Mining rock drill speed measurement

Article Open access Published: 11 March 2025 Comparison of machine learning models for rock UCS prediction using measurement while drilling data Yachen Xie, Xianrui Li ...

A procedure to recognize individual discontinuities in rock mass from measurement while drilling (MWD) technology is developed, using the ...

Subsequently, we conducted a series of drilling and real-time measurement tests on both homogeneous and layered samples. We identified sensitive drilling parameters, such as ...

Bujes, C. I. P., 2020, Measure-While-Drilling for Ore Characterisation: Links between drilling and comminution properties of rocks. PhD Thesis, The University of Queensland.

Blast vibration, hole signature analysis and blast design software Mining & rock face profiling Velocity of detonation measurement system and software Hydraulic rock drill performance ...

Drilling and blasting operation is one of the most critical activities that afect production in hard rock mining. Extensive production of boulders and fines associated with in ...

Measure while drilling (MWD) refers to the acquisition of real-time data associated with the drilling process, including information related to the ...

Relationships between drilling parameters and the uniaxial compressive strength (UCS) of rocks are typically established through measurement while drilling (MWD) by ...

Drilling performance data can provide a viable means of characterizing the rock mass for MTM. The use of blasthole drilling data is advantageous since it is acquired ...

The drilling speed as the bit advancement into new rock material with unit time can be a measure for the rock resistance to drilling. Wang et al. (2024) expanded the DPM ...

In this study, the measurement indexes include distance, thrust, torque and vibration in three directions s are measured by various types of sensors in laboratory when ...

There are several methods to gain information, such as geological mapping, analysis of drill cuttings, diamond drilling, bore hole geophysics, single rock ...

1. Introduction Drilling of rocks is one of the most demanding operations in surface mining and underground

engineering. In the recent years, underground mine, open-pit mining, and ...

The interaction between drilling machinery and rock during the drilling process generates drilling parameters that encapsulate substantial data closely correlated with rock ...

Estimating penetration rates of Jumbo drills is crucial for optimizing underground mining drilling processes, aiming to reduce costs and time. This study investigates various ...

This finding provides an insight into determining the UCS and tensile strength of the rock based on real-time monitored drilling parameters. In addition, novel test setups are ...

Drilling rate index is defined as low or high and drilling speed is defined as fast or slow. Drillability of rock affected by many different factors such as drilling machine parameters ...

Measurement While Drilling (MWD) is an in situ technique for the assessment of ground conditions. It records the drilling parameters of a drilling machine when its drill bit is ...

Measurement While Drilling (MWD) is a well-recognised drill monitoring technique in the petroleum and mining industry and has been used in rotary blast hole drilling since the ...

Drilling is a major component of mining operations and must be efficient in order to achieve an economic production cycle. The main objective of this research is to utilize ...

Measurement while drilling is an important part of the intelligent development of coal mines. The main purpose of this paper is to ...

Monitoring while drilling (MWD) is a crucial task in mining operations. Accurately measuring drill and rock-related operating parameters can significantly reduce the cost of ...

Theory Cutting speed is the relative linear velocity between the cutting edge and the workpiece. At each point, the cutting speed is the product of the rotation ...

The excavation of rock, whether in mining, petroleum, or civil engineering projects, predominantly relies on traditional drilling techniques. Across these applications, drilling bit ...

This paper deals with processing of measurement while drilling data such as rate of penetration, rotary speed, rotary torque and pulldown force collected from rotary blasthole drills.

In deep engineering, the in-situ measurement of engineering rock properties is a key issue in projects such as energy storage and resource mining. Numerous researches ...

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During drilling operations, the mechanisms of drilling and rock fragmentation are predominantly facilitated by the application of thrust in the vertical direction by the drill rod, ...

Measurement-while-drilling (MWD) aims at collecting accurate, speedy and high resolution information from the production blast hole drills ...

This paper surveys the field of measurement-while-drilling (MWD) technology for small-diameter drilling machines. Using this technology, ...

In this study, a Rotary Drilling System Instrument (RDSI) is developed to enable continuous and real-time monitoring of drilling parameters during the drilling process, including ...

Abstract Measure while drill (MWD) data from blast hole drill rigs at two Australian iron ore and coal mines were found to exhibit strong relationships with geological features. ...

Based on the engineering background of pressure relief drilling in Guotun Coal Mine, this paper carries out an engineering test while drilling.

The application of different values of thrust and rotation speed on the drill bit during drilling allows for the measurement and collection of drilling mechanical parameters by the ...

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