

FIBER OPTIC CABLE PRODUCT

OUTDOOR DROP WIRE 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.
- Waterblocking tape and water Blocking yarns

APPLICATION

- Special design for used together with outdoor and indoor
- All dielectric construction
- Multi-mode or single-mode fiber optic
- ATM, FDDI, CATV, FTTX, communication

CHARACTERISTIC

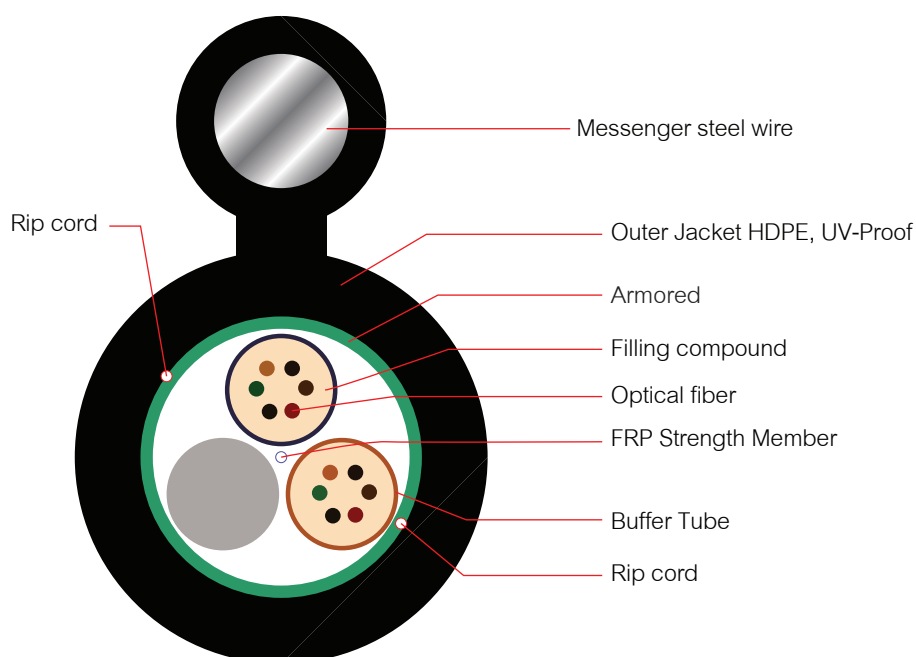
- Messenger steel wire
- Filling compound
- Optical fibers
- Water Blocking Tape
- Aramid yarns/E-Glass yarn
- Corrugated steel tape
- Outer jacket HDPE (LSZH) with rodent protection
- Rip cord Polyester Cord 2pcs



F-ML-DWA9-XX

STANDARD

ISO/IEC 11801:2002, ANSI/TIA-568-C.3, ANSI/TIA/EIA-568-B.3, ANSI/ICEA 696&596, TIA/EIA-598-A, Telcordia GR-409-CORE, Telcordia GR-20-CORE, IEC 60793, IEC 60793-2, IEC 60794-1-2, IEC 61034-2, IEC 60754-2, IEC 60332-1-2, IEC 60332-1, ITU-T G.652D (Single mode), ITU-T G.651 (Multimode), EN 50173-1, ITU-TG 657A2, RoHS Compliant 2002/95/EC, IEC 60793-2 B 1.3, TIS 2166-2548, ICEA 640, ANSI/TIA-568.3-D



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CONSTRUCTION

| Structure | | Parameter | |
|------------------------|-----------------|--|-------------------|
| Fiber count | | Fibers | 6/12 |
| Loose tube | | Material | PBT |
| | | No. fiber per tube | 6/12 |
| | | Diameter | Approx. 2.5 |
| | | Filling compound material | Thixotropic jelly |
| Support wire | Material | Galvanized steel wire | |
| | Diameter | Φ1.2 mm | |
| Armored | Material | Corrugated steel tape | |
| Strength member | Material | Aramid yarn /E-Glass yarn | FRP 0.5 mm |
| Cable diameter Overall | Material | HDPE / FR-LSZH with Rodent Repellent (LS2) | |
| | Thickness | 1.6 mm | |
| Cable sheath | Approx. 8.3 um | | |
| Core Diamater | Approx. 4.5 | | |
| | Approx.9.6 ±1.0 | | |

