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European Solar Energy Storage

Oil pumping unit energy storage device

Overview

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.

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.

Why are beam pumping units used in oilfield?

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.

Can flywheel-energy-storage device save energy of pumping units?

In the existing literatures (Jiang et al., 2009; Liu, 2003; Zou, 2009), the flywheel-energy-storage device can save energy of pumping units, because its rotary inertia \ (J_ {\text {m}} \), that is transmitted to the gearbox shaft, should be multiplied by the square of the transmission ration.

How efficient are beam pumping units?

Most of the system efficiency of the beam pumping units is less than 30% (Zhou 2011); this means that will waste vast energy. The beam pumping units can be simplified to the four-bar linkage; the rotary motion of the motor is converted into the reciprocating motion of the rod pump with low transmission efficiency.

What are the different types of pumping devices?

This paper will introduce some technologies such as phased pumping units, dual-horsehead pumping units, shock absorber device, load reducer device, lower barbell pumping units, multi-balance device, flywheel-energy-storage device, and variable speed drive device. Meanwhile, we also discuss their merits, demerits and the future research direction.

Oil pumping unit energy storage device

Capacitive-energy-storage electric control device for pumping unit

A capacitor energy storage and oil pumping technology, which is applied in battery circuit devices, circuit devices, electrical program control, etc., can solve the impact of safety accidents in the later maintenance of hydraulic systems in the oil extraction industry, the impact of safe and stable production in the oil extraction industry

An energy-saving pumping system with novel springs energy ...

In order to tackle the above problems, we propose an energy-saving smooth reversing pumping system, which could store the energy in deceleration by making use of springs, and the stored energy could be reused in acceleration after reversion.

Design and experimental research on flywheel energy storage

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 saving and consumption reduction.

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 braking, and energy waste, a comprehensive solution of energy storage system for pumping units based on super capacitor was proposed. Design of specific

Energy storage for oil pumping units

Therefore, the installed 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 saving and consumption reduction.

Energy Storage Meets Oil Pumps: A Match Made for Efficiency ...

They're all here for one thing - energy storage devices connected to oil pumps aren't just tech jargon anymore. They're game-changers in oil/gas, manufacturing, and renewable energy sectors where energy waste is so last decade.

A review of beam pumping energy-saving technologies

This paper will introduce some technologies such as phased pumping units, dual-horsehead

pumping units, shock absorber device, load reducer device, lower barbell pumping units, multi-balance device, flywheel-energy ...

Design and experimental research on flywheel energy ...

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Analysis on Energy-saving Technology of Oil Field Pumping Unit

Abstract In this paper, the energy saving technology of pumping unit is studied. According to the actual use of pumping unit, the principle of energy saving is studied. There are many energy saving methods for pumping units, but each method has its limitations.

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The invention relates to the technical field of energy storage systems, in particular to an energy storage control method and device for improving power supply quality of a well group of

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The invention relates to the field of electrochemical energy storage, in particular to an energy storage management method and system for an oil pumping unit and electronic equipment.

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