Cable Fixing in South African Vertical Shafts

Overview

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

Key Takeaways

Vertical shaft cable installation in South Africa requires specialized cables, careful suspension, and secure fixing to withstand mechanical stress and ensure safety.

Cable Selection

In South African mining and industrial environments, PUR-HF lift trailing cables are widely preferred due to their durability under high tensile loads, continuous bending, torsion, vibration, and sudden acceleration or braking. These cables are suitable for deep gold and platinum mines, construction hoists, ports, and quarry lifts, where vertical movement imposes extreme mechanical stress. Compared to ordinary rubber cables, PUR-HF cables offer superior resistance to abrasion, UV exposure, and impact.

Installation Method

Suspension Before Fixing: Cables should be suspended freely in the shaft for at least 12 hours before final fixing to prevent torsion and buckling. The lower end must be kept 0. 3 meters above the pit sole and can be weighted lightly (up to 15% of cable weight) to maintain tension.

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Unwinding and Placement: Cables must be unwound tangentially from the drum and led into the shaft following the winding direction to avoid deformation. A second person in the pit can assist in guiding the cable for a smooth, twist-free installation. Fastening: After suspension, cables are marked parallel to the shaft wall and fixed using appropriate fasteners.

In some methods, a steel wire rope is used temporarily to lift and position the cable; once the cable is secured, the rope is detached and removed, improving efficiency and safety.

Support Systems

Vertical cable support can be achieved using cable ladders, perforated trays, wire baskets, channel systems, or trunking, adapted for vertical applications. Accessories such as L-brackets, k-clamps, spring nuts, and bolts allow secure attachment to shaft walls and structural supports. These systems help maintain cable alignment, prevent sagging, and reduce mechanical wear.

Safety Considerations

Avoid placing the cable directly on the pit floor to prevent damage. Ensure torsion-free installation by proper suspension and careful handling. Use weights or loops to control cable tension and prevent uncontrolled movement during installation.

Follow manufacturer guidelines for mechanical and electrical ratings to ensure long-term reliability.

Summary

Successful cable fixing in South African vertical shafts combines high-quality PUR-HF cables, careful suspension, proper unwinding, and secure support systems. Following these practices ensures mechanical integrity, safety, and operational efficiency in demanding mining, construction, and industrial environments.

Article Content

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When Cables Go Vertical: The Complete South African Guide to PUR

Learn about PUR-HF cable structure, materials, electrical ratings, mechanical performance, standards, installation rules, and real case studies from South African lift and reeling systems.

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Cableizer

Cable pulling in vertical shafts is very dangerous and we strongly advise you to get professional help from an installation company with references

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.

ShaftCon Home Page

ShaftCon is a South African company of specialized individuals providing combined capabilities in shaft sinking and all related shaft services, such as equipping, refurbishment, deepening, audits,

Uncoiling the Secrets: How Trailing and Reeling Cables Power South ...

In South Africa''s mining heartlands—from the Witwatersrand Basin to Mpumalanga''s coal fields—these operations hinge on unsung heroes: trailing cables and reeling cables.

Installation Instructions for Lift Control Cables

In order to guarantee a torsion-free installation, the cable has to be suspended freely for 12 h in the shaft before being finally fixed. The lower cable end is not allowed to lie on or to be in contact with the pit

Shaft Infrastructure and Access Development

About the Mandela Mining Precinct The Mandela Mining Precinct is a Public-Private Partnership between the Department of Science and Innovation and the Minerals Council South Africa. The

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He also played a pivotal role in the execution of South Africa''s first-ever vertical sinking shaft, a project that demanded the removal of the shaft pillar during the

A review of current practices of survey control in sinking shafts in ...

Abstract Shaft sinking survey practices in Southern African mining operations have been refined over many decades to meet the stringent accuracy, safety, and productivity demands of deep vertical

SERVICES

Rehabilitation Vertical-, Decline-, Ventilation- and Hydropower Shafts. Manufacturing and installation of all mining related steelwork. Making safe, support and wetcrete of any underground works.

Advancement in Vertical Tunnelling in Mining

Advancement in Vertical Tunnelling in Mining Design and construction of vertical tunnels, more commonly referred to as shaft sinking, continues to rely on particular methodologies that are selected

The protection of vertical shafts by pillars in shallow and moderately ...

Abstract The effects of shaft pillars left in deep-level hard-rock mines during the extraction of tabular deposits were studied some time ago, resulting in the formulation of design principles and

A review of some aspects of shaft design

Mullins and Haggiel give the following infor-mation on the shafts serving 105 mines in the Union of South Africa at 31st December, 1959: "Of these shafts 315 are vertical and 208 are inclined.

Large Diameter Vertical Raise Drilling and Shaft Boring ...

SYNOPSIS Raise drilling in South Africa started in 1968 with machines capable of drilling 1.2 meter diameter raises up to a length of 90 meters. Today''s raise drilling machines are capable of drilling

01-Wakefield.doc

1. Synopsis Over several decades in Southern Africa the advance rates when sinking vertical shafts have declined significantly. The upside has been a substantial improvement in shaft bottom

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