

Types of Optical Cable Fusion Splicers



Overview

There are three types of fiber strippers available, known as (from Left) the Miller Stripper, No-Nik and Micro-Strip.

Key Takeaways

Optical cable fusion splicers are classified by fiber type, alignment method, and motor-driven precision, including single-core, ribbon, cladding alignment, and core alignment splicers. Classification by Fiber Type

- **Single-Core Fusion Splicers:** Designed to splice one optical fiber at a time, typically with a 0.125 mm diameter. They are widely used in daily applications such as construction, maintenance, and emergency repair of telecom lines, as well as in laboratory experiments and optical device testing .
- **Ribbon Fusion Splicers:** Capable of splicing multiple fibers simultaneously (commonly 2, 4, 6, 8, or 12 cores). Ribbon splicers are efficient for large-scale projects, reducing splicing time for flat, multi-core ribbon cables .
- **Specialized Splicers:** Include skin line splicers for jumper cables and polarization-maintaining fiber splicers for specialized optical applications .

Classification by Alignment Method

- **Core Alignment (Profile Alignment):** Uses a Core Detection System (CDS) with multiple motors and CCD cameras to align fiber cores precisely. The system detects the core via imaging and aligns fibers at micrometer-level precision, achieving low splice loss (typically ≤ 0.02 dB). Core alignment is suitable for all fiber types, including old and new fibers, and is ideal for high-precision applications like FTTH and long-haul networks .

- **Cladding Alignment:** Aligns fibers based on the outer cladding rather than the core. Typically uses two motors and one camera, with fibers placed in a fixed V-groove. This method requires high precision in the V-groove and clean fiber surfaces. Cladding alignment is simpler and cost-effective, suitable for multimode fibers and basic LAN or residential installations .

Classification by Motor Configuration

- **4-Motor Fusion Splicers:** Two motors push the fiber to the center, and two motors adjust the fiber image on the screen for alignment. Suitable for moderate precision requirements .
- **6-Motor Fusion Splicers:** Equipped with six motors for high-precision core alignment, automatically identifying various fiber specifications. These splicers provide extremely low splice loss and are ideal for backbone trunk lines and high-performance networks .

Summary

Optical fusion splicers are categorized based on fiber type (single-core, ribbon, specialized), alignment method (core vs. cladding), and motor-driven precision (4-motor vs. 6-motor). Core alignment with multi-motor systems is preferred for high-precision, low-loss splicing, while cladding alignment and simpler motor configurations are suitable for cost-effective, lower-demand applications. Ribbon splicers enhance efficiency for multi-fiber projects, making them essential for large-scale optical network deployments .

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Fusion Splicers | Telecommunication Systems Business Unit

Fusion splicer enable splicing of Fiber Optic Cable with low loss and high reliability. For fusion splicer, we offer two types: Core

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