

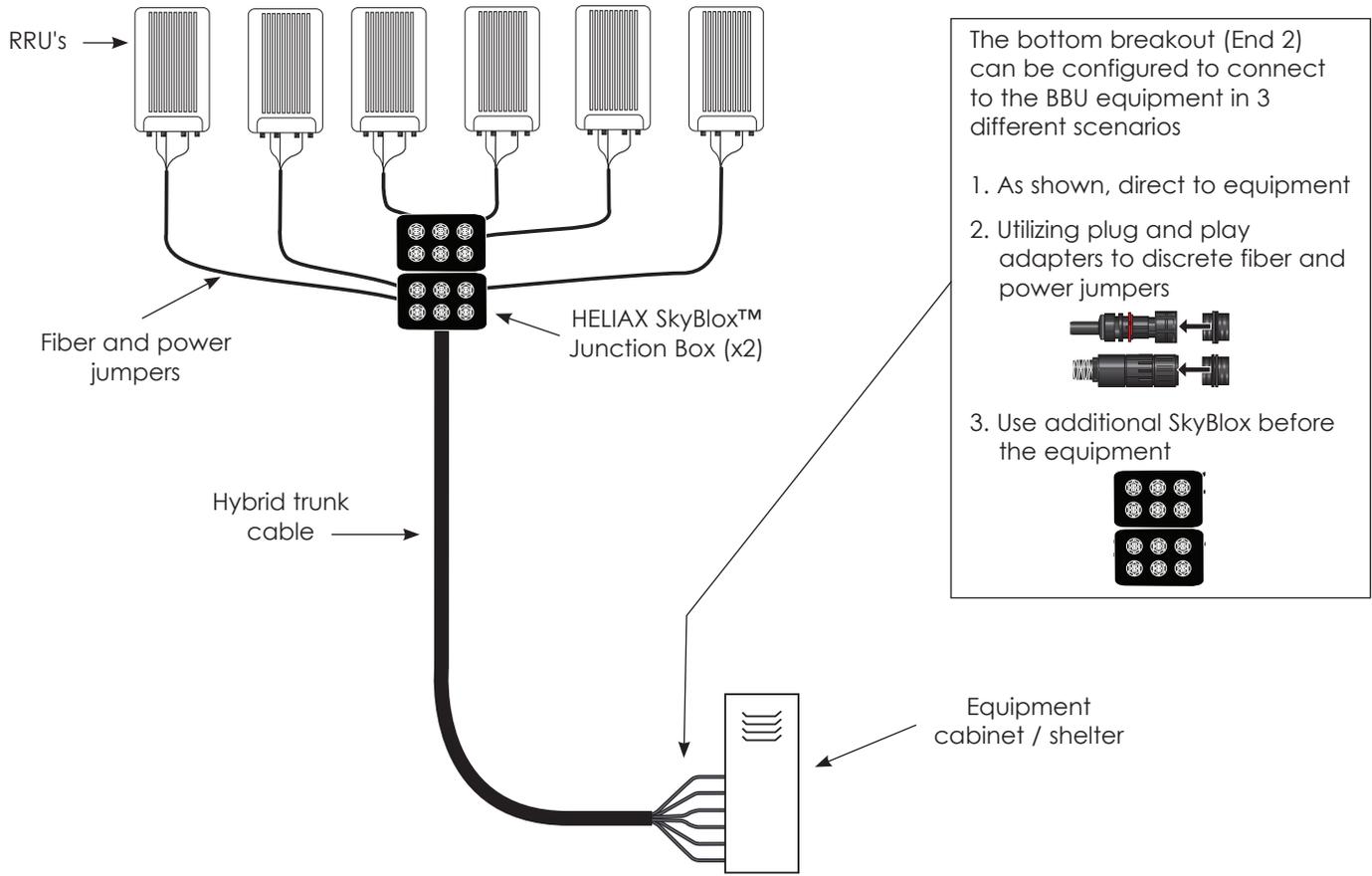
Installation Guidelines – HELIAX® Modular Configuration

Related Support and Learning Opportunities Offered by the CommScope Infrastructure Academy

The insights and expertise contained in this manual represent just one small part of CommScope's global learning initiative. Few industries are evolving as quickly as wireless communications. Every technological innovation impacts what happens in the field. Our customers look to the CommScope Infrastructure Academy to make sure their technicians and installers are well trained, well-prepared, and well-educated to take advantage of opportunities as they evolve. To access a course, go to www.commscopetraining.com/coursecatalog.php, course #6107

