

Article Overview

Self-supporting butterfly optical cables are designed for aerial and indoor deployment, combining optical transmission with mechanical self-support to simplify installation and reduce infrastructure requirements.

Cable Structure and Features

Self-supporting butterfly optical cables feature a butterfly-shaped sheath with an optical communication unit centrally located and electrical conductors or wires on either side, often with a messenger wire on top for aerial support. The V-shaped groove in the sheath facilitates separation of the optical and electrical units, making splicing and connection safer and more convenient. These cables typically use bend-insensitive single-mode fibers (ITU-T G.657 standard), allowing tight bend radii without signal loss, which is critical for routing through conduits or irregular surfaces. The cables are available in indoor (FRP only) and outdoor self-supporting variants. Outdoor self-supporting types (e.g., GJYXFCH/GJXFH) include a steel messenger wire, enabling spans up to 50 meters without additional support. The outer sheath is often LSZH (Low Smoke Zero Halogen) or flame-retardant PVC, providing protection and safety in both indoor and outdoor environments.

Installation Considerations

- o **Aerial Deployment:** The messenger wire allows the cable to be suspended between poles or building structures. Proper tensioning is essential to avoid sagging or overstressing the fiber. Typical spans are up to 50 meters, but longer spans may require intermediate supports.
- o **Indoor Routing:** Cables can be laid in vertical shafts, concealed pipes, cable trays, walls, or under floorboards. Their compact, lightweight design and small bending radius make them suitable for tight spaces.
- o **Termination and Splicing:** Butterfly cables can be pre-terminated or spliced on-site. The V-shaped groove and central optical unit simplify separation for connection to optical network terminals (ONTs) or joint boxes.
- o **Mechanical Handling:** The self-supporting design reduces the need for additional support structures, but care must be taken to avoid sharp bends, crushing, or excessive pulling forces during installation.

Fiber and Strength Member Selection

- o **Fiber Type:** G.657.A1 is commonly used for residential deployments due to its 10 mm bend radius tolerance and compatibility with legacy G.652.D fibers. G.657.A2 is preferred for routing through tight conduits or irregular surfaces.
- o **Strength Members:** Steel wire provides high tensile strength for aerial spans, while FRP or KFRP members offer corrosion resistance and flexibility for constrained routing.

Market and Deployment Trends

Laying Self-Supporting Butterfly-Type Optical Cables

The global market for self-supporting butterfly optical cables is growing rapidly, driven by FTTH expansion, rural broadband initiatives, and 5G small cell integration. The Asia-Pacific region leads in adoption, with North America also seeing significant growth due to government broadband programs . Technological trends include the use of LSZH sheaths and optimized cable architectures to balance mechanical robustness with cost efficiency .

Summary

Self-supporting butterfly optical cables are versatile, mechanically robust, and suitable for both aerial and indoor FTTH deployments. Their design simplifies installation, reduces infrastructure needs, and supports high-speed optical transmission with bend-insensitive fibers. Proper attention to tensioning, routing, and termination ensures reliable performance and long-term durability in both residential and commercial networks .

What is Aerial Fiber Optic Cable? Aerial fiber optic cable is a type of optical fiber transmission cable used for aerial

BL-BDC-W FTTH Self-supporting Bow-type Drop Cable Brellet Telecom's BL-BDC-W cable construction is that the optical fiber unit

The invention relates to a self-supporting 8-shaped armored butterfly-type introduced optical cable. The optical cable comprises

FTTH Fiber Optical Cable FTTH Drop Cables are designed to connect the fiber access point to the ONT on the home in a FTTH

The butterfly optical cable is the novel user access optical cable which combines the characteristics of the indoor soft optical cable

2. GENERAL: Department Of Telecommunication has already introduced self-supporting metal free aerial optical Fiber cable for local

Since these cables are installed outside, aerial fiber optic cables are strong enough to

Self-Supporting Butterfly Optical Fibre Cable Market Size, Research Self-supporting butterfly-shaped optical cable Introduction of

Laying Self-Supporting Butterfly-Type Optical Cables

Installation There are 2 main laying types for overhead fiber optic cables, hanging under steel strands and self

There are several kinds of Figure-8 self-supporting aerial fiber cables in the market based on the material and structure

It is mainly used as a fiber to the home (FTTH) and other fiber optic access (FTTx) network user introduction segment cabling cable

FTTH outdoor drop cable (GJYXFCH/GJYXCH) is also called self-supporting butterfly drop optical cable

Two parallel FRP strength members ensure good performance of crush resistance to protect the fiber. Single steel wire or

1. General Corning Optical Communications self-supporting (figure-8) optical fiber cable greatly simplifies the task of placing fiber

Self-supporting Butterfly Drop Cable with central fiber core and dual strength members. Ideal for FTTH, aerial/duct installations, and

The invention discloses a self-supporting butterfly-shaped optical cable. The optical cable comprises reversing devices, a tightening

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