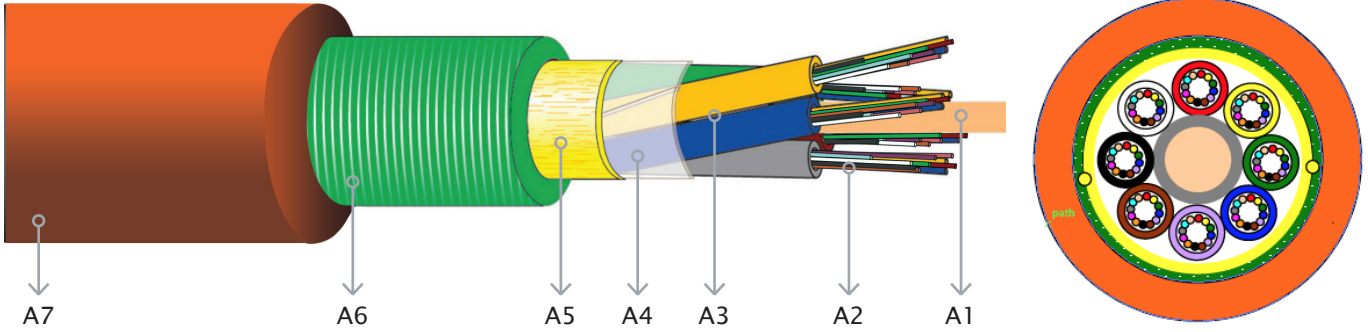
Mechanical and Environmental Properties

Physical tests	Conditions	Requirement	Standard
Tensile Strength	2700 N (during Installation) 900 N (during Operation)	Maximum fiber strain: %0.33	IEC 60794-1-E1
Impact Resistance	30Nm , 3 impacts , 300mm	No fiber break	IEC 60794-1-E4
Crush Resistance	4000 N/10cm	No fiber break	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	Maximum loss:0.05 dB	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Repeating Bending	20xcable diameter	Maximum loss:0.05 dB	IEC 60794-1-E6
Water Penetration	1 m length in 24 hour	No water leak	IEC 60794-1-F5
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-20 to +60 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

STANDARD SM FIBER ITU-T G 652 D

FPROPERTIES	SPECIFIED VALUES
Attenuation (max.)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	9.2±0.4 µm(1310 nm) 10.3±0.5 µm(1550 nm)
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm) 17 ps/(nmxkm)(1550 nm)
Cladding diameter	125±0.7µm
Core Concentricity error (max)	0.6 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%1
Coating diameter	250±10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

96 Core SJ Armored Outdoor F/O Cable



A1 PE Coated Central Str. Member
A2 Fibres
A3 Loose Tube
A4 Jelly Compound

A5 Aramid Yarn
A6 Corrugated Steel Tape
A7 Outer Jacket PE



Ürünleriniz Güvenli Bir Şekilde
Sevkiyata Hazırlanır

Physical Description

- 12-24-36-48-60-72-96-144-192-216 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,
- Aramid yarn as strength elements,
- Corrugated steel armor,
- Outer jacket is made of medium density polyethylene,
- Ripcord is inserted for easy jackets removal.



Physical Specifications

Fiber Type	SM G652 D
Central strength member	All-dielectric FRP
Tube material	PBT (Polybutylene Terephthalate)
Color of loose tubes	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Color of fibers in per tube	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	-
Strength elements	Aramid yarns
Ripcord	Aramid cord
Identification tape marking	As a customer request
Inner jacket	-
Armor	Corrugated steel tape
Outer jacket	Orange MDPE, thickness nominal 2.2±0.2 mm. (with armor)
Surface marking	As a customer request

SPECIFICATIONS

Fiber Count	Number of Tube	Number of Filler	Number of fiber in per tube	Central Strength Member OD (mm)	Central strength member coated OD (mm)	Tube Outer/ Inner Diameter (mm)	Cable Diameter (mm)	Cable Weigth (kg/km)
96	8	-	12	2.5	4.2	2.4/1.7*	15.7*	238*

