Cable Binding Method for Vertical Shaft Cable Trays

Overview

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

Key Takeaways

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.

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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 ProcessPre-binding: Cables are bound to a wire rope using twine and steel clips. Hoisting: The cable assembly is lifted into the shaft using chain blocks or other hoisting devices.

Securing: Cables are fixed to cleats or tray supports from bottom to top, removing hoisting devices sequentially as each section is secured. Final checks: Ensure proper spacing, alignment, and compliance with mechanical and fire safety standards.

Key Considerations

Maintain minimum bend radius to prevent cable damage. Use appropriate cleat spacing to accommodate cable weight and thermal expansion. Ensure fire and corrosion protection for long-term reliability.

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.

Article Content

Method for laying cable in vertical shaft

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

Cable laying method for large-depth vertical shaft

The application discloses a cable laying method for a large-depth shaft, belongs to the technical field of cable construction, and solves the problem that cables with large...

Methods for binding cables to cable trays in vertical shafts

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How are the cables fixed inside the vertical cable tray?

1. Binding tape fixing method: Thread the binding tape through the cable and fix it on the inner wall of the bridge. This method is simple and easy to implement, but not suitable for large cables. 2. Hook fixing

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The choice of method should be discussed with a local inspector. The best decision may be to extend only the cables, creating a discontinuity in the cable tray.

Cableizer

There are different ways to do such an installation, for example using a second steel wire for breaking or by pushing instead of pulling the cable using

Guide to cable support systems

Four different mesh cable tray types are available, depending on the requirements, area of application and cable quantity. The innovative Magic connection system of the GRM and G-GRM mesh cable

Cable installation in vertical shaft

The paper describes the behavior of cables installed in vertical shaft under thermal load cycles. The shaft installation of cables with large conductor cross section presents some characteristics which

INSTALLATION GUIDE

To limit damage, straight lengths should be bundled and shipped on a flat deck trailer. Straight lengths are shipped without exterior crating. Fittings and ancillary products are often boxed/palletized and

GUIDE CABLE TRAYS TECHNICAL

NEMA VE 1-2017 Specifies requirements for metal cable trays and associated fittings designed for use in accordance with the rules of Canadian Electrical Code, Part I and the National Electrical Code®

Efficient Cable Tray Installation Methods for Organized

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

GENERAL INFORMATION

Cable trays or raceways often provide a convenient, safe and efficient method of fiber optic cable installation. Trays can be installed in ceilings, below floors and in riser shafts. When installing fiber

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Method Statement installation of Cable Trays and Ladders

This method statement covers the site installation of the cable tray & ladders and the requirements of checks to be carried out.

Verticals Cable Tray Management Solutions | Cable Tray

Hutaib Electricals, a trusted cable tray manufacturer in India, offers vertical cable management solutions for high-rise buildings. Their basket cable trays and wire mesh cable trays

Cable Tray Technical Guide A practical guide to product selection and ...

Cable Tray Technical Guide A practical guide to product selection and installation This guide for engineers and installers has been developed by ABB as a practical reference regarding cable tray

Best Practices for Installing Cables in Trays

Learn the best practices for installing cables in trays. This guide covers essential steps, technical requirements, and key details for efficient cable

Cable tray manual

Where cable tray wiring systems with current carrying conductors are installed in a dust environment, ladder type cable trays should be used since there is less surface area for dust buildup than in

Cables & Wires Handling Storage and Pulling Method

All horizontal and vertical installation of cables to cable trays and cable ladders will be supported using approved cable tie for LV and cable cleats for MV. Care will

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This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

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