

Stripping of Telecommunication Optical Cables



Overview

Fiber cable stripping involves removing the protective layers of a fiber optic cable to access the core.

Key Takeaways

Stripping optical cables involves carefully removing protective coatings and jackets to expose the bare fiber for splicing or connectorization, using specialized tools to prevent damage to the glass core.

Telecommunication optical cables consist of multiple layers: an outer jacket, strength members (e.g., aramid yarn), buffer coatings, and the acrylate coating directly protecting the glass fiber. Stripping is a critical step in cable preparation, as improper handling can cause nicks, scratches, or stress fractures, leading to signal loss or connection failure.

Tools for Stripping

- **Handheld Fiber Strippers:** Precision tools designed to remove coatings from standard fibers (typically 250 μm or 900 μm) down to the 125 μm glass cladding. They feature hardened steel blades and ergonomic handles for field use, suitable for FTTH drops, pigtails, and data center terminations.



- Mechanical, Thermal, or Non-Contact Strippers: Used in production or specialized applications, these tools can handle different coating types (acrylate, silicone, polyimide) and fiber diameters, including thin specialty fibers (~200 µm) for high-density cables .

- Automated Stripping Systems: Provide consistent, repeatable stripping with adjustable lengths, recipe control, and reduced operator skill requirements, ideal for large-scale installations .

Stripping Process

- Preparation: Ensure a clean, well-lit workspace. Inspect the cable for damage, kinks, or bends before stripping .

- Layer-by-Layer Stripping:

- Outer Jacket: Typically 2–3 mm in diameter; removed using appropriate wire strippers.

- Strength Members (Aramid Yarn): Carefully cut without damaging underlying buffers.

- Buffer Coatings: Primary (250 µm) and secondary buffers are stripped using fiber-specific tools. The glass cladding must never be touched by the blade .

- Cleaning: Remove any residue using lint-free wipes with high-purity alcohol or dedicated fiber cleaners .

- Cleaving: Use a fiber optic cleaver to create a clean, perpendicular end face for splicing or connectorization .

- Inspection: Verify the fiber end with a microscope or visual fault locator to ensure no nicks or defects are present .

Best Practices

- Strip fibers progressively, especially in multi-layer cables, to avoid damaging inner layers .

- Maintain sharp blades and clean stripping notches to ensure consistent performance .

- Avoid using generic wire strippers or knives, as these can create micro-damage leading to signal attenuation .

- Limit strip lengths to manufacturer recommendations (typically 30–50 mm) to prevent fiber stress .

- For high-volume or precision work, invest in professional-grade strippers and cleavers to save time and reduce rework .

Conclusion

Proper stripping of telecommunication optical cables is essential for signal integrity, network reliability, and long-term performance. Using the right tools, following layer-specific techniques, and maintaining clean, precise fiber ends ensures successful splicing and connectorization while minimizing the risk of costly failures in the field .

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