How is the rock drill effect

In this paper, the dynamic process of drilling and breaking rock is analyzed using ABAQUS software. The rock-breaking mechanism of drilling is ...

In the trench process of underground diaphragm walls, slurries play important roles in stabilizing the walls. Nevertheless, the slurry effect on rock breaking using impact drill bits ...

Not all wellbore instability problems result from physical-chemical interaction between the rock and the drilling fluid; in many cases, drill string impacts are the main cause ...

This paper aims to determine the optimal design parameters for percussive drilling systems considering the bit-rock interaction. First, the motion dynamics of a bit impacted by a ...

The performance of two different percussive rock drills has been studied theoretically by simulating the drilling process. The two drills studied correspond to an ...

Hole direction is controlled by drill-string mechanics and rock bit interaction effects. Anisotropy in the mechanical properties of the rock can influence rock-bit interaction and ...

The New Art Gallery, Walsall With his Rock Drill sculpture, Jacob Epstein created a terrifying mechanised soldier. Following the First World War, however, he broke this work down into a ...

During drilling operations, cyclic loading is exerted on the wellbore wall by the vibrations of the drill string. This loading could lead to rock fatigue, which in turn might result in ...

In the paper, combining drilling experiment of domestic sonic drill rig YGL-S100 in Xiangjiaba hydropower station, the influence of sonic drill"s vibration frequency on rock ...

The drill tail of a rock drill meets high-frequency fretting in both the rotational and axial axes. The pure water seal is prone to damage and failure owing to its difficult working ...

Based on orifice throttling theory, the static equilibrium position of a damping piston was calculated, and the characteristic parameters of the ...

The rock-breaking mechanism of drilling is revealed according to the stress-strain state of the rock and the force of the drill bit. The effect of the ...

The present research investigates the effect of rock properties on drill bit life prediction. The fieldwork and

laboratory work include recording bit life (m/bit), penetration rate ...

PDF | Rock is deformed and a failure zone based upon the ductility and brittleness of rocks is formed around the bit while drilling a blasthole.

Under the constraints of a casing program, formation conditions, and bottom-hole assembly, identifying the rock-breaking mechanism for PDC bits in compound drilling is a ...

The Sensational Alex Harvey Band called their last album Rock Drill (1977) with a moody cover photograph of the Torso in Metal from "The Rock Drill", and in 2006 The ...

Factors that affect the drilling effectiveness of hydraulic rock drills include rock drilling speed and rock breaking effectiveness.

The effects of impact frequency and static and dynamic loading time on the penetration depth, rock damage below the cutting surface, and the ...

Otty Allum explores the creation of "Rock Drill" by Jacob Epstein, and its complex message regarding modernism and humanity"s relationship ...

In response to the issues of overheating of the shell and insufficient impact energy of the hydraulic rock drill, this paper focuses on the ...

Down-the-hole (DTH) drill bits play a crucial role in rotary-percussive drilling, a widely used drilling technique for hard brittle rock. The structural properties of DTH drill bits ...

The impact performance of the hydraulic rock drill with floating characteristics of the double damping system can be analyzed and researched by changing the ...

Improving the rock-breaking efficiency of hard rock formation has always been of concern in drilling. Compound impact drilling technology is a new method to achieve efficient ...

In this study, a statistical constitutive damage model based on Weibull distribution was used to calculate the degree of rock damage after drilling center holes. ...

Robotic Futures Epstein"s Rock Drill 1913-15 Even now after nearly 100 years Epstein"s Rock Drill sculpture still has the power to excite and disturb. His ...

Based on the simulation results, we analyzed the effects of the interaction between the slurry and the drill bit on the rock damage, energy transformation, and stress distribution, ...

Rock drills are known to transmit high levels of vibration that are difficult to attenuate through conventional approaches to vibration isolation. However, it can be shown that once the ISO ...

Piri et al. (2020) compared the wear rate of drill bits with Tungsten carbide (WC), Diamond-DLC, and Titanium-Aluminum-Silicon (TiAlSi) coatings and studied the effect of ...

Summary. High-voltage electric pulse rock-breaking (HVEPB) has proved to be a novel and inexpensive method of breaking rock regardless of rock composition, but the design ...

Hydraulic rock drill has a flushing function to remove debris from the borehole. If the flushing is insufficient, repeated crushing will occur during drilling, which will not only ...

On this basis, a series of laboratory experiments and numerical simulation are performed to study the rock drillability, the rock-breaking mechanism and the abrasion ...

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The velocity-weakening effect observed in field data is likely to be the result of the complex drill-string dynamics rather than an intrinsic property of the bit-rock interaction [7]. ...