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How to splice two-core optical fiber pigtails



Overview

Remove the outer coating carefully to expose the fiber. Use alcohol wipes to remove dust and debris.

Key Takeaways

Splicing a two-core optical fiber into a pigtail involves careful preparation, precise cleaving, fusion splicing, and protective sleeve application to ensure a low-loss, durable connection.Required Tools and Materials
• Fusion Splicer: Aligns and melts the fiber ends together for a seamless connection .

• Fiber Strippers: Remove the outer jacket and coating without damaging the glass core .

• High-Precision Cleaver: Produces a perfect 90-degree cut for optimal fusion .

• Cleaning Supplies: Lint-free wipes and 99% isopropyl alcohol to remove debris and oils .

• Heat-Shrink Splice Protection Sleeves: Protect the fragile splice after fusion .
Step-by-Step Procedure1. Prepare the Fiber
• Strip approximately 30 mm of the outer jacket from both the incoming fiber and the pigtail .

• Remove the acrylate coating carefully using the fiber stripper.

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• Clean the exposed fiber with lint-free wipes and alcohol until it “squeaks,” indicating it is free of debris .
2. Cleave the Fiber
• Place the stripped fiber into the cleaver's V-groove and close the holder .

• Activate the cleaver to produce a flat, perpendicular end face. This ensures minimal signal loss during fusion .
3. Position the Splice Protection Sleeve
• Slide a heat-shrink splice protection sleeve onto the pigtail before splicing .
4. Fusion Splicing
• Place both fiber ends into the fusion splicer clamps .

• Close the splicer lid and initiate the fusion process. The splicer aligns the fibers and uses an electric arc to melt them together, forming a continuous optical path .

• If the splicer detects a cleave error, repeat the cleaving and alignment until the splice is successful .
5. Protect the Splice
• Slide the heat-shrink sleeve over the fused joint .

• Activate the splicer's internal oven to shrink the sleeve, securing the splice and providing mechanical strength .
6. Test the Splice
• Use an OTDR (Optical Time-Domain Reflectometer) or a power meter to verify the splice quality and ensure low insertion loss .
Tips for Success
• Always handle fibers carefully to avoid breakage or contamination .

• Work in a clean, dust-free environment to prevent signal degradation .

• Use pre-tested, high-quality pigtails to reduce installation errors and improve network reliability . By following these steps, a two-core optical fiber can be reliably spliced into a pigtail, ensuring a durable, low-loss connection suitable for data centers, FTTH deployments, or other fiber optic networks .

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