How to bind cables in vertical shaft cable trays

Article Overview

Cables in vertical shaft trays are typically bound using a combination of twine, steel clips, and cleats, with careful attention to spacing, support, and hoisting methods to ensure stability and safety.

Binding and Securing Techniques

For vertical shaft installations, cables are often bound to a steel wire rope or support line before being lowered into the shaft. This can be done using twine binding at regular intervals, such as every 4 meters, and securing steel clips at longer intervals, for example every 100 meters, to maintain alignment and prevent slippage during installation (CN117673967A) . The cable and wire rope are then lowered together using a hoisting device, such as a chain block, which may be attached via a sling to ensure controlled descent .

Cleats and Tray Supports

Once in the shaft, cables are fixed to the inner wall or vertical tray supports using cleats. Cleats can be spring-loaded or rigid, depending on whether the installation is flexible (snaked) or rigid . The spacing of cleats is critical to prevent cable sagging and to accommodate thermal expansion, with typical arrangements verified through experimental testing for high-voltage or large conductor cables . Rigid installations are generally preferred for simpler laying procedures, while snaked arrangements can offer advantages in thermal cycling and stress distribution .

Material and Design Considerations

Vertical cable trays and supports must meet mechanical strength and corrosion resistance requirements. Common materials include cold-rolled steel, galvanized steel, or aluminum alloy, with surface treatments such as hot-dip galvanizing or electrostatic spraying to prevent corrosion . The tray system should maintain a minimum clear distance from other services (>=300 mm) and provide adequate spacing between power and weak-current trays (>=150 mm) . Firestop provisions must also comply with relevant standards .

Installation Process

o Pre-binding: Cables are bound to a wire rope using twine and steel clips.
o Hoisting: The cable assembly is lifted into the shaft using chain blocks or other hoisting devices.
o Securing: Cables are fixed to cleats or tray supports from bottom to top, removing hoisting devices sequentially as each section is secured .
o Final checks: Ensure proper spacing, alignment, and compliance with mechanical and fire safety standards .

Key Considerations

o Maintain minimum bend radius to prevent cable damage.
o Use appropriate cleat spacing to accommodate cable weight and thermal expansion.
o Ensure fire and corrosion protection for long-term reliability.
o Follow national and international standards (e.g., GB 50303, IEC 61537) for safety and performance . This method ensures that cables in vertical shafts remain secure, aligned, and protected, minimizing mechanical stress and maintaining operational safety over the life of the installation.

Cable ladders, cable trays and their supports should be strong enough to meet the load requirements of the cable management

Key Factors Impacting Cable Tray Spacing Understanding cable tray spacing is key to

If a wire mesh cable tray is supporting cable with a built-in equipment grounding conductor or control or signal cables, then the tray

Discover efficient methods for installing cable trays to organize power, data, and security cables. Explore wall, ceiling,

The application discloses a method for laying cables in a vertical shaft, and belongs to the technical field of cable laying methods.

Cable trays or raceways often provide a convenient, safe and efficient method of fiber optic cable installation. Trays can be installed

Hutaib Electricals, a trusted cable tray manufacturer in India, offers vertical cable management solutions for high-rise

Learn common methods for connecting cable trays safely and efficiently. Our guide covers

How to design cable tray? Most projects are roughly defined at the start of cable tray design. For projects that are not

There are three items which require decisions concerning the tying down of multiconductor cables in cable tray wiring systems. Item

Installation considerations For cable pulling in vertical shafts, you have to consider the

How to bind cables in vertical shaft cable trays

This procedure covers the method for all the cable pulling, electrical connections and terminations for cables running on cable

The article describes a improvement for better life and easy maintenance for instrumentation cable trays for industry.

This guide covers the critical steps, from selecting the right electrical cable tray and performing accurate cable fill calculations to

After determining the routing of the cabling, a structured cabling project initially needs to consider the laying of cable trays, which can

This guide covers cable ladder systems, cable tray systems, channel support systems and associated supports intended for the

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