



Bucharest Energy Saving Hydraulic Station Accumulator

Triet H.H. Et.al [9] have been developed A novel energy-saving hydraulic system based on an HST/hydraulic accumulator combination was investigated through analysis and modeling. The system improves the efficiency of the primary power source. The

With the growing cost of electrical energy, the necessity of energy-saving implementation in industries based on energy audits has become a major focus area. Energy audit results indicate energy-saving potential in an application and require the physical presence of the auditor's team for monitoring and analyzing the energy consumption data. The use of ...

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The results show that compared with ordinary airbag-type accumulators, using a constant pressure accumulator for energy recovery can avoid the possibility of asymmetric ...

In this paper, a novel energy-saving control strategy is proposed for the accurate motion tracking of a hydraulic manipulator. To achieve independent pressure regulation for each chamber of the cylinder, as well as energy recovery during the back-and-forth movement of the cylinder, a hardware configuration with five low-cost programmable cartridge valves and an ...

Hydraulic accumulators in energy efficient circuits Gustavo Koury Costa^{1*} and Nariman Sepehri²
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Hydraulic accumulators store small amounts of energy to compensate for fluctuations and short bursts. They are well understood and already widely implemented. Their ...

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 categories: System design, Improving ...

DOI: 10.1016/J.EGYPRO.2017.08.255 Corpus ID: 115932622 Energy saving solutions for a hydraulic excavator @article{Bedotti2017EnergySS, title={Energy saving solutions for a hydraulic excavator}, author={Andrea Bedotti and Federico Campanini and Mirko Pastori and Luca Ricc{o} and Paolo Casoli}, journal={Energy Procedia}, year={2017}, volume={126}, pages={1099-1106}, ...

To address this problem, a new energy-saving system based on hydraulic accumulator is proposed in this paper. A simulation model of the system is established. The simulation shows that the system can recover up to 73% of the gravitational energy while reducing the installed power of the electric motor by 60%, specifically from 5.5 kW in the baseline design to 2.2 kW in ...



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Then, a hydraulic excavator energy saving system based on three-chamber accumulator is proposed, which can store and reuse the energy loss from throttling and ...

To meet the demanding requirements of hydraulic accumulator and achieve the energy saving, this 232 study proposed a double-stages pressure hydraulic s ystem with a novel controllable accumulator ...

DOI: 10.1016/J.ENCONMAN.2021.114447 Corpus ID: 237653978 Energy saving of hybrid hydraulic excavator with innovative powertrain @article{Yingxiao2021EnergySO, title={Energy saving of hybrid hydraulic excavator with innovative powertrain}, author={Yu Yingxiao and Tri Cuong Do and Yong Soo Park and Kyoung Kwan Ahn}, journal={Energy ...

Hydraulic hybrid drivetrains, which are fluid power technologies implemented in automobiles, present a popular alternative to conventional drivetrain architectures due to their high energy savings, flexibility in power transmission, and ease of operation. Hydraulic hybrid drivetrains offer multiple environmental benefits compared to other power transmission ...

A piston-type hydraulic accumulator is a type of hydraulic accumulator that uses a movable piston to store hydraulic energy. It consists of a container or unit with a piston that separates the hydraulic fluid from a gas, usually nitrogen, creating a reservoir for storing power.

Hydraulic presses (HPs) are widely used owing to their high load capacity, stiffness, and power-to-mass ratio [1]. However, these are also known for their high energy consumption and low energy efficiency [2]. As shown in Fig. 1, the number of HPs in China is likely to be 4 million by 2020 [3].

In many different industrial domains, hydraulic control systems are extensively utilized. This paper examines the current state of research and the trajectory of energy-efficient hydraulic control system development. Initially, ...

Energy-Saving Adaptive Robust Control of a Hydraulic Manipulator Using Five Cartridge Valves With an Accumulator December 2014 IEEE Transactions on Industrial Electronics 61(12):7046-7054

Saving energy control of cylinder drive using hydraulic transformer combined with an assisted hydraulic circuit. In: Proceedings of the 2009 ICCAS-SICE, Fukuoka, Japan, 18-21 August 2009, pp.2115-2120.

A hydraulic accumulator is a vital component used in hydraulic systems, serving the primary function of storing energy by using a compressible gas (usually nitrogen). This form of energy storage not only enhances the ...

Virvalo and Sun [20] studied methods for recovering hydraulic energy using hydraulic accumulators to store



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potential energy for cranes under various working conditions. ...

One essential component of hydraulic systems is the accumulator, which stores hydraulic energy to provide instantaneous power when needed. In this article, we will delve into the world of hydraulic accumulators, exploring their types, functions, and applications, with a special focus on Bosch Rexroth accumulators, a le

This paper presents the results recorded by upgrading and rehabilitating the pumping stations for an urban water network with a primary goal of diminishing the operation ...

modifications and transformations within the pumping stations led to significant energy savings and at the same time to important water losses reductions within the distribution network.

In order to solve the environmental pollution and the depletion of petroleum energy, construction machine with high efficiency needs to be urgently developed. In this paper we propose a new energy regenerative swing system with a hydraulic accumulator, variable hydraulic motor and proportional flow control valve for realizing highly energy efficient ...

The paper presents the dynamic analysis of the modern electrohydraulic control systems used for driving very heavy equipment like linear and rotary hydraulic gates, double heavy cranes etc.

To reduce the energy consumption and emission, an innovative powertrain and the energy management strategy are proposed for hydraulic excavator in this paper. The novel powertrain consists of the engine, motor/generator, planetary gear, gearbox, and variable hydraulic pump. The energy regeneration system is also applied on the system to regenerate ...

Though the traditional energy regeneration system(ERS) which used a hydraulic motor and a generator in hybrid excavators can regenerate part of the energy, the power of the motor and the generator should be larger and the time for regenerating energy is so short. At first, the structure of new ERS that combines the advantages of an electric and hydraulic ...

A hydraulic accumulator, the key component of the energy regenerative modality, can be decoupled from or coupled to the HST circuit to improve the efficiency of the ...

working efficiency increased by 10%. Moreover, the energy efficiency of the proposed system reached 45.9%, 20.35% higher than that of the traditional system, resulting in a reduction in energy consumption of 169.4 kJ per duty cycle. Keywords Hydraulic

T. H. Ho and K. K. Ahn / Journal of Mechanical Science and Technology 24 (5) (2010) 1163~1175 1165 system or a power supply, while the low-pressure accumulator functions as a low-pressure, high ...



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