

# FIBER OPTIC TRAY CABLES<sup>TM</sup>

## WHAT IS A FIBER OPTIC TRAY CABLE (FOTC)?

The term "tray cables" has gained significant market focus recently, but a wide range of cables can be installed in a cable tray. OCC FOTC cables will withstand aggressive pulling, impact from falling debris, and harsh temperatures. Our tray-rated cables are used in a variety of indoor and outdoor environments such as manufacturing plants, oil refineries and platforms, utilities, substations, and mining applications.

#### CONNECTIONS YOU CAN COUNT ON.™

When it comes to fiber-only cables that are to be installed in cable trays, there is a big gap in the standards and clarity on what these constructions look like and how they should be expected to perform under these conditions. OCC FOTC cables are tight-buffered, offering easier terminations and stronger capabilities with regard to crush, impact, and bend radius. This guide outlines how OCC's cables meet or exceed the specified requirements for Tray Cables.





**TRAY CABLE (TC)** describes a copper cable that has certain construction elements built-in to withstand the potential exposure from being installed in a tray.



**TRAY CABLE OPTICAL FIBER (TC-OF)** refers to a hybrid cable that has the same construction as Tray Cable (TC), but also contains a fiber optic element.



**FIBER OPTIC TRAY CABLE (FOTC)** is a cable that is fiber-only. These are built to perform under the same harsh environments as the TC and TC-OF cables, only with no power conductors.

## HOW IS FIBER FOR CABLE TRAYS EVALUATED?

#### CANADIAN STANDARDS AUTHORITY (CSA)

C22.2 No. 230 lists the most specific requirements for tray cables:

- > Flame Test FT4
- > Impact 5 lbs. of mass, minimum 1 ft. drop
- > Crush 4480N using a flat steel plate and 19mm round mandrel
- > Temperature Performance Cold -18°C to +60°C
- Optional performance for cold impact – 3lbs. mass, minimum 3ft. drop at -40°C (J-Jacket)
- Optional oil resistance with J-Jacket

## NATIONAL FIRE PROTECTION AGENCY (NFPA):

NFPA 70, Article 770, simply states "Fiber cables shall be permitted to be installed in cable trays."

## INSTITUTE FOR ELECTRONICS AND ELECTRICAL ENGINEERS

IEEE 383 provides guidance on fire resistance standards for fiber cabling run in trays established specifically for fiber cabling used in nuclear power plants. It does not address other performance criteria such as mechanical damage and weathering resistance.

#### **HOW DID OCC ENGINEER FOTC?**

When OCC first built our reputation as pioneers in fiber optic cable over 35 years ago, we made a commitment to quality, performance, and service. Initially known for our expertise in creating battle-tested products for the military, OCC has expanded into many other areas, including Fiber Optic Tray Cables. OCC manufactures our fiber-only cables by eliminating the copper elements in these hybrid cables, without reducing the durability or reliability. These cables maintain the same mechanical durability and are built to withstand the demands of cable installed in tray applications.

If we look to the Canadian Standards Authority (CSA), National Fire Prevention Agency (NFPA), and Institute for Electronics and Electrical Engineers (IEEE) for guidance, as well as true application-based requirements that have not specified by a standard, we can come to the conclusion that a Fiber Optic Tray Cable (FOTC) must address these five issues:

- > Be able to withstand one or more impacts from falling debris
- > Be able to withstand being crushed by other cables against the metal rungs of the tray
- > Be able to withstand extreme temperatures
- > Be able to withstand exposure to UV and sunlight
- > Have flame resistance appropriate to the installation requirements. Most installations will require that the cable installed carry either a UL Riser rating or be a low smoke zero halogen (LSZH) construction

Based on these criteria, OCC recommends our B-Series Breakout, G-Series Subgrouping, and HC-Series High-Density cables for use in cable trays.

