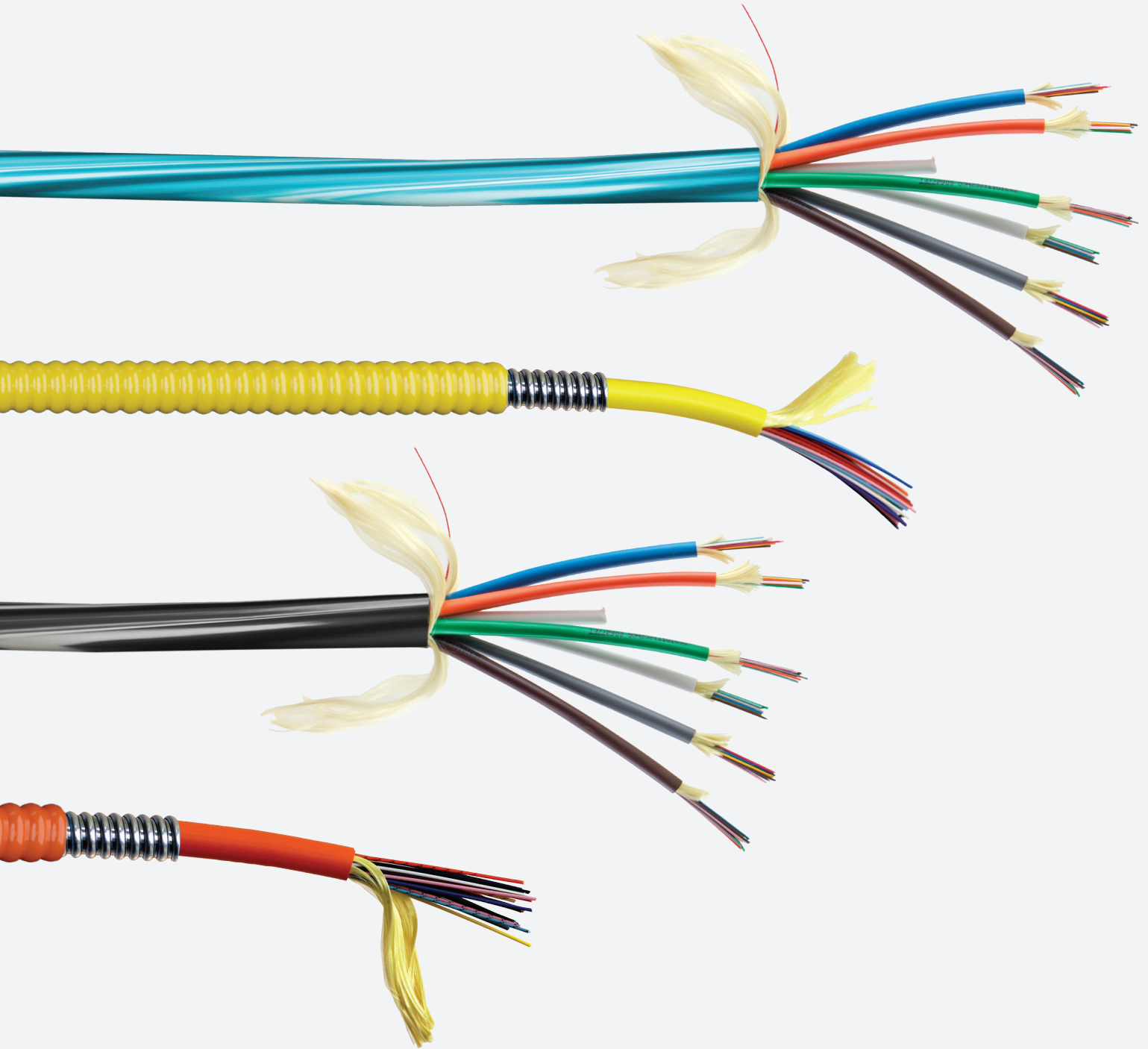


LET HUBBELL BE YOUR FIBER CONNECTION



**FIBERHUBB™**

# Fiber Optic Cable Guide

# Select the right fiber optic cable

## Construction

Choose the right cable type for your application.

### Buffered Fiber Cable

Multiple optical fibers are encapsulated inside a buffer tube or a jacket. The buffer protects the bound fibers from external forces. We offer two types of buffered fiber cables:

1. **Loose Tube:** Suitable for outdoor device-to-device connectivity. Each fiber strand in the buffer tube is jacketed with a water-blocked polymer tube, keeping them separated from each other. The result is reduced attenuation and increased central strength of the fiber. These cables are highly immune to external forces like external pull, moisture, noise, etc.
2. **Tight Buffer:** Suitable for conduits and enclosures. Each optical strand is wound directly with buffer material. Tight winding creates a protective layer. The fibers are collected and jacketed in the buffer tube for a compact, lightweight, and flexible cable.

### Simplex Fiber Cable

For convenient interconnect between two devices. A single optical strand, tightly buffered inside a cable jacket, transmits data directly from device to device. As a single channel cable, this type provides consistent, uniform transmission.

### Multichannel Cable

Suitable for indoor or outdoor applications. Multiple tight or loose buffered cables are jacketed together around a central strength member for support. Each fiber offers an individual channel for a combined multiple channel cable. Outdoor optic cables with this construction feature water-blocked polymer between the strands.

## Configured to meet different standards

Two configurations are available in each construction type.

**Distribution:** Two or more optical fibers, each covered in its own tight-buffer material, are held together inside an outer protective jacket. Kevlar strength members are used for reinforcement. Typically used for indoor installations that require a single termination point with multiple fibers.

**Loose Tube:** The standard fiber optic configuration for telecommunication applications can be single or multi-channel. Non-buffered optical strands are typically surrounded by water repellent gel, which acts as the buffer. It is generally not suited for video transmission over Ethernet.

## Application-based selection

The specific application can determine the cable type needed.

### **Premises Indoor cables**

Optimized for indoor use. Indoor cables are used for intra-building backbones, service entrances and behind the shelf connections. They typically use 900-micron, tight buffered fibers and terminate easily in the field with several connectivity options. These cables do not withstand outdoor environments where sunlight and temperature extremes can impact performance.

### **Premises Indoor/Outdoor Cables**

Designed for outdoor-to-indoor applications. These cables feature a black, sunlight-resistant jacket with plenum or riser ratings. It allows them to transition into the premises without an additional demarcation point. Indoor/Outdoor cables are primarily used for inter-building backbones, campuses, and facilities. They can also be used as indoor cables and are appropriate for trays, conduits, open spaces, and trenches. These cables typically use 900-micron, tight buffered fibers and terminate easily in the field with several connectivity options. Not recommended for direct burial or weather exposure.

### **Interlocked Armor**

Provides a protection layer that may be preferred for certain applications. Armored cable provides superior durability and security while adding resistance to crushing, abrasion, impact, and rodents. Armor can also mitigate the need for conduit on indoor runs. Both indoor and indoor/outdoor cable are available in interlock armor configurations.



# Fire ratings

## Reference Guide

During a new infrastructure build, an important consideration includes fire ratings. Cable specification must comply with all local codes.

### Plenum Rated Cable

A plenum rating allows the product to be installed in air plenum spaces. Plenum cable carries the highest rating and can be used in vertical riser spaces as well.

#### **Optical Fiber Nonconductive Plenum (OFNP):**

Cable with the OFNP designation passes rigid test requirements regarding flame propagation and smoke production. The OFNP rating also indicates the product is non-metallic or all-dielectric.

**Optical Fiber Conductive Plenum (OFCP):** This cable contains metallic elements, usually an armor layer, which are conductive but not intended to carry current. The metallic portion is the only difference from OFNP cable.