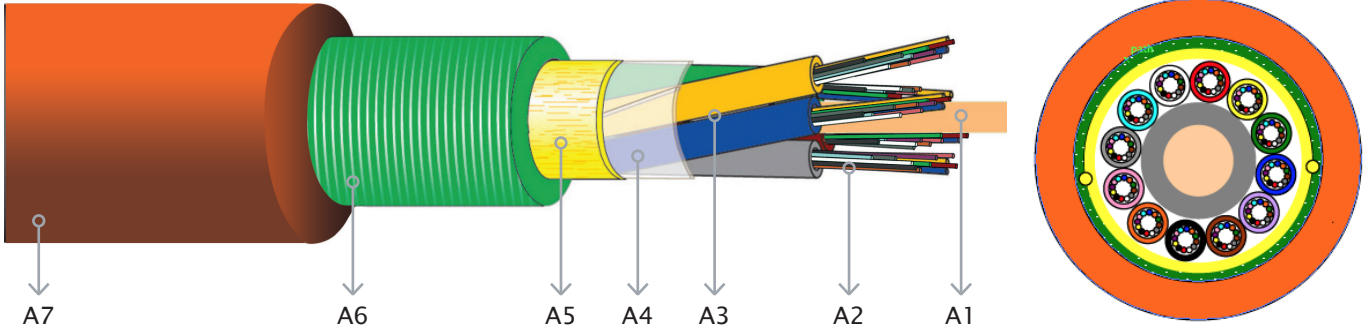
Mechanical and Environmental Properties

Physical tests	Conditions	Requirement	Standard
Tensile Strength	2700 N (during Installation) 900 N (during Operation)	Maximum fiber strain: %0.33	IEC 60794-1-E1
Impact Resistance	30Nm , 3 impacts , 300mm	No fiber break	IEC 60794-1-E4
Crush Resistance	4000 N/10cm	No fiber break	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	Maximum loss:0.05 dB	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Repeating Bending	20xcable diameter	Maximum loss:0.05 dB	IEC 60794-1-E6
Water Penetration	1 m length in 24 hour	No water leak	IEC 60794-1-F5
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-20 to +60 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

STANDARD SM FIBER ITU-T G 652 D

FPROPERTIES	SPECIFIED VALUES
Attenuation (max.)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	9.2±0.4 µm(1310 nm) 10.3±0.5 µm(1550 nm)
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm) 17 ps/(nmxkm)(1550 nm)
Cladding diameter	125±0.7µm
Core Concentricity error (max)	0.6 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%1
Coating diameter	250±10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

144 Core SJ Armored Outdoor F/O Cable



A1 PE Coated Central Str. Member
A2 Fibres
A3 Loose Tube
A4 Jelly Compound

A5 Aramid Yarn
A6 Corrugated Steel Tape
A7 Outer Jacket PE



Ürünleriniz Güvenli Bir Şekilde
Sevkiyata Hazırlanır

❖ Physical Description



- ▶ 12-24-36-48-60-72-96-144-192-216 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,
- ▶ Aramid yarn as strength elements,
- ▶ Corrugated steel armor,
- ▶ Outer jacket is made of medium density polyethylene,
- ▶ Ripcord is inserted for easy jackets removal.