## A FIBER CABLE USED IN A TRAY MUST HAVE THESE MECHANICAL CAPABILITIES:



Absorbs IMPACT from falling debris



CRUSH resistant against other cables in the metal rungs of the tray



Able to handle extreme TEMPERATURES (hot/cold)

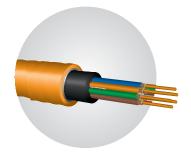


Able to withstand exposure to direct sunlight UV RESISTANT

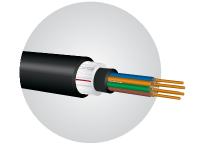


FLAME resistance appropriate to the installation environment

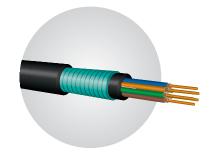
#### **CABLE REINFORCEMENT OPTIONS\***



ALUMINUM INTERLOCKING ARMOR (ILA)



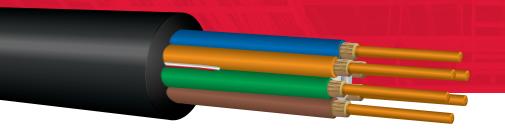
FIBERGLASS RODENT PROTECTION (FRP)



CORRUGATED STEEL TAPE (CST)

## **B-SERIES BREAKOUT**

## RISER RATED FOTC





#### **APPLICATIONS**

- > Ideal for installations requiring an extremely rugged and reliable cable design where maximum mechanical and environmental protection are necessary
- > Easiest cable to install where direct termination of the subcable to a connector and a direct run to panels and equipment are desired
- > Ideal for locations requiring low-temperature performance along with a flame rating
- > Ideal for instrumentation & control

#### **FEATURES**

- > Individual fibers and strength members protected in a subcable configuration
- > Most rugged cable design with individual subcables for routing to diverse intelligent devices with direct connector termination at each device
- > Low-temperature PVC outer jacket (J-Jacket) provides excellent performance and flexibility at low temperatures
  - Wide operating temperature range of -50°C to +75°C
  - Oil resistant for use in industrial applications
  - Designed to exceed the flammability requirements of Chapter 8 of IEEE 383
- > Meets all applicable standards for impact & crush resistance (CSA C22.2 No. 230)
- > J-Jacket is UV, fungus, and moisture resistant



- 1. Central Filler/Strength Member
- 2. Subcable
- 3. Outer Jacket
- 4. Ripcord

#### **SUBCABLE**

- 5. 900µm Tight-Buffer Optical Fiber
- 6. Aramid Strength Member
- 7. Subcable Jacket

#### MECHANICAL AND ENVIRONMENTAL PERFORMANCE

INDOOR/OUTDOOR B-SERIES	D-JACKET	J-JACKET	Z-JACKET
OUTER JACKET MATERIAL	PVC	Low-Temperature PVC	Indoor/Outdoor Zero Halogen
OPERATING TEMPERATURE	-40°C to + 85°C	-50°C to + 75°C	-40°C to + 70°C
STORAGE TEMPERATURE	-55°C to + 85°C	-55°C to + 85°C	-40°C to + 85°C
INSTALLATION TEMPERATURE (CABLE TEMP)	-10°C to + 60°C	-30°C to + 60°C	-20°C to + 60°C
FLAME RETARDANCY	UL listed type OFNR (UL 1666) and FT4 (UL 1685)	UL listed type OFNR (UL 1666) and FT4 (UL 1685)	UL listed type OFNR-ST1 (UL 1666 & UL1685), FT4 (UL 1685)
CRUSH RESISTANCE (TIA-455-41)	2,200 N/cm	2,200 N/cm	2,200 N/cm
FLEX RESISTANCE (TIA-455-104)	2,000 cycles	2,000 cycles	2,000 cycles



