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# HES HACILAR ELEKTRİK SANAYİ VE TİC.A.Ş.

<http://www.hes.com.tr>

FOSM024MLA0304

## Technical Specification

<b>Revision/Date:</b> 00/07.13	<b>By :</b> O.KIŞ	<b>Date :</b> 18 JULY 2013
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Cable Type : Loose Tube, Outdoor Armored F/O Cable  
HES Cable Product Number :FOSM012MLA0304

### PHYSICAL DESCRIPTION

- 12 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,
- Aramid yarn as strength elements,
- Inner jacket is made of low density polyethylene,
- Corrugated steel armor,
- Outer jacket is made of medium density polyethylene,
- Ripcord is inserted for easy jackets removal.

Fiber type	ITU-T SM G652 D
Central strength member	All-dielectric FRP
Tube material	PBT ( Polybutylene Terephthalate)
Color of loose tubes	Red, Yellow, Green, Blue, Violet, White
Color of fibers in per tube	Red and Natural , Yellow and Natural, Green and Natural, Blue and Natural, Violet and Natural, White and Natural
Tube filling compound	Thixotropic jelly
Core filling compound	Jelly
Tape wrap	Polyester tape
Ripcord	Polyester or aramid cord
Strength elements	Aramid yarns
Identification tape marking	As a customer request
Inner jacket	<b>Black LDPE</b> , thickness nominal 1.0±0.1 mm.
Armor	Corrugated steel tape
Outer jacket	<b>Orange MDPE</b> , thickness nominal 2±0.1 mm.
Surface marking	As a customer request

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)
12	6	-	2	2.2	N/A	2.0/1.4*	15,3*	221*

\*:Tolerance is ±5%



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<b>Mechanical and Environmental Properties</b>			
<b>Physical tests</b>	<b>Conditions</b>	<b>Requirement</b>	<b>Standard</b>
Tensile Strength	2700 N (during Installation) 1500 N (during Operation)	Maximum loss:0.05 dB	IEC 60794-1-E1
Impact Resistance	10J, 3 impacts	No fiber break	IEC 60794-1-E4
Crush Resistance	440 N/cm	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 between	Maximum loss:0.05 dB	IEC 60794-1-E6
Operation Temperature	-40 to +70 °C		
Storage and Transportation Temperature	-40 to +70 °C		
Installation Temperature	-30 to +70 °C		
Reel Marking	As a customer request		
Metal Plate at drum	As a customer request		

<b>STANDARD SM FIBER ITU-T G 652 D</b>	
<b>PROPERTIES</b>	<b>SPECIFIED VALUES</b>
Attenuation (max)	0.36 dB/km (1310 nm) 0.22 dB/km (1550 nm)
MFD	9.2±0.5 µm
Chromatic Dispersion (max)	3.5 ps/(nmxkm)(1310 nm ) 18 ps/(nmxkm)(1550 nm )
Cladding diameter	125±1µm
Core/Clad Concentricity error (max)	1 µm
Zero dispersion wavelength	1300nm≤ ≤1324nm
Cladding non-circularity (max)	%2
Coating diameter	250±15 µm
Cut Off Wavelength	≤1260nm
Proof Test	8.4 N
Proof Test strain	%1.00

**NOTE (If any):**



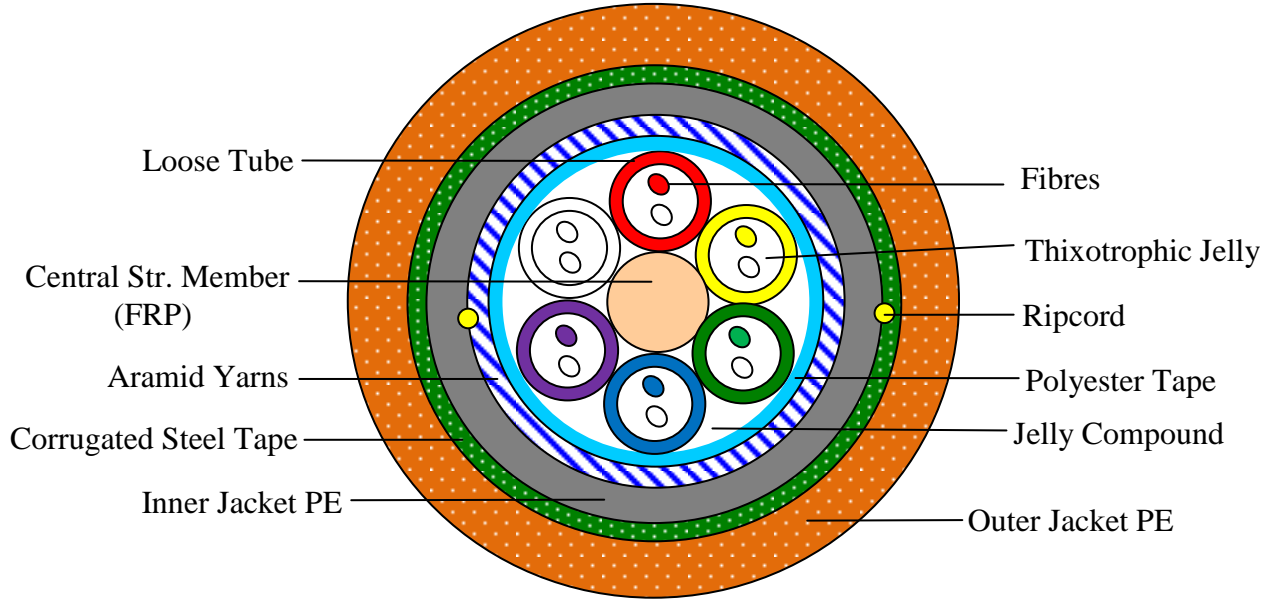
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*12 fibers Cable Cross Section*



Not to Scaled