Communication optical cable and cable binding wire



Overview

The invention provides an optical cable cabling and yarn binding method, an optical cable cabling method, an optical cable and communication equipment, and relates to the...

Key Takeaways

Binding wire or yarn in optical cables secures cable components, maintains structural integrity, and ensures high-speed, low-tension production for reliable communication performance.

Types of Binder Materials

Polyester Binder Yarn is widely used for optical fiber cables due to its low shrinkage, durability, and high-speed binding capability. It is available in dual-end versions for increased productivity and can include water-blocking variants for moisture protection, minimizing attenuation in optical fibers (Fibure). Stainless Steel Banding is another option, particularly for external cable bundling or ADSS optical cable installation.

Stainless steel ties provide strong, durable, and corrosion-resistant fastening, suitable for harsh environments (Fibconet). Binding MethodsDual-End Yarn Binding is a preferred method in modern optical cable manufacturing. Two double-end binding yarns are used to wrap the cable core in forward and reverse directions, which improves tension stability, reduces yarn breakage, and enhances production efficiency.

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Typical binding pitch ranges from 30–60 mm, with optimal tension between 2–10 N, preferably 3–6 N for high-quality results (CN111736282A).

High-

Speed Cross Binding is used for SZ-stranded or compact cable designs. Advanced binders, such as Roblon's dual-end binders, allow simultaneous operation of multiple yarns, precise tension control, and minimal vibration, preventing damage to loose tubes during extrusion (Roblon). Equipment ConsiderationsHigh-speed binding requires accurate tension control and well-balanced binder heads.

Equipment must accommodate dual-end or multi-yarn binding, maintain constant tension regardless of bobbin diameter, and integrate easily into production lines. Some binders also support color identification of bundles for easier assembly and maintenance (Roblon).

Practical Recommendations

Use dual-end polyester yarn for high-speed, low-tension binding of optical fibers. Maintain binding tension between 3–6 N and a pitch of 35–45 mm for optimal cable integrity. Consider water-blocking yarn for outdoor or moisture-prone installations.

For external bundling or installation, stainless steel banding provides strong, durable fastening. Ensure equipment supports precise tension control and dual-end operation to reduce yarn breakage and improve production efficiency. By selecting the appropriate binder material, method, and equipment, optical cable manufacturers can achieve high-quality, durable, and efficient cable production suitable for modern communication networks.

Article Content

Optical cable cabling and yarn binding method, optical cable cabling ...

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Fiber-optic cable

OverviewDesignPerformanceCable typesColor codingHybrid cablesInnerductsSee also

A fiber-optic cable, also known as an optical-fiber cable, is an assembly similar to an electrical cable but containing one or more optical fibers that are used to carry light. The optical fiber elements are typically individually coated with plastic layers and contained in a protective tube suitable for the environment where the cable is used. Different types of cable are used for fiber-optic communication in different applications, for exa

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Optimizing the Fiber Optic Cable Binding Process with

With several decades'' experience within fiber optic cable machinery and materials, Roblon has established this knowledge and built up a position as

A Guide To Communication Cable

We have cable and cable accessories to help you with a wide range of data transmission and other requirements. Explore our communication cable categories to find the right option for your particular

How optical communication cables work and how they

The optical signals are launched through a joint into an optical fibre, usually incorporated into a cable. Light emitting from the fibre is converted back

Composition of communication optical cable

The sheath commonly used for optical cables is a semi-hermetic bonded sheath. It consists of double-sided plastic-coated aluminum strips (PAP) or steel strips (PSP) longitudinally

Optical Fibre Cable

In optical fiber communication, metal wires are preferred for transmission because the signals travel more safely. Optical fibers are also resistant to electromagnetic interference.

Optical Fiber and Cables | Springer Nature Link

Thereafter, in the optical fiber cable section, we start with the classification of use cases such as indoor or outdoor cables and their features. Next, we introduce the optical fiber unit, a basic element used to

Fiber Optic Cable Components & Materials: Complete

This guide breaks down the five core components of a fiber optic cable — from the specification package to the actual installation considerations.

Handbook Optical fibres, cables and systems

ITU-T has been active in the standardization of optical communications technology and the techniques for its optimal application within networks from the infancy of this industry. However, it is not always

How does fiber optics work?

An easy-to-understand introduction to fiber optics (fibre optics), the different kinds of fiber optic cables, and how light travels down them.

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What is Coaxial Cable

Coaxial cable is typically used by cable operators, telephone companies, and internet providers to transmit data, video, and voice communications to customers. Its installation and

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How optical communication cables work and how they differ from

In several articles, I mentioned optical fibre in the context of substation automation, protection signaling, communication between electrical devices, LAN communications, etc. Now I will

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Additional source notes

A fiber-optic cable, also known as an optical-fiber cable, is an assembly similar to an but containing one or more that are used to carry light. The optical fiber elements are typically individually coated with plastic layers and contained in a protective tube suitable for the environment where the cable is used. Different types of cable are used for in different applications, for exa…

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