

FIBER OPTIC CABLE PRODUCT

ADSS FIBER OPTIC DOUBLE JACKET FRP.



PRODUCT DESCRIPTION

- Provide additional mechanical protection
- low friction installation
- Excellent protection from environmental hazards
- Code colour fiber and loose tube
- The cable shall be used for duct or aerial installed

APPLICATION

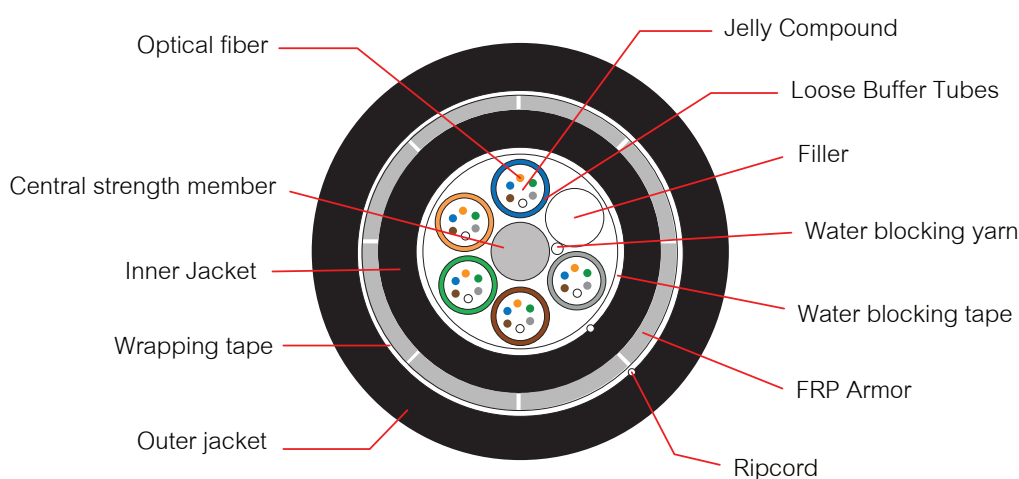
Environment with high electric field strength in the Power communication system and the area where frequent thunder happens.

STANDARD

- TIA/EIA-598-A ,TIA/EIA-598-C, ANSI/TIA/EIA-568-B.3, ANSI/ TIA-568-C.3, ANSI/ICEA640
- IEEE802.3 (LAN, Ethernet Fast Ethernet, Gigabit Ethernet and 10 Gigabit Ethernet) , 10 GEthernet, ATM, FDDI, FTTX,Fiber Channel,CATV, Communication
- ISO/IEC 11801:2011(Ed.2.2)
- Telcordia (Bellcore) GR-20CORE
- IEC 60794-1-2, ICEA696, IEC61034-2, IEC60754-2, IEC 60793, IEC 596
- TIS 2166-2548,
- ITU-T G.652D, ITU-TG 657A2
- RoHS compliant



F-ML-ADSS-FRP9-XX-DJ



TISI-2166

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CONSTRUCTION CABLE

Cable type		ADSS
Element	-	5
Fiber Optic	Material	Silica High Grade / Compound Glass
Central strength member	Material	FRP 1.8 ± 0.2 mm
Loose tube	Material	PBT
	Diameter	2.0 ± 0.2 mm
	-	6 fiber per tube, Thixotropic Jelly Compound
Protective tape	Material	Water -blocking tape, Water blocking yarn
Strength member	Material	Aramid yarns
Rodent Protection Armor	Material	Flat FRP Non-Metallic type (FRP: Fiber Reinforced Plastics)
		Nominal thickness 1.0 ± 0.2mm
Inner Sheath	Material	1.0 ± 0.2 mm
	Thickness	High Density Polyethylene (HDPE)
Outer Sheath	Material	Black HDPE (non Rodent Repellent/Rodent Repellent)
	Thickness	1.8 ± 0.2 mm
Rip Cord	Material	Polyester
	No.	2
Filler Rod	Material	Polyethylene, natural Color
	Diameter	2.2mm±0.2mm
Stranding method	-	Reverse oscillating lay (ROL) technique (SZ Direction)
	-	Lay-length 75mm±5mm
Tensile Load	Short term	7000N
	Long term	3600N
	Pressure	≥ 3400 N/10cm
Overall diameter	Diameter	12.0-13.0 mm
Cable diameter	Diameter (24/48 core)	10.5 ± 1mm / 11.5 ± 1mm.
Weight	(24/48 core)	Approx. 85 / 100±10 kg/km
Span Length		80-100m
Water Blocking Element		Dry-core technology
Width		≥ 126 km/hr
Temperature Range	Operation Temperature	-40°C to +70 °C
	Installation Temperature	-40°C to +70 °C
	Storage/Shipping Temperature	-40°C to +75°C
Color Stripe		3 mm ± 0.5mm

