Impact piston of rock drill

Using a self-designed hydraulic impact drilling test-bed and rock core drill, six groups of cylindrical granite specimens (93 mm dia. × 200 mm) containing central axial holes formed either by ...

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 dropped ...

Accordingly, when developing a hydraulic rock drill, it is advisable to select a shorter piston and a higher working pressure, thus allowing the drill ...

How Rock Drill Work When the rock drill is working, its internal piston will undergo high-frequency reciprocating motion, which continuously impacts the drill tail. ...

A system coupling model was constructed, incorporating the piston, reversing valve, cylinder, accumulator, drill rod, power source, and impact device, to analyze the dynamic ...

A thorough laser experiment has been created to evaluate the actual rock drilling capabilities of the impact system. Proposed optimal ...

Considering the insufficiency of numerical study on the percussion characteristic of hydraulic rock drill, which restricts the improvement of ...

For the phenomenon of a hydraulic rock drill based on an underlapped reversing valve, the mechanical structure of the overlapped reversing form was proposed, which affected ...

Accordingly, when developing a hydraulic rock drill, it is advisable to select a shorter piston and a higher working pressure, thus allowing the drill to provide ...

The H200-PRO Hydraulic Drifter rock drill adopts a new type of impact piston, and the frequency of the rock drill is greatly improved. In the ...

The hydraulic rock drill originated in the early 1970s. Due to its superiority in technical performance and perforation efficiency, it has ...

Rock drill operations are classified as top hammer drilling (THD), down-the-hole drilling, or rotary drilling. The rock drill in the THD method consists of a percussion drill rig ...

tionship between the impact performance and the collision coefficient c is analysed. When c is in the range of

9-11, the impact piston"s design of a high-power rock drill can be satisfi d.

In order to improve the impact performance of hydraulic rock drills, the impact energy, impact frequency, and energy utilization rates of two different pistons in the hydraulic ...

Down the hole (DTH) impactor is a kind of drilling tool used in mining industry. It uses high-pressure air to push the piston to hit the rotating drill bit. When the DTH impactor is ...

The impact mechanism of the hydraulic rock drill is mainly composed of cylinder body, impact piston, reversing valve, and high pressure accumulator [7]. The impact piston and the ...

The impact energy, impact frequency, and energy utilization rate of two different hydraulic rock drill pistons in low, middle, and high gear were ...

The aim of the present work is to characterize the damage mechanisms of two hydraulic rock drilling impact pistons, subjected to a combination of simultaneous cyclic impact ...

Abstract Considering the insufficiency of numerical study on the percussion characteristic of hydraulic rock drill, which restricts the improvement of efficiency and reliability, ...

Top Hammer Drilling Method: The percussive force of the top hammer drilling produced by the piston of the pump in the hydraulic drilling rig, it is transmitted to the drill bit ...

The performance of the hydraulic impact mechanism directly influences the overall performance of the rock drill. Dynamic simulation and test research of the impact mechanism ...

Thus, shock waves are generated in a rotating drill rod through a repeated impact by a piston to the drill rod. The waves are transmitted to the drill bit connected to the head of ...

In short, the impact piston is an important part of the rock drill. By generating impact force and energy, it can break rocks, remove cuttings, and achieve stable and efficient ...

Download scientific diagram | Structure diagram of the impact piston part. from publication: Percussion characteristic analysis for hydraulic rock drill with no ...

As a technological innovation of high-power hydraulic rock drill, double damping system has a very important effect on impact performance. ...

In a rock drill, the impact piston is a key component used to generate impact force. Its role mainly has the following aspects: Rock breaking: The rock drill produces high ...

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

A drill bit motion model was developed to represent the dynamics of a drill bit impacted by a dropped piston and explain the impact stress ...

The bond graph modeling of the impact system for high frequency hydraulic rock drill drifter with sleeve distributor mainly includes modeling of the sleeve distributor, impact ...

Accordingly, when developing a hydraulic rock drill, it is advisable to select a shorter piston and a higher working pressure, thus allowing the drill to provide good impact ...

Then, the velocity curve of impact piston was obtained after judging the striking point through the feature of rear-chamber"s pressure spike, so were the rock drill"s impact energy, ...

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

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