Central Tube-Type Optical Cable



Overview

CORE STRUCTURE OF OPTICAL CABLES The most simple version of an optical cable is the central tube design. Here, only one loose tube is placed in the center.

Key Takeaways

Central tube-type optical cables feature a loose tube at the core that houses optical fibers, providing mechanical protection, moisture resistance, and ease of installation for indoor and outdoor applications.

Construction and Design

Central tube optical cables have a loose tube at the center that contains the optical fibers, often filled with a thixotropic water-blocking gel to protect against moisture and mechanical stress. Around the central tube, strengthening members such as steel wires or aramid yarn provide tensile strength and stability. The outer sheath, typically polyethylene, offers environmental protection against UV, abrasion, and rodents.

In armored versions, steel tape or rods enhance compressive strength and rodent resistance, making them suitable for direct-buried or aerial installations.

Fiber Protection and Identification

Fibers inside the central tube are color-coded for easy identification, following industry standards for up to 12 cores in small-count cables. Some fibers are coated with a 250-micron resin layer for additional protection, and the loose tube design isolates fibers from external mechanical stresses, ensuring stable transmission parameters. Hydrolysis-resistant materials like PBT are commonly used for the tube to resist lateral pressure and environmental degradation.

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Applications

Central tube-type cables are versatile and used in: Outdoor environments: ducts, conduits, direct-buried, or lashed aerial installations Indoor/outdoor hybrid applications: campus networks, building interconnections, and local area networks Moderate fiber count connections: typically fewer than 12 cores for standard GYXTW or GYXS types Their compact, lightweight, and flexible design allows for easier handling, long-distance pulling, and installation in tight spaces.

Advantages

Mechanical and environmental protection: Loose tube and gel protect fibers from stress and moisture High tensile strength: Steel wires or aramid yarn provide stability during installation Ease of installation: Lightweight and flexible, suitable for ducts and conduits Fiber identification: Color-coded fibers simplify splicing and maintenance Armored options: Steel tape or rods enhance rodent resistance and compressive strength for direct-buried applications Central tube-type optical cables are therefore ideal for reliable, long-term fiber optic deployments in both indoor and outdoor environments, balancing protection, flexibility, and ease of installation.

Article Content

CORE STRUCTURE OF OPTICAL CABLES

The most simple version of an optical cable is the central tube design. Here, only one loose tube is placed in the center of the cable thus forming a very simple cable core.

central tube optical cable

OPGW optical cable: This kind of optical cable is to install the optical fiber in the aluminum tube, and then twist multiple aluminum tubes and steel wires. It is an all-metal structure,

Central Tube Unarmored Optical Cables

Designed for indoor/outdoor application to protect optical fiber for the unexpected mechanical and environmental conditions. Qualification and acceptance testing are performed to assure the optical

012TEU-13198A2G | Central Tube Dielectric Armor Indoor/Outdoor

Based on a central buffer tube cable construction, is very compact, light and flexible, and ideal for connections requiring a moderate fiber count. These cables are designed for installation in conduits,

Central Loose Tube Fiber Cable

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Belden''s Central Loose Tube Fiber Cables support indoor/outdoor use—including conduit, direct burial, aerial and trunking. Built with 250 µm fibers (2–24 count),

Central tube optical cable

Find your central tube optical cable easily amongst the 7 products from the leading brands (Yuhong, CRXCONEC, JAYVAN, ...) on DirectIndustry, the industry

GYXY Central Tube Type Non-armored Optical Cable

Central Tube Type Non-armored Optical Cable is a high-performance solution designed for outdoor applications requiring reliable water resistance, mechanical

The difference between OPGW optical cable layer

Central tube OPGW features: The optical fiber is protected in a sealed waterproof stainless steel tube, the stainless steel tube is placed in the center of

Central Tube Unarmored Optical Cables

Central Tube Unarmored Optical Cables Indoor/Outdoor type installation. Designed for indoor/outdoor application to protect optical fiber for the unexpected mechanical and environmental conditions.

Fiber Optic Cable Manufacturer & Supplier In China

Independent Research And Production Of Optical Cables ZTO Fiber Optic Cable Company is a national high-tech enterprise specializing in the

The difference between OPGW optical cable layer

The structural types of OPGW composite ground cable include layer-stranded type and central tube type. Layer stranded OPGW can be stranded with

central tube optical cable

Commonly used outdoor optical cables are divided into two structures: central bundle tube type and layer stranded optical cable: ① Central tube optical cable: The center of the optical

GYXTC8S Fiber Optic Cable G652D Single Mode 24 Core Figure 8 Central ...

GYXTC8S Fiber Optic Cable G652D Single Mode 24 Core Figure 8 Central Tube Outdoor Cable No reviews yet $0.27-1.50 Minimum order quantity: 1,000 meters

Central Stainless Steel Tube OPGW | Cable

Central Tube Design In the central loose tube type, optical fibers are placed loosely in a sealed, water-resistant stainless steel tube filled with gel. The stainless

The composition of the central tube optical cable

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Commonly used outdoor optical cables are divided into two structures: central bundle tube type and layer stranded optical cable: ① Central tube optical cable: The center of the optical

Aerial Central Loose Tube Fiber Optic Cables | ETK Kablo

Explore ETK Kablo''s aerial central loose tube fiber optic cables, ideal for pole-to-pole telecom installations with UV-resistant jackets.

Central Loose Tube Fiber Optic Cables

Central Loose Tube Fiber Optic Cables is characterized by light weight and small diameter, suitable for both aerial and duct installation. The cable can also be used for direct burial for armoured option.

Central Tube OPGW Fiber Optic Cable

Durable Central Tube OPGW fiber optic cable combines optical transmission and grounding, ensuring high reliability for power communication networks.

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

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