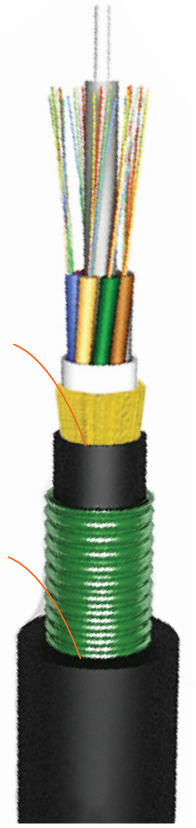
FIBER OPTIC CABLE PRODUCT

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

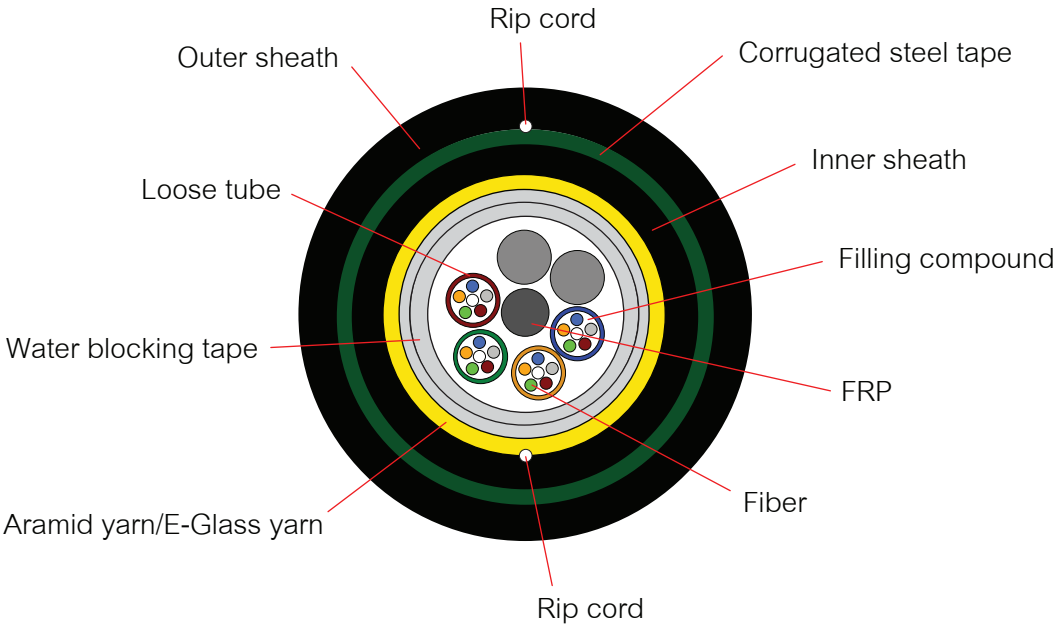


APPLICATION

- 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



FOCOMM (THAILAND) CO., LTD
12 Soi Sukhaphiban 5 Soi 5 Yaek 3, Tha Raeng Subdistrict,Bang Khen District Bangkok 10220
Email : info@focomm-cabling.com www.focomm-cabling.com

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	5
Cable diameter		mm	9.6	10.3	12.3	
Cable sheath thickness	Material	Outer Jacket	HDPE with Rodent Repellent (LS2)			
		Armor	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

FOCOMM (THAILAND) CO., LTD
12 Soi Sukhaphiban 5 Soi 5 Yaek 3, Tha Raeng Subdistrict,Bang Khen District Bangkok 10220
Email : info@focomm-cabling.com www.focomm-cabling.com

OPTICAL FIBER CHARACTERISTICS

CATEGORY	DESCRIPTION	SPECIFICATIONS
Optical Specifications		ITU-T G.652D(Singlemode OS2)
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/(nm².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 (λcc)		≤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

FOCOMM (THAILAND) CO., LTD
12 Soi Sukhaphiban 5 Soi 5 Yaek 3, Tha Raeng Subdistrict,Bang Khen District Bangkok 10220
Email : info@focomm-cabling.com www.focomm-cabling.com