#### B-SERIES BREAKOUT TRAY CABLE WITH 2.0MM OR 2.5MM FIBER SUBCABLES

		WEIGHT	TENSILE	LOAD	MINIMUM	BEND RADIUS		
FIBER COUNT	DIAMETER MM (IN)	KG/KM (LBS/1,000')	INSTALLATION* N (LBS)	OPERATIONAL N (LBS)	INSTALLATION CM (IN)	LONG-TERM CM (IN)		
2	7.0 (0.28)	41 (28)	1,200 (270)	500 (110)	10.5 (4.1)	7.0 (2.8)		
6	9.6 (0.38)	88 (59)	3,000 (670)	1,200 (270)	14.4 (5.7)	9.6 (3.8)		
12	14.1 (0.55)	159 (107)	6,000 (1,350)	2,500 (560)	21.2 (8.3)	14.1 (5.5)		
24	17.6 (0.69)	292 (196)	10,000 (2,250)	3,800 (850)	26.4 (10.4)	17.6 (6.9)		
48	24.2 (0.95)	501 (336)	18,000 (4,050)	7,500 (1,690)	36.3 (14.3)	24.2 (9.5)		
72	28.9 (1.14)	768 (516)	26,000 (5,845)	11,000 (2,470)	43.4 (17.1)	28.9 (11.4)		

#### **ORDERING INFORMATION**

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1	2	3	4	5	6	7	8	9	10	11	12	13	14

**Digit No:** 1–2 B-Series Breakout Series Ultra-Fox Tray Cables =

2.0mm Subcables = **BE**2.5mm Subcables = **BX** 

3 – 5 Fiber Count: = **002–072** (J & D-Jacket), = **002–024** (Z-Jacket)

6 Jacket Type: Low-Temperature PVC = **J**; PVC = **D**; Indoor/Outdoor Zero Halogen = **Z** 

7 - 9 Fiber Type: Single-Mode, OM1, OM3, OM4
 10 Ultra-Fox Fiber with 900μm Tight-Buffer = 9

11 Standard Jacket Colors: Black = **K** (other jacket colors available upon request)

12 Rating: Riser = **R** (J & D-Jacket); Flame Retardant Zero Halogen = **E** 

13 – 14 Reinforcements: D-Jacket (2-24 Fiber) ILA = I2; FRP = F1

J-Jacket (2-24 Fiber) ILA = **IC**; FRP = **FC** 

Z-Jacket (2-24 Fiber) ILA = 14; FRP = F6; CST = A4

**Example:** 6-Fiber Riser Rated Tray Cable with 2.0mm Subcables Using 62.5µm Standard Laser Ultra-Fox

Fiber, Black, PVC Jacket

B E 0 0 6 D W L S 9 K R

**Example:** 12-Fiber Riser Rated Tray Cable with 2.0mm Subcables Using 62.5µm Standard Laser Ultra-Fox Fiber,

Black, Low-Temp, Aluminum Interlocking Armored (ILA) Reinforcement, PVC Jacket

B E 0 1 2 D W L S 9 K R I 2

#### **STANDARDS**

OCC indoor/outdoor tight-buffered fiber optic cables meet the functional requirements of the following standards:

ICEA-S-83-596 ICEA-S-104-696

GR-409-CORE ISSUE 2

TIA-568

TIA-598

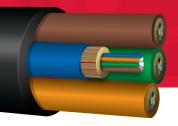
UL 1666

CSA C22.2 No. 230



## **G-SERIES SUBGROUPING**

## RISER RATED FOTC



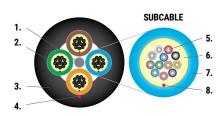


#### **APPLICATIONS**

- > Ideal for installations requiring a rugged and reliable cable design where maximum mechanical and environmental protection are necessary
- > Typical industrial uses are factory automation, power generation and other utilities, oil and gas refining, and surface mining
- > Ideal for installations requiring high fiber count cables or that require 6 or 12 fiber subunits.