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Section 1: 6 RRU Connection

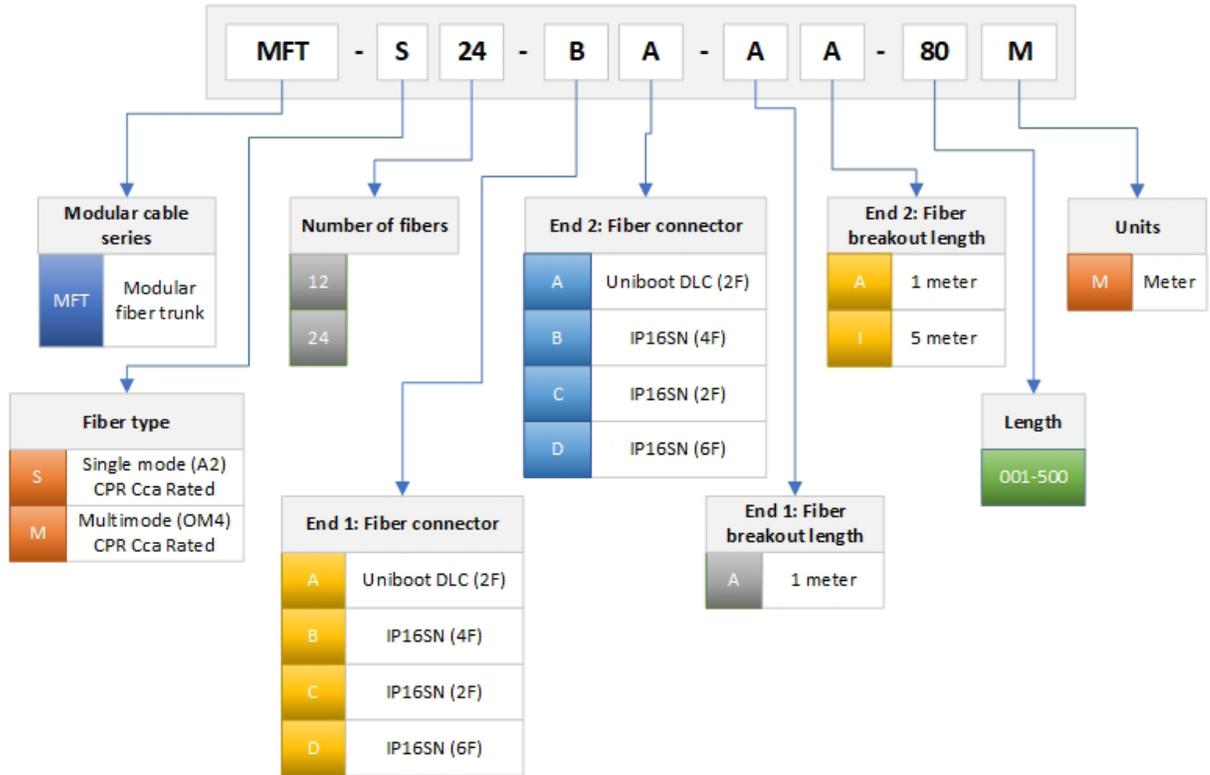


Accessories

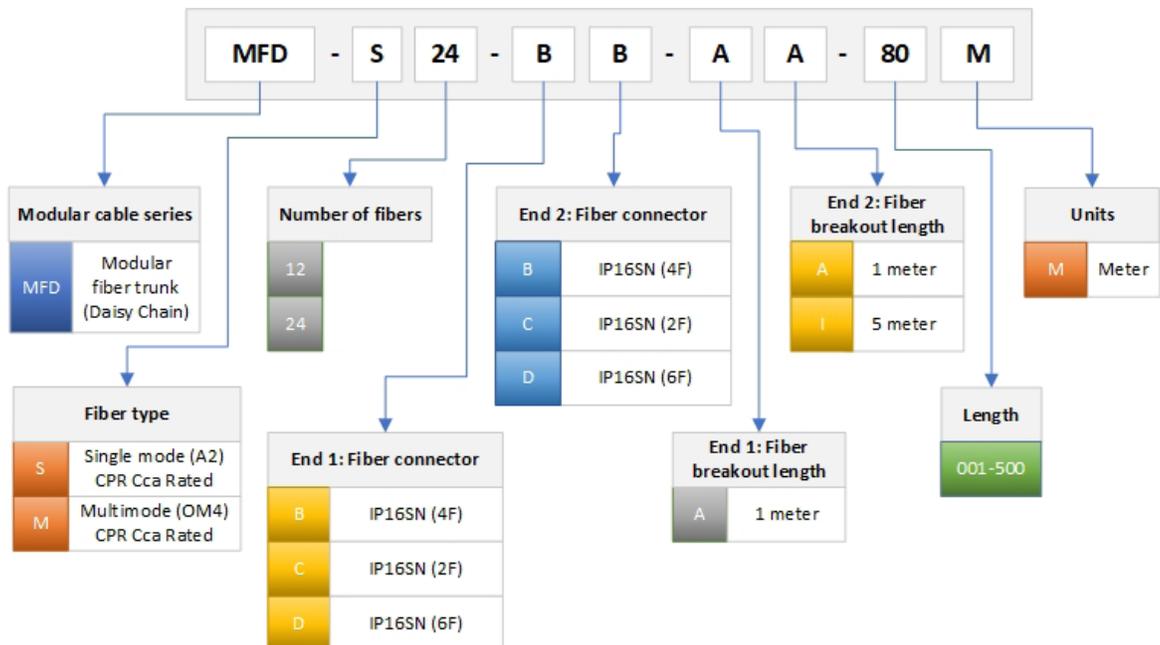
DESCRIPTION	ASSEMBLY PART NUMBER		
	MFT-series	MFJ-series	MPJ-series
Hoisting Grip	19256B-C	N/A	N/A
Hanger	SSH-L	SSH-47	SSH-M
Angle Adapter	UA-3	UA-3	UA-3
3-way Standoff	SA-38	SA-38	SA-38
Round member adapter, 2 to 3 inch	31670-2	31670-2	31670-2
Round member adapter, 3 to 4 inch	31670-3	31670-3	31670-3
Round member adapter, 4 to 5 inch	31670-4	31670-4	31670-4
DC connector cap	N/A	N/A	860665404

Section 2: Product Ordering Tree's

Discrete Fiber Trunk (MFT)

