

How to install the fiber optic connector flange

Article Overview

Proper installation of a fiber optic flange connector involves cable preparation, epoxy application, ferrule insertion, flange mounting, polishing, and testing to ensure alignment and optical performance.

Step-by-Step Installation

1. Cable Preparation Strip the fiber optic cable jacket and buffer according to the connector specifications. Slide the strain relief boot over the cable before any epoxy or ferrule insertion to ensure proper coverage and protection of the fiber later in the process . 2. Epoxy Application Apply epoxy carefully to the inside of the flange or ferrule and to the bare fiber. Avoid getting epoxy between the connector body and the flange, as this can interfere with mechanical alignment and spring function . 3. Fiber Insertion Insert the prepared fiber into the ferrule and allow the epoxy to cure fully. This ensures a secure bond while maintaining precise alignment of the fiber core . 4. Flange Mounting

- Flanged adapters provide a fixed reference plane and limit axial movement, improving repeatability and long-term alignment stability .
- Flangeless adapters rely on panel cutout tolerances and external fasteners, offering flexibility in high-density or non-standard enclosures .
- For LBTEK SM1 or SM05 flanges, hand-tighten knurled edges or use specialized ring tools for external-threaded flanges to secure the connector to the mechanical component .

5. Polishing Polish the connector tip and fiber end using sequential polishing films (e.g., 12 μm , 3 μm , 0.3 μm) to achieve a smooth optical surface. Proper polishing reduces insertion loss and back reflection . 6. Testing and Verification Check the spring function of the connector and inspect the fiber tip under a microscope for cracks or debris. Test optical performance using an appropriate light source and power meter to ensure low insertion loss and proper alignment .

Additional Considerations

- Material and Surface Treatment: Flanges are typically made of 304 stainless steel and may undergo electromagnetic demagnetization to reduce magnetic interference .
- Vacuum or Specialized Applications: For ultra-high-vacuum systems, fiber feedthrough flanges may require hermetic sealing with copper gaskets and knife-ed...

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