

How to splice fiber optic cables in wind power systems



Article Overview

Splicing fiber optic cables in wind turbines requires careful preparation, specialized tools, and vibration-resistant splice boxes to ensure reliable connections under extreme conditions.

Types of Fiber Optic Splicing

- **Fusion Splicing:** This method melts the ends of two fibers using an electric arc to create a continuous optical path. It provides the lowest signal loss and is ideal for permanent connections in wind turbines .
- **Mechanical Splicing:** Fibers are aligned and held together with a connector or clamp. This method is faster and suitable for temporary or emergency repairs but may have slightly higher signal loss .

Preparing Fiber Optic Cables

Before splicing, proper preparation is essential:

- Strip the protective coating using a precision stripping tool to avoid damaging the fiber.
- Clean the fibers with lint-free wipes and isopropyl alcohol to remove dust and contaminants.
- Cleave the fiber ends with a precision cleaver to ensure a clean, perpendicular cut.
- Inspect the fibers under a microscope for cracks, chips, or dirt.
- Mark splice points and measure cable lengths to ensure accurate alignment

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