### Riser Rated Cable

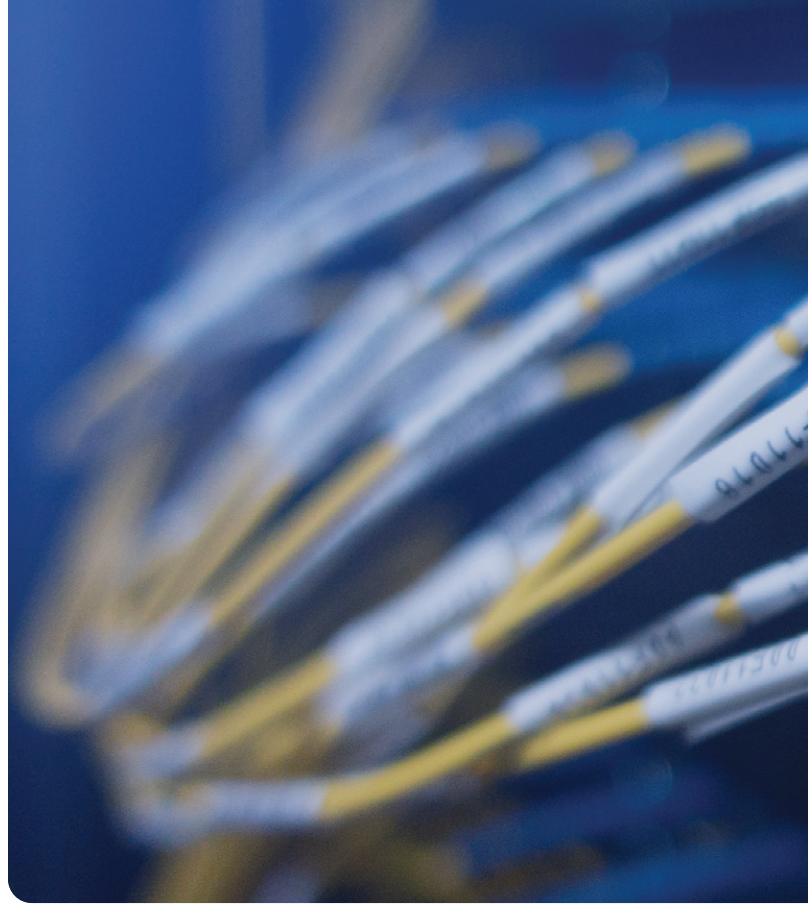
Riser rated cable can be installed in vertical pathways. It may not be installed in plenum spaces.

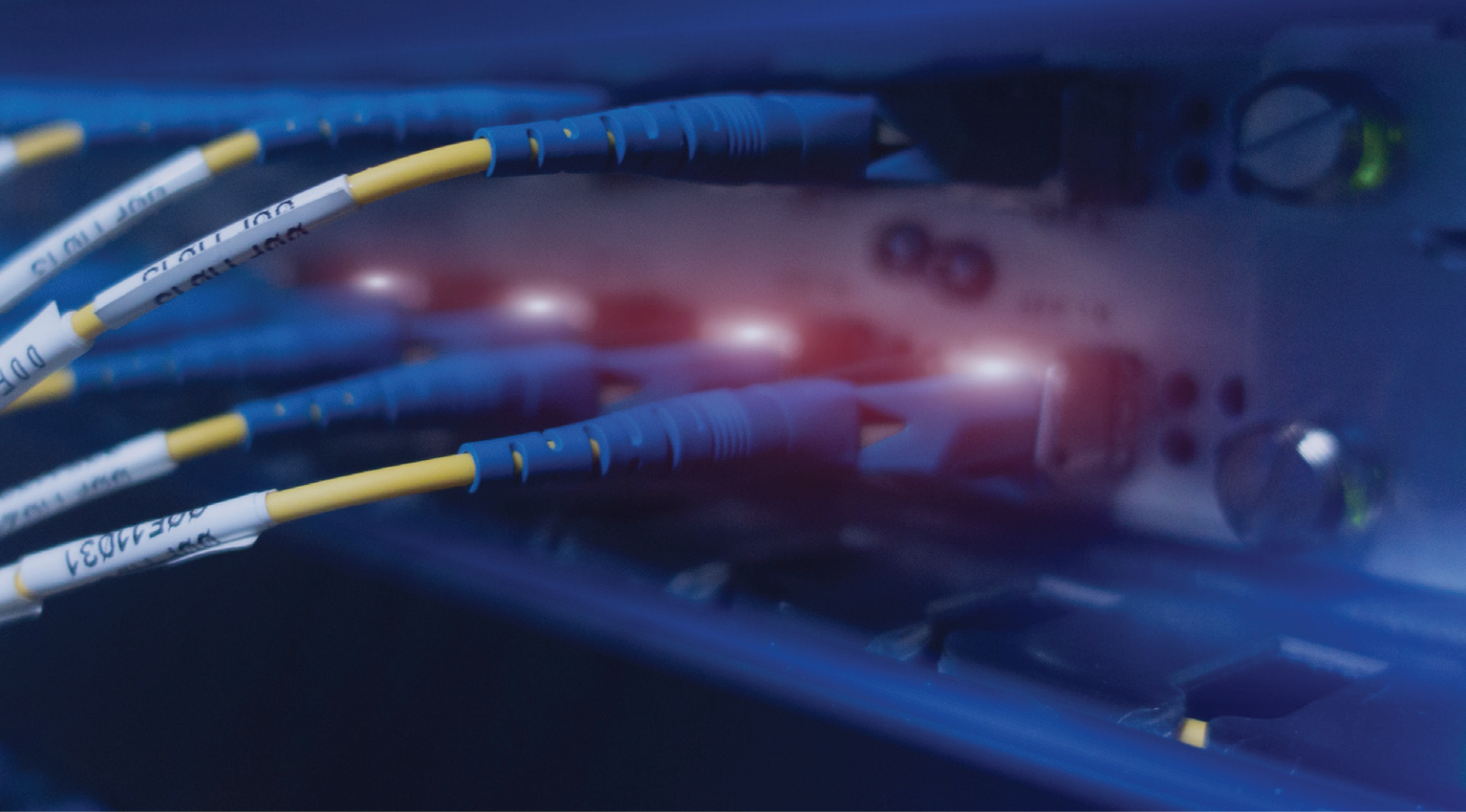
**Optical Fiber Nonconductive Riser (OFNR):** Non-metallic or all-dielectric riser rated cable can be installed in the vertical pathways.

**Optical Fiber Conductive Riser (OFCR):** This riser rated cable contains conductive, metallic elements, such as an armor layer, not intended to carry current. The only difference from OFNR cable is the metallic portion.

### Outside Plant Cable

**Outside Plant Cable (OSP):** This cable is designed for outdoor use only and has no flame rating. It usually has a polyethylene (PE) jacket. OSP cable has limited reach into a building, 50 feet maximum before termination, depending on building code.





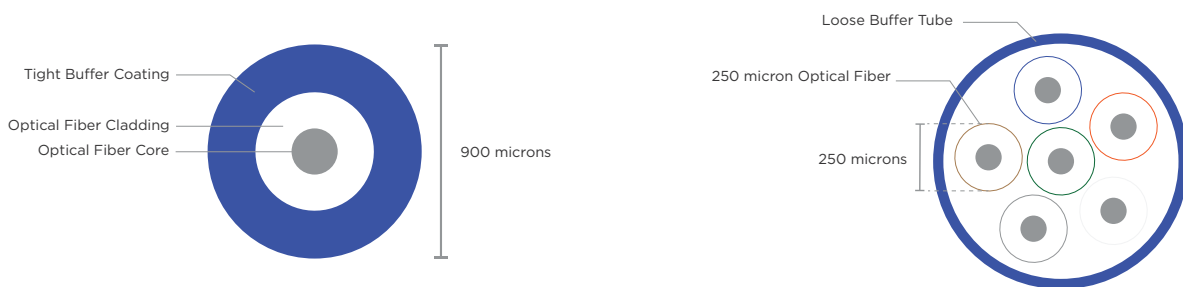
## Tight Buffer and Loose Tube Cable Applications

### Tight Buffered Applications

Tight buffered fiber cables are often preferred for indoor use. They typically have a larger diameter, 900 microns, than loose tube cables because a plastic coating protects the optical fiber. The additional protection layer is the industry standard for directly terminating field connectors. Connections are typically either mechanical or made with fusion splice-on connectors.