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

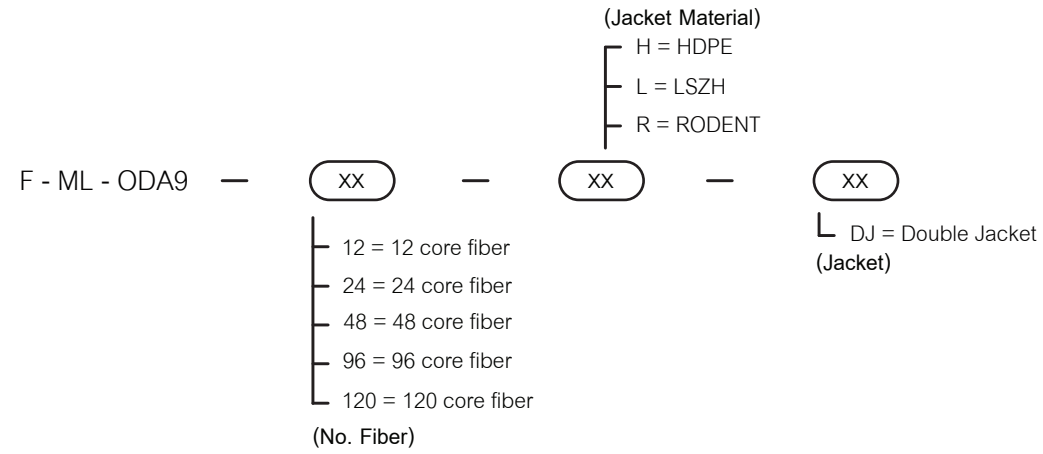
The sequential number of the cable length shall be marked on the outer sheath of the cable at an interval of 1meter ± 1%

FOCOMM (THAILAND) CO., LTD
12 Soi Sukhaphiban 5 Soi 5 Yaek 3, Tha Raeng Subdistrict,Bang Khen District Bangkok 10220
Email : info@focomm-cabling.com www.focomm-cabling.com

TEST REQUIREMENTS

Item	Method	Acceptance criteria
Tensile test IEC 60794-1-2-E1A TIA/EIA-455-33A	- Max. tensile strength: 3000 N - Sample length: 100 meters - Times: 1 hour	-Fiber strain at maximum -Load max. 0.33 % -Attenuation increase ≤ 0.1dB
Crush or Compression test IEC 60794-1-2-E3 TIA/EIA-455-41A	- Load: 1000 N - Time: 10 minutes - Length: 100 mm	-No splits or cracks in the outer jacket -Attenuation increase ≤ 0.10 dB
Impact test IEC 60794-1-2-E4 TIA/EIA-455-25C	- Impact energy: 450 g - Height: 1 meter - Impact points: min.1 - Number of impacts: 5	- No splits or cracks in the outer jacket -Attenuation increase ≤ 0.10 dB (after the test)
Torsion or Twist test IEC 60794-1-2-E7 TIA/EIA-455-85A	- 1 m cable length with 150 N weight - ±180° ,10 cycles	- No splits or cracks in the outer jacket -Attenuation increase ≤ 0.10 dB (after the test)
Repeated bending Cable bending Test IEC 60794-1-2-E6, TIA/EIA-455-104A IEC 60794-1-2-E11B	- Radius = 20 × cable outer diameter - 1m cable length with 150 N weight, 30 cycles	- No splits or cracks in the outer jacket -Attenuation increase ≤ 0.10 dB (after the test)
Temperature cycling test IEC 60794-1-2-F1 TIA/EIA-455-3A	- Temperature step: +20 °C -40 °C+70 °C-40 °C +70 °C+20 °C - Time per each step: 16 hrs. - Number of cycles: 2 cycles	-Attenuation variation for reference value(the attenuation to be measured before test at +20±3) ≤0.10dB/km
Water penetration test IEC 60794-1-2-F5 TIA/EIA-455-82B	- Water height: 1m - Sample length:3m - Duration of test: 24hrs	-No water leakage at the end of the sample
Drip test IEC 60794-1-2-E14	- Five 0.3m samples suspended vertically in a climate chamber, raised temperature to +70°C	-No filling compound shall drip from tubes after 24 hrs.

ORDER INFORMATION



FOCOMM (THAILAND) CO., LTD
12 Soi Sukhaphiban 5 Soi 5 Yaek 3, Tha Raeng Subdistrict,Bang Khen District Bangkok 10220
Email : info@focomm-cabling.com www.focomm-cabling.com