Multi-Fiber Cable Assemblies

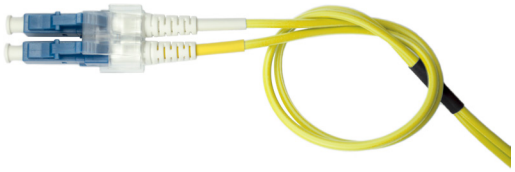
Fiber Optic Cable Assemblies

Example: 144-Fiber Micro Cable with Singlemode G.657.A1 Bend Insensitive Fiber, 36" 900µm Breakout, and LC/UPC Connectors

ARIA Fiber Optic Cable Assemblies are available with your choice of fiber count, features, flame rating, connector type, polish type, fiber type, and cable type.

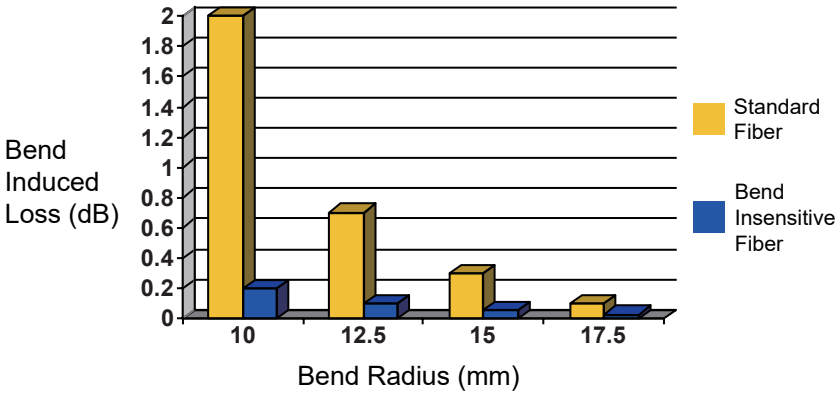
All assemblies are 100% tested and certified to Telcordia GR-326-CORE Issue 4 specifications.

Bend-Insensitive Fiber Available



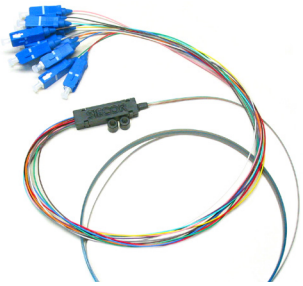
Cable bends can create high loss in congested areas.

ARIA Bend-Insensitive cable assemblies are ITU-T G.657.A1 compliant and ensure low loss even with a 10mm bend radius.

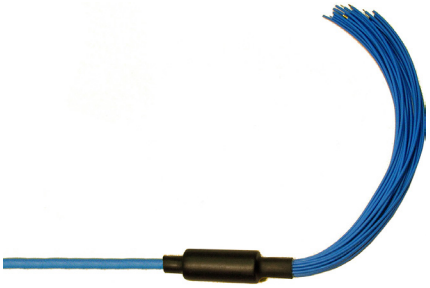


Pulling Eye Available

Fanout Kits Available



Cable Breakouts Available



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Cable Types

Indoor Cable is used exclusively within buildings and must have a flame-retardant jacket to fit this purpose.

Indoor/Outdoor Cable is designed to meet the rigorous environment of the outdoors but can be routed indoors, where flame rating requirements apply. This eliminates the need for a “transition splice” to an indoor-rated cable when routing an outdoor cable into a building.

Outdoor Cable features rugged construction engineered to withstand conditions seen outside such as: extreme temperature fluctuations, UV light resistance, and protection from mechanical forces. Outdoor cable cannot extend into a building more than 50 feet from its point of entrance according to the National Electrical Code (NEC).

Jacket Rating

Riser (OFNR - Optical Fiber Nonconductive Riser) cable jackets are rated for flame generation and are held to a lower standard than plenum cables.

Plenum (OFNP - Optical Fiber Nonconductive Plenum) cable jackets are intended for use in spaces that facilitate environmental air handling and are rated for both flame and smoke generation.

LSZH (Low-Smoke Zero Halogen) cable jackets eliminate toxic gases that are produced when water interacts with a burning cable jacket. LSZH jackets are not available with a plenum rating.

