

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.

How does a battery pack box work?

The battery pack box is bolted to the chassis structure of the vehicle through the lifting lugs and fixed to the chassis of the vehicle. The internal structure of the battery pack box is shown in Fig. 8. The structure includes the upper-pressure rod, the upper-pressure cover, and the inner frame.

What are the components of a battery box?

The battery box consists of four primary structural pieces: top cover, bottom cover, internal structure, and side impact crash protection structure. In the image below, the primary load-bearing structural components are identified as the crash structure and the battery frame. Read Success Stories

Can aluminum and high-strength steel connect a battery pack box?

Li et al. analyzed the connection between aluminum and high-strength steel, expounded on the current status of the connection technology of new energy vehicle battery pack boxes, and put forward the point of view that the connection-related issues such as matrix damage, interface failure, and long welding cycle need to be further studied.

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.

Can aluminum foam be used in a battery pack case?

In the above literature, research has been carried out on the aspects of automotive structural safety, optimization of battery pack box structure, and lightweight technology of new energy vehicles, but the application of aluminum foam material on the battery pack case and the realization of lightweight design are yet to be studied in depth.

battery boxes of electric vehicles, and designed a new battery box structure. Yang, S.J [2] analyzed the dynamic and static characteristics of the battery box for an en ...

"This new Al-ion battery design shows the potential for a long-lasting, cost-effective and high-safety energy storage system," added Wei Wang, a co-author of the study. ...

The purpose of the research is to improve the protection level of the battery pack to IP68, to optimize the sheet metal power battery box structure into a more lightweight ...

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 ...

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 battery packs are crucial components of electric vehicles and may severely affect the continue voyage course and vehicle safety. Therefore, design optimization of the battery-pack ...

Aluminum extrusions produce high performance electric vehicle battery systems and packaging. Learn why aluminum extrusions are effective for robust battery box or housing design. ... the ...

EV battery case, also known as EV battery box, is one of the most important components in new energy vehicles. The best NEVs make use of aluminum alloy for the battery case structures as ...

DOI: 10.15632/jtam-pl/141503 Corpus ID: 238688750; Simulation and optimization of a new energy vehicle power battery pack structure ...

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As an important device to protect batteries in electric vehicles, the dynamic and static performance of the battery box is closely related to the safety of the whole vehicle. ...

The battery box structure system is mainly composed of the battery PACK cover, tray, various metal brackets, end plates, and bolts. ... New energy vehicle blade battery ...

A typical battery pack consists of battery cells, a battery management system, connectors, fuses, a battery box, and wiring. A battery box is usually made from metal, such ...

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Firstly, the finite element model of the battery box was established by using ABAQUS. The battery box was geometrically cleaned, the composite material of the box ...

[1] Zhao H. W., Chen X. K. and L Y 2009 Topology optimization of power battery packs for electric vehicles
Journal of Jilin University 39 846-850 Google Scholar [2] Yang S. J. ...

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