

Article Overview

Aluminum tube optical cables are designed to protect optical fibers within a hermetically sealed aluminum tube, offering corrosion resistance, mechanical strength, and reliable performance for aerial and indoor/outdoor applications.

Structure and Materials

Aluminum tube optical cables typically consist of optical fibers placed loosely in plastic or water-blocking gel-filled tubes, which are then embedded in a hermetically sealed aluminum tube. This central tube is surrounded by single or double layers of aluminum-clad steel (ACS) wires, aluminum alloy wires, or steel wires, providing both mechanical strength and electrical conductivity when used in OPGW applications . The uniform material and structure ensure resistance to vibration fatigue, short-circuit currents, and lightning strikes .

Performance Characteristics

- o Corrosion Resistance: The aluminum tube and surrounding metallic layers provide excellent protection against corrosion, suitable for harsh environments .
- o Mechanical Strength: Designed to withstand wind, ice, and other environmental stresses, the cables maintain fiber integrity and low attenuation .
- o Fiber Protection: Hermetically sealed tubes and water-blocking gels prevent moisture ingress, ensuring stable optical performance .
- o Standards Compliance: These cables meet international standards such as IEC 60794, IEEE 1138, and can be customized to meet NBR, BS, or other regional standards .

Applications

- o OPGW (Optical Ground Wire): Aluminum tube cables are widely used in overhead power transmission lines, combining the functions of grounding and optical communication .
- o Indoor/Outdoor Fiber Optic Cables: Aluminum interlocking armor or aluminum tubes provide mechanical protection for high-density fiber installations in buildings or riser applications .
- o High Fiber Count Networks: Cables can support up to 192 fibers with uniform excess length and low additional attenuation, suitable for large-scale telecommunications networks .

Advantages

- o Dual-function capability for telecommunications and power line protection.
- o Stable optical performance under short-circuit currents and environmental stress.

Aluminum tube optical cable

- o Long service life due to corrosion resistance and mechanical durability.
- o Flexible design options for single or multi-loose tube configurations, accommodating different fiber counts and installation requirements . Aluminum tube optical cables are therefore ideal for applications requiring robust fiber protection, environmental resilience, and integration with power infrastructure, making them a preferred choice for both utility and high-density communication networks.

AL Tube OPGW Aluminum tube type OPGW has a fiber optic core, which with multiple sub.

PBT Aluminum Tube Optical Ground Wire (OPGW) Cable is a specialized form of OPGW cable designed to provide both electrical

APAR multi-tube fibre optic cables protect multiple fibres for low-loss transmission, durable outdoor

AFL's Armored Stainless Steel Fiber Optic cables are designed for sensing and control applications where ruggedness and flexibility

Corning ALTOS® cables provide stable performance over a wide temperature range and are compatible

Innovative, reliable and sustainable Fiber in Metal Tubes. We support the industry with high-quality fiber optic products. Worldwide

OPGW cables are used power transmission, communication, and lightning protection. It could replace traditional static / shield / earth

PBT tube OPGW Construction The core of aluminium clad PBT tube OPGW has structure of stranding pattern,when the multiple

In order to protect your fibre optic cables, coaxial and signal cables from excavation work and chemical influences from the ground,

The stainless optical tube is located at the center of the cable protected by single

Wrapping Tube (WTC) Cable with SpiderWeb Ribbon delivers high-performance engineering, reliability and simplified deployment for

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Aluminum tube optical cable

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Aluminum tube OPGW: optical fibers are placed loosely in plastic tubes embedded in a hermetically sealed aluminum tube. The

Prysmian Group provide tailor made and complete full OPGW system (fittings, boxes, ODF, installation services)

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