Armor

Non-Armored

Armored

Interlocking Armor

Examples

72-Fiber Distribution Cable with Singlemode G.652.D Fiber, 36” 900µm Breakout, and SC/UPC Connectors

48-Fiber Micro Cable with Multimode OM4 Fiber, 18” 3mm Breakout, and MPO Connectors

36-Fiber Indoor/Outdoor Distribution Cable with Singlemode G.652.D Fiber, 36” 2mm Breakout, and ST/UPC Connectors

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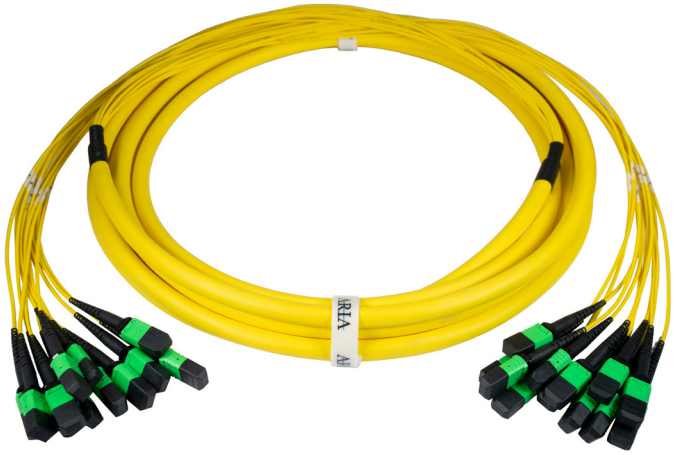
Multi-Fiber Cable Assemblies

Fiber Optic Cable Assemblies

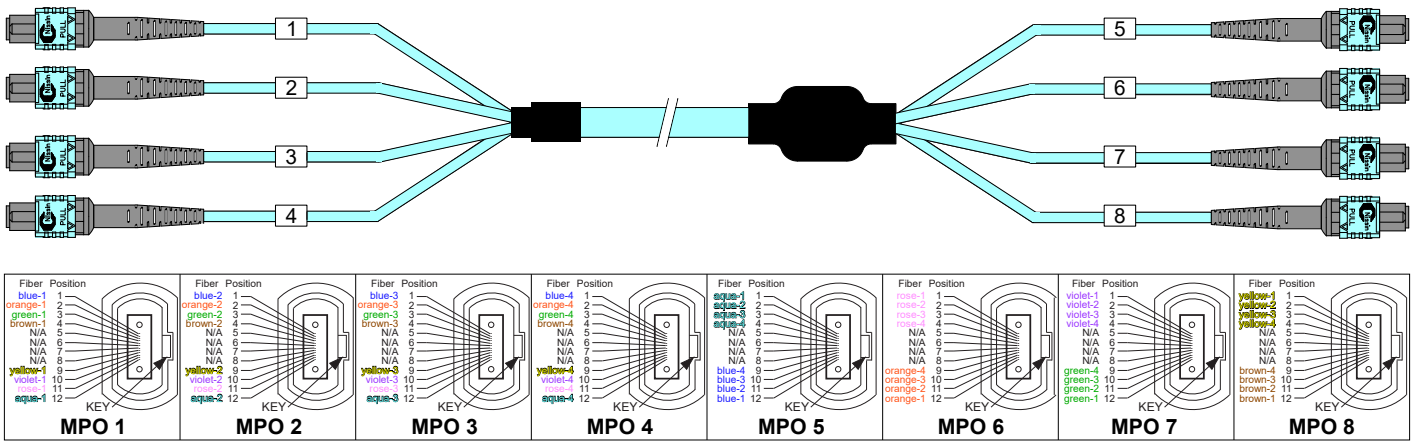
Examples (Continued)



144-Fiber Micro Distribution Cable with Singlemode G.657.A1 Fiber, 36” 2mm Breakout, and MPO Connectors

12-Fiber 3.0mm Micro Distribution Cable with Singlemode G.657.A1 Fiber and MPO Connectors

144-Fiber Micro Distribution Cable with Singlemode G.657.A1 Fiber, 36” 900µm Breakout, and LC/UPC Connectors



4 MPO-12 Base 8 to 4 MPO-12 Shuffle (Fiber Mesh) with OM4 Fiber

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Multi-Fiber Cable Assemblies

Fiber Optic Cable Assemblies

High Density Connectors Available

- SC and LC uniboot connectors reduce fiber congestion
- LC connectors with pull tabs ease connector insertion and removal
- LC uniboot polarity switchable connectors reduce fiber congestion and provide polarity flexibility

