24 Single-mode Optical Cable



Overview

This cable is perfect for headend termination to a fiber backbone, termination of fiber rack systems, multi-floor deployment where select fibers are used at each floor, or intra-building backbones.

Key Takeaways

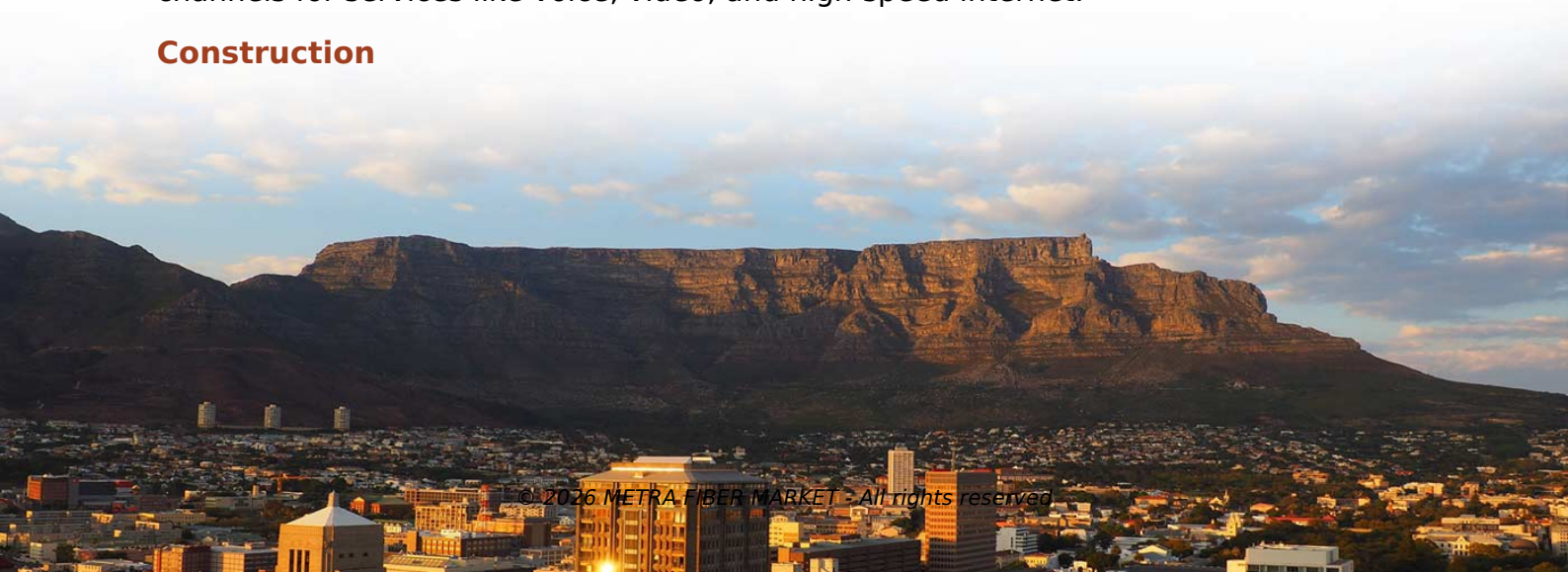
A 24-core single-mode optical cable is a fiber optic cable containing 24 individual single-mode fibers, designed for long-distance, high-bandwidth data transmission with robust protection.

Overview

A 24-core single-mode optical cable consists of 24 individual glass fibers, each capable of transmitting data using a single mode of light. Single-mode fibers have a small core diameter of approximately 9 microns, allowing light to travel in a single, straight path. This design minimizes modal dispersion, enabling high-bandwidth transmission over long distances, often up to 80 kilometers or more without signal regeneration.

The 24-core configuration provides scalability and flexibility, supporting multiple channels for services like voice, video, and high-speed internet.

Construction



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The cable typically includes several key components: Central strength member: Made of fiberglass or steel, providing tensile strength and preventing stretching during installation. Individual fibers: Each fiber is single-mode (SM) with a core-to-cladding ratio of 9/125µm, optimized for long-distance, low-loss transmission. Armored layer: Usually corrugated steel or aluminum, protecting fibers from crushing, rodent damage, moisture, and mechanical stress, making it suitable for outdoor, direct burial, or industrial environments.

Outer jacket: A single protective layer that facilitates installation and cable management. PerformanceSingle-mode fibers in this cable type support long-range transmission with minimal attenuation. For example, OS1 and OS2 single-mode fibers can transmit data over distances ranging from 10 km to 40 km at speeds up to 10 Gbps, depending on the optical specifications.

The armored design ensures durability and reliability in harsh conditions, maintaining signal integrity over time. Applications24-core single-mode optical cables are widely used in: Telecommunications backbone networksData centers and enterprise networksIndustrial networks and CCTV systemsFTTH (Fiber to the Home) and long-haul transmission Their high core count and single-mode design make them ideal for high-capacity, long-distance, and mission-critical network infrastructures.

Summary

In essence, a 24-core single-mode optical cable combines high-performance single-mode fibers with robust armored protection, offering a scalable, reliable solution for long-distance, high-bandwidth data transmission in demanding environments. Its design ensures minimal signal loss, mechanical durability, and flexibility for multiple network channels.

Article Content

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24F, Single Mode, Armoured, Multitube

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