

Fiber optic pigtail manufacturing method and price



Overview

A fiber pigtail is a type of fiber optic cable with a factory pre-terminated connector on one end and exposed fiber on the other.

Key Takeaways

Fiber optic pigtails are manufactured through precise cutting, stripping, splicing, connector termination, polishing, and testing, with prices varying by fiber type, connector, and order volume.

Manufacturing Method



1. **Fiber Preparation:** The process begins with selecting the appropriate fiber type (single-mode or multimode) and cutting it to the required length, typically 0.5 to 3 meters for standard pigtails . The outer jacket is stripped using precision strippers to expose the bare fiber. 2. **Connector Termination:** One end of the fiber is terminated with a connector (LC, SC, FC, ST, E2000, MU, or MTRJ). The fiber is inserted into the connector ferrule, secured with epoxy, and cured in a controlled oven . 3. **Polishing:** The connector end is polished to achieve the desired geometry (UPC or APC) using specialized polishing machines and jigs, ensuring low insertion loss and high return loss . 4. **Splicing:** The bare fiber end is prepared for splicing. Fusion splicing is commonly used, where fibers are cleaned, cleaved, and welded together under precise alignment to minimize signal loss . Mechanical splicing is an alternative for temporary or field applications. 5. **Testing and Quality Control:** Each pigtail undergoes inspection using video microscopes and IL/RL test sets to verify end-face quality and optical performance. Multi-fiber pigtails are color-coded according to TIA/EIA standards for easy identification . 6. **Packaging:** Finished pigtails are coiled, labeled, and packaged for shipment, often in bulk for data centers, FTTx, and telecom applications .

Price Considerations

The price of fiber optic pigtails depends on several factors:

- **Fiber Type:** Single-mode fibers are generally more expensive than multimode fibers due to higher precision requirements .
- **Connector Type:** LC and SC connectors are common and moderately priced, while E2000 or MTRJ connectors may cost more .
- **Length and Quantity:** Standard lengths range from 0.5 to 3 meters; bulk orders reduce per-unit cost .
- **Manufacturing Quality:** Factory-direct pigtails with certified polishing and low insertion loss command higher prices . Typical factory-direct pricing for standard single-mode pigtails ranges from \$1 to \$5 per unit depending on connector type, length, and order volume, with multimode pigtails generally slightly cheaper . Bulk orders for hundreds or thousands of units can further reduce the cost per piece.

Summary

Fiber optic pigtails are produced through a high-precision, multi-step process involving fiber preparation, connector termination, polishing, splicing, and rigorous testing. Prices vary based on fiber type, connector, length, and order volume, with factory-direct bulk purchases offering the most competitive rates. This makes them ideal for large-scale deployments in data centers, FTTx networks, and telecom infrastructure .

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A fiber pigtail is a type of fiber optic cable with a factory pre-terminated connector on one end and exposed fiber on the other. This

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