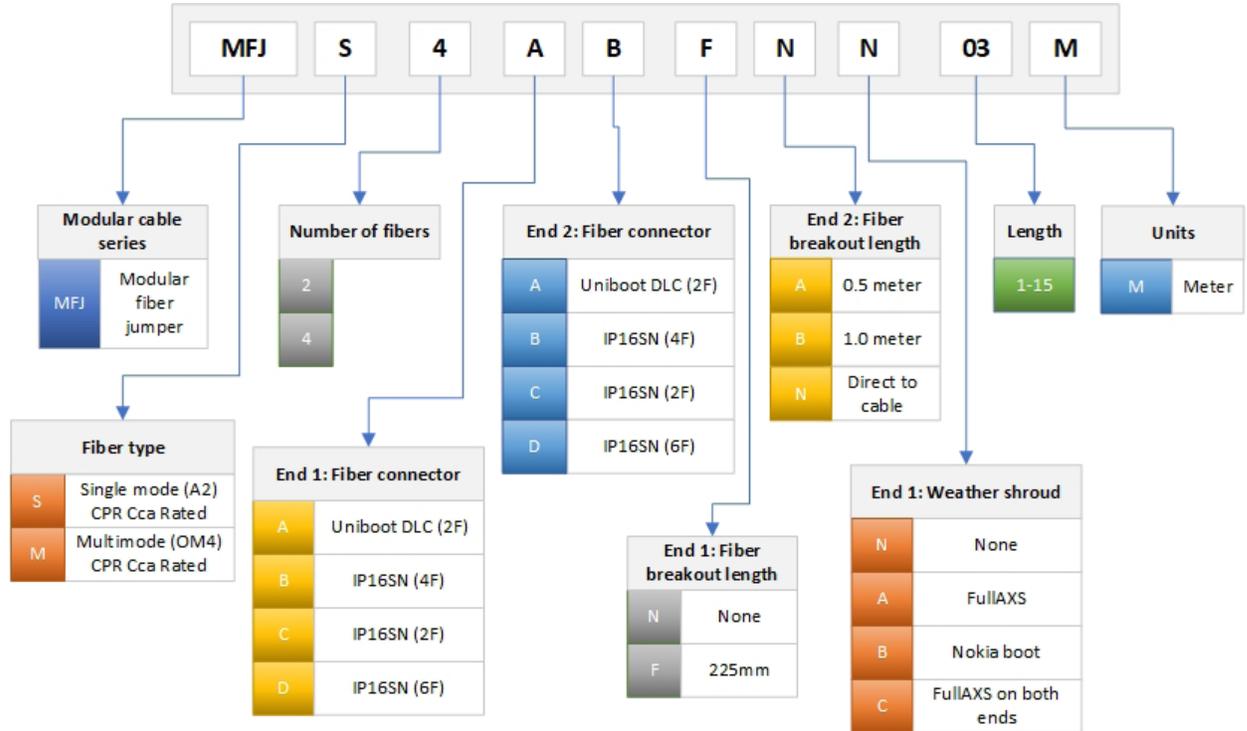


Daisy Chain - Discrete Fiber Trunk (MFD)

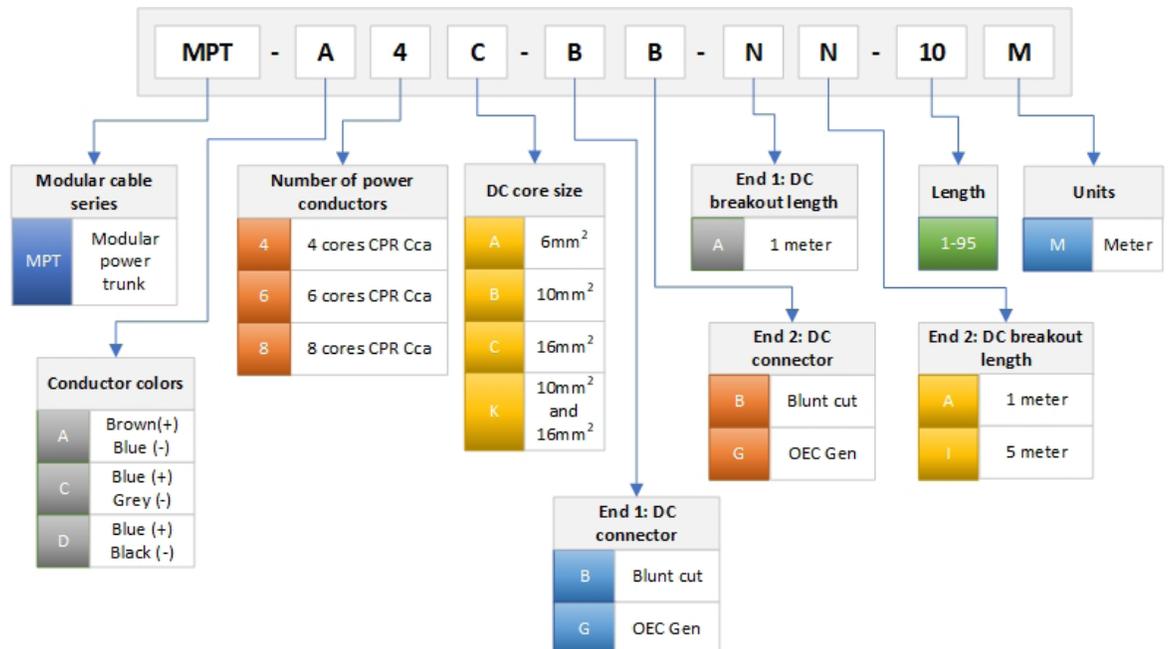


Section 2: Product Ordering Tree's (cont.)

Discrete Fiber Jumper (MFJ)