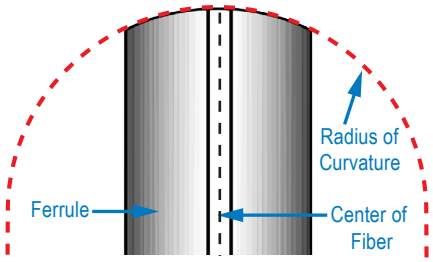
Endface Clarity, Insertion & Return Loss Testing

Endface Clarity is the cleanliness and smoothness of the connector endface

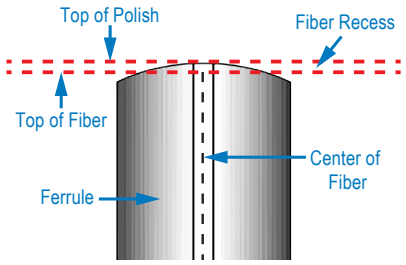
Insertion Loss refers to the amount of optical power lost through a jumper

Return Loss refers to the optical power reflected at the connector toward the source

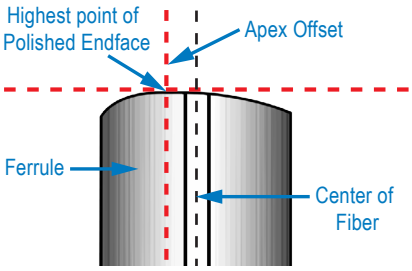
Endface Geometry Testing



Radius of curvature is the roundness of the ferrule's endface



Fiber height is the height or depth that the fiber core protrudes or undercuts the ferrule endface



Apex offset is the distance between the highest point of the polished ferrule's endface and the fiber's axis

Testing Requirements

Endface Clarity	No scratches, pits, dirt, or oil at 400x magnification
Insertion Loss (dB)	0.20 Maximum, ≤0.15 Typical
Return Loss (dB)	≤-55 (UPC), ≤-65 (APC)
MPO Insertion Loss (dB)	≤0.70 (Singlemode), ≤0.60 (Multimode), ≤0.35 (Elite)
MPO Return Loss (dB)	≤-60 (Singlemode), ≤-25 (Multimode)
Radius of Curvature (mm)	7 to 25 (UPC), 5 to 12 (APC)
Fiber Height (nm)	±50 (UPC), ±100 (APC)
Apex Offset (µm)	<50

PASS

Fiber Specifications

Fiber Type	Wave-lengths (nm)	Max Atten. (db/km)	1 GbE Max Distance (m)	10 GbE Max Distance (m)	40 GbE Max Distance (m)	100 GbE Max Distance (m)
9/125µm SMF	1310/1550	0.35/0.25	5000	1000/4000	N/A	N/A
62.5/125µm OM1	850/1300	3.5/1.0	300/550	33	N/A	N/A
50/125µm OM2	850/1300	3.5/1.5	600/600	82	N/A	N/A
50/125µm OM3	850/1300	3.0/1.5	1000/600	300	100	70
50/125µm OM4	850/1300	3.0/1.0	N/A	550	150	150
50/125µm OM5	850/1300	3.0/1.0	N/A	550	150	150

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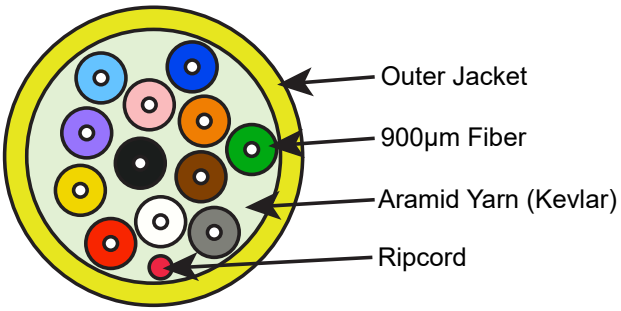
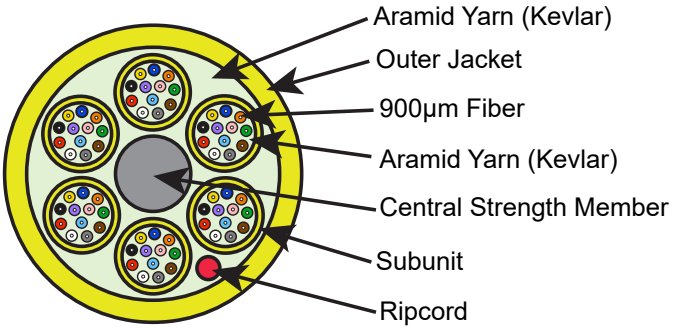
Multi-Fiber Cable Assemblies

