

## Kongres Container

# Flywheel energy storage and hybrid



## Overview

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Is flywheel energy storage system suitable for hybrid electric vehicle?

Simulation results indicate that flywheel energy storage system is quite suitable for hybrid electric vehicle and with fuzzy logic control strategy both the performance of ICE and ISG are optimized that reduces fuel consumption of vehicle to greater extent. Flywheel energy storage system (FESS) is different from chemical battery and fuel cell.

Can flywheel energy storage systems improve vehicular performance and sustainability?

Examined the pivotal role of Flywheel Energy Storage Systems (FESS) in enhancing vehicular performance and sustainability. Conducted a comprehensive analysis of FESS technologies and their integration with current vehicle powertrain systems. Evaluated the benefits and challenges of FESS in automotive applications.

What is energy storage with flywheel?

The key point of energy storage with flywheel is to reduce the loss of mechanical energy, namely the loss of kinetic energy that consists of air friction resistance and rotary resistance. According to different means for the reduction of energy loss, FESS can be divided into low-speed flywheel system and high-speed flywheel system.

How much power does a hybrid flywheel take?

The hybrid system takes four-cylinder ICE with maximal power of 45Kw and ISG with maximal power of 30Kw as its dynamic system. A FESS with peak power of 35Kw and rotary inertia of 1.8Kg.m<sup>2</sup> is chosen. The maximal rotary speed of flywheel is 18000r/min while the minimal rotary speed is 1350r/min.

What are flywheel energy storage systems (fess)?

Flywheel Energy Storage Systems (FESS) are a pivotal innovation in vehicular

technology, offering significant advancements in enhancing performance in vehicular applications. This review comprehensively examines recent literature on FESS, focusing on energy recovery technologies, integration with drivetrain systems, and environmental impacts.

What is a high-speed flywheel system?

The high-speed flywheel system consists mainly of a flywheel, a motor and a generator. It is connected with exterior electrical systems through input or output electronic equipments and the power transported from exterior systems is converted from electric energy into mechanical energy by raising rotary speed of flywheel.

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