

RIVO MULTITRADE OPTICAL SYSTEMS

There are steel wires in the fiber optic cable



Overview

SWA Fiber Optic Cable: Steel Wire Armoured Fiber Cable While the optical fibers carry light signals for data transmission, the steel wire armour (SWA) absor.

Key Takeaways

Steel wires in fiber optic cables serve as strength members and protective armoring to prevent mechanical damage and support cable integrity. Purpose of Steel Wires

Steel wires in fiber optic cables are primarily used for mechanical support and protection. They help the cable withstand tension, crushing, bending, and environmental hazards such as rodent attacks or soil pressure when buried underground. In aerial installations, steel wires act as messenger strands, supporting the weight of the cable along poles or towers, while in direct burial or industrial applications, they form steel wire armoring (SWA) to shield the fibers from impact and mechanical stress .

Types of Steel Wires

- Messenger Strand: A stranded steel cable, often made of carbon steel with a zinc or zinc-aluminum coating for corrosion resistance. It typically consists of six wires wrapped around a central wire and is used to support aerial fiber optic cables .



- **Lashing Wire:** Stainless steel wires, usually 0.038" to 0.045" in diameter, annealed for ductility and selected for tensile strength and corrosion resistance. Common grades include 430 for general use, 302 for corrosive environments, and 316 for severe conditions .
- **Steel Wire Armoring (SWA):** A layer of steel wires placed between the inner sheath and outer jacket of the cable. This armoring protects the optical fibers from crushing, bending, and environmental hazards, making the cable suitable for direct burial or harsh outdoor conditions .

Corrosion Protection

Steel wires are often coated with zinc or zinc-aluminum alloys to prevent rust and extend the cable's lifespan. The coating class (A, B, or C) indicates the thickness of the protective layer, with higher classes providing greater corrosion resistance, especially in coastal or aggressive environments .

Integration in Cable Construction

Steel wires are integrated alongside other strength members such as aramid yarn or FRP rods. While the optical fibers carry the data signals, the steel wires absorb mechanical stress, ensuring the fibers remain intact and signal quality is maintained. In armored cables, the steel layer also prevents microbending losses that could degrade optical performance . In summary, steel wires in fiber optic cables are essential for structural support, mechanical protection, and long-term durability, particularly in aerial, underground, or industrial installations. They complement other materials like aramid yarn and protective jackets to ensure reliable, high-performance fiber optic communication.

Article Content

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These fiber units are commonly bundled with additional steel strength members, again with a helical twist to allow for stretching. A

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