Fiber Optic Cable Assemblies

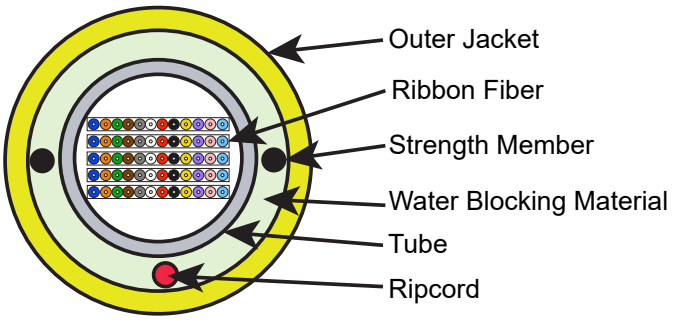
Cable Constructions

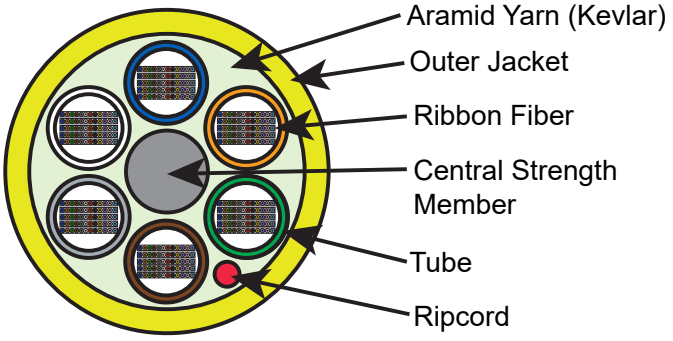
Distribution cables consist of 900µm fibers with Kevlar reinforcement. For larger fiber counts, the fibers are arranged in subunits around a central strength member.



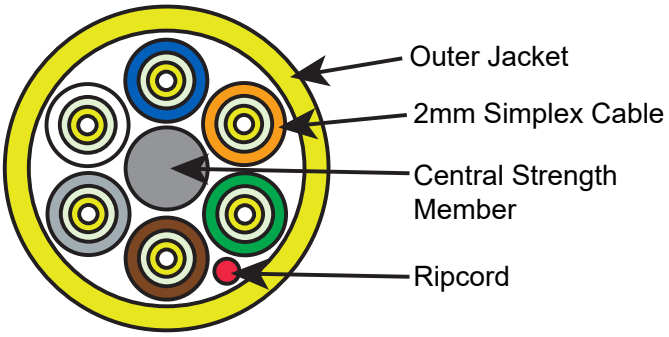


Ribbon cables consist of a single central tube that contains optical fibers arranged in ribbons. For larger fiber counts, ribbons are arranged in subunits.

