JH Solar

Energy storage for oil pumping units

Overview

If you’re an engineer working with hydraulic oil pump energy storage systems, a plant manager optimizing machinery, or simply a tech enthusiast curious about industrial energy solutions – grab your wrench (or coffee), because this article’s for you. We’re breaking down complex hydraulic wizardry.

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Supercapacitor energy storage system for pumping units-SciEngine SciEngine AI CUSTOMER □□ LOGIN AI JOURNALS BOOKS CART CUSTOMER □□ LOGIN Advanced Search Account Login Get verification code Forget the password Get code Sign in Register □Privacy policys□and□Terms and conditions□ reset password OK.

The beam pumping units applied in oilfield for more than 150 years, because it had the advantages of simple structure, reliable and durable. At present, it is still one of the most important artificial lift methods in the world. Due to the inherent structure of the beam pumping units, the balanced. How can a hybrid pumping unit save energy?

As can be seen from Figs. 8 and 9, energy-saving system of secondary balance for the hybrid power of the pumping unit can well eliminate the negative torque of the motor of the traditional pumping unit and add energy to the upper stroke, effectively reducing the electrical energy consumption caused by the larger load fluctuation.

What is pumping unit?

The pumping unit is the main equipment for oil production in the oilfield. However, its serious energy consumption has greatly increased the cost of oil extraction. The reason of this phenomenon is.

Can secondary balance energy-saving system reduce pumping unit energy

consumption?

Using AMEsim simulation platform, compare the load fluctuation and motor energy consumption before and after setting up secondary balance energy-saving system, which proves that the system can effectively reduce the pumping unit energy consumption problem caused by the fluctuating load rate. A self-learning method based on MPGA is developed.

How energy-saving technologies are used in beam pumping units?

Many energy-saving technologies for the beam pumping units were used by changing their construction, sizes or adding other components to decrease the fluctuation rate and the peak torque of the net output torque of gearbox for the effect of energy-saving, load reduction and running with safety.

How much power does oil pumping use in China?

In the China, there were nearly 160,000 wells using sucker-rod pumping in 2014, and the oil pumping units were about 80% in the oil field. At the same time, the electricity consumption of the artificially lifted well was about 33.38% of the total power consumption (Zhou 2011).

What type of pumping unit was used in Daqing oilfield?

The prime motor was a 22 kW three-phase asynchronous motor. The beam pumping unit was CYJ10-3-37HB. The tests were carried out in the simulation oil well with 1000 m depth of pump in Daqing oilfield. Some engineers simplified the calculation of the transmission efficiency for pumping units.

Energy storage for oil pumping units

Long Stroke - Panhandle Oilfield Services

Increased Production - longer, slow strokes allow for more pump fillage and more lifting efficiency Reduced Operating Costs - longer stroke mean fewer wear cycles on sucker rods & downhole pumps Reduced Energy Costs - ...

Pumped Storage Hydropower Plants: PSH

The most reliable option for energy storage is the development of a pumped storage scheme, which utilizes the surplus power available during the Off-peak period to pump up the water for storage and ...

Study of a new hydraulic pumping unit based on the

This article introduces a new technology about a rod pumping in the offshore platform according to the demand of offshore heavy oil thermal recovery and the production of ...

Energy storage control cabinet for oil pumping unit

The pumping unit is the main equipment for oil production in the oilfield. However,its serious energy consumption has greatly increased the cost of oil extraction. The reason of this ...

Research on Coordinated Control Strategy of Variable Speed and

Based on this, in order to deeply explore the coordinated control strategy of stabilizing the output fluctuation of new energy under the pumping conditions of variable speed ...

Oilfield Pumping Unit

A pumping unit is a piece of equipment used to extract petroleum products from a well in an oil field. Reciprocating piston pumps are commonly used for this purpose and many people associate the distinctive "nodding donkey", ...

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Shivshakti provides high-quality fuel oil pumping and heating units designed to meet your specific needs. Our pre-engineered systems are built with top-grade components and packed for ...

Performance analysis and design of a new-type wind-motor ...

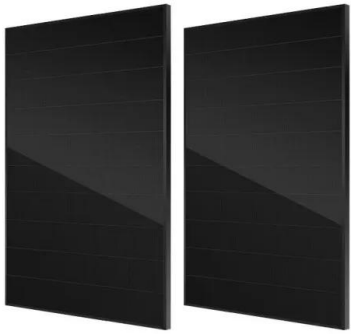
Wind energy can replace electric energy to drive pumping units. Wind power generation is used in oil fields, but the energy saving effect is not obvious. This paper proposes ...

Energy-saving system of secondary balance for ...

