

# FREEDM® Loose Tube, Gel-Free, Interlocking Armored Cable, Riser

12 F, 50 µm multimode (OM4)

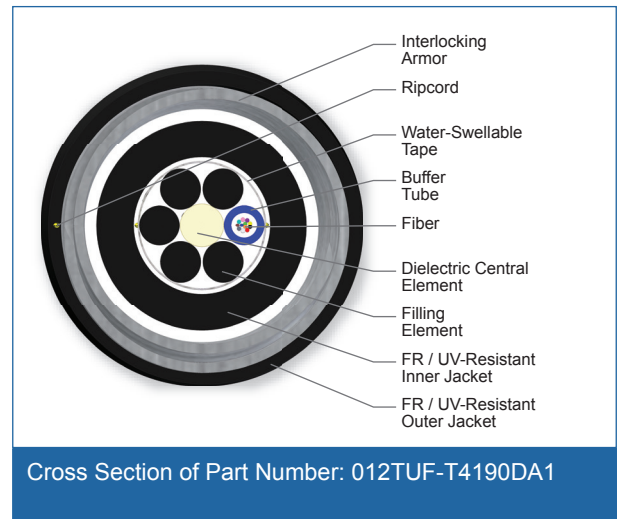
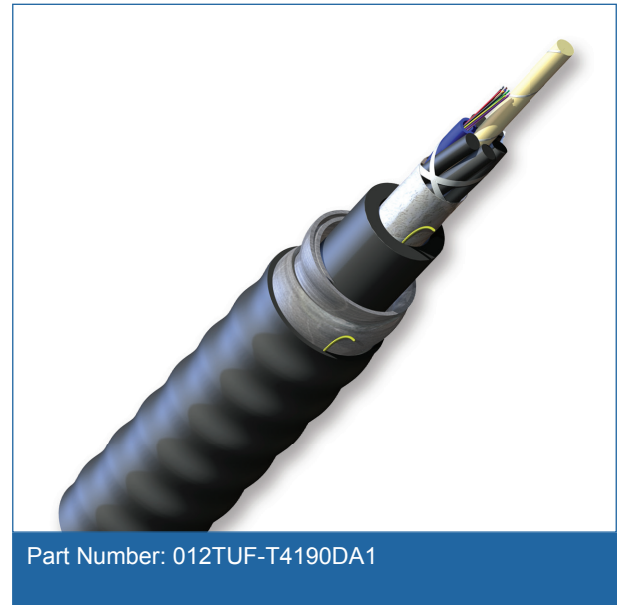
CORNING

Corning FREEDM® loose tube gel-free interlocking armored cables are flame-retardant, indoor/outdoor, riser-rated cables for interbuilding and intrabuilding backbones in aerial, duct and riser applications. Encased in a spirally wrapped, aluminum interlocking armor for ruggedness and superior crush resistance, these cables are ideal for industrial and heavy traffic areas and installations requiring extra protection for optical cables and for high-fiber-count trunking applications in areas with limited conduit or vault space. The riser rating precludes the need for a transition splice when entering the building.

These cables are protected against water penetration by innovative waterblocking tapes and yarns that swell to absorb water without the use of messy gels to provide more efficient and craft-friendly cable preparation. This waterblocking technology makes cable access easier and simplifies the use of buffer tube fan-out kits. The buffer tubes and fibers in each tube are color coded for quick, easy identification. The SZ-stranded, loose tube design isolates fibers from installation, environmental rigors and allows for easy mid-span access. The cable design is also National Electrical Code® (NEC®) listed (OFCR and FT-4).

The flexible, interlocking armored design offers over seven times the crush protection compared to unarmored cables (as characterized to ICEA-696) and allows easy one-step installation which reduces the overall installation costs. The UV-resistant, flame-retardant jacket is rugged and easy to strip.

*Note: This cable is available in 12 different jacket colors – blue, orange, green, brown, slate, white, red, black, yellow, violet, rose and aqua. The colored jacket allows for easy visual identification of the cables while still providing all of the required environmental protection of an indoor/outdoor cable jacket. Black is the standard jacket color using the part numbers shown here. Contact Customer Care at 1-800-743-2675 to order other color options.*



## Features and Benefits

### Gel-free waterblocking technology

Craft-friendly cable preparation

### Loose tube design

Mechanical ruggedness and environmental durability

### Color-coded tubes and fibers

Quick and easy identification

### Flexible interlocking armor

Up to seven times the crush protection compared to non-armored cables

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## Features and Benefits

### Common installations

Outdoor aerial and duct; indoor vertical riser and general purpose horizontal according to NEC Article 770