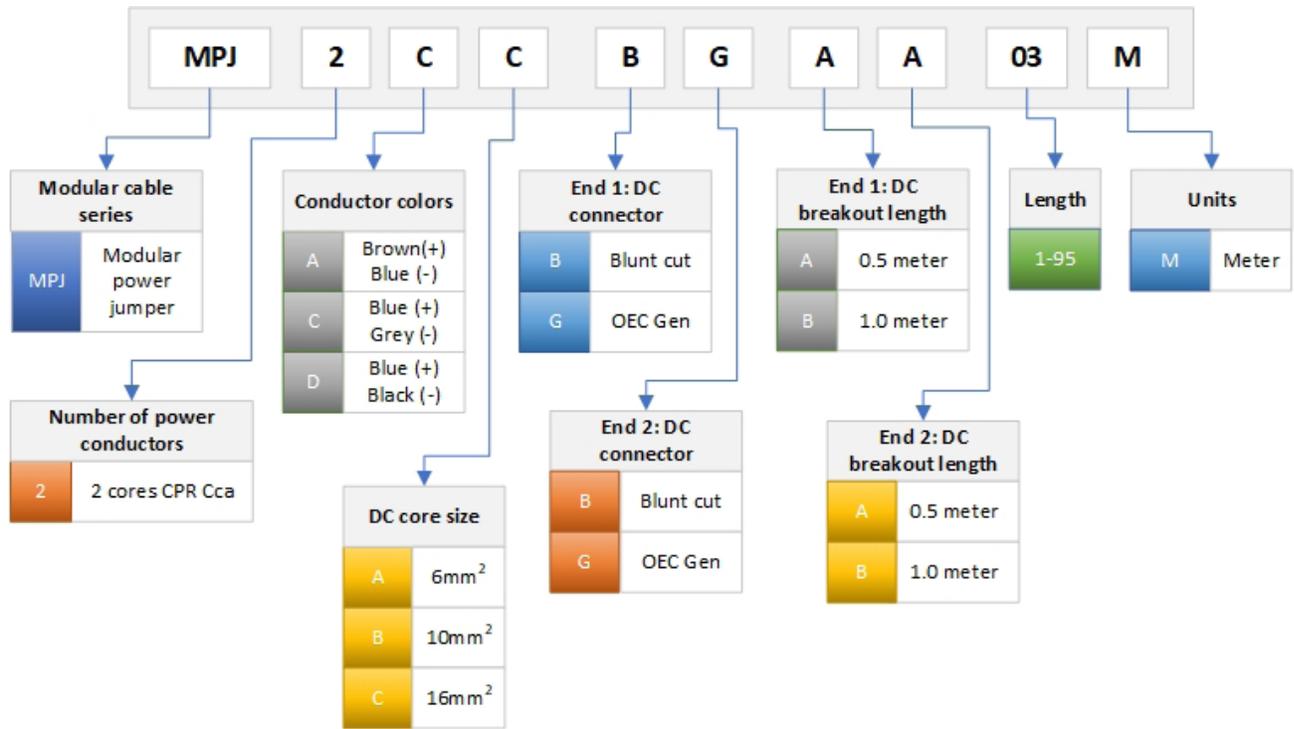


Discrete Power Trunk (MPT)

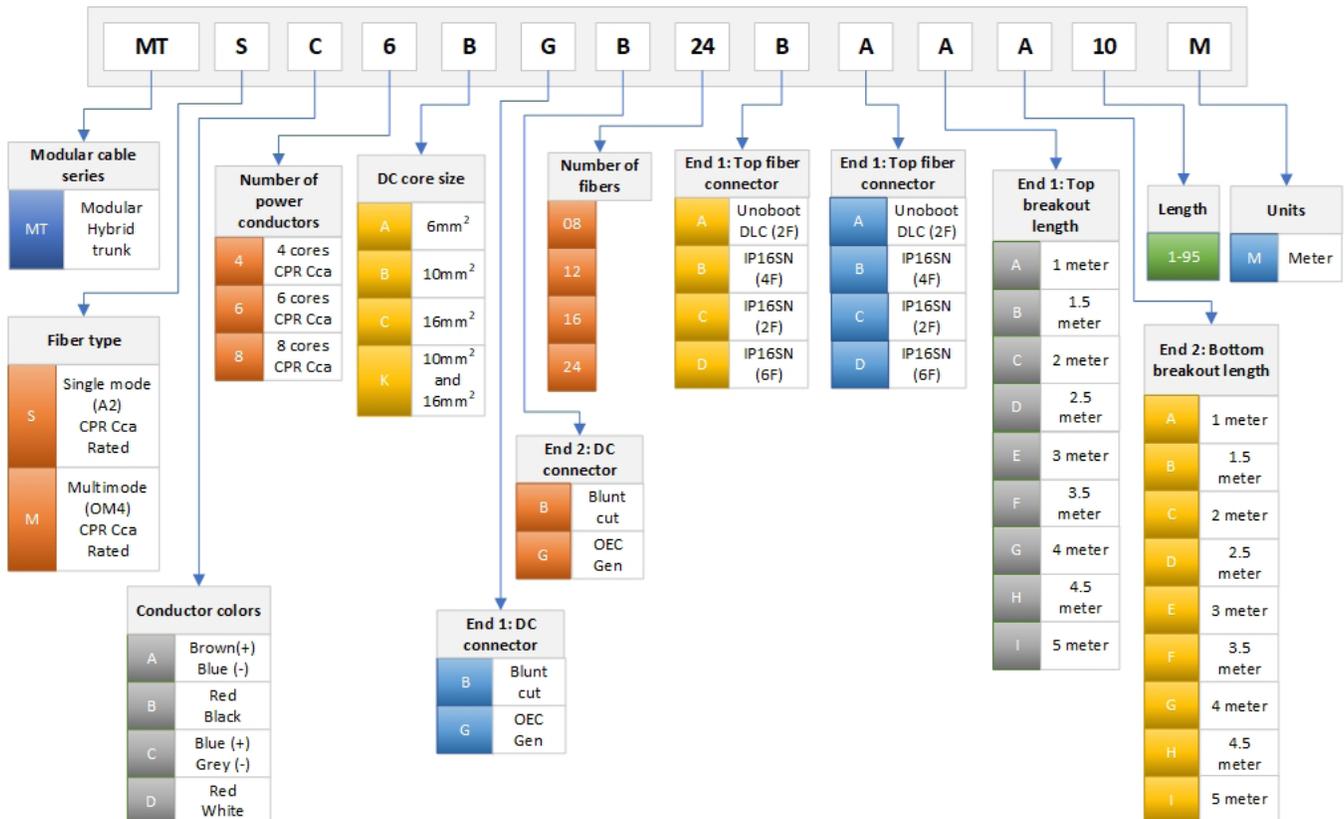


Section 2: Product Ordering Tree's (cont.)