IDENTIFICATION COLOR CODE FOR FIBER AND TUBE

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

OPTICAL FIBER CHARACTERISTICS

CATEGORY	DESCRIPTION	SPECIFICATIONS
Optical Specifications		G.652D
Attenuation	@1310nm	$\leq 0.35\text{dB/km}$
	@1383nm	$\leq 0.35\text{db/km}$
	@1490nm	$\leq 0.24\text{db/km}$
	@1550nm	$\leq 0.21\text{db/km}$
	@1625nm	$\leq 0.23\text{db/km}$
Attenuation discontinuity		$\leq 0.05\text{dB}$
Attenuation vs. Wavelength	1285 -1330 @1310nm	$\leq 0.05\text{dB/km}$
	1525 -1575@1550nm	$\leq 0.05\text{dB/km}$
Zero dispersion wavelength		1300 -1324nm
Zero dispersion slope		$\leq 0.092\text{ps}/(\text{nm}^2.\text{km})$
Dispersion	@1310nm	$\leq 3.5\text{ ps/nm.km}$
	@1550nm	$\leq 18\text{ ps/nm.km}$
Polarization mode dispersion(PMD)		$\leq 0.2\text{ps/km}^{1/2}$
Cable cutoff wavelength (λ_{cc})		$\leq 1260\text{nm}$
Effective group index of reaction	@1310nm	1.4675
	@1550nm	1.4681
Geometric Specifications		
Mode field diameter	@1310nm	$9.2 \pm 0.6\text{ }\mu\text{m}$
	@1550nm	$10.4 \pm 0.8\text{ }\mu\text{m}$
Cladding diameter		$125 \pm 1\text{ }\mu\text{m}$
Cladding non -circularity		$\leq 1.0\%$
Coating diameter		$250 \pm 5\text{ }\mu\text{m}$
Coating/Cladding concentricity error		$\leq 12\text{ }\mu\text{m}$
Core/Cladding concentricity error		$\leq 0.8\text{ }\mu\text{m}$
Color Fiber Diameter		$250\text{ }\mu\text{m} \pm 15\text{ }\mu\text{m}$ (Colored)
Mechanical Specifications		
Proof test level		$\geq 1.0\%$
Fiber curl radius		$\geq 4.0\text{m}$
Peak coating strip force		1.3-8.9N
Relative humidity		Up to 90%, no frost

NO. OF FIBER IN EACH TUBE

No. of fiber	No. of tube	Tube color	1	2	3	4	5
24	6	Tube color	Blue	Orange	Green	Brown	F
		No. of fiber	6	6	6	6	
48	6	Tube color	Blue	Orange	Green	Brown	F
		No. of fiber	6	6	6	6	

PACKING AND DRUM

The cable is rounded on a non-returnable wooden drum. Both ends of cable are securely fastened to drum and sealed with a shrinkable cap to prevent ingress of moisture. The following information shall be marked on the outer sheath of the cable at an interval of about 1 meter.

