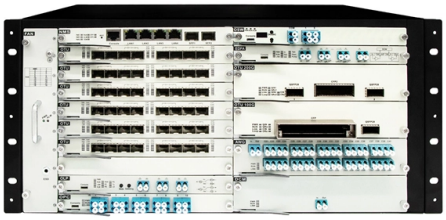
How to splice fibers using a fiber optic fusion splice box



Overview

Learn Fiber Optic Fusion Splicing: step-by-step guide to safe, precise fiber prep, fusion, and testing for low-loss, high-quality splices in optic networks.

Key Takeaways

Using a fiber optic fusion splice box involves careful preparation, precise alignment, fusion of fiber ends, and protective finishing to ensure low-loss, durable connections.
1.

Safety and Workspace Preparation

Before starting, ensure you are wearing high-rated safety goggles and cut-resistant shoes to protect against glass shards and the high-temperature fusion arc, which can exceed 5,000°C. Work in a clean, static-free environment, using anti-static mats or wrist straps to protect the splicer electronics. Verify that all tools, electrodes, and power sources are in good condition.

2.

Fiber Preparation

Insert a protective sleeve onto one side of the fiber before stripping. Strip the fiber coating down to the cladding using a precision fiber stripper, exposing the bare fiber core. Clean the bare fiber with 99.

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9% isopropyl alcohol (IPA) to remove oils and debris, using a fresh part of the wipe for a second pass. Cleave the fiber with a precision cleaver to create a flat, perpendicular end face. A clean cleave is critical for low-loss splicing.

3.

Splice Box Setup

Open the fusion splice box windshields and place the fibers into the V-grooves, ensuring clamps are properly oriented. Align the fibers using the splicer's automatic or manual alignment system. Proper alignment ensures minimal insertion loss and back reflection.

4.

Fusion Splicing

Activate the fusion splicer to generate an electric arc that melts and fuses the fiber ends together. Monitor the splicer's display for alignment confirmation and fusion quality. If the splicer stops, check for contamination, misalignment, or cleave issues.

5.

Protective Sleeve Application

Slide the heat-shrink protective sleeve over the fused joint and use the splicer's heater to shrink it, providing mechanical protection and strain relief. 6.

Quality Control

Inspect the splice using the splicer's loss estimation or microscope to ensure proper alignment and minimal attenuation. Place the completed splice into the splice tray inside the closure, ensuring cables are secured and moisture protection is maintained. 7.

Final Installation

Close the splice box securely, sealing all entry points to prevent dust or moisture ingress. Ensure the bending radius of fibers inside the box is maintained above 30 mm to avoid signal loss. Following these steps ensures a reliable, low-loss fiber optic connection suitable for telecom, data center, or enterprise network installations.

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