Hydraulic vibration reduction of excavator energy storage device

To improve the vibration reduction system applied to spherical water storage tanks under seismic conditions, a new origami-based hydraulic damper was proposed for use in tuned mass ...

The effectiveness of the fuel can be used efficiently in a hybrid hydraulic excavator using the Energy regeneration Systems with the energy storage device used by the hybrid power system.

The objective is to quantify the energy flows insight the excavator during relevant operations and highlight the resulting energy losses. The outcomes confirm that electro ...

Abstract Energy recovery and regeneration comprise an effective way to improve hydraulic excavator fuel economy. This paper proposes a novel electro-hydraulic energy ...

Based on these insights, a novel energy regeneration system for the swing drive of the hydraulic excavators is proposed. This system integrates ...

This article presents a complete analysis of a hydraulic system"s energy-saving potential using several tactics such as process optimization, equipment performance enhancement, waste ...

This study introduces an innovative approach to enhance the energy efficiency and position control performance of electro-hydraulic systems, employing a comprehensive ...

In this paper, a novel series hybrid hydraulic excavator based on electro-hydraulic composite energy storage, which provides the average power of the system through the diesel ...

Herein, research achievements in hydraulic compressed air energy storage technology are reviewed. The operating principle and performance of this technology applied to ...

Moreover, impact exacerbates mechanical system vibrations, interfering with their normal operation, and under intense impact, both equipment and the human beings may suffer ...

This book chapter explores energy-saving strategies in hydraulic systems through the mitigation of dynamic loads, focusing on mechanical and hydraulic vibrations. It delves into the realm of ...

Excavator hydraulic breaker accumulators play a crucial role in the efficient operation of hydraulic breakers. These accumulators are designed to store energy and release ...

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For excavators,research and development are being done in a similar direction. Some excavators are equipped with a super-capacitor,which regenerates the upper braking energy to increase ...

The piezo-electric material is a device which converts mechanical vibration energy into electric energy in this manner mechanical vibration energy can be recuperated [5-7].

1. Introduction As a kind of mechanical equipment with high e ciency and ffi energy saving, precise operation, strong adaptability, and convenient maintenance, a hydraulic ...

A hydraulic excavator (HE) is a typical piece of construction equipment and is widely used in various construction fields. However, the poor ...

The proposed boom speed control system ensures the operability of the excavator. The energy saving system was tested on a 21.5-ton hydraulic excavator, and the ...

Construction machinery, especially hydraulic excavators, plays an important role in building and other industries. However, they often consume a lot of energy and emit large ...

In order to study the vibration state of the excavator arm device after an excitation signal is applied, the acceleration of the excavator arm device is analyzed.

Energy storage hydraulic system and excavator using same The invention provides an energy storage hydraulic system and an excavator using the same and belongs to the technical field of ...

The study has proposed a solution to install an additional hydraulic device cluster into the ex-isting forklift hydraulic system to recover excess energy into an accumulator during the lowering ...

Energy saving in construction machinery has become a very important issue due to the increase in fuel price and the environmental pollution, especially for a hydraulic excavator (HE), as it is ...

The urgent issue of the global energy crisis and environmental pollution underscores the need for more efficient, eco-friendly heavy machinery, particularly hybrid ...

PDF | On Jan 15, 2020, Tushar Kanti and others published Conversion and utilization of Gravitational Potential Energy for Hydraulic Excavator | Find, read ...

Considering the loss of high throttling loss for open-circuit hydrostatic transmission at present, hydraulic excavation energy saving is important for removing the ...

Hydraulic excavators are mostly used in mines and construction sites. To minimize the energy consumption of

hydraulic excavators during operation, a slewing energy-saving system of ...

Abstract To improve the vibration reduction system applied to spherical water storage tanks under seismic conditions, a new origami-based hydraulic damper was proposed for use in tuned ...

A new hydraulic hybrid excavator potential energy recovery system is proposed in this paper. The energy recovery system uses threechamber cylinders (TCCs) and ...

In summary, the energy storage device utilized in excavators is comprised of various integral components, including hydraulic accumulators, ...

Energy regeneration systems (ERSs) that use the same energy storage device as hybrid power systems can improve the fuel economies of hybrid hydraulic excavators (HHEs).

Imagine a construction site where excavators hum like caffeinated worker bees - but instead of coffee, they"re powered by their own wasted energy. That"s the magic of ...

In this paper, a novel series hybrid hydraulic excavator based on electro-hydraulic composite energy storage, which provides the average power of the system through ...

Different strategies for improving the energy efficiency of a power hydraulic system have been reviewed in this article. The energy-saving scheme is classified into three ...