Physical Specifications

Fiber Type	SM G652 D
Central strength member	All-dielectric FRP
Tube material	PBT (Polybutylene Terephthalate)
Color of loose tubes	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Color of fibers in per tube	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	-
Strength elements	Aramid yarns
Ripcord	Aramid cord
Identification tape marking	As a customer request
Inner jacket	-
Armor	Corrugated steel tape
Outer jacket	Orange MDPE, thickness nominal 2.2±0.2 mm. (with armor)
Surface marking	As a customer request

SPECIFICATIONS

Fiber Count	Number of Tube	Number of Filler	Number of fiber in per tube	Central Strength Member OD (mm)	Central strength member coated OD (mm)	Tube Outer/ Inner Diameter (mm)	Cable Diameter (mm)	Cable Weigh (kg/km)
144	12	-	12	2.5	7.5	2.4/1.7*	19*	335*

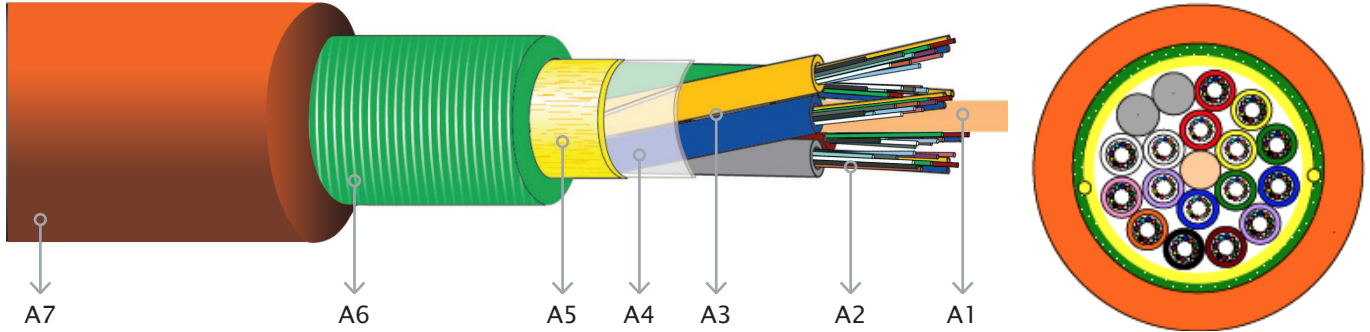
Mechanical and Environmental Properties

Physical tests	Conditions	Requirement	Standard
Tensile Strength	2700 N (during Installation) 900 N (during Operation)	Maximum fiber strain: %0.33	IEC 60794-1-E1
Impact Resistance	30Nm , 3 impacts , 300mm	No fiber break	IEC 60794-1-E4
Crush Resistance	4000 N/10cm	No fiber break	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	Maximum loss:0.05 dB	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Repeating Bending	20xcable diameter	Maximum loss:0.05 dB	IEC 60794-1-E6
Water Penetration	1 m length in 24 hour	No water leak	IEC 60794-1-F5
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-20 to +60 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

STANDARD SM FIBER ITU-T G 652 D

FPROPERTIES	SPECIFIED VALUES
Attenuation (max.)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	9.2±0.4 µm(1310 nm) 10.3±0.5 µm(1550 nm)
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm) 17 ps/(nmxkm)(1550 nm)
Cladding diameter	125±0.7µm
Core Concentricity error (max)	0.6 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%1
Coating diameter	250±10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

192 Core SJ Armored Outdoor F/O Cable



A1 PE Coated Central Str. Member
A2 Fibres
A3 Loose Tube
A4 Jelly Compound

A5 Aramid Yarn
A6 Corrugated Steel Tape
A7 Outer Jacket PE



Ürünleriniz Güvenli Bir Şekilde
Sevkiyata Hazırlanır

❖ Physical Description



- 12-24-36-48-60-72-96-144-192-216 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,
- Aramid yarn as strength elements,
- Corrugated steel armor,
- Outer jacket is made of medium density polyethylene,
- Ripcord is inserted for easy jackets removal.

