

How to rivet fiber optic patch cords



Overview

Producing a high-performance fiber optic patch cord requires far more than assembling a connector onto a cable.

Key Takeaways

Fiber optic patch cords should be riveted carefully to avoid stress on the fiber, ensuring mechanical stability without compromising signal integrity.

Key Principles Before Riveting

- Handle with care: Fiber patch cords are delicate; excessive force can break the glass core or damage the connector. Always hold the cord by the jacket, not the fiber itself .
- Clean connectors: Before any installation or mechanical fastening, clean the fiber end faces using a fiber optic cleaner to prevent signal loss .
- Maintain bend radius: Avoid bending the fiber beyond its minimum radius (typically 30–40 mm for patch cords) to prevent attenuation or breakage .

Riveting Procedure

- Select appropriate rivets or clamps: Use small, non-sharp rivets or cable clamps designed for fiber optic cables. Avoid metal edges that can pinch or cut the fiber .
- Position the patch cord: Lay the cord along the intended path, ensuring it is not twisted or under tension. Keep it away from sharp edges or heavy cables that could crush it .

- Use protective backing: Place a small piece of soft material (like rubber or plastic grommets) between the rivet and the fiber jacket to distribute pressure evenly and prevent localized stress .
- Secure the rivet gently: Tighten the rivet just enough to hold the cord in place. Over-tightening can deform the jacket and damage the fiber inside .
- Check alignment and slack: Ensure the fiber has enough slack to accommodate movement and thermal expansion. Avoid creating tight loops or kinks .
- Label and document: After securing, label the patch cord for traceability and maintain documentation for future maintenance .

Additional Tips

- Avoid using rivets directly on the fiber core; always secure the jacket or strength member (like Kevlar yarn) instead .
- For high-density installations, consider using cable management trays, lacing bars, or Velcro straps instead of rivets to reduce mechanical stress .
- Inspect the cord after riveting for any signs of pinching, kinks, or microbends that could affect performance . By following these steps, you can mechanically secure fiber optic patch cords using rivets while maintaining low insertion loss, stable return loss, and long-term reliability in your network .

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