

Bubble in multimode optical cable fusion splicer



Overview

Fusion Splice Troubleshooting: Common Errors and Fixes Diagnosing fusion splicer errors. Bubbles, fat splices, thin splices, dust line, cleave angle errors.

Key Takeaways

A bubble in a multimode fiber fusion splice is a void caused by contamination or improper fusion, leading to high splice loss and requiring re-cleaning, re-cleaving, and re-splicing.

What Causes Bubbles

Bubbles appear as dark circular or oval voids in the splice region and indicate high splice loss. They are typically caused by: Contamination on fiber end-faces, such as skin oil, dust, or residual coating not fully stripped. Dirty cleaver blades, which can transfer debris to the fiber during cleaving.

Incorrect arc energy or fiber overlap, where too much heat or excessive fiber contact displaces molten glass outward. Multimode fibers are particularly sensitive because their larger core and graded-index profile make precise alignment more challenging, increasing the risk of bubbles if the fiber ends are not perfectly prepared.

How to Fix Bubbles

To correct a bubble in a multimode splice: Cut back the fiber past the affected area. Re-strip and re-clean the fiber using 99% isopropyl alcohol and lint-free wipes. Re-cleave the fiber with a precision cleaver to ensure a flat, perpendicular end-face.

Re-splice using the correct fusion program for the fiber type. Check cleaver and splicer cleanliness, including V-grooves and electrodes, to prevent recurring contamination. If the bubble persists, verify that the arc calibration matches environmental conditions and fiber specifications, as improper arc settings can exacerbate void formation.

Preventive Measures

Always handle fibers with gloves or tweezers to avoid skin oil contamination. Maintain clean cleaver blades and splicer V-grooves. Use the manufacturer-recommended fusion program for multimode fibers.

Perform regular arc calibration and inspect electrodes for wear. Conduct visual inspection of the splice after fusion to detect bubbles early. By following these steps, technicians can minimize the occurrence of bubbles, ensuring low-loss, high-strength multimode fiber splices suitable for reliable optical network performance.

Article Content

Fusion Splice Troubleshooting: Common Errors and Fixes

Diagnosing fusion splicer errors. Bubbles, fat splices, thin splices, dust line, cleave angle errors, and core deformation -- what each defect looks like and how to fix it.

Fiber Optic Splicing: Examining the Factors that Affect

Learn the the intrinsic and extrinsic factors that can impact fiber optic splice performance and how you can create the best fiber optic network.

Common Fusion Splicing Problems and How to Fix Them

The Problem: Another common Fusion Splicing Machine Problem occurs when the plastic protective sleeve doesn't shrink correctly or has bubbles inside. This

Multimode Splice Loss

Fiber misalignment is a byproduct of the splicing process and can occur with any splice. Even when splicing identical fibers together, if they are not perfectly aligned, optical power will be lost and

Bubble in perfect spliced fiber : r/FiberOptics

My apprentice was having this problem with this splicer. Turns out that he was pushing the clean/cleaved end of the fibre down the v grooves in the splicer. Showed him to drop the fibre in the v

Fusion Splicing Issues Explained - Causes and Prevention

Learn how to identify fusion splicing issues, understand their causes, prevent splice errors through proper preparation and arc calibration.

Technical guide: Most common problems in fiber optic fusion splicers

"Discover the most common problems with fiber optic fusion splicers and how to solve them. Technical guide with symptoms, diagnosis, and preventive maintenance to guarantee high-quality splices."

How to Choose an OTDR for Fiber Optic Testing: Complete 2026 Guide

Learn how to choose the right OTDR for fiber optic testing. Compare wavelengths, dynamic range, distance range, and key specs to match your network type and budget.

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Ultimate Guide To Fiber Optic Cable Splicing With Fusion Splicer By fiberlife. Posted on August 14, 2024 Fiber-optic cables are the backbone of

Go4Fiber Ltd-One Stop Fiber Optic Superstore

Fujikura 99S Core Alignment Fusion Splicer Kit Set for single fiber FSM-99S-GO4KIT-A Availability: *This item cannot ship out of Hong Kong & Macau

Best FTTH Fusion Splicers on the Market in 2026: Sumitomo T-402S ...

Compare the top FTTH fusion splicers of 2026: Sumitomo T-402S, Comway A33, and Jetfiber H5+. Find the best splicer for speed, accuracy, and field reliability.

Fibre Optic Termination Techniques – Wray Castle

Introduction to Fibre Optic Termination Fibre optic termination is the process of preparing the end of a fiber optic cable so it can connect to network equipment, another cable, or a patch

Fiber Optic Splicing: A Beginner's Guide

Fiber optic splicing joins two fiber optic cables end to end seamlessly to create a continuous path for light signal, including mechanical and fusion splicing.

The Complete Guide to Fiber Optic Cable Management

A fusion splicer is a key tool for joining two fiber optic cables with minimal signal loss. You use this device to align and fuse the glass cores (the

What is Fiber Optic Cable Splicing?

Mechanical splices work with both single-mode and multimode fibers, while fusion splices are only used with single-mode fibers. Fusion splicing is used by many telecommunications and

Mechanical vs. Fusion Splicing: Which Is Right for You?

Comparing mechanical and fusion splicing for fiber optic cabling: costs, performance, and more. Discover the right splicing technique for your

Fusion splice Fiber optic splicing and termination Service, Fiber mode ...

Fiber Optic Splicing & Termination Service provides professional fiber optic connectivity solutions for businesses, data centers, telecom networks, and commercial facilities. Our experienced technicians

How to Install Fiber Optic Cable: Step-by-Step Guide | Network Drops

From here, select the types of cables: single or multimode, armored or dielectric. Selection of a cable depends on requirements of the bandwidth level and the environment the cable

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