Physical Specifications

Fiber Type	SM G652 D
Central strength member	All-dielectric FRP
Tube material	PBT (Polybutylene Terephthalate)
Color of loose tubes	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Color of fibers in per tube	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	-
Strength elements	Aramid yarns
Ripcord	Aramid cord
Identification tape marking	As a customer request
Inner jacket	-
Armor	Corrugated steel tape
Outer jacket	Orange MDPE, thickness nominal 2.2±0.2 mm. (with armor)
Surface marking	As a customer request

SPECIFICATIONS

Fiber Count	Number of Tube	Number of Filler	Number of fiber in per tube	Central Strength Member OD (mm)	Central strength member coated OD (mm)	Tube Outer/ Inner Diameter (mm)	Cable Diameter (mm)	Cable Weigth (kg/km)
192	16	2	12	2.5	N/A	2.4/1.7*	18.8*	33.4*

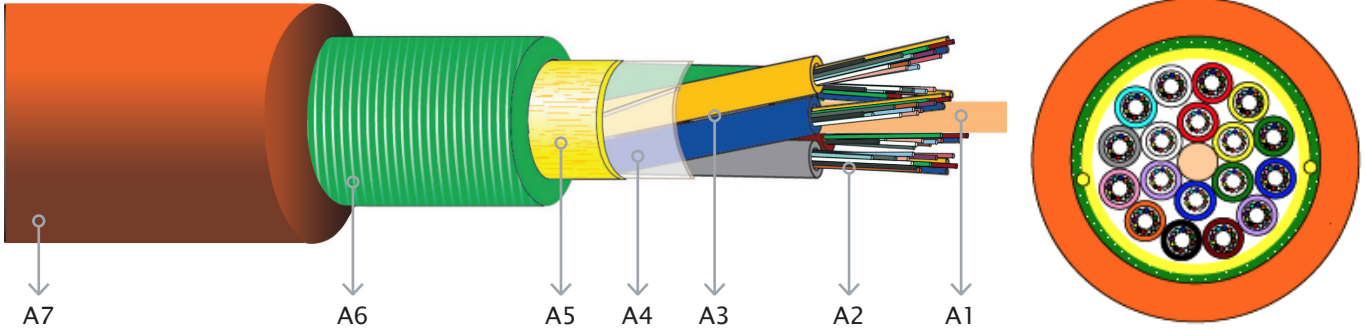
Mechanical and Environmental Properties

Physical tests	Conditions	Requirement	Standard
Tensile Strength	2700 N (during Installation) 900 N (during Operation)	Maximum fiber strain: %0.33	IEC 60794-1-E1
Impact Resistance	30Nm , 3 impacts , 300mm	No fiber break	IEC 60794-1-E4
Crush Resistance	4000 N/10cm	No fiber break	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	Maximum loss:0.05 dB	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Repeating Bending	20xcable diameter	Maximum loss:0.05 dB	IEC 60794-1-E6
Water Penetration	1 m length in 24 hour	No water leak	IEC 60794-1-F5
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-20 to +60 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

STANDARD SM FIBER ITU-T G 652 D

FPROPERTIES	SPECIFIED VALUES
Attenuation (max.)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	9.2±0.4 µm(1310 nm) 10.3±0.5 µm(1550 nm)
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm) 17 ps/(nmxkm)(1550 nm)
Cladding diameter	125±0.7µm
Core Concentricity error (max)	0.6 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%1
Coating diameter	250±10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

216 Core SJ Armored Outdoor F/O Cable



A1 PE Coated Central Str. Member
A2 Fibres
A3 Loose Tube
A4 Jelly Compound

A5 Aramid Yarn
A6 Corrugated Steel Tape
A7 Outer Jacket PE



Ürünleriniz Güvenli Bir Şekilde
Sevkiyata Hazırlanır

❖ Physical Description

- 12-24-36-48-60-72-96-144-192-216 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,
- Aramid yarn as strength elements,
- Corrugated steel armor,
- Outer jacket is made of medium density polyethylene,
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Physical Specifications

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Color of fibers in per tube	Red, Yellow, Green , Blue, Violet, Brown, Black, Orange, Pink, Gray, Aqua, Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	-
Strength elements	Aramid yarns
Ripcord	Aramid cord
Identification tape marking	As a customer request
Inner jacket	-
Armor	Corrugated steel tape
Outer jacket	Orange MDPE, thickness nominal 2.2±0.2 mm. (with armor)
Surface marking	As a customer request

