

How to splice indoor armored optical cables



Overview

How to Install Armored Fiber Optic Cables: A Step-by-Step Guide Learn how to install armored fiber optic cables correctly. This guide covers key precautions.

Key Takeaways

Splicing indoor armored optical cables requires careful preparation, stripping, alignment, and sealing to ensure low-loss, durable connections. Step 1: Prepare the Cable

Begin by inspecting the armored cable for damage and confirming the type (single-mode or multimode) and diameter (). Remove the outer jacket carefully using a cable stripper, then peel back the armored layer and any inner protective sheaths to expose the loose fiber tubes. Avoid pulling or twisting the fibers, as this can cause microbends or breakage ().

Step 2: Clean and Cleave the Fibers

Clean the exposed fibers with a fiber cleaning solution to remove dust, oil, or debris (). Use a precision fiber cleaver to cut the fiber ends cleanly at a 90-degree angle. Proper cleaving is critical for minimizing splice loss and ensuring a smooth light path ().



Step 3: Choose the Splicing Method

- **Mechanical Splicing:** Align the two fiber ends in a mechanical splice holder or inline connector. This method is faster and does not require heat, but typically has slightly higher insertion loss (~0.3 dB) ().
- **Fusion Splicing:** Use a fusion splicer to precisely align and fuse the fiber ends with an electric arc. This produces a continuous fiber with very low loss (~0.01 dB). After splicing, protect the joint with a fusion splice protector ().

Step 4: Install the Splice in a Closure

Place the spliced fibers into a fiber optic splice closure designed for armored cables (). Secure the cable using metal hoops or clamps to fix the armored layer and steel core separately. Insert sealing gaskets and tighten bolts to achieve a watertight and dustproof seal. Ensure the closure is grounded if the armored layer requires it ().

Step 5: Final Checks

- Verify that the fibers are properly aligned and protected inside the closure.
- Maintain the minimum bend radius to prevent signal loss.
- Test the splice with an optical power meter or OTDR to confirm low insertion loss and continuity ().

Tools and Materials Needed

- Fiber stripper and cleaver
 - Cleaning solution and lint-free wipes
 - Mechanical splice holders or fusion splicer with splice protectors
 - Fiber optic splice closure with sealing gaskets
 - Metal hoops, clamps, and grounding accessories
- By following these steps, indoor armored optical cables can be spliced safely, maintaining signal integrity and long-term durability. Proper handling, precise cleaving, and secure sealing are essential to prevent fiber damage and ensure reliable network performance.

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