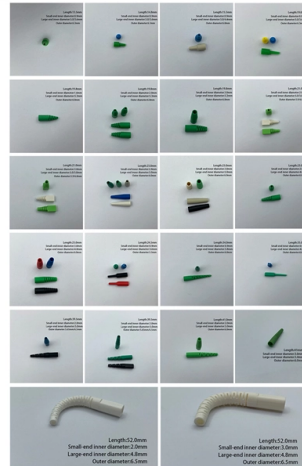


Most commonly used optical cable type in China



Overview

China Best Optical Fiber Cable Types and Their Benefits?

In China, various types of optical fiber cables are essential for communication and data transmissi.

Key Takeaways

In China, the most commonly used optical cables are single-mode and multi-mode fibers, supplemented by armored, loose tube, and plastic optical fibers for specialized applications. Main Types of Optical Cables



Single-Mode Fiber (SMF) Single-mode fibers have a narrow core diameter of 8–10 microns, allowing only one light mode to propagate. They are ideal for long-distance, high-bandwidth transmission, such as cross-city networks, 5G infrastructure, and cable TV backbones. SMF dominates the Chinese market, accounting for nearly 70% of fiber usage due to its low signal loss and high data rates, often exceeding 100 Gbps .

Multi-Mode Fiber (MMF) Multi-mode fibers feature a larger core, typically 50–62.5 microns, supporting multiple light paths. They are best suited for short-distance, high-speed applications like data centers, campus networks, LANs, and video surveillance systems. MMF represents around 30% of usage in China, offering cost-effective solutions for local networks but with bandwidth limitations over long distances .

Armored Cables Armored optical cables include a protective metal layer, usually corrugated steel or aluminum, providing mechanical protection against crushing, rodents, and environmental stress. These are widely used in industrial plants, military installations, underground conduits, and rural outdoor deployments .

Loose Tube Cables Loose tube cables house fibers in water-resistant buffer tubes, allowing movement and expansion due to temperature fluctuations. They are engineered for long-distance outdoor runs, aerial installations, and telecom backbone infrastructure, making them essential for China's extensive rural and urban networks .

Plastic Optical Fiber (POF) POF uses polymers like PMMA and is more flexible and easier to terminate than glass fiber. It is commonly used for short-distance applications under 100 meters, such as home networking, automotive systems, and educational kits. While POF has higher attenuation and lower bandwidth, it provides a cost-effective, DIY-friendly solution .

Industry Context and Manufacturers

China is a global leader in fiber optic cable production, with major manufacturers including YOFC (Yangtze Optical Fibre and Cable), Hengtong, ZTE, and FiberHome. These companies produce cables compliant with international standards like ITU-T G.652.D and IEC 60794, supporting high-speed networks, 5G, FTTH, and backbone communications. Chinese manufacturers emphasize vertical integration, automation, and sustainability, enabling high-quality, large-scale production for both domestic and international markets .

Applications

- **Telecommunications and Internet:** Long-haul and metro networks rely on SMF and loose tube cables.
- **Data Centers and LANs:** MMF and armored cables provide high-speed, short-distance connectivity.
- **5G Infrastructure:** SMF and high-density multi-core cables support ultra-low latency and high bandwidth.

- **Consumer and Industrial Electronics:** POF and armored cables are used in homes, vehicles, and industrial environments. In summary, single-mode and multi-mode fibers form the backbone of China's optical networks, while armored, loose tube, and plastic optical fibers address specialized needs. Leading manufacturers ensure compliance with global standards, supporting the country's rapid expansion in telecommunications, 5G, and data infrastructure.

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