The pumping unit is the main equipment for oil production in the oilfield. However, its serious energy consumption has greatly increased the cost of oil extraction. The reason of this phenomenon is t

Review of energy saving technologies for beam pumping units

Beam pumping units are main oil producing equipments in land-based oilfield. Oil producing energy consumption caused by beam pumping unit accounts for one third of the total energy ...



Energy-saving mechanism research on beam-pumping unit ...

Aiming to solve the problems of long transmission chain, large movement inertia of components and high energy consumption of pumping units, this proposes a new pumping ...

Design and experimental research on flywheel ...

Adding a flywheel energy-storage device saves 15.7% of energy and has an obvious energy-saving effect, and it serves as a reference for the use of flywheel energy-storage systems in beam pumping units to achieve ...

Energy storage control cabinet for oil pumping unit

The parameters of energy-saving control process of beam-pumping unit are measured using multi sensors, and then the system can control the working state of beam-pumping unit real-time.

A review of beam pumping energy-saving technologies

Beam pumping units have the advantages of simple structures, reliability and durability [5] and are still one of the main oil recovery methods for oil production in oil fields.

ZTT Supercapacitors

By storing and utilizing the gravitational potential energy of the pump unit in situ, the energy exchange link is reduced and the overall energy conversion efficiency of the system ...

Supercapacitor energy storage system for pumping units

Addressing issues such as difficulty in maintaining complete balance of the balance block in the pumping unit system, grid pollution caused by reverse power generation, heating caused by ...

How Does A Pumping Unit Work?

A pumping unit, often referred to as a pumpjack, is a mechanical device used in the oil and gas industry to extract crude oil from a well. It operates on the principle of reciprocating motion and is commonly seen in oil fields.

Pump Jacks & Pumping Units , New, Used

Pump Jacks & Pumping Units - New, Used & Surplus Pumping Units / Pumpjacks. We offer oilfield production equipment for sale including Pump Jacks and Pumping Units. We understand that it takes a lot of hard work ...

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Based on the background of offshore oil exploitation and shale oil and gas exploitation, through summarizing and analyzing various technical schemes, it is proposed that adding energy ...

How Do Oil Pumps Work in The Oil Fields? Unveiled Secrets

Conclusion Oil pumps play a crucial role in the oil fields by extracting crude oil from deep underground and bringing it to the surface for processing. Through the use of ...

All Pumped Up - Oilfield Technology

It was the same in the industry's earliest oil well pump days. Central Power Units Marginal quantities of oil always need help leaving the well. In the early days of the industry, oilmen adapted water-well technology to the problem ...

Optimization of staggered peak intermittent pumping operation

As the main energy-consuming equipment in the oil and gas extraction process, traditional pumping units often generate electricity through oilfield fuel gas turbines or purchase electricity ...

Pumped Thermal Electricity Storage: A technology overview

A large penetration of variable intermittent renewable energy sources into the electric grid is stressing the need of installing large-scale Energy Storage units. Pumped Hydro ...

Energy-saving mechanism research on beam-pumping unit ...

Aiming to solve the problems of long transmission chain, large movement inertia of components and high energy consumption of pumping units, this proposes a new pumping unit with direct ...

Study of a new hydraulic pumping unit based on ...

This article introduces a new technology about a rod pumping in the offshore platform according to the demand of offshore heavy oil thermal recovery and the production of stripper well, analyzes

Modeling and Control for Beam Pumping Units: An ...

Beam pumping units play a key role in oil extraction. There is an increasing demand for optimal oil-extracting performance as operational environments are becoming more challenging and complex. Therefore, it ...

Our Equipment

Direct Fired Pumping Units This trailer mounted nitrogen pumping unit consists of a liquid nitrogen storage tank, direct fired CryoQuip heat exchanger and cryogenic pumping equipment. Learn ...

Study of a new hydraulic pumping unit based on the offshore ...

The pumping unit is mounted above the middle platform of the offshore oil platform and the combination cylinder rod extends during upstroke, lifting the rod by ...

A review of beam pumping energy-saving technologies

In this paper, the secondary balance system for hydraulic hybrid power of pumping unit is developed, which can store the potential ...

Energy-saving mechanism research on beam-pumping unit ...

Introduction The conventional beam-pumping unit is durable and reliable. However, due to its four-bar linkage structure, it has low system efficiency, high energy consumption and poor ...

A review of beam pumping energy-saving ...

Beam pumping units have the advantages of simple structures, reliability and durability [5] and are still one of the main oil recovery methods for oil production in oil fields.

Pumping solutions for multiphase mixtures in tight oil, ...

Expertise ITT Bornemann twin screw and progressive cavity pumps offer customers in the unconventional oil and gas market a unique custom designed solution. Known as 'multiphase ...

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