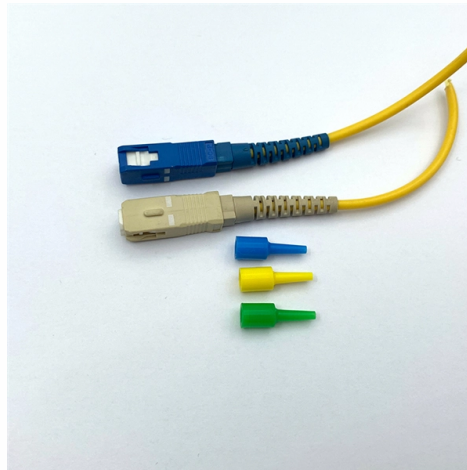


How to connect the extruded core wires of optical fiber cable



Overview

The two primary industry-accepted methods for fiber optic cable splicing are fusion splicing and mechanical splicing.

Key Takeaways

Connecting optical fiber cores requires careful preparation, precise cleaving, and either mechanical or fusion splicing to ensure a low-loss, continuous light path. **Step 1: Prepare the Fiber Cable**

Begin by stripping the outer jacket and protective coatings to expose the bare fiber core. Use a fiber optic stripper to remove the coating evenly without damaging the glass core. Clean the exposed fiber with isopropyl alcohol and lint-free swabs to remove any dirt, oils, or adhesive residues. Inspect the fiber under a microscope to ensure it is clean and free of defects before proceeding .

Step 2: Cleave the Fiber

Cleave the fiber to produce a smooth, perpendicular end face. Proper cleaving is critical, as angled or rough cuts can cause high signal loss. Use a precision fiber cleaver, applying only the necessary tension, and ensure the fiber is not bent beyond its minimum bend radius .

Step 3: Choose a Splicing Method

There are two main methods to connect fiber cores:

- **Mechanical Splicing:** Align the two fiber ends in a mechanical splice connector. This method holds the fibers in precise alignment, allowing light to pass from one fiber to the other. Typical insertion loss is around 0.3 dB. Mechanical splices are suitable for temporary or field repairs .
- **Fusion Splicing:** Use a fusion splicer to weld the fiber ends together. Place the fibers in the splicer, which aligns them automatically and fuses them using heat or an electric arc. This produces a permanent, low-loss connection with typical loss around 0.01 dB. After splicing, protect the joint with a fusion splice protector .

Step 4: Protect and Test the Connection

After splicing, secure the fiber in a protective sleeve or enclosure to prevent physical damage. Manage excess fiber carefully, avoiding tight loops or bends that exceed the minimum bend radius. Test the connection using an Optical Time Domain Reflectometer (OTDR) or visual fault locator to verify signal integrity and ensure minimal loss .

Safety Considerations

Always wear safety glasses and gloves when handling fiber optics. Dispose of fiber scraps in designated containers to prevent injury from tiny glass shards . By following these steps—preparation, cleaving, precise splicing, protection, and testing—you can achieve a reliable, low-loss connection for extruded core wires in optical fiber cables.

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3. Pre-Connectorized or Factory-Terminated Factory-terminated fiber cable comes direct from the manufacturer, where it is prepared

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