### Loose Tube Applications

Loose tube cables are often used in OSP applications. When used for indoor applications, loose tube cable can provide a higher fiber density. The smaller outer diameter allows it to run through smaller spaces or conduit. A cable breakout kit is necessary for field termination, to provide a protective outer layer to the 250-micron fiber.



## **TIA-598-C Color coding**

The TIA-598C Optical Fiber Cable Color Coding standard from the Telecommunications Industry Association uniformly provides all necessary information for color-coding optical fiber cables.

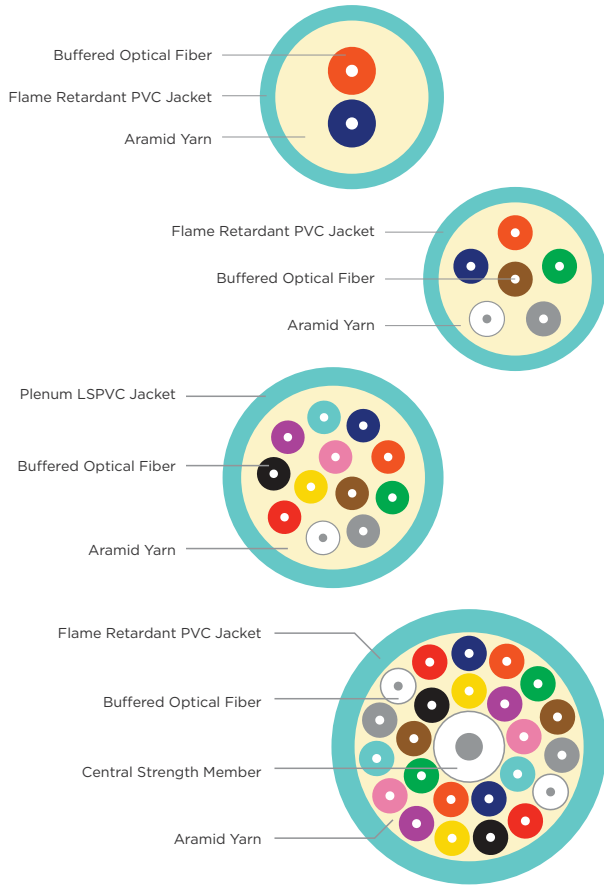
The system provides a scheme to identify fibers, buffered fibers, fiber units, and groups of fiber units within outside plant and premises optical fiber cables. Fiber units are named on a printed legend which contains a numerical position number and/or color for use in identification.

# TIA-598-C Color code chart

<b>1</b>	<b>Blue</b>	<b>13</b>	<b>Blue with black tracer</b>
<b>2</b>	<b>Orange</b>	<b>14</b>	<b>Orange with black tracer</b>
<b>3</b>	<b>Green</b>	<b>15</b>	<b>Green with black tracer</b>
<b>4</b>	<b>Brown</b>	<b>16</b>	<b>Brown with black tracer</b>
<b>5</b>	<b>Slate</b>	<b>17</b>	<b>Slate with black tracer</b>
<b>6</b>	<b>White</b>	<b>18</b>	<b>White with black tracer</b>
<b>7</b>	<b>Red</b>	<b>19</b>	<b>Red with black tracer</b>
<b>8</b>	<b>Black</b>	<b>20</b>	<b>Black with black tracer</b>
<b>9</b>	<b>Yellow</b>	<b>21</b>	<b>Yellow with black tracer</b>
<b>10</b>	<b>Violet</b>	<b>22</b>	<b>Violet with black tracer</b>
<b>11</b>	<b>Rose</b>	<b>23</b>	<b>Rose with black tracer</b>
<b>12</b>	<b>Aqua</b>	<b>24</b>	<b>Aqua with black tracer</b>

Contact customer service for fiber cable minimum order quantities, lead times, and stocked availability

# HFCD1 Series Indoor Distribution Fiber Cable



FIBERHUBB™ HFCD1 distribution cable is composed of 2 to 24 colored tight buffered optical fibers, aramid yarn, and a PVC outer jacket. All materials meet EU RoHS and REACH Directive standards. UL Listed OFNP cables are available.

This cable is available in 12 TIA standard colors or special-order colors. Standard surface print denotes construction, NEC rating, and fiber type, and includes footage markers.

## Applications

- Building LAN, backbone, and horizontal fiber cabling
- Data center and storage area network cabling
- High-speed, bandwidth-intensive transmission of data and video
- Extended distance, non-conductive fiber data links
- For use in commercial, medical, government and education facilities

## HFCD1 Series: Indoor Tight Buffer Riser OFNR FT-4 Rated, and Plenum OFNP FT-6 Rated

Fiber Count	Cable Diameter (in (mm))	Cable Weight (lbs/kft)	Minimum Bend Radius, installation (in (cm))	Minimum Bend Radius, in-service (in (cm))	Maximum Installation Pulling Load (lbs)	Maximum Operating Tensile Load (lbs)
2	0.17 (4.4)	13.4	2.6 (6.6)	1.7 (4.4)	99	45
6	0.19 (4.8)	17.3	2.8 (7.2)	1.8 (4.8)	128	64
12	0.23 (5.8)	24.6	3.4 (8.7)	2.3 (5.8)	160	80
24	0.30 (7.8)	42.1	4.6 (11.7)	3.0 (7.8)	198	99

### Configuration

xxx = Fiber count (002, 006, 012 or 024 strand)  
 r = 'R' for Riser, 'P' for Plenum  
 n = '6' for 62.5 μm OM1 Multimode  
 '3' for 50 μm OM3 Multimode  
 '4' for 50 μm OM4 Multimode  
 'S' for 9 μm OS2 Singlemode

### Catalog Number

HFCD1xxxrnw

**Example:** HFCD1012P3

**System Description:** CBL, Fiber, OM3, 12F, DSP, TB, AQ

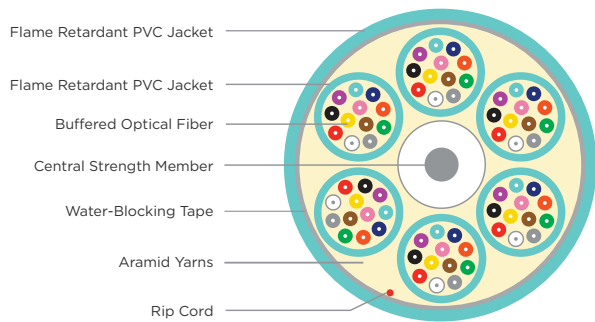
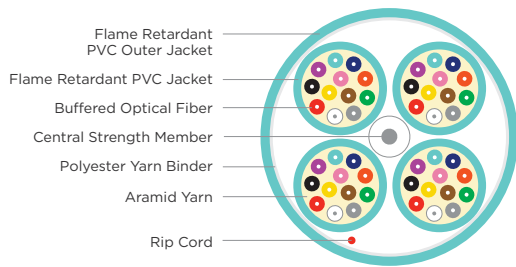
**Jacket Print:** OFNP RoHS Plenum 12 Fiber Indoor Cable xxxFT (Date) E# (UL) C(UL)  
 Plus Corning ClearCurve OM3/OM4 Optical Fiber 50/125

**Storage temperature range:**  
 -40°F to 176°F  
 (-40°C to +80°C)

**Operation temperature range:**  
 -4°F to 158°F  
 (-20°C to +70°C)



# HFCD1M Series Multi-Unit Distribution Fiber Cable



Our HFCD1M multi-unit distribution cable is composed of 48 to 72 colored tight buffered optical fibers within 12-fiber sub-unit groupings for localized zone cabling. All materials meet EU RoHS and REACH Directive standards. UL Listed OFNP cables are available.

This cable is available in 12 TIA standard colors or special-order colors. Standard surface print denotes construction, NEC rating, and fiber type, and includes footage markers. Custom print may also be accommodated.