Discrete Power Jump (MPJ)

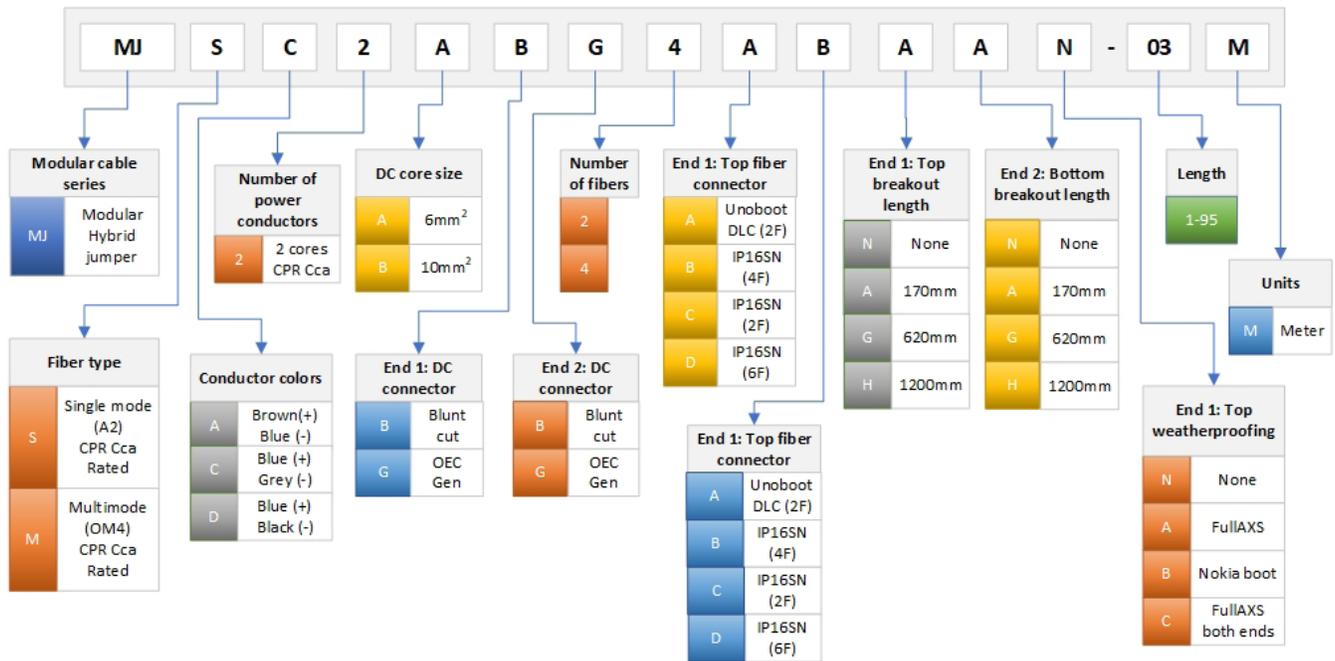


Hybrid Trunk (MT)



Section 2: Product Ordering Tree's (cont.)

Hybrid Jumper (MJ)



Section 3: Assembly Breakdown:

Jacket Material: Low Smoke Zero Halogen (LSZH) | PE

EN50575 CPR Cable EuroClass Fire Performance: Cca

Single mode (G657.A2) and Multimode (OM4)

Additional connector interfaces and weatherproofing available upon request

Discrete Fiber Trunk

PART NUMBER	DESCRIPTION
MFT-S24-BA-AA-80M	HELIAX Modular Discrete Fiber trunk, End 1: Four IP67 4 Fiber connectors for SkyBlox, End 2: Twenty four fibers (12 pairs) terminated DLC

End 1: SkyBlox

End 2: BBU



Outdoor rated
Fiber connectors

DLC
connectors

Daisy Chain - Discrete Fiber Trunk

PART NUMBER	DESCRIPTION
MFD-S24-BB-AA-80M	HELIAX Modular Discrete Fiber trunk, End 1: Three IP67 4 Fiber connectors for SkyBlox, End 2: Three IP67 4 Fiber connectors for SkyBlox or adapters to IP67 jumpers, (fibers are A-A / B-B)

End 1: SkyBlox

End 2: BBU



Outdoor rated
Fiber connectors

DLC
connectors

Discrete Fiber Jumper

PART NUMBER	DESCRIPTION
MFJS4ABFNN03M	HELIAX Modular Discrete Fiber Jumper , End 1: Two DLC connectors for RRU, End 2: one IP16 for SkyBlox

End 1: RRU

End 2: SkyBlox



DLC
connectors

Outdoor rated
Fiber connectors

Discrete Power Trunk

PART NUMBER	DESCRIPTION
MPJ8CABGNA10M	HELIAX Modular Power Trunk, End 1: Eight conductor, 6 mm ² , 4 Brown and 4 Blue, blunt-cut, End 2: Four plug and play connectors for HELIAX SkyBlox

End 1: RRU

End 2: SkyBlox



Blunt cut power
conductors

Outdoor rated
Power connectors

Discrete Power Jumper

PART NUMBER	DESCRIPTION
MPJ2CABGAA03M	HELIAX Modular Power Jumper, End 1: Two conductor, 6 mm2, 1 Brown and 1 Blue, blunt-cut, End 2: one plug and play connector for SkyBlox

End 1 RRU

End 2 SkyBlox



Blunt cut power conductors

Outdoor rated Power connectors

Hybrid Trunk

PART NUMBER	DESCRIPTION
MTSC6BGB24BAAA10M	HELIAX Modular Hybrid trunk, End 1: Three IP67 4 Fiber connectors, three plug and play connector for SkyBlox, End 2: Twenty four fibers (12 pairs) terminated DLC, six blunt-cut power connectors

End 1: SkyBlox

End 2: BBU

DLC connectors



Outdoor rated Fiber and Power connectors

Blunt cut power conductors

Hybrid Jumper

PART NUMBER	DESCRIPTION
MJSC2ABG4ABAAN-03M	HELIAX Modular Hybrid trunk, End 1: Four fibers (2 pairs) terminated DLC, One 2 conductor power cord, End 2: One IP167 4 fiber connector, one plug and play connector for SkyBlox

