

FIBER OPTIC CABLE PRODUCT

ARSS FIBER OPTIC SINGLE JACKET CABLE.



PRODUCT DESCRIPTION

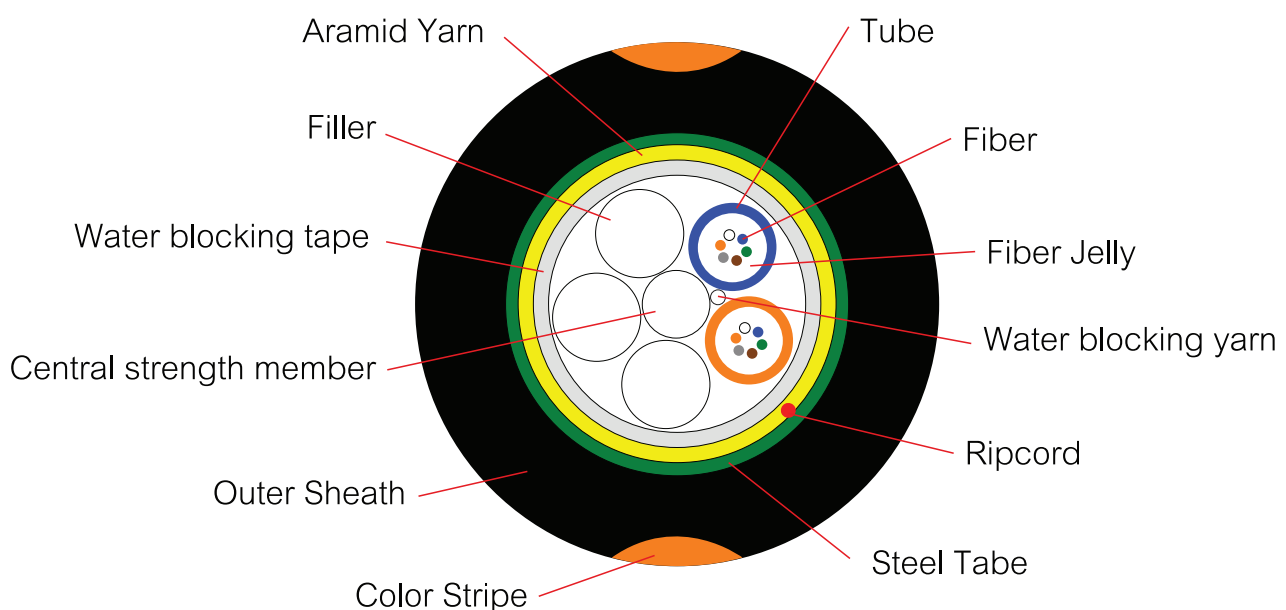
- Provide additional mechanical protection
- low friction installation
- Excellent protection from environmental hazards
- Code colour fiber and loose tube
- The cable shall be used for duct or aerial installed

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/TIA/EIA-568-D.3, ANSI/ICEA640, EN 50173-1
- IEEE802.3 (LAN, Ethernet Fast Ethernet, Gigabit Ethernet and 10 Gigabit Ethernet) , 10 G Ethernet, ATM, FDDI, FTTX,Fiber Channel,CATV, Communication
- ISO/IEC 11801:2017, ISO/IEC 11801:2011(Ed.2.2)
- Telcordia (Bellcore) GR-20CORE
- IEC 60793-2B1.3, 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
- Made in Thailand : MiT
- ASTM D1603 , ASTM D638 , ASTM D1693



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CONSTRUCTION

Number of fibers		6-24	36-60	72	96
Loose Tube	Multi-Twisted Tube				
	Material	PBT (Polybutylene Terephthalate) with color coding			
	Filling Compound	Thixotropic Jelly Compound			
	Fiber per Tube	6	12	12	12
	Number	1-4	3-5	6	8
Filler Rod	Material	Plastic rod, natural color			
	Number	4-1	2-0	0	0
	Diameter	2.2 ± 0.1 mm.			
Stranding	Method	Reverse oscillating lay (ROL) technique (SZ Direction)			
Central Strength Member	Material	FRP (Fiberglass Reinforce with Plastic)			
	Color	Natural			
Water Blocking Yarn	Material	Suitable Water Swellable Materials (Dry-Core Technology)			
Binder & Wrapping	Material	Polyester yarns			
Water Blocking Tape	Thickness	0.3 ± 0.05 mm.			
Ripcord	Material	Polyester			
	Number	2			
Additional Strength Member	Material	Water blocking E-glass yarn (aramid yarn is available on request)			
Armored	Material	Corrugated chrome steel tape coated with polymer to prevent rodents (AR)			
	Thickness	Steel & Polymer coating : 0.25 mm.			
Outer Sheath	Material	UV-Proof, Black HDPE (non Rodent Repellent/Rodent Repellent(LS2))			
	Thickness(Approx.)	1.6 ± 0.2 mm.			
Cable Diameter (Approx.)		10.3 ± 1 mm.	10.7 ± 1 mm.	11.2 ± 1 mm.	12.4 ± 1 mm.
Cable Weight (Approx.)		90 ± 10kg./km.	100 ± 10kg./km.	110 ± 10kg./km.	135 ± 10kg./km.
Temperature Range	Operation Temperature	-40°C to +70°C			
	Installation Temperature	-40°C to +70°C			
	Storage/Shipping Temperature	-40°C to +75°C			
Numerical Aperture		0.130 ± 0.010			

