

Interlock Armor Optical Cables are inherently robust and have exceptional crush and impact resistance, making them suitable for harsh or hazardous environments. Before installing an armored fiber optic cable it is necessary to understand the construction of the product.

The cable is in fact a composite of two main elements:

1. A thermoplastic jacketed fiber optic cable
2. A flexible metal conduit (i.e. aluminum or galvanized steel interlocked armor) surrounded by a thermoplastic jacket.

It is important to note that no bonding exists between the cable and the armor. Thus, both elements require connection to a pulling medium to prevent separation. It is strongly recommended that a cable pulling grip be used to accomplish the installation. Please review the “Armor-Tek™ Pulling Grip Installation Guide”, available at [www.berktek.com](http://www.berktek.com), for instructions on proper pulling grip application procedures.

**CAUTION:** Failure to utilize a suitable pulling grip, properly installed, may result in elongation or unraveling of the interlock armor and retraction of the optical cable core into the interlock armor.

Most Armor-Tek installations occur in structured cabling environments, in the building backbone or horizontal with vertical penetrations commonplace. In such cases, hand pulls are the normal. Complying with the following recommended procedures will enable a safe and successful cable installation.

1. It is essential that a properly attached pulling grip be used. Doing so will couple the interlock armor and the optical cable core to the strength members of the cable. Procedures for selecting and installing a suitable pulling grip are detailed in “Armor-Tek™ Pulling Grip Installation Guide”, available at [www.berktek.com](http://www.berktek.com).
2. Visually identify and trace the proposed pull route. Reference the correct cable specification sheet to determine the maximum loading limits and the minimum bend limits of the cable during installation. Ensure the proposed route will not violate the bend limitations or exceed the allowed tensile load.
3. Secure an appropriate pulling tape to the pulling grip eye. Monitor the tension as the pull progresses. If the tensile load approaches the limit, stop pulling. Retrace the pull route and identify the snag point or obstruction.
4. If possible, remove the obstruction and inspect the cable for damage. If no damage is evident, record the footmark on the cable legend nearest the snag point. Reference this location during final testing to ensure no damage occurred.
5. When the pull is completed remove the pulling grip.
6. Reference the patch panel’s installation procedures to determine the length of optical cable required. Additionally, measure the length of interlock armor that will be sufficient to reach the metal knock out of the patch panel. When the cable is run directly from one metal fiber distribution unit to another, use any NEC approved MC connector as the equipment bond for the armored cable. These MC connectors may fit a variety of sizes of knockouts on the metal FDU\*. Some of these connectors may include an insulated bushing, which helps protect the cable when it exits the armor into the FDU or patch panel, See Figure 1 and Figure 2



**Figure 1**  
Typical MC Connector with Insulation Bushing



**Figure 2**  
Interlock Armor Bonded. Optical Cable Core Continues

7. Ensure the core optical cable is correctly secured to the FDU/patch panel. All connector or splice housings, whether rack mount or wall-mount, specify the correct procedures for securing the optical cable strength elements. Ensure these procedures are followed.
8. Retrace the pull route. If any segment of a horizontal pull exceeds five feet of unsupported span, install an approved flexible conduit support.
9. FOR VERTICAL SEGMENTS: If the cable diameter is  $> 0.5$  inches, secure the cable to the vertical shaft using approved flexible conduit supports every 3 feet. If the cable diameter is  $\leq 0.5$  inches, secure the cable to the vertical shaft using approved flexible conduit supports every 5 feet.

NOTE: Comply with Local Building Code Requirements or National Electrical Code Specifications for the installation and support of interlocking armor cables.

\*These types of connectors are available from most major suppliers of electrical components and are typically listed under flexible metal conduit connectors for armored cables.

Please contact Berk-Tek for additional details.

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