New energy battery box riveting method

How can Ansys reduce the weight of a battery box?
Based on this,the ANSYS software's topology optimization toolwas utilized to successfully reduce the weight of the box by 6.8%. Following finite element analysis,the battery box's performance satisfies the necessary standards in all aspects,demonstrating the viability of the lightweight solution. Content may be subject to copyright.

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.

How can a battery pack box reduce the displacement?
Jia Feng et al. optimized components such as the carrying beamof the battery pack and box cover,which reduced the battery pack box mass by 41.7 kg,solved the problem of stress concentration on the bearing beam,and resulted in a maximum displacement reduction of 3.6 mm under quasi-static operating conditions .

How does a rigid column affect a battery pack box?
In the analysis of the vehicle side impact test,the rigid column invades the electric vehicle,which deforms the sill beamand the side of the battery pack box. Figure 10 shows the distribution of the stress nephogram of the battery pack box during the collision.

How insulating plate is used in a battery pack box?
An insulating plate is mainly laid under the battery pack box as an anti-leakage treatment. A series of temperature sensors are combined and distributed on the insulating plate according to the arrangement. A cooling fan is installed on one side of the box to meet the requirements of circulating heat dissipation inside the battery pack box.

What is a power battery pack box?
The power battery pack box is the core component of the BEV. 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.

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 ...

The battery boxes not only carry the battery in the static situation but also bear the dynamic loading, such as vibrate, emergency brake, make a turn etc., so the basal box need reinforcing ...

The present invention relates to the rivet techniques of new energy lithium battery aluminum frame, belong to field of new energy technologies is provided with aluminum frame, the...

The invention discloses a new energy battery top cover plate pole riveting carrier drawer, which relates to the field of pole riveting and comprises a top cover, wherein the top cover is...

The second-order Jahn-Teller effects by slight molybdenum substitution was confirmed to activate a new phase formation and to construct a multiphase riveting structure. A P3/O3 riveting-structured NaNi 0.3 Mn 0.52 Mo 0.03 Cu 0.1 Ti 0.05 O 2 cathode material was successfully synthesized for sodium ion batteries, which undergoes a reversible phase ...

Lan et al. proposed a set of methods for analyzing the impact response of the battery pack box and internal structure, established a refined battery pack model, and verified the model ...

As a consequence, it is particularly imperative to undertake lightweight design optimization for the battery bracket of new energy vehicles by applying 3D printing technology. To actualize...

This paper uses the finite element model analysis method of the whole vehicle to verify the mechanical properties of the foamed aluminum material through experiments, and optimizes the design of the weak links in the structure of the power battery pack box, which effectively reduces the maximum deformation of the battery pack box and the ...

Strength analysis of the lower battery tray bracket for a electric vehicle Methods of analysis. For the convenience of analysis, the designed lower bracket model was scaled down by a factor of 0.2.

This paper uses the finite element model analysis method of the whole vehicle to verify the mechanical properties of the foamed aluminum material through experiments, and ...

A lithium battery and new energy technology, which is applied in the direction of electric power devices, power devices, transportation and packaging, etc., to achieve the effects of simple ...

However, riveting is the better method as you only need to drill the material and attach the rivet or fastener. Heat Requirement. For materials that do not require heat, riveting is the better method. For example, aluminum is not stable thermally, and joining several aluminum sheet metal parts using high heat is mostly not advisable. Therefore ...

Lan et al. proposed a set of methods for analyzing the impact response of the battery pack box and internal structure, established a refined battery pack model, and verified the model through the calculation results of the crash analysis, which provided a basis for the crash analysis and optimization design of the battery pack [8].

She studies Li-ion-, Na-ion-, and solid-state batteries, as well as new sustainable battery chemistries, and develops in situ/operando techniques. She leads the Ångström Advanced Battery Centre, and has published more than 280 scientific papers (H-index 66). Professor Edström is elected member of the Royal Academy of Engineering Sciences ...

Battery-operated riveting tools are engineered to deliver consistent riveting force, ensuring secure and reliable connections every time. Their electronic control systems eliminate the guesswork and variability often associated with manual riveting methods. This precision translates into increased product quality and reduced rework, saving time and ...

The invention discloses a new energy battery upper cover hot riveting process, which is used for carrying out new energy battery upper cover hot riveting through integrated...

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