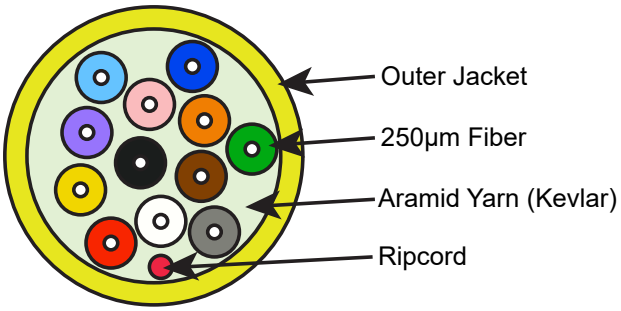


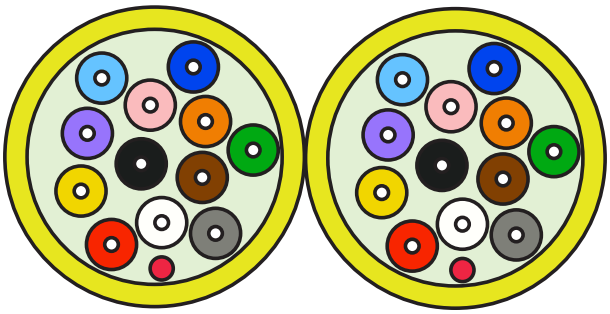


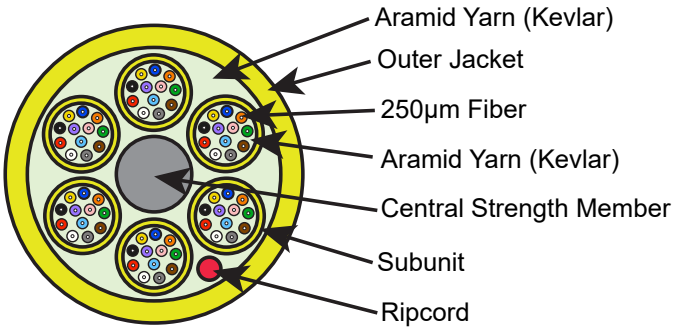
Breakout cables consist of 2mm simplex cables.



Micro cables (or micro distribution cables) consist of 250µm fibers with Kevlar reinforcement. 12-Fiber cables can be as small as 2.0mm in diameter and are available in a zipcord format. For larger fiber counts, the fibers are arranged in subunits around a central strength member.







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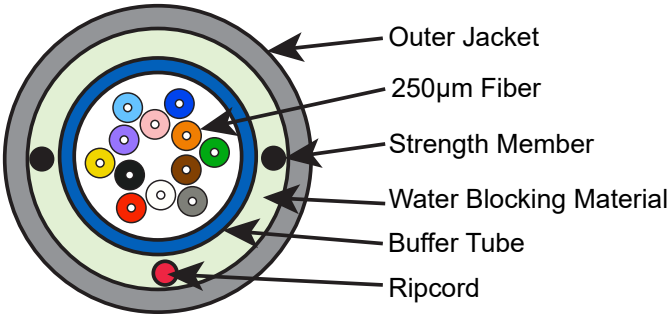
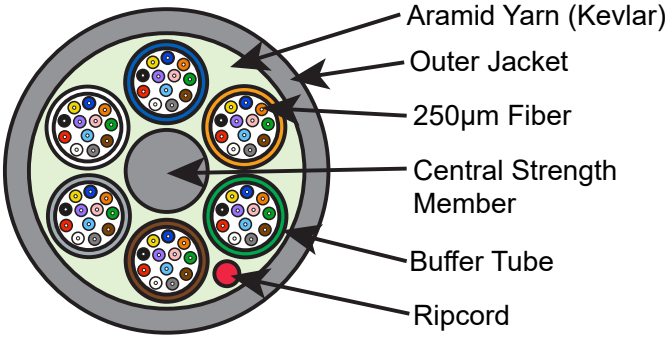
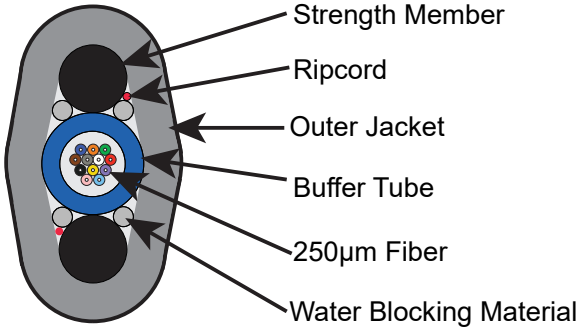
Cable Constructions (Continued)

Loose Tube cables are designed for outdoor use and consist of a buffer tube that contains loose 250µm fibers. For larger fiber counts, buffer tubes are arranged around a central strength member.

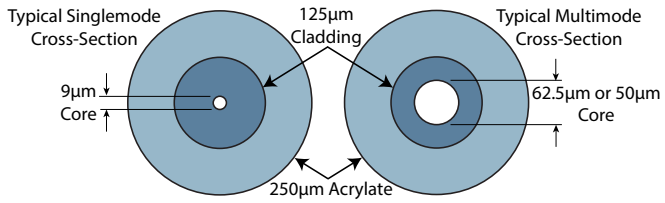




Flat drop cables consist of a central buffer tube, Kevlar, and two strength members in an ovular outer jacket.



Singlemode vs Multimode Fiber



Outer Cable Jacket Colors

The TIA-598-D standard designates the following as the standard outer cable jacket colors.

