Cable Binding Materials for Vertical Shaft Cable Trays

Overview

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.

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

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

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

In designing supports for a cable tray system, consideration should be given to the loads associated with future cable additions and any additional loading that may be applied to the cable tray system (e.g.,

Vertical Cable Tray Installation

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Material selection for vertical cable trays must meet both mechanical strength and corrosion resistance requirements. Cold-rolled steel, galvanized steel, or aluminum alloy are the

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®

Cable support system

The vertical straight connector can be used to connect cable trays with the side height 60mm. Mitre joints that rise and fall up to an angle of 60° can also be realised with this connector.

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.

B-Line series Cable Tray Design Considerations

Our wind certification report provides you with list of acceptable B-Line series cable tray supports, fittings and covers based off of the environmental conditions, cable loading, and type of cable tray in your

LEGRAND CABLE TRAYS TECHNICAL GUIDE

Not all cable trays are equivalent. The mechanical and electrical characteristics, tests, certifications, overall quality management, recommendations mentioned in this technical guide only apply to our

CABLE TRAY SYSTEMS GUIDE

Hubbell''s NEXTFRAME® Ladder Tray is the effective and widely used cable runway that supports and delivers bundles of cable between cabinets, racks, and closets, along walls, and suspended from

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

Installation of Cable Tray, Trunking And Accessories

Before beginning installation, be sure that the method statement for installation of cable tray, trunking, and accessories is approved by the project and construction manager before the

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What is a Vertical Cable Tray?

What is a vertical cable tray? This guide explains its types (ladder, solid-bottom), benefits for safety & organization, and key applications in data

Mastering Cable Tray Installation | Step-by-Step Guide for a Seamless ...

Learn how to install cable trays correctly. Get the ultimate step-by-step guide on setting up a seamless and reliable cable management system.

Cable Tray Systems: Requirements and Best Practices

Comprehensive guide to cable tray systems requirements: tray types, materials, loading, supports, bonding, routing, and best practices for safe electrical cable management.

CABLE TRAY SYSTEMS GUIDE

Material: Side Rails: Fitting side rails are I-beams with overall dimensions similar to straight tray sections. Rungs and Bottoms: Rung and Bottom designs are identical to similar straight cable tray

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

Cable Tray Installation and Cable Handling Method Statement

Cable Tray Installation Method Statement 1. Cable Tray Installation Cable trays should be installed in accordance with the latest revision of the NEC, NEMA VE 2, and the manufacturer''s installation

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

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