

FIBER OPTIC CABLE PRODUCT

MULTI TUBE, OUTDOOR, SINGLE JACKET SM



PRODUCT DESCRIPTION

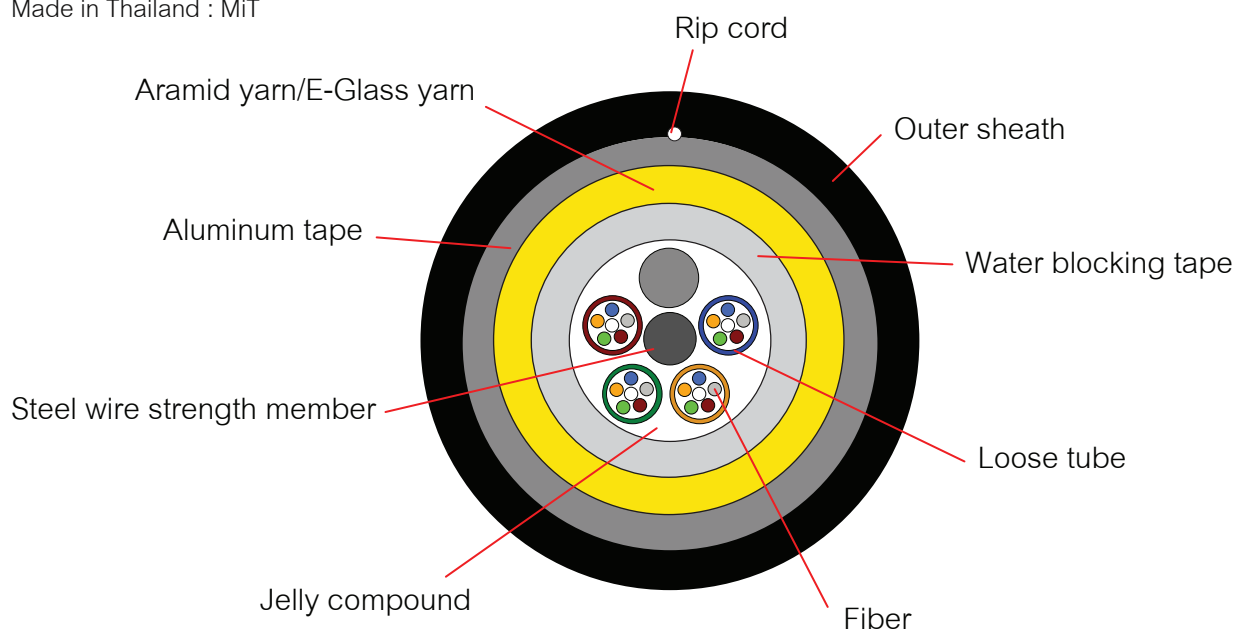
- Low attenuation, dispersion and special control of excess fiber length ensure excellent mechanical and envelopment properties.
- Filling compound and water block material validly prevent water penetration.
- Aramid yarns increase the tensile strength of cable
- Small outer diameter, lightness and refined structure

APPLICATION

- Special design for used together with outdoor and indoor
- All dielectric construction
- Duct or Lash Aerial install
- Multi-mode or single-mode fiber optic

STANDARD

- ATM, FDDI, FTTX, Fiber Channel, CATV, Communication
- ISO/IEC 11801:2007, ISO/IEC 11801:2011(Ed.2.2)
- ANSI/TIA/EIA-568-B.3, ANSI/ TIA-568-C.3, ANSI/TIA-568.3-D, ANSI/ICEA 640
- Telcordia (Bellcore)GR-20CORE, GR-409-CORE
- ANSI/ICEA 596, ICEA696, IEC61034-2, IEC60754-2, IEC60793, IEC60794-1-2
- ITU G.652D, ITU-TG 657A2
- TIA/EIA-598-C (Rev.TIA/EIA-598-A), EIA-359-A.
- IEEE802.3z, IEEE802.3ae, IEEE802.3 (LAN, Ethernet Fast Ethernet, Gigabit Ethernet and 10 Gigabit Ethernet 40-100 Gbps)
- RoHS compliant
- TISI-2165
- Made in Thailand : MIT



