

Installation of Small Cable Trays in Underground Mines



Overview

Cable installed in tray is subject to many of the same considerations as cable being installed in conduit systems.

Key Takeaways

Proper installation of small cable trays in underground mines requires careful material selection, secure support systems, correct spacing, grounding, and adherence to safety standards to ensure reliable operation and personnel safety.

Material Selection

For underground mines, cable trays must resist corrosion, mechanical stress, and environmental hazards. Common materials include galvanized steel, stainless steel (AISI 316L), aluminum, and GRP (glass-reinforced polyester), each offering varying corrosion resistance and strength characteristics. GRP trays are lightweight, corrosion-resistant, and suitable for damp or chemically aggressive environments, while stainless steel provides high durability and resistance to pitting and stress corrosion ().

Support and Mounting



Cable trays should be supported at regular intervals to handle the weight of cables and any future additions. A minimum of 18 meters of electrical continuity is recommended, and supports must meet the load requirements of the tray system (). In underground mines, supports can be attached to walls, ceilings, or structural beams, ensuring that the tray remains level and accessible for maintenance. Use laser or string lines to establish proper elevation and alignment before installation ().

Spacing and Layout

Maintain a minimum clearance of 300 mm above or between installed systems to allow for cable installation and maintenance (). For small instrumentation or control cables, rung spacing of 150–230 mm is recommended to prevent sagging and maintain cable organization (). Avoid sharp bends and respect the minimum bend radius of cables to prevent damage.

Grounding and Electrical Continuity

Ensure that the cable tray system is properly grounded to prevent electrical hazards. Electrical continuity should be verified at intervals, and bonding connections must comply with mining electrical safety standards ().

Handling and Safety

- Unloading and storage: Store trays off the ground in a dry, ventilated area to prevent corrosion or mechanical damage ().
- Personal safety: Workers should wear gloves, steel-toed footwear, and helmets. Do not use cable trays as walkways or ladders ().
- Inspection: Inspect all materials for damage or corrosion before installation. Non-conforming materials should be returned to the supplier ().

Installation Procedure

- Material inspection: Verify all trays, supports, and accessories against approved specifications ().
- Layout planning: Determine tray routes, elevations, and support points.
- Support installation: Secure brackets, hangers, or frames to structural members.
- Tray placement: Position trays on supports, ensuring level alignment and proper spacing.
- Cable installation: Lay cables according to type and size, maintaining bend radius and separation for power and control lines.
- Covering and protection: Use solid or ventilated covers where required to protect cables from dust, water, or mechanical damage ().

- Final inspection: Verify alignment, grounding, and load capacity before energizing the system.

Maintenance Considerations

Regular inspections are essential to check for corrosion, mechanical damage, or loose connections. Ensure that any additional cables added in the future do not exceed the tray's load capacity (). By following these guidelines, small cable trays in underground mines can be installed safely, efficiently, and in compliance with technical and regulatory requirements, ensuring long-term reliability of electrical and control systems.

Article Content

Underground Cable Installation Guide: Direct Burial, Duct and Tray ...

A practical B2B reference covering underground cable installation methods — direct burial depth requirements, HDPE duct systems,

Cable Tray Installation Method Statement | PDF | Cable | Ladder

This document provides a method statement for installing cable trays, trunking, and ladders. It outlines responsibilities, storage, pre

Cable Tray Installation

Proper planning for installing cable tray includes calculations based on loading, support systems, cable/wire fill and spacing,

FRP Cable Trays for Mining Industry: Underground & Surface Mining

With India's coal, iron ore, and mineral production expanding alongside global mining growth, demand for safe,

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

Cable Tray Installation Procedure Guide

It describes inspecting and storing cable trays upon receipt, installing trays flat or vertically, fixing trays to structures, designing trays

Cable Tray Technical Guide A practical guide to product selection

Cable tray length is selected based on the load to be supported, the distance between the supports (also referred to as the span),

cable tray solutions For tunnels guide

With cablofil it is very easy to create horizontal and vertical configurations which fit the curvature of the underground infrastructure

Metal Cable Tray Installation Guidelines | Cable Tray Institute

The Cable Tray Institute is making available the current edition of this practical guide for the proper installation of aluminum or steel

Tray Installations

Tray Installations The placement of cables, ducts, and conduits can be done using cable trays – for both outside plant (OSP) and

Cable Tray Technical Guide A practical guide to product selection

A practical guide to product selection and installation This guide for engineers and installers has been developed by ABB as a

Installation Of Cable In Cable Trays: NEC, Safety

Cable installed in tray is subject to many of the same considerations as cable being installed in conduit systems. Correctly calculated

Cable Ladder

They provide a cable management solution for heavy commercial, industrial, mining, LNG or other applications. They are supplied in

Types of Cable Trays – Purpose, Advantages, Disadvantages

Cable tray is alternatives to wire ways and electrical conduits, which completely enclose cables. Study types of cable

UNDERGROUND CABLE INSTALLATION IN GROUND DUCT AND TRAY

Cable Laid Direct in Ground To install cable in underground first step to find out the suitable route line considering the

Difference Between Cable Tray and Cable Trench | Hutaib Electrical

Read about the differences between cable trays and cable trenches, their applications, benefits, and how Hutaib

Cable Tray Installation Procedure Guide

This document provides procedures for installing cable trays according to international standards. It describes inspecting and storing

Underground Cable Installation Equipment and Tools | BigRentz

Underground cable installation is an integral component of modern infrastructure development, requiring special tools

Related Video Reference

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

Contact Us

Continue your research online:

Website: <https://thegalleryselfcatering.co.za>

Technical inquiry: <https://thegalleryselfcatering.co.za/contact.html>

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