#### **FEATURES**

- > Design allows multi-fiber subcables to be routed to multiple locations such as wiring racks and closets
- > Low-temperature PVC outer jacket (J-Jacket) provides excellent performance and flexibility at low temperatures
- > High crush and tensile load ratings
- > Oil resistant for use in industrial applications (J-Jacket)
- > Designed to exceed the flammability requirements of Chapter 8 IEEE 383
- > Meets all applicable standards for impact and crush resistance (CSA C22.2 No. 230)
- > J-Jacket is UV, fungus, oil, and moisture resistant



- 1. Central Filler/Strength Member
- 2. Subcable
- 3. Outer Jacket
- 4. Ripcord

#### **SUBCABLE**

- 5. 900µm Tight-Buffer Optical Fiber
- 6. Aramid Strength Member
- 7. Subcable Jacket
- 8. Ripcord

#### **MECHANICAL AND ENVIRONMENTAL PERFORMANCE**

INDOOR/OUTDOOR G-SERIES	D-JACKET	J-JACKET
OUTER JACKET MATERIAL	PVC	Low-Temperature PVC
OPERATING TEMPERATURE	-40°C to + 85°C	-50°C to + 75°C
STORAGE TEMPERATURE	-55°C to + 85°C	-55°C to + 85°C
INSTALLATION TEMPERATURE (CABLE TEMP)	-10°C to + 60°C	-30°C to + 60°C
FLAME RETARDANCY	UL listed type OFNR (UL 1666) and FT4 (UL 1685)	UL listed type OFNR (UL 1666)
CRUSH RESISTANCE (TIA-455-41)	2,100 N/cm	2,100 N/cm
FLEX RESISTANCE (TIA-455-104)	2,000 cycles	2,000 cycles



#### **G-SERIES SUBGROUPING TRAY CABLE WITH 12-FIBER SUBCABLES (5.5MM SUBCABLES)**

FIRED	DIAMETER	WEIGHT	TENSIL	E LOAD	MINIMUM BE	ND RADIUS	
FIBER COUNT	DIAMETER MM (IN)	KG/KM (LBS/1,000')	INSTALLATION* N (LBS)	OPERATIONAL N (LBS)	INSTALLATION CM (IN)	LONG-TERM CM (IN)	
24	16.6 (0.65)	274 (184)	4,600 (1,030)	1,500 (340)	24.9 (9.8)	16.6 (6.5)	
36	16.6 (0.65)	272 (183)	5,900 (1,330)	1,050 (440)	24.9 (9.8)	16.6 (6.5)	
48	16.6 (0.65)	270 (181)	7,200 (1,620)	2,400 (540)	24.9 (9.8)	16.6 (6.5)	

<sup>\*</sup>Installation loads in excess of 2,700 N (600 lbs.) are not recommended.

#### **ORDERING INFORMATION**

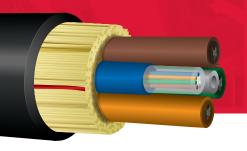
G									9	K	R	
1	2	3	4	5	6	7	8	9	10	11	12	
Digit No	o:	1 2 3 - 5 6 7 - 9 10 11 12 13 - 14	6-Fiber Fiber Co Jacket Fiber Ty Ultra-Fo Standar Rating:	Subgrouping Series Ultra-Fox = <b>G</b> 6-Fiber Subcables = <b>B</b> ; 12-Fiber Subcables = <b>X</b> Fiber Count: 6-Fiber Subcables = <b>012–036</b> , 12-Fiber Subcables = <b>024–144</b> Jacket Type: Low-Temp PVC = <b>J</b> , PVC = <b>D</b> Fiber Type: Multiple options available. Please see OCC Catalog for complete listing Ultra-Fox Fiber with 900µm Tight-Buffer = <b>9</b> Standard Jacket Colors: Black = <b>K</b> (other jacket colors available upon request) Rating: Riser = <b>R</b> Reinforcements: D-Jacket (12-48 Fiber) ILA = <b>12</b> ; FRP = <b>F1</b>								
Exampl	e:	48-Fiber R Fiber, Blac		,	`	oer Subca	bles) Usir	ng 62.5μn	n Standar	d Laser U	ltra-Fox	
G	Χ	0	4	8	J	W	L	S	9	K	R	