OPTICAL FIBER CHARACTERISTICS

CATEGORY	DESCRIPTION	SPECIFICATIONS
Optical Specifications		ITU-T G.652D(SinglemodeOS2) 9/125 μm (OS2) ITU-T G651(Multimode) 62.5/125 μm , 50/125 μm
Attenuation	@1310nm	$\leq 0.35/\leq 0.33\text{dB/km}$
	@1383nm	$\leq 0.35/\leq 0.31\text{dB/km}$
	@1490nm	$\leq 0.24\text{dB/km}$
	@1550nm	$\leq 0.21/\leq 0.19\text{dB/km}$
	@1625nm	$\leq 0.23/\leq 0.20\text{dB/km}$
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 -1324 nm
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	1.4676
	@1550nm	1.4682
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		$125 \pm 1\text{ }\mu\text{m}$
Coating Diameter, Primary		$242 \pm 5\text{ }\mu\text{m}$
Coating Diameter, Secondary		$250 \pm 5\text{ }\mu\text{m}$
Cladding non -circularity		$\leq 1.0\%$
Coating Material	Material	UV curable acrylate
	Diameter	$250 \pm 5\mu\text{m}$
Coating/Cladding concentricity error		$\leq 12\text{ }\mu\text{m}$
Core/Cladding concentricity error		$\leq 0.5\mu\text{m}$
Color Fiber Diameter		$250\text{ }\mu\text{m} \pm 15\text{ }\mu\text{m}$ (Colored)
Fiber proof-tested		0.69 GPa (1.0%, 100kpsi) in accordance with the optical fiber proof test by IEC 60793-1-30

OPTICAL FIBER CHARACTERISTICS

CATEGORY	DESCRIPTION	SPECIFICATIONS
Mechanical Specifications		
Proof test level		≥1.0 %
Fiber curl radius		≥4.0 m
Peak coating strip force		1.3 - 8.9N
Relative humidity		Up to 90%, no frost
Maximum Span Length	Sag 0.5%	40 m.
	Sag 1.0%	80 m.
Maximum Wind Velocity		126 km./hr.
Max. Tensile load	Installation	3,600 N. for 6-96 Cores
	Operation	2,500 N. for 6-96 Cores
Maximum Crush resistance		3,400 N./10 cm.
Minimum bending Radius	Installation	20 x Diameter of Cable
	Operation	10 x Diameter of Cable
Thermal oxidative stability (OIT-Test)		OIT at 200 °C > 40 min (IEC 60811-410)

IDENTIFICATION COLOR CODE OF FIBER AND LOOSE TUBE

The color code of the loose tubes and the individual fibers within each loose tube shall be in accordance TIA/EIA-598-C (Rev.TIA/EIA-598-A) and EIA-359-A

NO.	FIBER COLOR	LOOSE TUBE COLOR
1	Blue	Blue
2	Orange	Orange
3	Green	Green
4	Brown	Brown
5	Slate	Slate
6	White	White
7	Red	Red
8	Black	Black
9	Yellow	Yellow
10	Violet	Violet
11	Rose	Rose
12	Aqua	Aqua

PACKING AND DRUM

The cable is rounded on a non-returnable wooden drum. Cable Packing 4000m/reel. 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
- Logo and Thai word

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

TEST REQUIREMENTS

Item	Method	Acceptance criteria
Tensile test	- Max. tensile strength: 2500 N	-Fiber strain at maximum
IEC 60794-1-2-E1A	- Sample length: 100 meters	-Load max. 0.33 %
TIA/EIA-455-33A	- Times: 1 hour	-Attenuation increase $\leq$ 0.1dB
Crush or Compression test	- Load: 2200 N	-No splits or cracks in the outer jacket
IEC 60794-1-2-E3	- Time: 10 minutes	-Attenuation increase $\leq$ 0.10 dB
TIA/EIA-455-41A	- Length: 100 mm	
Impact test	- Height: 1 meter	- No splits or cracks in the outer jacket
IEC 60794-1-2-E4	- Impact energy :5N.m	-Attenuation increase $\leq$ 0.10 dB (after the test)
TIA/EIA-455-25B	- Radius of hammer head:12.5±0.1mm	
	- Point of impact : 3	
	- No. of impact: 1 time each point	
Torsion or Twist test	- 1 m cable length with 150 N weight	- No splits or cracks in the outer jacket
IEC 60794-1-2-E7	- ±180° ,10 cycles	-Attenuation increase $\leq$ 0.10 dB (after the test)
TIA/EIA-455-85A		
Repeated bending	- Radius = 20 × cable outer diameter	- No splits or cracks in the outer jacket
Cable bending Test	- 1m cable length with 150 N weight, 30 cycles	-Attenuation increase $\leq$ 0.10 dB (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+70 °C-40 °C	-Attenuation variation for reference
IEC 60794-1-2-F1	+70 °C+20 °C	value(the attenuation to be measured before
TIA/EIA-455-3A	- Time per each step: 16 hrs.	test at +20±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

