What are the requirements for optical cable traction

Overview

General Provisions For Laying Optical Cables 1.2 The traction force for laying the optical cable should not exceed 80% of the allowable tension of the opti.

Key Takeaways

Optical cable traction must comply with specified tension limits, bending radii, and installation standards to ensure cable integrity and operational reliability.Traction Force and Bending Radius

When laying optical cables, the traction force should not exceed 80% of the cable's allowable tension, with the instantaneous maximum pulling force limited to 100% of the allowable tension. The main traction should be applied to the cable's strength member to prevent damage to the optical fibers. During installation, the bending radius must be at least 15 times the cable's outer diameter, and during construction, it should not be less than 20 times the diameter to avoid fiber breakage or signal degradation. Swivels should be used at the pulling end to prevent twisting, and the cable must be laid in a loose arc from the drum without surges or small loops to maintain integrity during traction (JINGZE) .

Installation Methods and Safety

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Optical cables can be installed underground, aerially, directly buried, or underwater, with specific methods such as trenchless techniques, microduct blowing, or lashed aerial deployment recommended depending on the environment. Centralized, intermediate, or decentralized traction methods should be selected based on terrain, traction length, and tension requirements. Automated traction systems with alarm and stop functions are recommended to prevent exceeding tension limits. Installation must be supervised by trained personnel with proper communication tools to ensure safety and coordination (JINGZE) .

International Standards and Guidelines

• ITU-T L.163 provides criteria for optical fiber cable installation, including cable selection, route planning, tension and temperature considerations, and handling procedures. Compliance is voluntary but mandatory provisions ensure interoperability and applicability (ITU-T) .

• IEC TR 62691 offers guidance for metropolitan network installations, covering underground ducts, aerial poles, direct burial, and special cases like tunneling or underwater deployment. It emphasizes proper handling to maintain cable performance and prevent degradation (IEC) .

• Regional standards, such as EN 50406-1 for aerial cables in high-bit-rate networks, may also apply in the European Union, ensuring compliance with safety and performance directives (ComplianceGate) .

Key Considerations

• Always apply traction to the strength member, not the fiber core.

• Maintain minimum bending radius to prevent microbending losses.

• Use swivels and controlled tension systems to avoid twisting or overstressing the cable.

• Ensure trained personnel supervise installation with proper communication.

• Follow ITU-T, IEC, and regional standards for specific installation environments and safety requirements. By adhering to these regulations, optical cable installations can achieve long-term reliability, safety, and compliance with international standards.

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