End 1: RRU

End 2: SkyBlox

DLC connectors



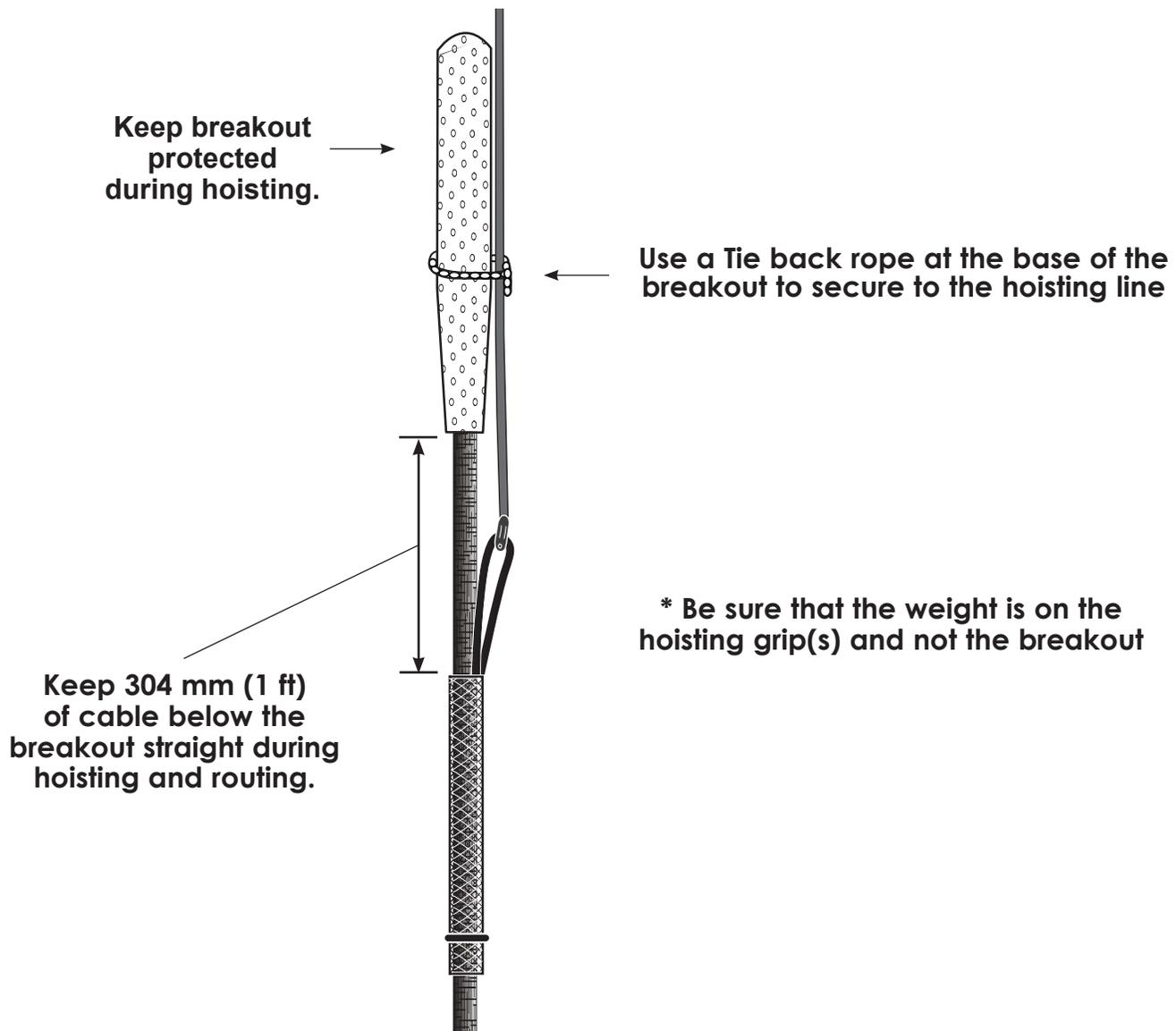
Blunt cut power conductors

Outdoor rated Fiber and Power connectors

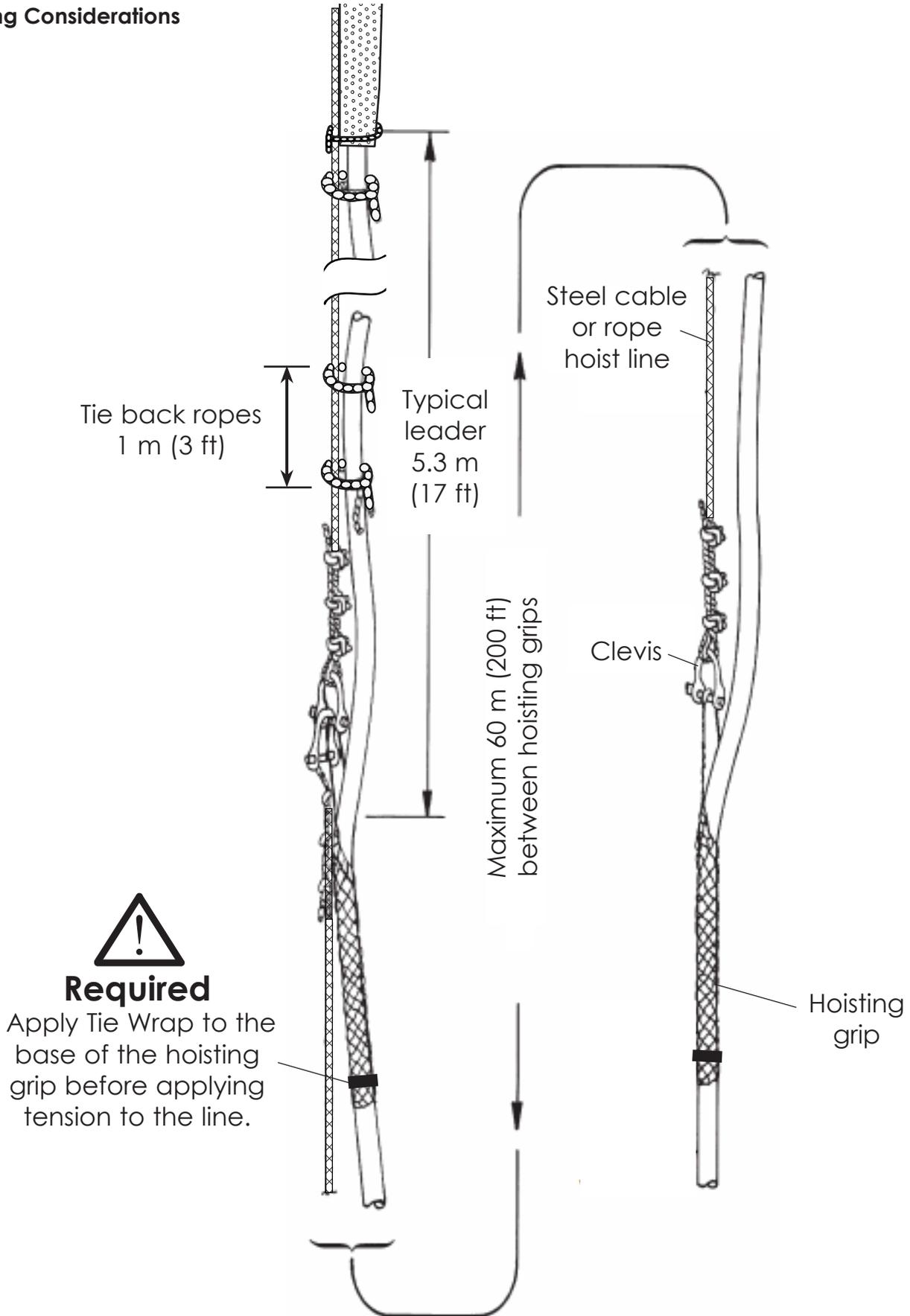
Section 4: Hoisting Considerations

- In general this cable will handle similarly to coaxial cable, and similar installation techniques apply. All cables are individually serialized, be sure to write down the cable serial number for future reference.
- Be sure that the breakout is not damaged by attachment of a hoisting grip or during the hoisting process.
- During hoisting ensure that there is a free path.
- Installation temperature range is -40 °C to +75 °C (-40 °F to +167 °F).
- **CommScope Lace-Up Hoisting Grip required for installation.**
- **Hoisting Grip should be anchored to the support structure after the hangers are installed.**

 Hybrid Fiber Cables weigh more than traditional coaxial cables. Be sure to follow proper hoisting and attachment procedures.



Hoisting Considerations



Section 5: HELIAX SkyBlox™ plug and play break-out system

After trunk cables are hoisted and attached to the structure open and remove dust caps, attach the required connectors to the bottom/inside of the bulkhead. Adapters are keyed and have a 1/4 turn locking bayonet style connector (No torque required).

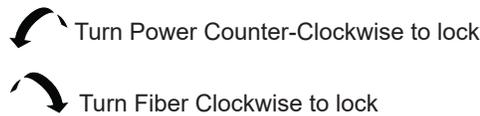
Alignment keys are located at the top of the adapters



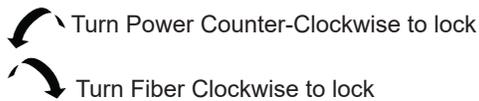
2, 4 or 6 fiber
(6 fiber shown)



2 Conductor
Power



Install jumpers with locking bayonet style connectors. To complete the installation install the cover by snapping into place.



If the installation requires stacking onto a previously installed SkyBlox assembly it is our recommendation to stack from the bottom to avoid the need to remove existing jumper assemblies. Follow SkyBlox installation bulletin to remove the bulkhead from the new assembly. Position the bracket around the existing trunk cables, push up to snap second bracket into previously installed assembly, complete mounting.