## Standards

### Listings

National Electrical Code<sup>®</sup>  
(NEC<sup>®</sup>) OFCR, CSA FT-4

### Design and Test Criteria

ANSI/ICEA S-104-696; CSA FT-4

## Specifications

| General Specifications |                                                                           |
|------------------------|---------------------------------------------------------------------------|
| Environment            | Indoor/Outdoor Cables                                                     |
| Application            | Aerial, Direct Buried, Duct, General Purpose Horizontal, (Vertical Riser) |
| Cable Type             | Loose Tube                                                                |
| Product Type           | Interlocking armor                                                        |
| Flame Rating           | Riser (OFCR)                                                              |
| Fiber Category         | 50 $\mu$ m MM (OM4)                                                       |

| Temperature Range |                                    |
|-------------------|------------------------------------|
| Storage           | -40 °C to 70 °C (-40 °F to 158 °F) |
| Installation      | -10 °C to 60 °C (14 °F to 140 °F)  |
| Operation         | -40 °C to 70 °C (-40 °F to 158 °F) |

| Cable Design             |                                                                                  |
|--------------------------|----------------------------------------------------------------------------------|
| Central Element          | Dielectric                                                                       |
| Fiber Count              | 12                                                                               |
| Fiber Coloring           | Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose, Aqua |
| Fibers per Tube          | 12                                                                               |
| Number of Tube Positions | 6                                                                                |

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## Cable Design

|                                                     |                               |
|-----------------------------------------------------|-------------------------------|
| Number of Active Tubes                              | 1                             |
| Buffer Tube Color Coding                            | Blue                          |
| Buffer Tube Diameter                                | 2.5 mm (0.1 in)               |
| Number of Filling Elements                          | 5                             |
| Tape                                                | Water-swellable               |
| Number of Ripcords                                  | 2                             |
| Inner Jacket Material                               | Flame-Retardant, UV-Resistant |
| Tensile Strength Elements and/or Armoring - Layer 1 | Interlocking armor            |
| Outer Jacket Material                               | Flame-Retardant, UV-Resistant |
| Outer Jacket Color                                  | Black                         |

## Mechanical Characteristics Cable

|                                   |                              |
|-----------------------------------|------------------------------|
| Max. Tensile Strength, Short-Term | 2700 N (600 lbf)             |
| Max. Tensile Strength, Long-Term  | 810 N (180 lbf)              |
| Min. Bend Radius Installation     | 299 mm (11.8 in)             |
| Nominal Outer Diameter            | 20.7 mm (0.81 in)            |
| Min. Bend Radius Operation        | 207 mm (8.15 in)             |
| Weight                            | 293 kg/km (196.8 lb/1000 ft) |

## Chemical Characteristics

|      |                                                           |
|------|-----------------------------------------------------------|
| RoHS | Free of hazardous substances according to RoHS 2011/65/EU |
|------|-----------------------------------------------------------|

## Fiber Specifications

### Optical Characteristics (cabled)

|                         |                  |
|-------------------------|------------------|
| Fiber Core Diameter     | 50 µm            |
| Fiber Category          | OM4              |
| Fiber Code              | T                |
| Performance Option Code | 90               |
| Wavelengths             | 850 nm / 1300 nm |

\* Assumes 1.0 dB maximum total connector/splice loss.

\* Meets 0.75 ns optical skew when used in all Corning Plug and Play™/EDGE™ systems solutions.

Notes: 1) 50 µm multimode fiber macrobend loss ≤ 0.2 dB at 850 nm for two turns around 7.5 mm radius mandrel.  
2) Improved attenuation and bandwidth options available.  
3) Bend-insensitive single-mode fibers available on request.  
4) Contact a Corning Customer Care Representative for additional information.

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## Fiber Specifications

| Optical Characteristics (cabled)        |                          |
|-----------------------------------------|--------------------------|
| Maximum Attenuation                     | 3.0 dB/km / 1.0 dB/km    |
| Serial 1 Gigabit Ethernet               | 1100 m / 600 m           |
| Serial 10 Gigabit Ethernet              | 550 m / -                |
| Min. Overfilled Launch (OFL) Bandwidth  | 3500 MHz*km / 500 MHz*km |
| Minimum Effective Modal Bandwidth (EMB) | 4700 MHz*km / -          |

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## Ordering Information

|                     |                                                                                              |
|---------------------|----------------------------------------------------------------------------------------------|
| Part Number         | 012TUF-T4190DA1                                                                              |
| Product Description | FREEDM® Loose Tube, Gel-Free, Interlocking Armored Cable, Riser, 12 F, 50 µm multimode (OM4) |
| EAN Code            | 4056418171517                                                                                |



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