

Power of butterfly-shaped optical cable equipment



Overview

CN115625868A Butterfly optical cable is currently the most used access optical cable, and plays a huge role in networks such as fiber-optic entry, Butterfl.

Key Takeaways

Butterfly-shaped optical cables are designed for high-performance data transmission with enhanced mechanical strength, flexibility, and ease of installation, while production equipment allows precise control over cable output and quality. Cable Design and Performance

Butterfly-shaped optical cables feature a flat, wing-like cross-section with the optical fiber at the center, flanked by two parallel strength members made of fiberglass-reinforced plastic (FRP) or steel wire . This geometry provides several performance advantages:

- **Mechanical Strength:** The embedded strength members and foaming filling units improve compression resistance, impact resistance, and lateral pressure tolerance, reducing the risk of fiber breakage during installation or operation .
- **Bend Resistance:** The flat profile allows bending along the plane with minimal stress on the fiber core, while edge-on bending requires more force, acting as a safeguard against accidental kinks .



- **Lightweight and Compact:** The oval outer sheath and fiber yarns ensure miniaturization and maintain mechanical performance, making the cable suitable for tight spaces and residential FTTH deployments .
- **Environmental Protection:** The outer sheath, often LSZH or PVC, combined with water-blocking powders and foaming filling units, provides heat insulation, water resistance, and durability in indoor and outdoor environments .

Fiber Transmission Capabilities

Butterfly-shaped cables can house single-mode or multi-mode fibers, supporting high-speed data transmission over long distances (single-mode) or high-bandwidth short-distance applications (multi-mode), . The design minimizes signal loss and maintains low attenuation, which is critical for FTTH networks .

Production Equipment and Output Control

The production of butterfly-shaped optical cables involves specialized equipment, including pay-off mechanisms, extrusion dies, cooling and drying systems, and traction devices . Key features of the equipment include:

- **Extrusion Control:** The extrusion die can simultaneously produce multiple butterfly-shaped cables, allowing precise control over fiber alignment and sheath thickness .
- **Quality Assurance:** The equipment ensures consistent mechanical and optical performance, reducing defects such as fiber fractures or uneven coating.
- **Efficiency:** Automated production lines improve throughput while maintaining the structural integrity of the butterfly-shaped cable, which is essential for large-scale FTTH deployments .

Practical Advantages

- **Ease of Installation:** The flat, flexible design allows routing through walls, conduits, and cable trays with minimal stress on fibers .
- **Durability:** Reinforced sheaths and foaming layers protect against mechanical stress, temperature variations, and moisture .
- **Versatility:** Suitable for indoor, outdoor, and aerial installations, with variants tailored for specific deployment scenarios such as residential, MDU, or light commercial networks . In summary, butterfly-shaped optical cables combine high mechanical resilience, low signal loss, and installation flexibility, while the specialized production equipment ensures consistent quality and efficient output, making them ideal for modern FTTH and telecommunication networks .

Article Content

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In a second aspect, the present application provides a process for producing a butterfly-shaped optical cable, for producing a

Structure of Butterfly-shaped Optical Cable Equipment

FTTH Butterfly Optic Cables are specifically designed to meet the growing demand for high-speed fiber-to-the-home deployments.

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

