

FIBER OPTIC CABLE PRODUCT

MULTI TUBE, OUTDOOR, DOUBLE JACKET, ARMORED SM



PRODUCT DESCRIPTION

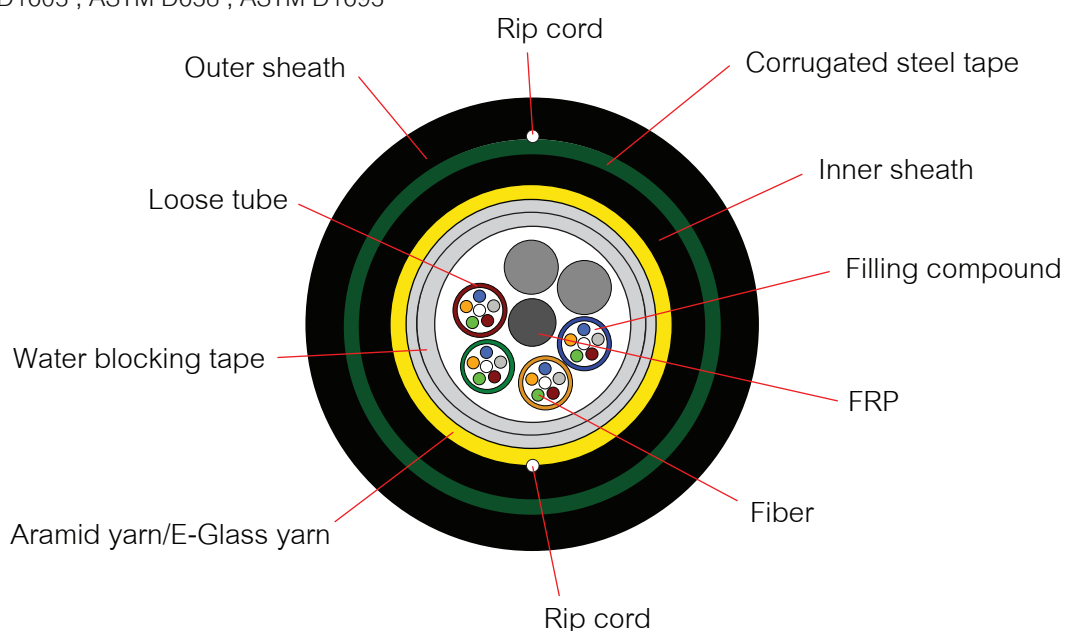
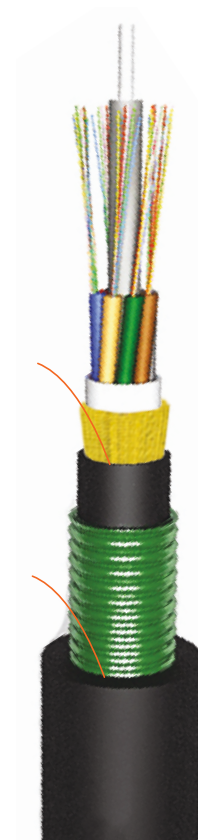
- Low attenuation, dispersion and special control of excess fiber length ensure excellent mechanical and envelopment properties.
- Filling compound and water block material validly prevent water penetration.
- Aramid yarns increase the tensile strength of cable
- Can be placed in landfills, in pipes and gutters.

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
- ASTM D1603 , ASTM D638 , ASTM D1693



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	
Tube	Filling Compound	Fiber Jelly			
Element	--	5	5	5	5
Cable diameter	mm	9.6	10.3	12.3	
Cable sheath thickness	Material	Outer Jacket	HDPE with Rodent Repellent (LS2)		
		Aarmor	Steel Armor		
	Cable core	mm	1.5 ± 0.2 mm		
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	5000N			
	Long term	1500N			
Rip Cord	Material	Polyester cords			
	Number	Two			

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	5000 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(SinglemodeOS2) 9/125 μm (OS2) ITU-T G651(Multimode) 62.5/125 μm , 50/125 μm
Attenuation	@1310nm	≤0.35/≤0.33dB/km
	@1383nm	≤0.35/≤0.31dB/km
	@1490nm	≤0.24db/km
	@1550nm	≤0.21/≤0.19dB/km
	@1625nm	≤0.23/≤0.20dB/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 ½
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		≤0.5μm
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
Attenuation with Bending 100 turns 25 mm radius	@1310nm	0.05 dB
	@1550nm	0.10 dB

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: 3000 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

