

# Mining and Petrochemical Tray-Rated, Loose Tube, Gel-Free Cable

216 F, SMF-28® Ultra fiber, Single-mode (OS2)

CORNING

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, UV-resistant, flame-retardant LSZH inner and outer jacket complies with IEEE-383 flame test. 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.

*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

### Loose tube construction

Stable and highly reliable transmission parameters

### Waterblocking technology

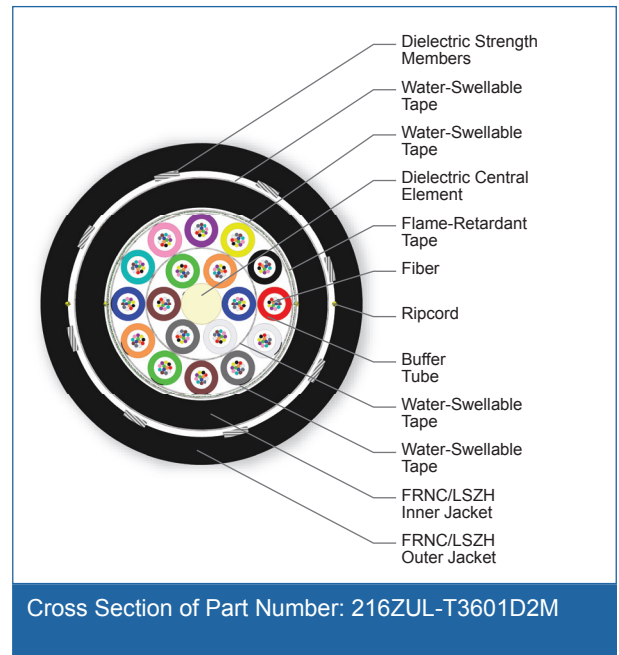
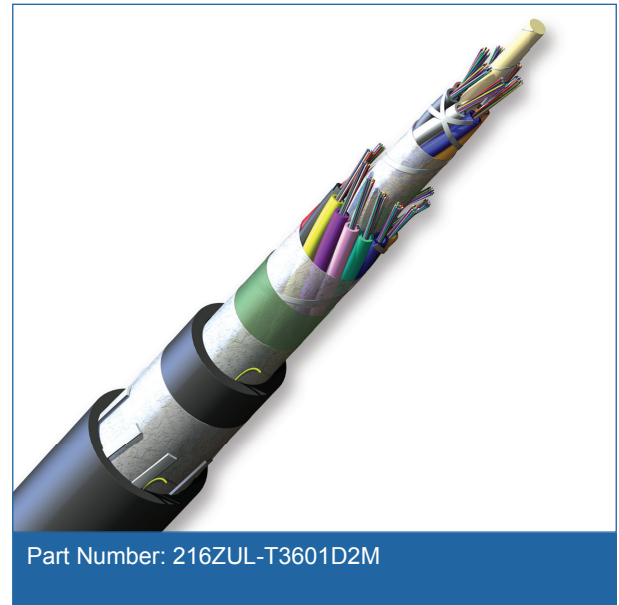
Allows efficient and craft-friendly cable preparation

### Extra tough double jackets

Ideal for harsh environments

### Listed MSHA 30 CFR Pt 7-K

Mining Safety and Health Administration (MSHA) approved



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## Features and Benefits

### Common installations

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

## Standards

### Listings

National Electrical Code® (NEC®) OFCR-LS; Sunlight Resistant (SUN RES); IEEE-383/IEEE-1202 flame test; Suitable for Direct Burial (DIR BUR); IEC 60332-3, IEC 60754-2, IEC 61034

### Design and Test Criteria

ANSI/ICEA S-104-696, CSA OFN-LS FT-4-ST1, CSA C22.2 No. 230 and No. 232

## Specifications

General Specifications	
Environment	Indoor/Outdoor Cables
Application	Aerial, Direct Buried, Duct, Tray Rated, (General Purpose Horizontal)
Cable Type	Loose Tube
Product Type	Dielectric
Flame Rating	LSZH™ (OFN-LS)
Fiber Category	SMF-28® Ultra fiber

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

Cable Design	
Central Element	Dielectric
Fiber Count	216

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Cable Design	
Fiber Coloring	Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose, Aqua
Fibers per Tube	12
Number of Tube Positions	18
Number of Active Tubes	18
Buffer Tube Color Coding, Layer 1	Blue, Orange, Green, Brown, Slate, White
Buffer Tube Diameter	2.5 mm (0.1 in)
Tape	Water-swellable
Buffer Tube Color Coding, Layer 2	Red, Black, Yellow, Violet, Rose, Aqua, Blue*, Orange*, Green*, Brown*, Slate*, White*
Tape, Layer 2	Water-swellable
Tape, Layer 3	Flame-retardant tape
Tape, Layer 4	Water-swellable
Inner Jacket Material	Flame-retardant, non-corrosive/low-smoke, zero-halogen (FRNC/LSZH) material
Tape, Layer 5	Water-swellable
Tensile Strength Elements and/or Armoring - Layer 1	Dielectric strength members
Number of Ripcords	4
Outer Jacket Material	Flame-retardant, non-corrosive/low-smoke, zero-halogen (FRNC/LSZH) material
Outer Jacket Color	Black

Mechanical Characteristics Cable	
Max. Tensile Strength, Short-Term	4500 N (1000 lbf)
Max. Tensile Strength, Long-Term	1500 N (333 lbf)
Compressive Loading	2400 N/cm (1370 lb/in)
Impact Resistance	11.8 N*m (8.7 lb*ft)
Weight	472 kg/km (317 lb/1000 ft)
Nominal Outer Diameter	23.3 mm (0.92 in)
Min. Bend Radius Installation	350 mm (13.8 in)
Min. Bend Radius Operation	233 mm (9.2 in)

Chemical Resistance		
Chemical	Exposure Time	Exposure Temperature
ASTM #2 Oil	4 h	158 °F
De-Icing Fluid	24 h	122 °F

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## Chemical Resistance

Diesel Fuel, MIL-F 16884	24 h	95 °F
Hydraulic Fuel, MIL-H 5606	24 h	120 °F
Hydraulic Fuel, MIL-H 16762	24 h	120 °F
Lubricating Oil, MIL-L23699	24 h	120 °F
Vegetation Killer	168 h	122 °F

## Chemical Characteristics

RoHS	Free of hazardous substances according to RoHS 2011/65/EU
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## Fiber Specifications

### Optical Characteristics (cabled)

Fiber Name	SMF-28 <sup>®</sup> Ultra fiber
Fiber Category	G.657.A1
Fiber Code	Z
Performance Option Code	01
Wavelengths	1310 nm / 1383 nm / 1550 nm
Maximum Attenuation	0.4 dB/km / 0.4 dB/km / 0.3 dB/km
Typical Attenuation	0.33 dB/km / 0.33 dB/km / 0.19 dB/km

\* For more information on typical attenuation please see the Corning whitepaper at [http://csmedia.corning.com/opcomm//Resource\\_Documents/whitepapers\\_r/ LAN-1863-AEN.pdf](http://csmedia.corning.com/opcomm//Resource_Documents/whitepapers_r/ LAN-1863-AEN.pdf)

## Ordering Information

Part Number	216ZUL-T3601D2M
Product Description	Mining and Petrochemical Tray-Rated, Loose Tube, Gel-Free Cable, 216 F, SMF-28 <sup>®</sup> Ultra fiber, Single-mode (OS2)



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