#### **STANDARDS**

OCC indoor/outdoor tight-buffered fiber optic cables meet the functional requirements of the following standards: ICEA-S-83-596 ICEA-S-104-696 GR-409-CORE ISSUE 2 TIA-568 TIA-598 UL 1666 CSA C22.2 NO. 230

## **HC-SERIES HIGH DENSITY**

## INDOOR/OUTDOOR FOTC





The HC-Series cables, featuring OCC's unique tight-buffered fiber units, are the ideal solution for campus networks and indoor/outdoor installations. The HC-Series of cables combines the ruggedness of tight buffers with high-fiber density, resulting in cables that have an outer diameter much smaller than conventional cables using buffer tubes. No other cable matches the mechanical and environmental performance while maintaining a small diameter and high-duct efficiency.

#### **APPLICATIONS**

- > Installation in underground duct for data transmission between nodes or hubs
- > Can also be routed vertically inside buildings
- > Ideal for high-density network backbone installations

#### **FEATURES**

- > Rugged tight-buffer fiber unit construction
- > Core-Locked™ outer jacket design for installation survivability
- > Cable can be terminated with 900µm fan-out kit for LC construction
- > Option available for direct termination of sub-units to MPO/MTP connectors
- > Meets all applicable standards for impact and crush resistance (CSA C22.2 No. 230)
- > Oil resistance for use in industrial applications (J-Jacket)
- > J-Jacket is UV, fungus, oil, and moisture resistant

## 1. 2. 3. 4. 5.

- 1. Central Filler/Strength Member
- 2. Tight-Buffer Fiber Unit
- 3. Aramid Strength Member
- 4. Outer Jacket
- 5. Ripcord

#### **TIGHT-BUFFER FIBER UNIT**

- 6. 250µm Acrylate Fiber
- 7. Fiber Unit
- 8. Tight-Buffer Fiber Unit

#### MECHANICAL AND ENVIRONMENTAL PERFORMANCE

INDOOR/OUTDOOR HC-SERIES	D-JACKET	J-JACKET
OUTER JACKET MATERIAL	PVC	Low-Temperature PVC
OPERATING TEMPERATURE	-40°C to + 85°C	-50°C to + 75°C
STORAGE TEMPERATURE	-55°C to + 85°C	-55°C to + 85°C
INSTALLATION TEMPERATURE (CABLE TEMP)	-10°C to + 60°C	-20°C to + 60°C
FLAME RETARDANCY	UL listed type OFNR (UL 1666)	UL listed type OFNR (UL 1666)
CRUSH RESISTANCE (TIA-455-41)	1,800 N/cm	1,800 N/cm
FLEX RESISTANCE (TIA-455-104)	2,000 cycles	2,000 cycles



#### CABLE CHARACTERISTICS: HC-SERIES HIGH-DENSITY RISER CABLES (WITH 2.0MM **FIBER UNITS)**

FIRE	DIAMETER	WEIGHT	TENSIL	E LOAD	MINIMUM BE	ND RADIUS
FIBER COUNT	DIAMETER MM (IN)	KG/KM (LBS/1,000')	INSTALLATION N (LBS)	OPERATIONAL N (LBS)	INSTALLATION CM (IN)	LONG-TERM CM (IN)
12 - 48	7.6 (0.30)	72 (48)	2,700 (600)	600 (135)	11.4 (4.5)	7.6 (3.0)
96	10.3 (0.41)	111 (75)	2,700 (600)	600 (135)	15.5 (6.1)	10.3 (4.1)
144	11.7 (0.46)	146 (98)	2,700 (600)	600 (135)	17.6 (6.9)	11.7 (4.6)
288	15.0 (0.59)	218 (147)	2,700 (600)	600 (135)	22.8 (9.0)	15.0 (5.9)



#### **ORDERING INFORMATION**

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1	2	3	4	5	6	7	8	9	10	11	12	13	14

Digit No: 1 - 2 High Count Series with 12-Fiber Bundled Fiber Units 2.0mm in Diameter

> 12-Fiber = **HT**; 24-288 Fiber = **HC** 3 - 5 Fiber Count: (See cable characteristics chart)

