China Rock Drill Evaluation

What is rock drillability evaluation?

Rock drillability evaluation is a basic task for oil,gas,and geothermal drilling engineering designthat includes bit design,bit selection,and drilling parameter optimization. Different tests and standards to evaluate rock drillability have been developed worldwide.

What is the drillability value of HDR drilling?

Nevertheless,the drillability value of HDR is unclear. The traditional assessment approach of rock drillability is limited in HDR drilling,due to the ultra-high hardness and high temperature,which is significantly different from that in oil reservoirs.

Does rotary drilling improve performance in HDR drilling process?

The rotary drilling experiments taking accounting for in-situ high temperature conditions were conducted on Gonghe granite samples. Some key parameters,i.e.,rock temperature,WOB,RPM,torque and penetration depth,were put emphasis on the ROP enhancing performancein HDR drilling process.

What are the application effects of downhole impact rock-breaking tools?

The downhole impact rock-breaking tools have achieved good application effectsin the field,mainly including rotary impact drilling tools,torsional impact drilling tools,compound impact drilling tools,ultrasonic vibration impactors,hydraulic oscillation impactors,and pulse vibration impactors [8 - 10].

Does rock mechanical strength affect drillability?

The propagation neural network (BPNN), was developed by Sha et al (2014) to improve the prediction accuracy of the ROP, thereby enhancing the generalization ability of the drillability evaluation model. Khandelwal and Armaghani (2016) put emphasis the effect of rock mechanical strength on the corresponding drillability.

What tools are used in Xihu block of Donghai block?

The difficult strata encountered in the Xihu Block of Donghai Block mainly adopt percussion drilling tools. This percussion rock-breaking method is mainly driven by high-pressure fluid and impinges on the base at a certain speed to generate stress waves.

ABSTRACT:. Traditional assessment approach of rock drillability is limited in deep geothermal drilling, especially in Hot Dry Rock (HDR), due to the ultra-high abrasive resistance ...

Abstract Rock-breaking specific energy model of bit is the key foundation of evaluation and optimiza-tion of downhole drilling condition, while some nec-essary parameters for the existing ...

European and North American manufacturers have long dominated the market for rock drilling tools and bits,

with some being synonymous with high quality. Today, and in line ...

Rock drillability evaluation is a basic task for oil, gas, and geothermal drilling engineering design that includes bit design, bit selection, and drilling parameter optimization. ...

Accurate, rapid and effective analysis of rock drillability is very important for mining, civil and petroleum engineering. In this study, a method of rock drillability evaluation ...

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The tunnel collapse is one of the most frequent and harmful geological hazards during the construction of highway rock tunnels. As for ...

In response to the unclear rock properties of the formations in the Tazhong-Tabei block of the Tarim Basin and the difficulties in selecting drill ...

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<p>The real-time response characteristics of drilling tools contain important engineering geological information. By interpreting the drilling data, the rock mass integrity can be ...

Download scientific diagram | Rock drillability classification [29] from publication: Evaluation methods and standards for rock drillability in oil and gas drilling ...

ABSTRACT: Traditional assessment approach of rock drillability is limited in deep geothermal drilling, especially in Hot Dry Rock (HDR), due to the ultra-high abrasive resistance and ...

In China, micro-drilling test is commonly used to evaluate rock drillability in oil and gas drilling engineering. This method was developed as an ...

In western China, 70% of the oil, gas, and geothermal resources are buried in deep formations (more than 3000 m), but the low rate of penetration has become a key factor ...

The practice shows that the high-efficiency drill bit database based on rock mechanical properties and rock breaking indexes provides an effective technical reference for ...

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Abstract Blasting excavation is frequently used in myriads of hydraulic tunnels in Southwest China. To evaluate the effects of blasting parameters on the stability of tunnels and ...

The Lishui Sag, located in the East China Sea shelf basin, is one of the most promising offshore oil and gas exploration areas in China. Drillings in recent years have ...

Evaluation methods and standards for rock drillability in oil and gas drilling engineering in China: A review Shi et al 2020 View the article online for updates and enhancements.

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A high-performance drilling bit for geothermal well drilling is expected to be developed to reduce the drilling duration and cost. The application of polycrystalline diamond ...

Selecting a suitable bit for a specific formation is very important in increasing the rate of penetration (ROP) and reducing the drilling cost during ...

The evaluation of rock mass quality and its mechanical properties is crucial for tunnel construction. The basic quality (BQ) method is the national standard for rock mass ...

We studied the drillability characteristics of three kinds of rock under wellbore pressure using this test apparatus, under the action of a polycrystalline diamond composite ...

Comprehensively and reliably assessing the rock drillability is a vital prerequisite for guiding the rapid construction of pile foundation engineering. This paper studies rock ...

Article Open access Published: 25 April 2025 Simulation and experimental research on drilling and rock breaking mechanisms of anchor drill rigs with analysis of drilling ...

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The global rock drill market, encompassing hydraulic, pneumatic, and electric models, is experiencing robust growth, driven by the increasing demand for infrastructure ...

PDF | On Oct 1, 2021, Jianxiu Wang and others published Evaluation of drill and blast excavation quality for a tunnel | Find, read and cite all the research you ...

Considering the stratum anti-drilling ability, drill bit working conditions, drill bit application effect and drill bit economic benefits, the similarity of stratum anti-drilling ability was ...

Rock-breaking specific energy model of bit is the key foundation of evaluation and optimization of downhole drilling condition, while some necessary parameters for the existing ...

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