- Cable type and number of optical fiber
- Manufacturer name
- Month and Year of Manufacture
- Cable length

The sequential number of the cable length shall be marked on the outer sheath of the cable at an interval of 1meter $\pm$ 1%

TEST REQUIREMENTS

Item	Method	Acceptance criteria
Tensile test	- Max. tensile strength:3600N	-Fiber strain at maximum
IEC 60794-1-2-E1A	- Sample length:100 meters	-Load max. 0.33%
TIA/EIA-455-33A	- Times: 1 minute	-Attenuation increase $\leq$ 0.1dB
Crush test	- Load:2200N	-No splits or cracks in the outer jacket
IEC 60794-1-2-E3	- Time: 1 minutes	-Attenuation increase<0.10dB
TIA/EIA-455-41A	- Length: 100mm	
Impact test	- Impact energy: 450g	- No splits or cracks in the outer jacket
IEC 60794-1-2-E4	- Height:1 meter	-Attenuation increase $\leq$ 0.10B(after the test)
TIA/EIA-455-25B	- Impact points: min. 1	
	- Number of impacts: 5	
Torsion test	- 1m cable length with 150N weight	- No splits or cracks in the outer jacket
IEC 60794-1-2-E7	- $\pm 180^\circ$, 10 cycles	-Attenuation increase $\leq$ 0.10B(after the test)
TIA/EIA-455-85A		
Repeated bending	- Radius= $20 \times$ cable outer diameter	- No splits or cracks in the outer jacket
Cable bending Test	- 1m cable length with 150N weight,30 cycles	-Attenuation increase $\leq$ 0.10dB(after the test)
IEC 60794-1-2-E6,		
TIA/EIA-455-104A		
IEC 60794-1-2-E11B		
Temperature cycling test	- Temperature step: +20 °C -40 °C+60 °C-40 °C	-Attenuation variation for reference
IEC 60794-1-2-F1	+60 °C+20 °C	value(the attenuation to be measured before
TIA/EIA-455-3A	- Time per each step: 12 hrs.	test at +20 $\pm$ 3) $\leq$ 0.10dB/km
	- Number of cycles: 2 cycles	
Water penetration test	- Water height: 1m	-No water leakage at the end of the sample
IEC 60794-1-2-F5	- Sample length:3m	
TIA/EIA-455-82B	- Duration of test: 24hrs	
Drip test	- Five 0.3m samples suspended vertically in a climate	-No filling compound shall drip from tubes after 24 hrs.
IEC 60794-1-2-E14	chamber, raised temperature to +70°C	

ORDER INFORMATION

PRODUCT	PART NUMBER
Outdoor Cable, Multi Loose Tube, ADSS, Double Jacket, SM 9/125 06 Core	F-ML-ADSS-FRP9-06-DJ
Outdoor Cable, Multi Loose Tube, ADSS, Double Jacket, SM 9/125 12 Core	F-ML-ADSS-FRP9-12-DJ
Outdoor Cable, Multi Loose Tube, ADSS, Double Jacket, SM 9/125 24 Core	F-ML-ADSS-FRP9-24-DJ
Outdoor Cable, Multi Loose Tube, ADSS, Double Jacket, SM 9/125 48 Core	F-ML-ADSS-FRP9-48-DJ
Outdoor Cable, Multi Loose Tube, ADSS, Double Jacket, SM 9/125 96 Core	F-ML-ADSS-FRP9-96-DJ
Outdoor Cable, Multi Loose Tube, ADSS, Double Jacket, Rodent Repellent SM 9/125 12 Core	F-MLR-ADSS-FRP9-12-DJ
Outdoor Cable, Multi Loose Tube, ADSS, Double Jacket, Rodent Repellent SM 9/125 24 Core	F-MLR-ADSS-FRP9-24-DJ
Outdoor Cable, Multi Loose Tube, ADSS, Double Jacket, Rodent Repellent SM 9/125 48 Core	F-MLR-ADSS-FRP9-48-DJ
Outdoor Cable, Multi Loose Tube, ADSS, Double Jacket, Rodent Repellent SM 9/125 96 Core	F-MLR-ADSS-FRP9-96-DJ