## Applications

- Localized zone rack or cabinet interconnect cabling
- Building LAN, backbone, and horizontal fiber cabling
- Data Center and Storage Area Network cabling
- High-speed, bandwidth-intensive transmission of data and video
- Extended distance, non-conductive fiber data links
- For use in commercial, medical, government and education facilities

## HFCD1M Series: Indoor Multi-Unit Riser OFNR FT-4 Rated, and Plenum OFNP FT-6 Rated

Fiber Count	Cable Diameter (in (mm))	Cable Weight (lbs/kft)	Minimum Bend Radius, installation (in (cm))	Minimum Bend Radius, in-service (in (cm))	Maximum Installation Pulling Load (lbs)	Maximum Operating Tensile Load (lbs)
48	0.61 (15.4)	125	9.1 (23.1)	6.1 (15.4)	600	180
72	0.79 (20)	212	11.8 (30.0)	7.9 (20.0)	600	180

**Note:** Pulling and tensile loads shall be applied only to the internal strength member.

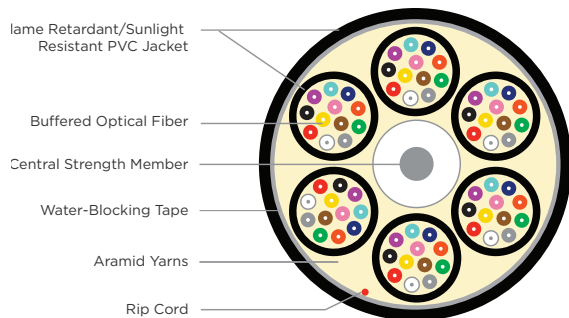
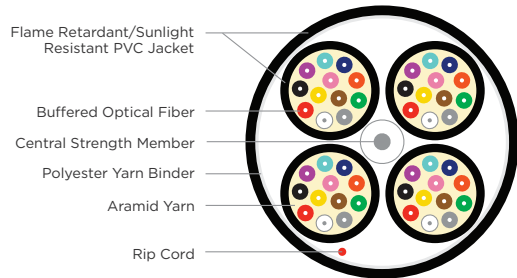
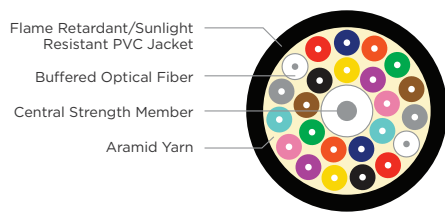
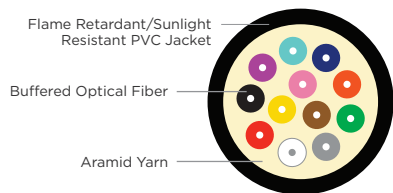
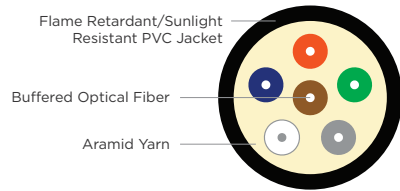
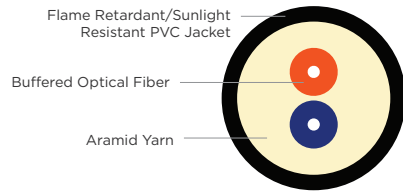
Configuration	Catalog Number
12 = 12 fibers per sub-unit xxx = Fiber count (048 and 072 strand) r = 'R' for Riser, 'P' for Plenum n = '3' for 50 μm OM3 Multimode '4' for 50 μm OM4 Multimode 'S' for 9 μm OS2 Singlemode	HFCd1M12xxxrn

**Example:** HFCD1M12048P3

**System Description:** CBL, Fiber, OM3, 4U, 48F, DSP, TB, AQ

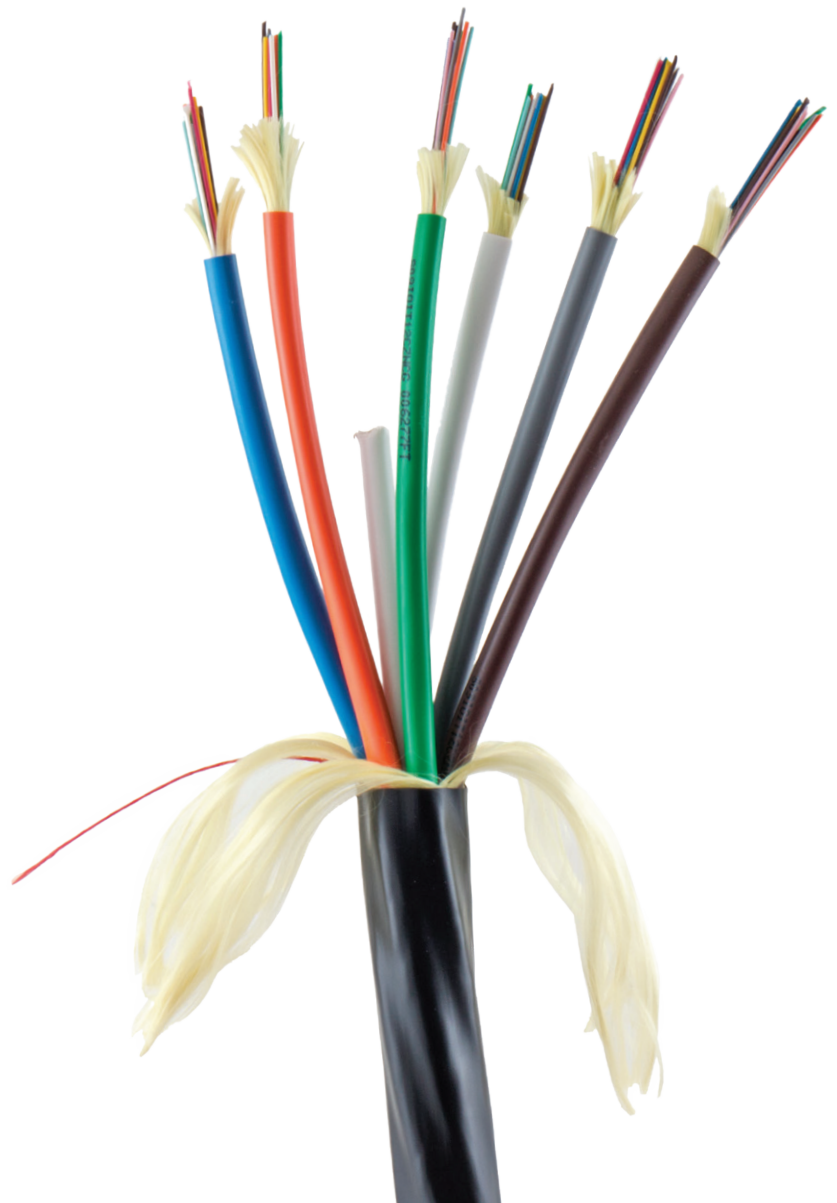
**Jacket Print:** OFNP RoHS Plenum 48 Fiber Indoor Cable xxxFT (Date) E# (UL) C(UL)  
Plus Corning ClearCurve OM3 Optical Fiber 50/125

# HFCD14 Series Indoor/Outdoor Tight Buffer Fiber Cable



FIBERHUBB™ HFCD14 indoor/outdoor cable is composed of 4 to 8 subunits, water-blocking polyester yarn, and a PVC outer jacket. Each buffer tube consists of 12 colored tight buffer, aramid yarn and a PVC jacket. All component materials meet the EU RoHS and REACH Directive standards. Available UL Listed OFNP cables, and unrated cables may be supplied to accommodate special needs.

This cable is available in carbon black or special-order colors. Standard surface print denotes construction, NEC rating, and fiber type, and includes footage markers.