CONSTRUCTION

Structure		Parameter			
Fiber count	Fibers	6/12/24	48	96	
Cores of per tube	--	6	12	12	
Loose tube	Multi Tube	ϕ1.8 mm	ϕ2.1	ϕ2.1	
Element	--	5	5	5	
Cable diameter	mm	9.6	10.3	12.3	
Cable sheath thickness	Material	Outer Jacket	HDPE 1.5 ± 0.2 mm with Rodent Repellent (LS2)		
	Water blocking tape	mm	0.3		
	Support strand wire	--	Aramid yarns/E -Glass yarn		
	Strength member	mm	FRP		
Cable height	mm	Approx.16.7	Approx.17.4	Approx.19.9	
	N	3000			
Crush resistance	Short term	1000N/mm			
	Long term	100N/mm			
Bending radius	Dynamic	mm	20H		
	Static	mm	10H		
Operating temperature	Storage	-20-+75°C			
	Installing	-40-+80°C			
Max. tensile load	Installing	2700N			
	Long term	1000N			
Rip Cord	Material	Polyester cords			
	Number	One			

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%	-
	Sag 1.0%	-
Maximum Wind Velocity		126 km./hr.
Max. Tensile load	Installation	2700 N.
	Operation	1000 N.
Maximum Crush resistance		1000 N./10 cm.
Minimum bending Radius	Installation	20 x Diameter of Cable
	Operation	10 x Diameter of Cable

OPTICAL FIBER CHARACTERISTICS

CATEGORY	DESCRIPTION	SPECIFICATIONS
Optical Specifications		ITU-T G.652D(Singlemode OS2)
Attenuation	@1310nm	$\leq 0.35/\leq 0.33$ dB/km
	@1383nm	$\leq 0.35/\leq 0.31$ dB/km
	@1490nm	≤ 0.24 dB/km
	@1550nm	$\leq 0.21/\leq 0.19$ dB/km
	@1625nm	$\leq 0.23/\leq 0.20$ dB/km
Attenuation discontinuity		≤ 0.05 dB
Attenuation vs. Wavelength	1285 -1330 @1310nm	≤ 0.05 dB/km
	1525 -1575@1550nm	≤ 0.05 dB/km
Zero dispersion wavelength		1300 -1324 nm
Zero dispersion slope		≤ 0.092 ps/(nm ² .km)
Dispersion	@1310nm	≤ 3.5 ps/nm.km
	@1550nm	≤ 18 ps/nm.km
Polarization mode dispersion(PMD)		≤ 0.2 ps/km ^{1/2}
Cable cutoff wavelength (λ_{cc})		≤ 1260 nm
Effective group index of reaction	@1310nm	1.4675
	@1550nm	1.4681
Geometric Specifications		
Mode field diameter	@1310nm	9.2 ± 0.6 μm
	@1550nm	10.4 ± 0.8 μm
Cladding diameter		125 ± 1 μm
Cladding non -circularity		≤ 1.0 %
Coating Material	Material	UV curable acrylate
	Diameter	250 ± 5μm
Coating/Cladding concentricity error		≤ 12 μm
Core/Cladding concentricity error		≤ 0.5 μm
Color Fiber Diameter		250 μm ± 15 μm (Colored)
Fiber proof-tested		0.69 GPa (1.0%, 100kpsi) in accordance with the optical fiber proof test by IEC 60793-1-30

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 \pm 1%

TEST REQUIREMENTS

Item	Method	Acceptance criteria
Tensile test	- Max. tensile strength: 3600 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: 1000 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	- Impact energy: 450 g	- No splits or cracks in the outer jacket
IEC 60794-1-2-E4	- Height: 1 meter	-Attenuation increase \leq 0.10 dB (after the test)
TIA/EIA-455-25C	- Impact points: min.1	
	- Number of impacts: 5	
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	- $\pm 180^\circ$,10 cycles	-Attenuation increase \leq 0.10 dB (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 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 $^\circ$ C -40 $^\circ$ C+70 $^\circ$ C-40 $^\circ$ C	-Attenuation variation for reference
IEC 60794-1-2-F1	+70 $^\circ$ C+20 $^\circ$ C	value(the attenuation to be measured before
TIA/EIA-455-3A	- Time per each step: 16 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 $^\circ$ C	

ORDER INFORMATION

