

# Mining and Petrochemical Tray-Rated, Loose Tube, Gel-Free Cable 12 F, 50 µm multimode (OM3)

CORNING

## Part Number: 012TUL-T3680D2M

Corning dielectric, tray-rated, mining and petrochemical fiber optic cables are designed for indoor and outdoor use in mining and petrochemical backbones (aerial and duct) and horizontal intrabuilding and tunnel backbones where limited-smoke and zero-halogen requirements exist. The loose tube cable construction, pioneered by Corning, places fibers in buffer tubes and provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications. The SZ-stranded, loose tube design isolates fibers from installation and environmental rigors and allows for easy mid-span access. The design also provides high-fiber density within a given cable diameter, allowing flexibility to suit many system designs.

The cable's innovative waterblocking technology eliminates the need for traditional flooding compound and allows more efficient and craft-friendly cable preparation. The specially formulated black jacket is UV-resistant and has a flame-retardant LSZH inner and outer layer. These extra-tough double jackets resist hazards found in mines and petrochemical complexes, making this cable ideal for any harsh environment requiring a more robust cable and suitable for direct buried applications. All-dielectric construction provides tensile strength and eliminates grounding concerns. With an extended storage and operating temperature range of -50° to +75°C (-58° to +167°F), the cable is listed OFN-LS and CSA FT4-ST 1 for up to 288 fibers and cable tray-rated per CSA C22.2 No. 230 and No. 232.



## Features and Benefits

### Loose tube construction

Stable and highly reliable transmission parameters

### Waterblocking technology

Allows efficient and craft-friendly cable preparation

### Extra tough double jackets

Ideal for harsh environments

### Listed MSHA 30 CFR Pt 7-K

Mining Safety and Health Administration (MSHA) approved

### Common installations

Outdoor aerial and duct; indoor general purpose horizontal according to CSA C22.2

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## Specifications

### Mechanical Specifications

Impact Resistance	11.8 Nm
Max. Tensile Strength, Long-Term	1500 N
Max. Tensile Strength, Short-Term	4500 N
Min. Bend Radius Installation	264 mm (10.39 in)
Min. Bend Radius Operation	176 mm (6.93 in)
Nominal Outer Diameter	17.6 mm (0.69 in )
Compressive Loading	2400 N/cm

### Cable Design

Central Element	Dielectric
Fiber Count	12
Buffer Tube Color Coding	Blue
Number of Ripcords	4
Outer Jacket Color	Black
Outer Jacket Material	Flame-retardant, non-corrosive/low-smoke, zero-halogen (FRNC/LSZH) material
Tensile Strength Elements and/or Armoring - Layer 1	Dielectric strength members
Buffer Tube Color	Blue
Buffer Tube Diameter	2.5 mm (0.1 in)
Inner Jacket Material	Flame-retardant, non-corrosive/low-smoke, zero-halogen (FRNC/LSZH) material
Number of Active Tubes	1

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## Cable Design

Number of Filling Elements	5
Number of Tube Positions	6
Tape	Water-swellaable
Tape, Layer 1	Water-swellaable
Tape, Layer 2	Flame-retardant tape
Tape, Layer 3	Water-swellaable
Tape, Layer 4	Water-swellaable
Fiber Coloring	Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose, Aqua
Fibers per Tube	12

## Environmental Conditions

Temperature Range, Installation	-30 °C - 60 °C (-22 °F - 140 °F)
Temperature Range, Storage	-50 °C - 75 °C (-58 °F - 167 °F)
Temperature Range, Operation	-50 °C - 75 °C (-58 °F - 167 °F)

## General Specifications

Environment	Indoor/Outdoor
Cable Type	Loose Tube
Product Type	Dielectric
Fiber Category	50 µm MM (OM3)
Flame Rating	LSZH™ (OFN-LS)
Application	Aerial , Direct Buried , Duct , Tray-Rated

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## Ordering Information

Weight	299 kg/km
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## Standards

RoHS	Free of hazardous substances according to RoHS 2011/65/EU
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Approvals and Listings	National Electrical Code® (NEC®) OFN-LS, Sunlight Resistant (SUN RES), IEEE-1202 flame test, Suitable for Direct Burial (DIR BUR), IEC 60332-3, IEC 60754-2, IEC 61034
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Design and Test Criteria	ANSI/ICEA S-104-696, CSA OFN-LS FT-4-ST1, CSA C22.2 No. 230 and No. 232
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## Optical Characteristics

Fiber Code	T
Fiber Type	Multimode
Performance Option Code	80
Fiber Core Diameter	50 µm
Minimum Effective Modal Bandwidth (EMB)	2000 MHz*km / -
Maximum Attenuation	3.0 dB/km / 1.0 dB/km
Min. Overfilled Launch (OFL) Bandwidth	1500 MHz*km / 500 MHz*km
Serial 1 Gigabit Ethernet	1000 MHz*km / 600 MHz*km
Serial 10 Gigabit Ethernet	300 MHz*km / -
Wavelengths	850 nm / 1300 nm
Fiber Category	OM3

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## Chemical Resistance Characteristics

Chemical	Exposure Time	Exposure Temperature
ASTM #2 Oil	4 h	70 °C (158 °F)
De-Icing Fluid	24 h	50 °C (122 °F)
Diesel Fuel, MIL-F 16884	24 h	35 °C (95 °F)
Hydraulic Fuel, MIL-H 16762	24 h	49 °C (120.2 °F)
Hydraulic Fuel, MIL-H 5606	24 h	49 °C (120.2 °F)
Lubricating Oil, MIL-L23699	24 h	49 °C (120.2 °F)
Vegetation Killer	168 h	50 °C (122 °F)



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