FIBER COLOR

| Category | Description | Specifications | | |
|-------------------------------------|--|----------------------------|--------------------------------|--|
| | | G.652 | | |
| Optical Specifications | Attenuation | @1310nm | ≤0.35/0.33dB/km | |
| | | @1383nm | ≤0.35/0.31db/km | |
| | | @1550nm | ≤0.21/0.19db/km | |
| | | @1625nm | ≤0.23/0.20db/km | |
| | | Attenuation discontinuity | ≤0.05dB | |
| | Attenuation vs. Wavelength | @1285 -1330 nm | ≤0.05dB/km | |
| | | @1525 -1575nm | ≤0.05dB/km | |
| | | Zero dispersion wavelength | 1300-1324nm | |
| | | Zero dispersion slope | ≤0.092ps/(nm ² .km) | |
| | Dispersion | @1310nm | ≤3.5ps/nm.km | |
| @1550nm | | ≤18ps/nm.km | | |
| | Polarization mode dispersion | ≤0.5ps/km ^{1/2} | | |
| | Cable cutoff wavelength (λ _{cc}) | ≤1260nm | | |
| Effective group index of refraction | @1310nm | 1.4676 | | |
| | @1510nm | 1.4682 | | |
| Geometric Specifications | Mode field diameter | @1310nm | 9.2±0.6μm | |
| | | @1550nm | 10.4±0.8μm | |
| | Cladding diameter | 125±1μm | | |
| | Cladding non-circularity | ≤1.0% | | |
| | Coating diameter , Primary | 242±5μm | | |
| | Coating/Cladding concentricity error | ≤12μm | | |
| | Core/Cladding concentricity error | ≤0.5μm | | |
| | Coating diameter , Secondary | 250±5μm | | |
| | Core non -circularity | ≤5% | | |

| | | |
|---------------------------|--------------------------|------------------------|
| Mechanical Specifications | Proof test level | ≥1.0% |
| | Proof test Stress | 100 Kpsi |
| | Fiber curl radius | ≥4.0m |
| | Peak coating strip force | 1.3-8.9N |
| Max. tensile load | Installation | 1800N |
| | Operation | 800N |
| Maximum Crush resistance | | 1,500 N./10 cm. |
| Bending radius | Dynamic | 20H |
| | Static | 10H |
| Max Span Length | | 40-80m |
| Maximum Wind Velocity | | 126 km./hr. |
| Minimum bending Radius | Installation | 15 x Diameter of Cable |
| | Operation | 10 x Diameter of Cable |
| Operating temperature | Installation | -40+70°C |
| | Operation | -40+70°C |
| | Storage | -40+75°C |

TEST REQUIREMENTS

| Item | Test standard | Method | Acceptance criteria |
|--------------------------|--------------------|--|--|
| Tensile test | IEC 60794-1-2-E1A | - Max. tensile strength:1200N | Fiber strain at maximum |
| | TIA/EIA-455-33A | - Sample length:50 meters | Load: max. 0.33% |
| | | - Time: 1 minutes; | -Attenuation increase ≤0.50dB |
| Crush test | IEC 60794-1-2-E3 | - Load:500N | No splits or cracks in the outer jacket; |
| | TIA/EIA-455-41A | - Time: 1 minutes | -No fiber break |
| | | - Length: 100mm | |
| Impact test | IEC 60794-1-2-E4 | - Impact energy: 150g | -No splits or cracks in the outer jacket |
| | TIA/EIA-455-25B | - Height:1 meter | -Attenuation increase ≤0.50dB |
| | | - Impact points: min.1 | |
| | | - Number of impacts: 5 | |
| Bending test | IEC 60794-1-2-E6, | - Diameter of mandrel: 20×D | - No splits or cracks in the outer jacket |
| | TIA/EIA-455-104A | - Number of turns/helix:10 | - No fiber break |
| | IEC 60794-1-2-E11B | - Number of cycles: 5 | |
| Temperature cycling test | IEC 60794-1-2-F1 | - Temperature step: +20°C ~ 0°C ~ | Attenuation variation for reference value |
| | TIA/EIA-455-3A | +60°C ~ 0°C ~ +60°C ~ +20°C | (The attenuation to be measured before test at |
| | | - Time per each step: 12 hrs. | +20±3 C) ≤0.50dB/km |
| | | - Number of cycles: 2 cycles | |
| Water penetration test | IEC 60794-1-2-E5 | - Water height: 1m | -No water leakage at the end of the sample |
| | TIA/EIA-455-82B | - Sample length:3m | |
| | | - Duration of test: 24hrs. | |
| 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. |
| Torsion or Twist test | IEC 60794-1-2-E7 | - 1 m cable length with 150 N weight | - No splits or cracks in the outer jacket |
| | TIA/EIA-455-85A | - ±180° ,10 cycles | -Attenuation increase ≤ 0.10 dB (after the test) |

MECHANICAL PROPERTIES

| | 4-8 CORE | 12 CORE |
|--------------------------|----------------|----------------|
| - Cable Diameter, approx | 9.3 ± 0.5 mm | 9.8 ± 0.5 mm |
| - Cable Weight, approx. | 52 ± 0.5 kg/km | 58 ± 0.5 kg/km |

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. 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%

ORDER INFOMATION

| PRODUCT | PART NUMBER |
|--|--------------|
| Outdoor Cable, Drop Wire, with Armored, SM 9/125um 6 Core | F-ML-DWA9-06 |
| Outdoor Cable, Drop Wire, with Armored, SM 9/125um 12 Core | F-ML-DWA9-12 |