

Structure of new energy battery pack

What is a battery pack box structure?

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.

What is a power battery pack?

The power battery pack provides energy for the whole vehicle, and the battery module is protected by the outer casing. The battery pack is generally fixed at the bottom of the car, below the passenger compartment, by means of bolt connections. The safety of the power battery pack is one of the important indicators to measure the safety of BEVs.

How does a battery pack work?

The power battery pack of the target vehicle is connected with the structural bolts of the vehicle chassis through the lifting lugs welded on the lower box of the battery pack. 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.

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.

How many cells are in a battery pack?

The power battery pack module of the target model is composed of 288 single cells, every 12 single cells are combined into an independent battery module in parallel, and a total of 24 battery modules are arranged in the quadrilateral battery pack box. An inner frame is used to support and fix the battery module and the battery pack box.

What is a battery pack numerical model?

The battery pack numerical model The BP model was developed on the basis of a Two-cell Interaction model. In particular, the model simulates the behavior of every single cell in the BP and the environment that surrounds them.

A multi-physics optimization framework is presented to design a new battery packaging for electric vehicles (EV). This battery packaging utilizes two types of multifunctional ...

paper considers the box structure of the battery pack for the new energy vehicles as an example, in which the foam aluminum material is adopted for structural lightweight design to...

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The main structure of the battery pack box includes the upper-pressure cover, the upper-pressure rod, the lower box body of the battery pack, the inner frame, the lifting lug, ...

Research on Lightweight Structure of New Energy Vehicle Power Battery Package Lin Xi*, Longjie Wang, Haoxiang Zhang, ... In previous studies, many battery pack box structures had large volume and ...

The main structure of the battery pack box includes the upper-pressure cover, the upper-pressure rod, the lower box body of the battery pack, the inner frame, the lifting lug, the battery module, the single battery, and other structures. The power battery pack box system is mainly integrated with the battery management system, the battery cell ...

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.

Literature study conducted by (Jaguemont et al. 2016) and (Chen et al. 2017) stated that the vibration isolation of the battery pack can be achieved by designing the new structure of battery pack/mounting frame, selecting appropriate materials and placing battery pack in the vehicle. The guidelines for designing battery packs by compartmentalisation of the ...

This study takes a new energy vehicle as the research object, establishing a three-dimensional model of the battery box based on CATIA software, importing it into ANSYS ...

This study developed a model-based methodology for use in the design of battery packs for automotive applications. This methodology is based on a multi-domain simulation approach to allow electric, thermal and geometric evaluations of different battery pack configurations, with particular reference to Li-NMC technology. The results of this ...

The utility model discloses an air cooling structure for a battery pack of a new energy vehicle, which comprises a structural body, and both ends of the inner part of the protective frame are provided with limited position rods, and an inserting plate one is provided inside the inserting

A multi-domain model-based methodology is proposed to support the design of new battery packs. ... An extension of P2D Newman's model approach was used to make the multilayer structure of the battery cell homogeneous. The superiority of this modelling strategy was shown by analyzing the effect of high discharging operations on battery cell temperature ...

The box structure of the power battery pack is an important issue to ensure the safe driving of new energy vehicles, which required relatively better vibration resistance, shock ...

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vehicles, which required relatively better vibration resistance, shock resistance, and durability. Its structural safety is closely related to the life safety and property safety of drivers and passengers, which is an important index to ...

As the market demand for battery pack energy density multiplies progressively, particularly in the context of new energy pure electric vehicles, where a 10% diminution in vehicle overall mass ...

In this paper, the power battery case of a pure electric vehicle is taken as the research object. Based on the analysis of its structural characteristics, a three-dimensional model is...

Chassis layout of new energy vehicle hub electric models [2]. The battery is integrated into the chassis of the new energy-pure electric car, which has a higher percentage of unsprung mass, a ...

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