NOTE: It is possible to stack the SkyBlox on top of an existing one, new trunk cables should be passed behind the existing bulkhead. The bulkhead can be removed by following SkyBlox installation procedures. To keep system on-line do not disconnect existing cables. A maximum of 4 assemblies should be stacked together

Jumpers removed for illustrative purposes



Part Number	Description
SB-NA-0-GE-3	3 DC adapters
SB-NA-0-GE-4	4 DC adapters
SB-IP-3-NA-0	3 fiber adapters
SB-IP-4-NA-0	4 fiber adapters
SB-IP-3-GE-3	3 fiber adapters - 3 DC adapters
SB-IP-4-GE-4	4 fiber adapters - 4 DC adapters

Section 6: Breakout Procedure

After the trunk cable has been installed and you are ready to make the final connection to the BBU follow these steps for the removal of fiber protection tube.

1



Remove electrical tape from the trunk cable and corrugated protection tube

2



While holding the protection tube straight pull the tube away from cable.

3

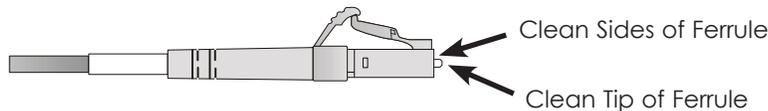


After you have pulled the fiber and power conductors into the OVP box remove electrical tape from the trunk cable and remove clear tube for access to all optical connectors.

DLC Connectors and Adapter cleaning

Clean exposed connector ferrule by lightly moistening lint-free wipe with fiber optic cleaning solution (or >91% isopropyl alcohol), and by applying medium pressure, first wipe against wet area and then onto dry area to clean potential residue from end face. Clean connector ferrule inside adapter by inserting lightly moistened cleaning stick with fiber optic cleaning solution (or >91% isopropyl alcohol) inside the adapter until contact is made with connector on opposite end. Rotate cleaning stick with medium pressure in one circular motion as it is pulled away from the adapter. Repeat process using dry cleaning stick.

