Methods for binding cables in 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.

Methods for binding cables to cable trays in vertical shafts

HOME / Methods for binding cables to cable trays in vertical shafts - Five Suns EcoEnergy & Telecom Systems

Cable laying method for large-depth vertical shaft

Aiming at the inconvenience of a cable with a large cross-sectional area in the prior art in the laying process, the invention provides the cable laying method for the large-depth shaft,...

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Guide to cable support systems

The systems are suspended from the ceiling with threaded rods, stand-off brackets allow raised floor mounting of cable trays, ladders and mesh cable trays. The universal systems comprise ceiling

How are the cables fixed inside the vertical cable tray?

The cables inside the vertical cable tray can be fixed using various methods, and the following are some common pract...

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

VERTICAL MINESHAFT & HI-TENSILE STRENGTH CABLES

Vertical Mineshaft cables include a galvanized steel interlocked armour imbedded into a ribbed inner-jacketed core to prevent the core from slipping once the cable is installed.

Cable installation in vertical shaft

A theory has been then developed both for cables installed in a straight rigid vertical configuration and for cables installed in a flexible/snaked vertical configuration. The paper provides a presentation of

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

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.

GUIDE CABLE TRAYS TECHNICAL

The cable management system''s electromagnetic performance characterises its ability to protect its cables from external electromagnetic disturbance; if this is controlled, the data carried by the cables

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

Best Practices for Installing Cables in Trays

Quick Installation Checklist (Key Steps) Cable tray cable installation generally follows these steps: Inspect cables before installation Prepare and

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How to Install Cable Tray: A Comprehensive Guide to Different Cable ...

Welcome to our step-by-step guide on installing cable trays! In this video, we''ll explore the different types of cable trays available and provide detailed instructions for their installation.

Cableizer

Installation considerations For cable pulling in vertical shafts, you have to consider the weight of the cable hanging in the shaft. You also have to

CABLE TRAY

Figure 4.50 Attachment of a channel cable tray in this method maintains the electrical requirements, bolted mechanical connection, and provides a practical method of dropping tray cables to equipment.

Methods for binding cables to cable trays in vertical shafts

Cable installation in vertical shaft Installation of EHV Cables Cable Ratings on Riser Poles and Shafts Guide to cable support systems Unipath Cabling Cable Tray Technical Guide A practical guide to

Connecting Cable Trays: Your Guide to Secure and

Learn common methods for connecting cable trays safely and efficiently. Our guide covers splice plates, quick-connects, and key tips for

Twelve high voltage cable construction techniques used

This technical article discusses twelve different methods for laying high voltage cables. Out of the ten, four are deemed conventional and

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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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