SPECIFICATIONS

Fiber Count	Number of Tube	Number of Filler	Number of fiber in per tube	Central Strength Member OD (mm)	Central strength member coated OD (mm)	Tube Outer/ Inner Diameter (mm)	Cable Diameter (mm)	Cable Weigh (kg/km)
216	18	-	12	2.5	N/A	2.4/1.7*	18.8*	336*

Mechanical and Environmental Properties

Physical tests	Conditions	Requirement	Standard
Tensile Strength	2700 N (during Installation) 900 N (during Operation)	Maximum fiber strain: %0.33	IEC 60794-1-E1
Impact Resistance	30Nm , 3 impacts , 300mm	No fiber break	IEC 60794-1-E4
Crush Resistance	4000 N/10cm	No fiber break	IEC 60794-1-E3
Temperature Cycling	-40 to +70 °C	Maximum loss:0.05 dB	IEC 60794-1-F1
Bend Radius (during installation)	20x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Bend Radius (during Service)	10x cable diameter	Maximum loss:0.05 dB	IEC 60794-1-E11
Repeating Bending	20xcable diameter	Maximum loss:0.05 dB	IEC 60794-1-E6
Water Penetration	1 m length in 24 hour	No water leak	IEC 60794-1-F5
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-20 to +60 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

STANDARD SM FIBER ITU-T G 652 D

FPROPERTIES	SPECIFIED VALUES
Attenuation (max.)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
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Cladding diameter	125±0.7µm
Core Concentricity error (max)	0.6 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%1
Coating diameter	250±10 µm
Cut Off Wavelength	≤ 1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