Jacket Types: Indoor/Outdoor Oil Resistant Low-Temp PVC = J, Indoor/Outdoor PVC = D 6

7 – 9 Fiber type: SLA, ALT, ALE, WLS. Please see OCC Catalog for complete listing

Jacketed Fiber Unit: **A** = Aramid within subunit, **C** = No Aramid within subunit 10

Standard Jacket Color: Black = K 11

12 Rating: Riser = R

13 – 14 Reinforcements = D-Jacket (12-288 Fiber): ILA = **I2**; FRP = **F1**; CST = **A1** 

J-Jacket (12-288 Fiber): ILA = IC; FRP = FC; CST = A7

C

12-Fiber Cable with 12-Fiber Units, 2.0mm in Diameter Using Bend-Insensitive, Single-Mode Fiber, Example:

Low Temperature Oil-Resistant Indoor/Outdoor PVC, Black, Riser Rated, PVC Jacket, Printed in Feet S

48-Fiber Cable with 12-Fiber Units, 2.0mm in Diameter Using Bend-Insensitive, Single-Mode Fiber, Example:

D

Low Temperature Oil-Resistant Indoor/Outdoor PVC, Black, Riser Rated, with Corrugated Steel Tape

L

Α

Reinforcement, PVC Jacket, Printed in Feet

2

#### **STANDARDS**

OCC indoor/outdoor tight-buffered fiber optic cables meet or exceed the functional requirements of the following standards:

ICEA-S-104-696 ICEA-S-83-596

TIA-568

TIA-598 UL 1666

CSA C22.2 No.230

## **OCC SOLUTION HIGHLIGHTS**

#### XPRESS ULTRA™ FIBER CONNECTORS

DESCRIPTION	OCC PART #
Xpress Ultra™ Fiber Connector, Pre-Polished, Single-Mode, LC, 2/3mm	RFC-LC8-2/3MM
Xpress Ultra™ Fiber Connector, Pre-Polished, Single-Mode, SC, 2/3mm	RFC-SC8-2/3MM
Xpress Ultra <sup>™</sup> Fiber Connector, Pre-Polished, Single-Mode, APC, LC, 2/3mm	RFC-LCAPC-2/3MM
Xpress Ultra™ Fiber Connector, Pre-Polished, Single-Mode, APC, SC, 2/3mm	RFC-SCAPC-2/3MM

OCC also offers pre-built assembiles with discrete connector options. See online configurator at occfiber.com for more part information. Contact OCC Sales to order.

#### **DIN RAIL FIBER ENCLOSURES**

DESCRIPTION	OCC PART #
DIN Rail Fiber Enclosure, Holds 1 Adapter Plate, Cable Entry Grommet, Black, Empty	DTC1AP
DIN Rail Fiber Enclosure, Holds 2 Adapter Plates, Cable Entry Grommet, Black, Empty	DTC2AP
DIN Rail Fiber Enclosure, Holds 1 Adapter Plate, Liquid Tight Cable Gland, Black, Empty	DTC1APG
DIN Rail Fiber Enclosure, Holds 2 Adapter Plates, Liquid Tight Cable Gland, Black, Empty	DTC2APG



#### WALL MOUNT NEMA 4X FIBER ENCLOSURES

For indoor or outdoor applications where protection of components from dirt, dust, oil, or water are mandatory. These enclosures are designed to protect fiber optic networking components against environments where corrosive materials, caustic cleaners, and hazardous materials are used. These enclosures are available in four sizes and can be ordered kitted, pre-loaded or pre-terminated.