Caution: Signal strength will be affected if end and sides of ferrule are not thoroughly cleaned. Discard cleaning sticks after each use. Do not turn cleaning sticks back and forth pressing against connector end face. This may cause scratches if large contamination is present. Always inspect connector end face for contamination after each cleaning.



Clean adapter by inserting adapter cleaning stick (or fiber adapter sleeve brush) moistened with fiber optic cleaning solution (or >91% isopropyl alcohol) inside the adapter and gently pull out with twisting motion. Repeat process with a dry cleaning stick.

Caution: Do not try to clean adapter with a standard pipe cleaner. The sleeve inner diameter of DLC adapters is too small. Do not try to clean the adapter with cleaning stick if a connector is mounted in one side. Discard cleaning sticks after each use.

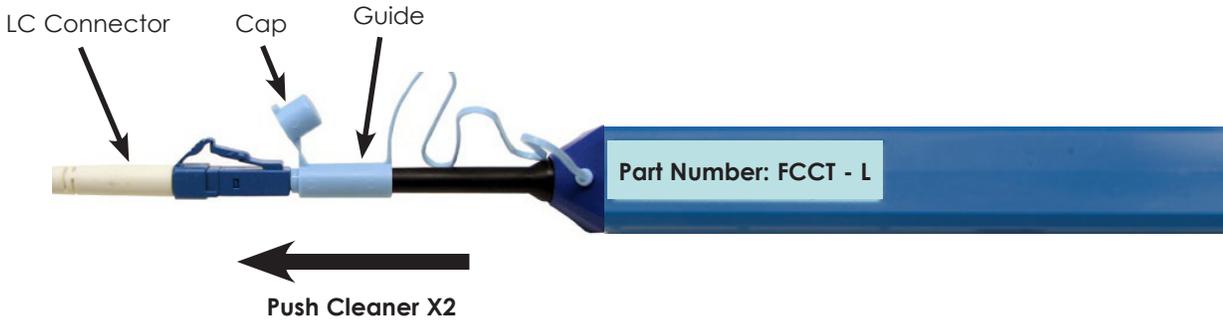


Section 7: All in one cleaner

Device designed for cleaning the ferrule end faces of LC connectors

Open guide cap, insert LC connector into guide, push the outer shell to start cleaning the LC connector interface, a "click" sound indicates end of a cleaning process, repeat, close cap immediately after use.

Caution: Be careful not to slant LC connector while inserting into the Guide cap. Do not overly exert force during insertion as this may cause damage to both the connector and the cleaner.



Inspecting

There are 3 basic principles that are critical to achieving an efficient fiber optic connection:

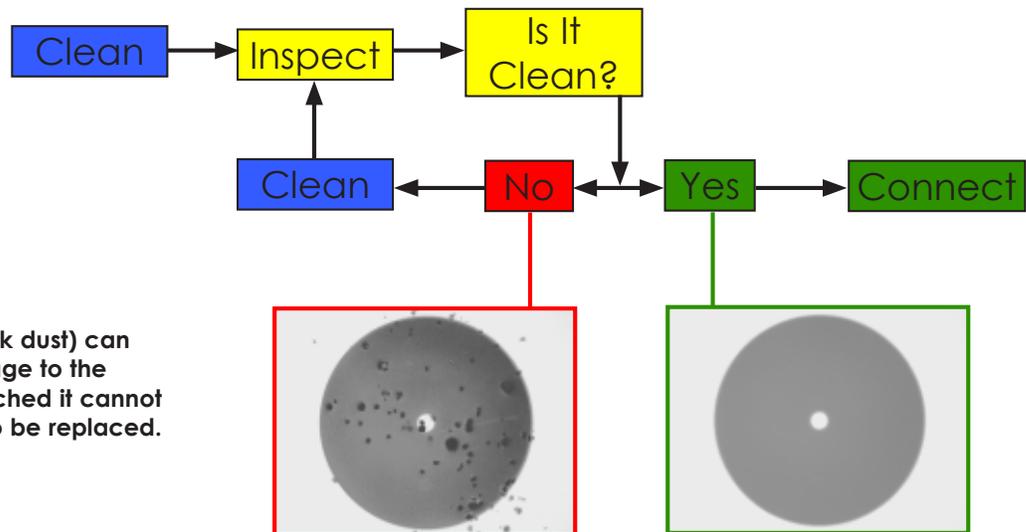
1. Perfect Core Alignment
2. Physical Contact
3. Pristine Connector Interface



Scan to view video

Today's connector design and production techniques have eliminated most of the challenges to achieving core alignment and physical contact. What remains challenging is maintaining a pristine end-face. As a result, CONTAMINATION is the #1 reason for troubleshooting optical networks.

Implementing the process of cleaning and inspecting before mating can reduce the time spent troubleshooting, optimize signal performance and prevent damage.



Abrasive particles (i.e. rock dust) can cause permanent damage to the interface. If interface is scratched it cannot be repaired, it would need to be replaced.

Section 8: Installation Check List

- Jumpers are properly support to prevent strain on fiber during severe weather
- Bend radius minimums haven't been exceeded
- CommScope approved installation accessories are used
- Maximum hanger spacing of 0.9 m (3 ft) - 1.2 m (4 ft) is maintained
- Visually inspected end face for residual dirt and damage
- Avoid migration of contaminations from one connector to another
- Check continuity by using LED or laser light source from one end face and look for light from other end to identify any broken fiber (Do not look directly at cable with laser source)
- Fiber Connections are engaged and the sectors are consistent with requirements
- Verify dust caps on any unused Pendant interfaces have not come loose. Retighten if required.
- Cable serial number has been documented in the closeout paperwork and a copy has been left on-site

CommScope

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