## Applications

- Inter-building duct, backbone, and horizontal fiber cabling
- Campus to data center and storage area network
- High bandwidth cross-campus data and video transmission
- Extended distance, non-conductive indoor/outdoor data links
- For use in commercial, medical, government, and education facilities
- Not recommended for direct burial or weather exposure

**Storage  
temperature range:  
-40°F to +176°F  
(-40°C to +80°C)**

**Operation  
temperature range:  
-4°F to +158°F  
(-20°C to +70°C)**

## HFCD14 Series: Indoor/Outdoor Tight Buffer Riser OFNR FT-4 Rated, and Plenum OFNP FT-6 Rated

Fiber Count	Cable Diameter (in (mm))	Cable Weight (lbs/kft)	Minimum Bend Radius, installation (in (cm))	Minimum Bend Radius, in-service (in (cm))	Maximum Installation Pulling Load (lbs)	Maximum Operating Tensile Load (lbs)
2	0.17 (4.4)	12	2.6 (6.6)	1.73 (4.4)	150	45
6	0.19 (4.8)	16	2.8 (7.2)	1.8 (4.8)	150	45
12	0.23 (5.8)	23	3.4 (8.7)	2.3 (5.8)	150	45
24	0.30 (7.8)	35	4.6 (11.7)	3.0 (7.8)	300	90
48	0.61 (15.4)	125	9.1 (23.1)	6.1 (15.4)	475	145
72	0.79 (20.0)	212	11.8 (30)	7.9 (20)	600	180

### Configuration

xxx = Fiber count (002, 006, 012, 024, 048 or 072 strand)  
 r = 'R' for Riser, 'P' for Plenum  
 n = '6' for 62.5 µm OM1 Multimode  
       '3' for 50 µm OM3 Multimode  
       '4' for 50 µm OM4 Multimode  
       'S' for 9 µm OS2 Singlemode  
 BK = Black jacket

### Catalog Number

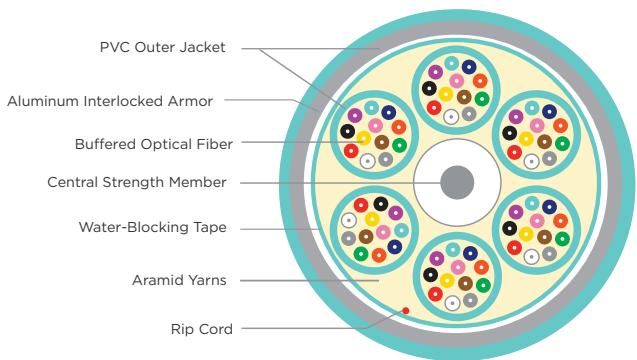
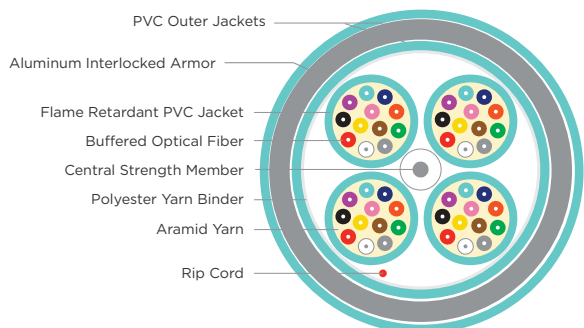
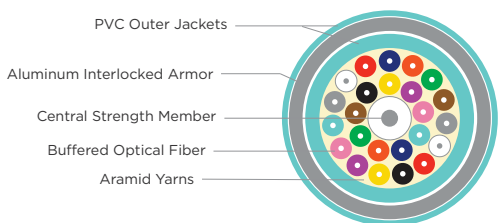
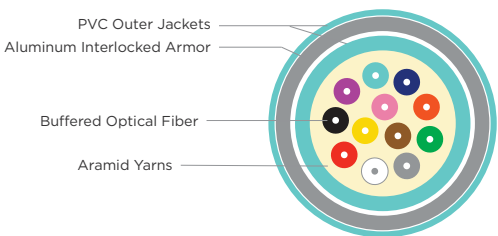
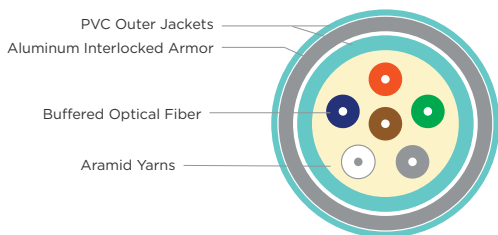
HFCD14xxxrnBK

**Example:** HFCD14012PSBK

**System Description:** CBL, Fiber, SM, 12F, I/O, P, TB, BK

**Jacket Print:** OFNP RoHS Plenum 12 Fiber Indoor/Outdoor Cable xxxFT  
 (Date) E# (UL) C(UL) Plus Corning SMF28e+ Optical Fiber 9/125

# HFCD15 Series Indoor Armored Distribution Fiber Cable

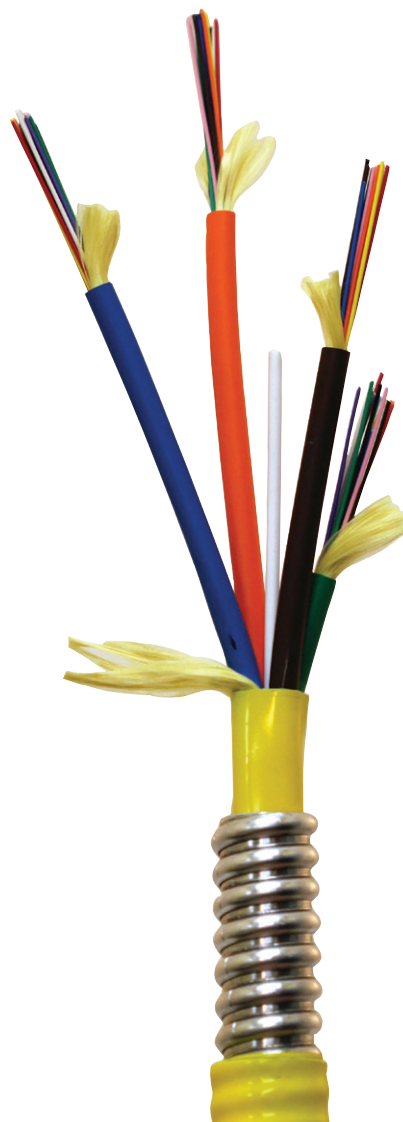


FIBERHUBB™ HFCD15 tight buffered optical fiber aluminum interlocking armored cable consists of PVC overall jacket, PVC inner jacket with a standard indoor/outdoor core cable. Spirally wrapped aluminum interlock armor protects the core cable, offering easy installation and high crush resistance. UL Listed OFCP cables are available.

Standard surface print denotes construction, NEC rating, and fiber type, and includes footage markers.

## Benefits

- Superior crush resistance adds protection
- Eliminates the need for inner duct or conduit
- Allow AIA cable throughout the facility



## Applications

- Building LAN, backbone, and horizontal fiber cabling
- Data center and storage area network cabling
- Bandwidth-intensive, high-speed data and video transmission
- Unprotected cable pathways and rodent prone areas
- For use in commercial, medical, government and education facilities

**Storage  
temperature range:  
-40°F to 176°F  
(-40°C to +80°C)**

**Operation  
temperature range:  
-4°F to 158°F  
(-20°C to +70°C)**

## HFCD15 Series: Tight Buffer Riser OFNR FT-4 Rated, and Plenum OFNP FT-6 Rated

Fiber Count	Cable Diameter (in (mm))	Cable Weight (lbs/kft)	Minimum Bend Radius, installation (in (cm))	Maximum Installation Pulling Load (lbs)	Maximum Operating Tensile Load (lbs)
6	0.51 (13.0)	101	10.2 (26.0)	150	45
12	0.58 (14.7)	132	11.4 (29.0)	150	45
24	0.64 (16.2)	149	12.6 (32.0)	300	90
48	1.00 (25.4)	320	20.0 (51.0)	475	145
72	1.10 (27.9)	453	22.0(55.8)	960	288

**Note:** 1 Pulling and tensile loads shall be applied only to the internal strength member.  
2 Armor does not add to pull strength and should not be used as a strength member.

