

How can a forklift with electric lifting device improve energy management?

We also proposed energy management strategy development of a forklift with electric lifting device to achieve a system that can be controlled easily with different speeds up and down, and at the same time, recover as much energy as possible in the downward movement and braking, which used supercapacitor as the energy storage system.

How efficient is a hydraulic forklift?

We use the supercapacitor as the energy storage system, and maximum recovery efficiency of the electric system is 46.72%. In recent years, the forklift is facing two challenges: energy saving and environmental. However, the hydraulic forklift has low transmission efficiency and energy efficiency.

Why is a forklift a waste of energy?

Not only lifting and lowering of goods, but also speeding up and braking are typical running characteristics of forklift, which waste a great deal of energy. In addition, the transmission efficiency of hydraulic system is very low, which is a great waste of energy in the course of the fork up or down.

How does a forklift lift system work?

The lifting system is controlled directly with an electric motor drive instead of pump. First, we analyzed the working condition and energy flows of the forklift and proposed an energy recovery system for forklift. Second, we built the system model including supercapacitor model, vehicle model and the simulation model in AMESim.

What is the transmission efficiency of electric lifting device?

The transmission efficiency of electric lifting device is up to 82.3%. We propose a rule-based energy management control strategies on forklift with electric lifting device. We use the supercapacitor as the energy storage system, and maximum recovery efficiency of the electric system is 46.72%.

What are the benefits of electric forklift?

The results show that the fuel consumption of the forklift with electric lifting device can be reduced by about 46.72% compared with the hydraulic forklift and its transmission efficiency is improved 82.3% when the loads is 3t. And its Energy saving is the most significant, as shown in Fig. 10, Fig. 12.



Forklift energy storage system in developed countries



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