#### WALL MOUNT ZDM ENCLOSURES

DESCRIPTION	OCC PART #
Wall Mount Mini Enclosure, Holds 1 Adapter Plate, 7"W x 6"H x 1.36"D	ZDMB6B
Zone Distribution Enclosure, (Empty) Holds 1 Adapter Plate or Cassette, 9.5"W x 7"H x 1.5"D	ZDMBC1AP



#### FIBER SPLICE CASSETTES

DESCRIPTION	OCC PART #
6- Fiber Splice Cassette, Base & Cover, Simplex Beige SCx6, 62.5, Splice & Cable Holder, With Pigtails	FSCS16SSCP
12-Fiber Splice Cassette, Base & Cover, Duplex Beige DSCx6, 62.5, Splice & Cable Holder, With Pigtails	FSCS112DSCP
12-Fiber Splice Cassette, Base & Cover, Duplex Beige DLCx6, 62.5, Splice & Cable Holder, With Pigtails	FSCS112DLCP
24-Fiber Splice Cassette, Base & Cover, Quad Beige QLCx6, 62.5, Splice & Cable Holder, With Pigtails	FSCA124QLCP

See online configurator at occfiber.com for more part information.



#### MHC®-T3 CONNECTORS

OCC's patented MHC-T3 utilizes MT ferrule technology to deliver up to 48 single-mode or multimode fibers in an environmentally-protected, hermaphroditic connector with a smaller footprint than traditional cylindrical connectors.



#### **EZ-MATE CONNECTORS**

The OCC EZ-MATE family of connectors provides a comprehensive solution for quick mating in a tactical footprint. Available in 4-, 6-, 12- or 24-channel configurations.



#### L-JACK™ CONNECTORS

OCC's L-Jack is a robust IP68 rated fiber optic connector that utilizes the small form factor of traditional LCs with the known ruggedness of OCC harsh environment connectors.



#### FORGE™ FAN-OUT KIT

OCC's Forge Fan-Out™ kits are the ideal choice for breaking out individual fibers within a cable to discrete connectors while maintaining the physical strength of the cable− as opposed to having exposed bare or buffered fiber. The cable jacket can easily be stripped back and the fibers are inserted into the modular fiber fan-out insert pucks, each of which has furcation tubing pre-secured in the puck housing.



## CUSTOMER SUPPORT

#### **TECHNICAL AND DESIGN-BUILD EXPERTISE**

Instead of relying on OCC just for products, more and more of our customers rely on our design-build expertise. Our design engineers and technical staff provide unprecedented service, support, and assistance.

#### **ONE-STOP SHOP**

Since we provide one of the largest network solutions portfolios in the industry, many of our customers rely on OCC as their one-source solutions provider from the most reliable end-to-end cabling and connectivity systems down to the shortest patch cable. We can meet your every network need.

#### **CUSTOMER-DERIVED INNOVATIONS**

We partner with you, our customer, and listen to your needs. Thanks to our customers, we've designed, innovated, and customized some of the best solutions in the industry for the speed, immediate scalability, space savings, and ultra-high performance demanded by zero downtime networks of all sizes.

#### **COMPETITIVE WARRANTY PROGRAMS**

OCC, in conjunction with certified Multimedia Design and Integration Specialist (MDIS) installers around the world, is able to offer various competitive warranty and extended warranty programs. OCC has developed warranty plans that offer a flexible approach to a lasting network installation.

#### **QUICK SHIPPING**







SAME DAY SHIPPING ON IN-STOCK ITEMS IF ORDERED BY 12PM, EST.





#### OCC ROANOKE, VA

Corporate Headquarters and Fiber Optic Cable Manufacturing Facility 5290 Concourse Drive Roanoke, VA 24019 USA 540.265.0690 or 800.622.7711

#### OCC DALLAS, TX

Harsh Environment and Specialty Connectivity Manufacturing Facility 1700 Capital Avenue, Suite 150 Plano, TX 75074 USA 972.509.1500 or 877.509.1500

#### **OCC ASHEVILLE, NC**

Enterprise Connectivity
Manufacturing Facility
33 Superior Way
Swannanoa, NC 28778 USA
828.298.2260 or 800.880.7674

#### **JOIN OUR SOCIAL NETWORK**

For the most up-to-date information on all of OCC's products, news and information, visit our website at occfiber.com. Registered users get added benefits, access to additional information, white papers, and more.









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