Yellow: Indoor cable with singlemode optical fiber
Orange: Indoor cable with OM1 or OM2 multimode optical fiber
Aqua: Indoor cable with OM3 or OM4 multimode optical fiber
Erika Violet: Sometimes used to designate indoor cable with OM4 multimode optical fiber
Lime Green: Indoor cable with OM5 multimode optical fiber
Blue: Sometimes used to designate indoor cable with SM BI fiber or polarization-maintaining fiber
Black: Outdoor cable

Inner Cable Fiber Colors

Fibers are grouped in sets of 12. Inside a cable, the fibers and sometimes subunits are colored for identification as shown below. If more than 12 fibers or subunits are present, tracer marks are used.

1 - Blue
2 - Orange
3 - Green
4 - Brown
5 - Slate
6 - White
7 - Red
8 - Black
9 - Yellow
10 - Violet
11 - Rose
12 - Aqua

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Multi-Fiber Cable Assemblies

Fiber Optic Cable Assemblies

Part Number

MFC- _ - _ - _ - _ - _ - _ - _ - _ - _ - _ - _ - _ - _

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

1 Fiber Type

S = SM 9/125µm G.652.D
B = SM 9/125µm Bend Insensitive G.657.A1
1 = MM 62.5/125µm OM1
2 = MM 50/125µm OM2
3 = MM 50/125µm OM3
4 = MM 50/125µm OM4
5 = MM 50/125µm OM5

2 Number of Fibers

XXX = XXX Fibers

3 Cable Construction

D = Distribution (I or X)
B = Breakout (X)
M = Micro Round (I)
Z = Micro Zipcord* (I)
L = Loose Tube (X or O)
R = Ribbon (I, X, or O)
F = Flat Drop (O)

(I) = Indoor Only
(X) = Indoor/Outdoor Only
(O) = Outdoor Only
*Up to 48 Fiber (2x24F) Only

4 Cable Type

I = Indoor
X = Indoor/Outdoor
O = Outdoor

5 Jacket Rating

Leave Blank for Outdoor Cable

R = Riser (OFNR)
P = Plenum (OFNP)
L = Low Smoke Zero Halogen (LSZH)

6 Armor

N = Non-Armored
A = Armored

7 Connector Type End 1

SC = SC
LC = LC
FC = FC
ST = ST
CS = CS*
SB = SC Uniboot*
E2 = E2000
MD = MDC*
SN = SN*
MP = MPO
00 = No Connector

*2mm or 3mm Breakout Only
Note: Add DC to Add Duplex Clips on Non-Uniboot Connectors

7 Polish Type End 1

U = Singlemode UPC
A = Singlemode APC*
M = Multimode PC
F = Multimode Flat**
0 = No Connector

*Select for Singlemode MPOs and Unavailable for ST
** Select for Multimode MPOs

8 LC Type End 1

Leave Blank for Standard LC Connector, Non-LC Connector, or 900µm Breakout

A = 50° Boot
F = Flat Pull Tab
U = Uniboot
P = Uniboot Polarity Switchable
2 = Uniboot 20mm Pull Tab
4 = Uniboot 40mm Pull Tab
R = Uniboot Polarity Switchable with Pull Tab

9 MPO Type End 1

Leave Blank for Non-MPO Connector

Choose 1 Option for Each Feature:
1 = 12 or 2 = 24 Fiber Connector
S = Standard or E = Elite Ferrule
F = Female or M = Male Guide Pins
N = No Pull Tab or P = Pull Tab

Choose a wiring method:
A = A, B = B, C = C, 1 = 1, or 2 = 2
B8 = Base 8
B20 = Base 20
0 = Non-MPO to MPO Assembly

10 Breakout Type End 1

9 = 900µm (Color Coded)
2 = 2mm (Std. Indoor Jacket Color)
3 = 3mm (Std. Indoor Jacket Color)

11 Breakout Length End 1

XXX = Length in Inches (Typically: 18", 24", or 36")

Note: If the MFC configuration requires the use of subunits, the subunits will be 8" unless specified

12 Connector and Break-out Options End 2

See Options for End 1

13 Overall Cable Length

XXXXF = Length in Feet
XXXXM = Length in Meters

14 Pulling Eye

Leave Blank for No Pulling Eye

PE1 = Pulling Eye on End 1
PE2 = Pulling Eye on End 2

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