Configuration	Catalog Number
xxx = Fiber count (006, 012, 024, or 048 strand) r = 'R' for Riser, 'P' for Plenum n = '6' for 62.5 µm OM1 Multimode '3' for 50 µm OM3 Multimode '4' for 50 µm OM4 Multimode 'S' for 9 µm OS2 Singlemode	HFCD15xxxrn

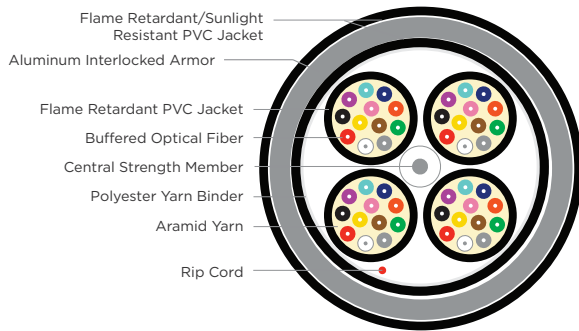
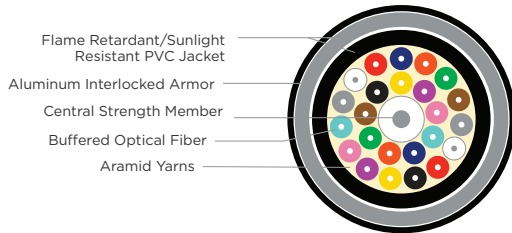
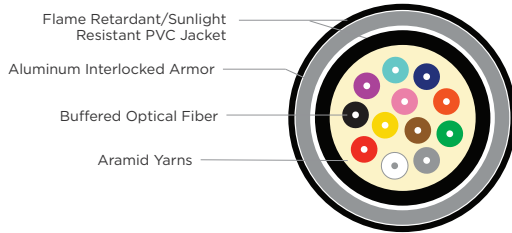
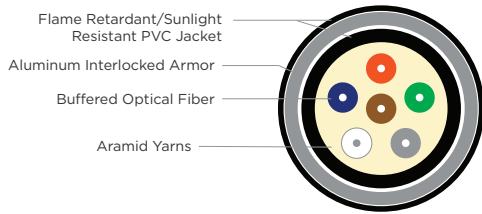
**Example:** HFCD15024P4

**System Description:** CBL, Fiber, OM4, 24F, DSP, ARM, TB, AQ

**Jacket Print:** OFCP RoHS Plenum 24 Fiber Indoor Cable xxxFT (Date) E# (UL)  
C(UL) Plus Corning ClearCurve OM4 Optical Fiber 50/125 AIA

# HFCD19 Series Indoor/Outdoor Armored Distribution Fiber Cable

FIBERHUBB™ HFCD19 tight buffered optical fiber aluminum interlocking armored cable consists of PVC overall jacket, PVC inner jacket with a standard indoor/outdoor core cable. Spirally wrapped aluminum interlock armor protects the core cable, offering easy installation and high crush resistance.



## Applications

- Inter-building duct, backbone, and horizontal fiber cabling
- Campus to data center and storage area network
- High bandwidth cross-campus data and video transmission
- Unprotected cable pathways and rodent prone areas
- For use in commercial, medical, government and education facilities
- Not recommended for direct burial or weather exposure

**Storage  
temperature range:  
-40°F to +176°F  
(-40°C to +80°C)**

**Operation  
temperature range:  
-4°F to +158°F  
(-20°C to +70°C)**

## HFCD19 Series: Indoor/Outdoor Armored Tight Buffer Riser OFNR FT-4 Rated, and Plenum OFNP FT-6 Rated

Fiber Count	Cable Diameter (in (mm))	Cable Weight (lbs/kft)	Minimum Bend Radius, installation (in (cm))	Maximum Installation Pulling Load (lbs)	Maximum Operating Tensile Load (lbs)
6	0.51 (13.0)	101	10.2 (26.0)	150	45
12	0.58 (14.7)	132	11.4 (29.0)	150	45
24	0.64 (16.2)	149	12.6 (32.0)	300	90
48	1.00 (25.4)	320	20.0 (51.0)	475	145

**Note:** 1 Pulling and tensile loads shall be applied only to the internal strength member.  
2 Armor does not add to pull strength and should not be used as a strength member.

Configuration	Catalog Number
xxx = Fiber count (006, 012, 024 or 048 strand) r = 'R' for Riser, 'P' for Plenum n = '6' for 62.5 µm OM1 Multimode '3' for 50 µm OM3 Multimode '4' for 50 µm OM4 Multimode 'S' for 9 µm OS2 Singlemode BK = Black jacket	HFCD19xxxrnBK

**Example:** HFCD19012PSBK

**System Description:** CBL, Fiber, SM, 12F, I/O, P, ARM, TB, BK

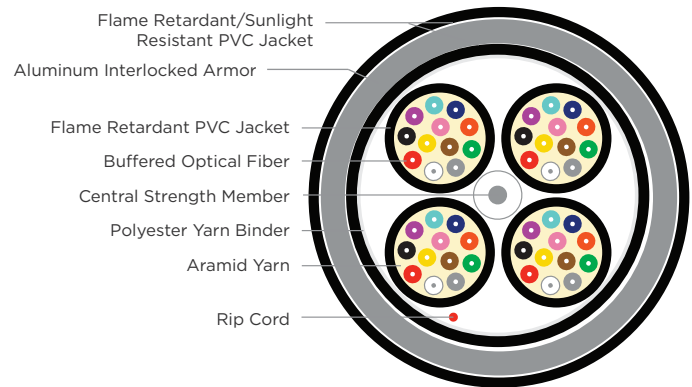
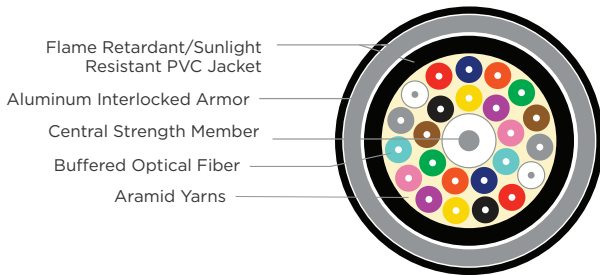
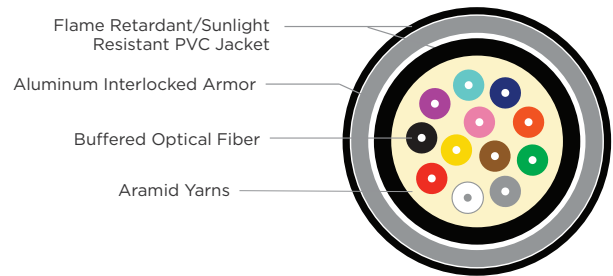
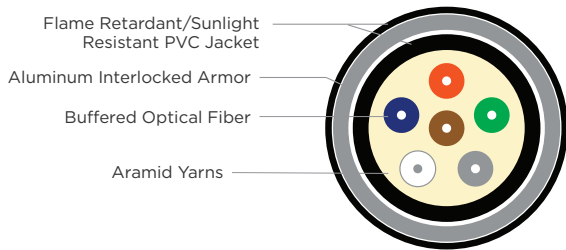
**Jacket Print:** OFCP RoHS Plenum 12 Fiber Indoor/Outdoor Cable xxxFT (Date) E# (UL) C(UL) Plus Corning SMF28e+ Optical Fiber 9/125 AIA

# HFCH16 Series Dry Indoor/Outdoor Loose Tube Fiber Cable

FIBERHUBB™ HFCH16 dry loose tube cable consists of a PVC overall jacket, PVC inner jacket with a standard 2 to 144 fiber dry loose tube indoor/outdoor core cable. Spirally wrapped aluminum interlock armor protects the core cable, offering easy installation and high crush resistance. OFCR and OFCP ratings allow AIA products to be installed throughout the facility with all dry construction, eliminating cleanup. Provides UL 1666 flame rating.

