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Title: Battery pack support structure

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Why is battery pack box structure important?

Abstract. The power battery is the only source of power for battery electric vehicles, and the safety of the battery pack box structure provides an important guarantee for the safe driving of battery electric vehicles. The battery pack box structure shall be of good shock resistance, impact resistance, and durability.

How a battery pack is designed?

With reference to the existing models on the market, the battery pack structure of the model is designed according to the main parameters of the model, and a simplified electric vehicle battery pack model is established by Creo and the material information is determined.

Where is the battery pack box arranged?

The battery pack box of the target vehicle is arranged under the chassis, below the floor of the passenger compartment, disassembled from the electric vehicle. The appearance structure of the box is shown in Fig. 3. After removing the upper cover, the battery pack module is presented, and the structure is shown in Fig. 4.

What is a power battery pack design scheme?

Through weight reduction and structural optimization, an innovative power battery pack design scheme is proposed, aiming to achieve a more efficient and lighter electric vehicle power system.

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The development of new energy vehicles, particularly electric vehicles, is robust, with the power battery pack being a core component of the battery system, playing a vital role ...

The integration of the battery pack's housing structure and the vehicle floor leads to a sort of sandwich structure that could have beneficial effects on the body's stiffness (both ...

Most battery packs in vehicles currently on the market are traditional in the sense that they use individual modules within the pack, with surrounding support structures and the ...

Discover how EV battery pack design shapes electric vehicle performance with a focus on structure, safety, thermal management, and cutting-edge integration methods.

In previous studies, many battery pack box structures had large volume and complex structures. By establishing models in virtual prototypes and simulating and analyzing ...

Discover how EV battery pack design shapes electric vehicle performance with a focus on structure, safety, thermal management, and ...

Along with the continuous progress of lithium-ion batteries and the automotive industry, the safety of battery-pack systems (BPSs) is gradually becomi...

Firstly, structural improvement design and light alloy material replacement for high-strength steel battery pack of a pure electric vehicle were carried out, which improvd the safety ...

The latest advancements and near-future trends in automotive battery packs, underlying regulatory compliance, and performance requirements are presented in this paper. ...

The development of new energy vehicles, particularly electric vehicles, is robust, with the power battery pack being a core component ...

ice structure to protect the battery from ground impact load. Previous research has been done on optimizing the tubular auxetic structure for non-module battery packs to reduce ...

in Model Y and Future Models Battery Cell-to-Chassis Integration 4680 Cells as a Structural Element Tesla's latest battery ...

This paper focuses on the mechanical reliability and crashworthiness performance of battery pack systems in electric vehicles, evaluating multicell square tube crash wall structures ...

A battery pack structure model is imported into ANSYS for structural optimization under sharp acceleration, sharp turn and sharp deceleration turn conditions on the bumpy road.

The paper aims to investigate what has been achieved in the last twenty years to understand current and future trends when designing battery packs. The goal is to analyze the ...

The battery system combines many cells and other control electronics into a full battery to power the EV.

This research explores that idea by studying the design and optimization of sandwich-based auxetic honeycomb structures to protect ...

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