STANDARTLAR

Standart	Kısaltma
ASTM D 92	Yanma Testi
ASTM D 150	AC Kayıp Karakteristikleri ve Geçirgenlik
ASTM D 638	Plastik ürünlerin Kopma Kuvveti
ASTM D 696	-30°C ile 30°C Arasında Plastiklerin Düzlemsel Termal Yayılm Yeterliliği
ASTM D 746	Plastik ve Elastomerlerin Soğukta Kırılma Dayanıklılığı
ASTM D 792	Plastik Yoğunluğu
ASTM D 885	Tel Cord'larda ve Tel Üretiminde Organik Fiber Üretimi ve Filament İpliği
ASTM D1169	Özel Elektriksel Dayanıklılık
ASTM D 1535	Munsell Sistemi İle Özelleştirilmiş Renklendirme
ASTM D 1693	Etilen Plastiklerde Çevresel Baskı ve Kırılma
ASTM D 3916	Plastik Rod ve Cam Fiberlerde Gerilme Özellikleri
IEC 60445	Fiber Optik Test Prosedürleri (FOTPs).
IEC 187000	Avrupa Normlarında: Kablolar Referanslarına Uygunluğu Açısından Test Edilir, 501 - Maks. Gerginlik, 504 - Kırılma Değerleri, 513 - Eğitim, 601 Isı Döngüsü 605B - Su Geçirgenliği
IEC 603	Isı Döngüsünün Optik Fiber, Optik Kablo ve Diğer Fiber Optik Pasif Komponentleri Üzerindeki Etkisi
IEC 604	Fiber Optik Komponentleri İstemi Ömrü Testi GR-264-CORE Fiber Optik Kesiciler için Gereksinimler
IEC 605	Fiber Optik Komponentleri için Nemlilik
IEC 611	Fiber Optik Komponent ve Kabloları için Titreşim
IEC 621	Fiber Optik Bağlantı Cihazları için Doğrusallık
IEC 6264	Fiber Optik Kesiciler için Jenerik İhtiyaçlar
IEC 626	SM Konnektörler ve Diğer Aksesuarlar için Jenerik İhtiyaçlar
IEC 675	Optik Ekler ve Ek Sistemleri
IEC 61081	Arazide Yapılan Fiber Optik Konnektör Jenerik İhtiyaçlar
IEC 61221	Pasif Fiber Optik Komponentlerinde Jenerik Güvenlik İhtiyaçları
IEC 6033	Yanma Şartlarında Elektrik ve Optik Fiber Kablo Testleri
IEC 6033	Yanmazlık
IEC 6075	Korozif Olmayan Gazın Taşınması (FRNC).
IEC 6078	Optikal Fiberler : Ürün Özellikleri B Sınıfı için SM Fiber Bölümsel Özellikler
IEC 6079	Fiber Optik Kablolar Part 1-2 Temel Fiber Optik Kablo Test Prosedürleri
IEC 6079	Kablo Eğimi
IEC 6079	Çatlama Dayanıklılığı
IEC 6079	Darbe Dayanıklılığı
IEC 6079	Tekrarlanan Eğim
IEC 6079	Yüklenme
IEC 61034	Düşül Duman Salınımı , Yanmazlık (LSZH)
IEC 61300	Fiber Optik Bağlantı Cihazları ve Pasif Komponentleri
IEC 61300	Titreşim
IEC 61300	Doğrusallık
IEC 61300	Fiber/Kablo Alıkoyma Testi
IEC 61300	Burulma / Döndürme Testi
IEC 61300	Şok Testi
IEC 61300	Ortalama Sıcaklık
IEC 61300	Yaş Sıcaklık (Durağan)
IEC 61300	Ortalama Sıcaklık ve Nemlilik
IEC 61300	Isı Değişimi
IEC 61300	Ortalama Sıcaklık
IEC 61300	Statik Yükleme Testi
IEC 61300	Suya Batırma İnceleme ve Ölçüm Testi
IEC 61300	Ortalama Sıcaklık
IEC 61300	Görsel İnceleme
IEC 61300	Zayıflamaya Bağlı Kutuplaşma
IEC 61300	Zayıflama ve Dönüş Kaybı Değişikliklerini İzleme
IEC 61300	Zayıflama
IEC 61300	Dönüş Kaybı
IEC 61300	Zayıflama ve Dönüş Kaybına Bağlı Dalga Boyu
IEC 61300	Ortalama Sıcaklık
IEC 61300	Dönüşüm Kaybı
IEC 61300	Part 3- 34: Düzenli Konnektör Eşlerinin İncelenmesi ve Ölçümü
IEC 61300	Part 3- 35: Fiber Optik Konnektör Sanyüz Görsel ve Otomatik Büyütme İncelemesi ve Ölçümü
IEC 61753	Fiber Optik Bağlantı Cihazları ve Pasif Komponentleri Çalışma Standardı. Part 1: Genel ve Yönlendirici Çalışma Standartları
IEC 61754	Fiber Optik Konnektör Arayüzü
IEC 61754	Fiber Optik Konnektör Arayüzü
IEC 61755	Fiber Optik Konnektör Optik Arayüzü
IEC 62005	Fiber Optik Bağlantı Cihazları ve Pasif Komponentleri Güvenilirliği
IEC 527	Plastiklerde Gerilme Gereksinimleri İncelemesi
IEC 846	Plastiklerde Mikroorganizmaların Hareketlerinin İncelenmesi
IEC 1183	Plastiklerde Hücre Olmayan Plastikler ve Yoğunluk Metodlarının Tanımlanması
IEC 3146	Plastiklerde Yarı Kristal Polimerlerin Erimesi (Erime Isısı ve Erime Aralığı)
IEC 9001	Kalite Sistemleri. Part 1: Tasarım ve Geliştirme Üretim Montaj ve Servis Özellikleri
IEC 6065 2	SM Fiber Optik Kablo Özellikleri
IEC 60657	SM Fiber Optik Kablo ve Ağ Erişim Kablolarında Eğim Kaybı Özellikleri
IEC 94	Cihaz ve Aletlerde Plastik Materyallerin Yanabilirlik Testi

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