## Offered with:

- Corning ULTRA SMF-28 OS2
- Corning ClearCurve in OM2-OM5





## Applications

- Intra/inter-building backbones, such as conduit pathways or tunnels
- Conduit/duct/tray pathways

**Storage  
temperature range:**  
-40°F to +176°F  
(-40°C to +80°C)

**Operation  
temperature range:**  
-4°F to +158°F  
(-20°C to +70°C)

## HFCH16 Series: Dry Indoor/Outdoor Loose Tube

Fiber count	Nominal outer diameter (mm)	Bend radius (cm)	Weight (lbs/km)	Tensile Rating, short term/long term (lbs)	Storage & Operating Temperature (°C)
2-12	13	26	322	600/300	-40 to +70
24-48	16.2	32.4	479	600/300	-40 to +70
72	19.4	38.8	682	600/300	-40 to +70
96	23.7	47.4	775	600/300	-40 to +70
144	23.7	47.4	797	600/300	-40 to +70

### Configuration

### Catalog Number

xxx = Fiber count (002 to 144 strand)

d = '6' for OM1  
'5' for OM2  
'4' for OM4  
'3' for OM3  
'S' for SM

J = "P" OFCP Plenum  
"R" OFCR Riser

HFCH16xxxjBKd

**Example:** HFCH16024PBK4

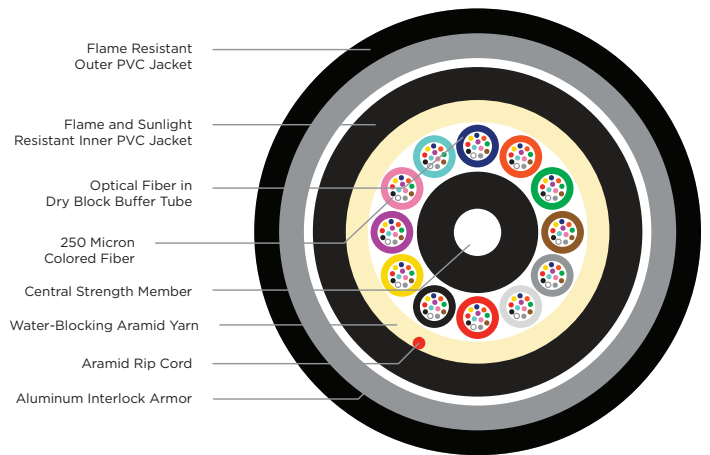
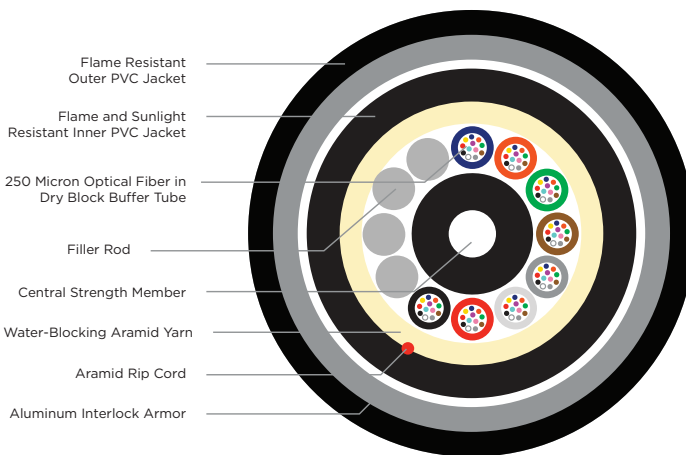
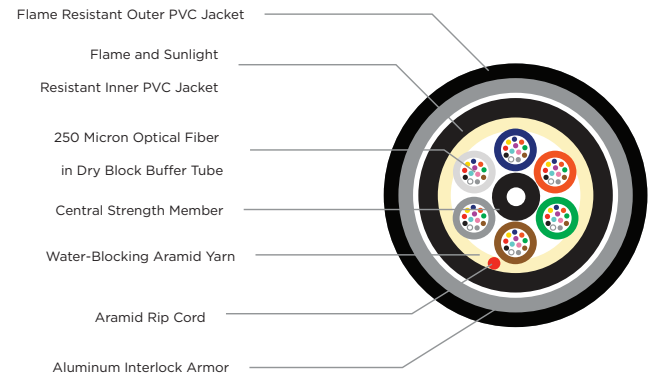
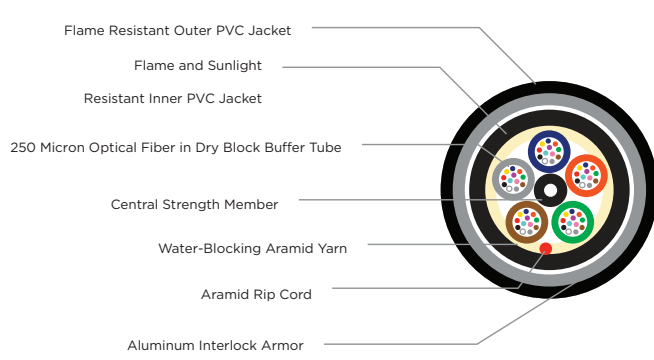
**System Description:** 24 Fiber, Plenum, OM4

# HFCH6 Series Dry Interlock Armor Indoor/Outdoor Loose Tube Fiber Cable

FIBERHUBB™ HFCH16 dry loose tube cable consists of a PVC overall jacket, PVC inner jacket with a standard 2 to 144 fiber dry loose tube indoor/outdoor core cable. Spirally wrapped aluminum interlock armor protects the core cable, offering easy installation and high crush resistance. Eliminates the need for inner duct or conduit, saving installation time. Provides UL 1666 flame rating.

## Offered with:

- Corning ULTRA SMF-28 OS2
- Corning ClearCurve in OM2-OM5



## Applications

- Intra/inter-building backbones, such as conduit pathways or tunnels
- Conduit/duct/tray pathways

**Storage  
temperature range:**  
-40°F to +176°F  
(-40°C to +80°C)

**Operation  
temperature range:**  
-4°F to +158°F  
(-20°C to +70°C)

## HFCD6 Series: Dry Interlock Armor Indoor/Outdoor Loose Tube

Fiber count	Nominal outer diameter (mm)	Bend radius (cm)	Weight (lbs/km)	Tensile Rating short term/long term (lbs)	Storage & Operating Temperature (°C)	Crush Rating (lbs/inch)
2-12	13	26	322	600/300	-40 to +70	57
24-48	16.2	32.4	479	600/300	-40 to +70	57
72	19.4	38.8	682	600/300	-40 to +70	57
96	23.7	47.4	775	600/300	-40 to +70	57
144	23.7	47.4	797	600/300	-40 to +70	57

### Configuration

xxx = Fiber count (002 to 144 strand)

d = '6' for OM1  
'5' for OM2  
'4' for OM4  
'3' for OM3  
'S' for SM

J = "P" OFCP Plenum  
"R" OFCR Riser

### Catalog Number

HFCH6xxxjBKd

**Example:** HFCH6024PBK4

**System Description:** 24 Fiber, Plenum, OM4

# Installation requirements

- Verify channel distance and attenuation budget with network application (See chart below)
- During installation or operation, comply with maximum loading, minimum bend radius and temperature limits
- Pull cables only by the internal strength member to prevent fiber damage
- Use proper tools for stripping and dressing out cable to avoid fiber damage
- Adhere to best installation practices; avoid kinks, crushing and abrasion; always use proper cable supports
- Use recognized field termination methods, with strain relief from any cable weight

## Cable application guidelines: distance and channel attenuation limits

IEEE 802.3 Fiber Ethernet	Transmitter Wavelength (nm)	Maximum Supportable Distance (m)					Maximum Channel Attenuation (dB)				
		Multimode				Single- mode OS2	Multimode				Single- mode OS2
		62.5/125 OM1	50/125 OM2	50/125 OM3	50/125 OM4		62.5/125 OM1	50/125 OM2	50/125 OM3	50/125 OM4	
10GBASE-S	850	33	82	300	550	-	2.4	2.3	2.6	2.9	-
10GBASE-L	1310	-	-	-	-	10 km	-	-	-	-	6.2
10GBASE-E	1550	-	-	-	-	40 km	-	-	-	-	11
25GBASE-SR	850	-	-	70	100	-	-	-	1.8	1.9	-
40GBASE-SR4	850	-	-	100	150	-	-	-	1.9	1.5	-
100GBASE-SR10	850	-	-	100	150	-	-	-	1.9	1.5	-
100GBASE-SR4	850	-	-	70	100	-	-	-	1.8	1.9	-
40GBASE-LR4	1310	-	-	-	-	10 km	-	-	-	-	6.7
40GBASE-ER4	1550	-	-	-	-	40 km	-	-	-	-	19
100GBASE-LR4	1310	-	-	-	-	10 km	-	-	-	-	6.3

**Note:** S = Short wavelength, L = Long wavelength, E = Extended wavelength  
 SR4 = Short Range, 4 lanes in parallel (8 fibers), SR10 = Short Range, 10 lanes in parallel (20 fibers)  
 LR4/ER4 = 4 WDM wavelengths over 1 lane (2 fibers)

