JEWELBLU OPTICAL SYSTEMS

Central loose tube optical cable

Overview

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Key Takeaways

A central loose tube optical cable is a fiber optic cable where multiple optical fibers are housed together inside a single central tube, providing protection and flexibility for indoor and outdoor installations.Structure and Design

A central loose tube cable contains one large tube at its core, which holds 2 to 24 optical fibers (typically 250 µm each) gathered in the center of the cable . The tube is often filled with water-blocking gel to protect fibers from moisture and environmental conditions. Around the central tube, strength members such as aramid yarn or fiberglass are added to provide tensile strength and physical protection. The cable is then jacketed with materials like PE (polyethylene) or LSZH (low-smoke zero halogen) for outdoor or indoor use, respectively .

Protective Features

Central loose tube cables can include armoring options such as aluminum interlocked, steel wire, or corrugated steel tape to enhance crush resistance and suitability for direct burial or aerial installations . The design ensures stable control of optical fiber excess length, minimizing additional loss or dispersion after cabling . A ripcord is often included under the jacket to facilitate easy removal during installation .

Applications

These cables are versatile and suitable for indoor/outdoor environments, including conduit, direct burial, lashed aerial, and trunking applications . They are commonly used in telecommunications, data centers, and backbone networks, where protection from environmental stress and ease of installation are critical. The central loose tube design allows for mid-span access, enabling technicians to access individual fibers without disturbing others .

Advantages
• Compact and lightweight design, making installation easier in ducts or aerial setups .

• High environmental resistance, with operating temperatures typically ranging from -40°C to +70°C .

• Flexibility and low bend radius, allowing for easier storage of cable slack and splicing .

• Enhanced protection against moisture, mechanical stress, and crushing forces through gel filling and optional armoring . In summary, a central loose tube optical cable is a robust, flexible, and environmentally resistant fiber optic solution, ideal for a wide range of indoor and outdoor network deployments.

Article Content

Central Loose Tube Fiber Optic Cables

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