## Optical fiber performance specifications

Fiber Type	Max Attenuation (dB/km)		Laser-Based EMB (MHz·Km)		1 Gb/s Link Distance (m)		10 Gb/s Link Distance (m)		40/100 Gb/s Link Distance (m)	
	850 nm	1300 nm	850 nm	1300 nm	850 nm	1300 nm	850 nm	1300 nm	850 nm	1300 nm
OM1	≤ 2.9	≤ 0.6	220	n/a	300	550	26	n/a	n/a	n/a
OM2	≤ 2.3	≤ 0.6	950	n/a	750	550	150	n/a	n/a	n/a
OM3	≤ 2.3	≤ 0.6	2000	n/a	1,000	550	300	n/a	150	n/a
OM4	≤ 2.3	≤ 0.6	4700	n/a	1,100	550	550	n/a	150	n/a
	1310 nm	1550 nm	1310 nm	1550 nm	1310 nm	1550 nm	1310 nm	1550 nm	1310 nm	1550 nm
OS2	≤ 0.35	≤ 0.20	n/a	n/a	n/a	n/a	10,000	40,000	10,000	40,000

**Note:** Fiber attenuation is un-cabled. All link distance limits are based on 1.0 dB max connector loss.  
 OM3, OM4, and OS2 are bend-insensitive fibers for optimum cable bend loss performance.  
 OM5 fiber is available upon request. Please speak with your Hubbell Representative for availability and lead time.

# Hubbell fiber delivery

- HFCD Series fiber cables are priced and delivered in feet
- Cable orders, when permissible, ship on a single reel unless otherwise specified
- Multi reel put-up lengths required by the customer must be specified at time of order
- Cable lengths exceeding single reel capacity must have the split approved by the customer
- MOQ for non-stocked cable is 1,640 feet
- Made to order cables are subject to a +10% production tolerance
- Customer order must match total length shipped
- Reel capacity values on this specification allow for a 2-inch cable-to-flange clearance
- Refer to reel dimensions on selection and capacity charts
- Cut charges may apply to multi-reel orders

## Cable application guidelines: distance and channel attenuation limits

Cable Family	Fiber Count	Overall Jacket Diameter (in (cm))	Reel A 24" Flange (ft)	Reel B 30" Flange (ft)	Reel C 45" Flange (ft)	Reel D 48" Flange (ft)	Cable Weight per Foot (lbs)
HFCD1 Series: Indoor Distribution HFCD14 Series: Indoor/Outdoor	2 strand	0.174 (4.4)	5400	17500	n/a	n/a	0.012
	6 Strand	0.210 (5.3)	4000	12000	n/a	n/a	0.02
	12 Strand	0.250 (6.3)	2900	9000	n/a	n/a	0.035
	24 Strand	0.320 (8.1)	1600	5000	n/a	n/a	0.043
HFCD1M Series: Indoor Multi-Unit, Plenum	48 strand	0.610 (15.4)	n/a	1400	4800	n/a	0.146
	72 strand	0.790 (20)	n/a	1000	2800	n/a	0.233
HFCD14 Series: Indoor/Outdoor Multi-Unit	48 strand	0.610 (15.4)	n/a	1400	4800	n/a	0.146
	72 strand	0.790 (20)	n/a	1000	2800	n/a	0.233
HFCD15 Series: Armored Indoor HFCD19 Series: Armored Indoor/Outdoor	6 Strand	0.625 (15.9)	n/a	n/a	n/a	5000	0.165
	12 Strand	0.625 (15.9)	n/a	n/a	n/a	5000	0.17
	24 Strand	0.684 (17.4)	n/a	n/a	n/a	4000	0.188
	48 Strand	0.930 (23.5)	n/a	n/a	n/a	2100	0.365

**Note:** Reel capacities are approximate based on safe clearance below flange diameter. Reel size is determined by cable diameter and quantity ordered.

Reel	Flange Diameter (in)	Traverse Length (in)	Drum Diameter (in)	Reel Weight (lbs)	Skid Weight (lbs)
A	24	15	16.5	*	n/a
B	30	24	18	30	30
C	45	24	18	115	40
D	48	24	24	120	40

\*A-size reels are plastic and boxed. See charts for cable weight.

## Shipping information

- Cable weight = [length ordered] X [weight per foot]
- Estimated shipping weight = [cable weight] + [reel weight] + [skid weight]
- Reel capacities on this specification allow for a 2-inch cable-to-flange clearance
- Refer to specific dimensions on the reel selection chart
- Shipping dimensions = [flange] x [flange] x [width]
- Estimated shipping width = [traverse length] + [2 inches]

# FIBERHUBB Connectivity



## Splice-on connector

The FIBERHUBB™ Splice-On Connector is the quickest pre-polished factory terminated pigtail to prepare, splice and install. The 27mm splice protection sleeve is encapsulated and protected by a strain relief boot. This eliminates the need for splice trays, chips, and extra cabinets. Works with a variety of fusion splicers, using the required universal holder.

## PROclick® connector

SC and LC *PROclick* pre-polished mechanical connectors provide quick, simple termination. The design features a pre-installed cleaved fiber with an index-matching splice mechanism and a precision factory pre-polished zirconia ceramic ferrule. Smooth fiber feed and a micron-precise fiber alignment mechanism ensure a low loss, high yield termination. Our connectors are proven to perform under extreme temperatures specified in Telcordia GR-326 standard in less than 60 seconds.

## Fiber pigtails

We offer a variety of pigtails in single, 6-strand, and 12-strand bundles. Available in both 250µm and 900µm with TIA-598 color coding to match incoming fiber. Utilizing heat cured epoxy termination and precision zirconia ferrule, they ensure low loss and maximum durability within the fiber channel.

## OC series splice cassettes

Our OC series splice cassettes support mission-critical fiber applications, such as data center interconnects and backbones, local area networks, and outside plant applications. The cassette design integrates cable management and splice housing to reduce termination time and improve the organization of fiber cable and pigtails inside the enclosure. It also streamlines ordering. Cassette splice housing, adapters, pigtails, and splice sleeves provide an all-in-one solution.

# FiberHUBB tools and kits



## OFCLV5 precision cleaver

- This Precision Fiber Optic Cleaver features a cleave angle of 90 degrees +/- 0.5 degrees
- 16-position blade provides about 48,000 cleaves; unit features a built-in fiber waste receptacle
- Ideal for preparing optical fiber for quick-term connectors



## OFSTRIP3 fiber strip tool

- Accommodates sheath/jacket at 2.00-3.0mm
- Strips tight buffer at 900 microns, bare and color fiber at 250 microns
- Protects blade with lockable jaws
- Features soft grip handle



## OFCLEANKT2 fiber cleaning kit

- Cleaning Fluid, 3 Ounce
- 100 Lint-Free Wipes in Dispenser
- 50 SC/ST/FC/APC CleanStix
- 50 LC/MU/APC CleanStix
- CleanClicker 750 Click SC/ST/FC
- CleanClicker 750 Click LC/MU
- CleanClicker 600 Click MPO

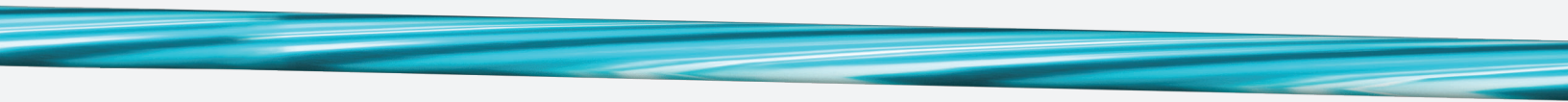


## OFPROKT1 fiber termination kit

- Precision cleaver
- Strip tool and Kevlar scissors
- Pocket visual locator
- FC-ST Simplex OM3 2-meter patch cord
- FC adapter insert
- LC VFL adapter bullet
- Loose tube anti-slip clamp, universal
- Fiber work mat, black rubber
- Fiber cleaning fluid and wipes
- Fiber debris collection container

# FIBER HUBB<sup>TM</sup>

*Let Hubbell Be Your Fiber Connection*



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