
New Energy Battery Pack Mechanical Design

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.

What are the components of an electric vehicle power pack?

The main components of an electric vehicle power pack referenced in this paper include the battery cell, battery module, battery management system (BMS), cooling equipment, electrical system, and various structural components: the upper cover, lower box, bracket, etc. [10, 11, 12].

What is battery pack design?

Battery pack design involves considering electrical, mechanical, thermal aspects and the Battery Management System (BMS). - Mechanical design considerations include the weight of the battery, the forces acting on it, and the material selection for the base plate.

Can a model-based methodology be used in the design of battery packs?

Conclusions 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 battery pack design shall be such that could meet the required max power in traction and regeneration modes. In addition, the charging power is a critical factor for end users.

The target concerns electric and hybrid vehicles and energy storage systems in general. The paper makes an original classification of past works defining seven levels of ...

This paper offers a detailed overview of the process involved in designing a mechanical structure for an electric vehicle's 18 kWh battery pack. The chosen ANR26650M1-B lithium iron ...

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 ...

With the rapid development of electric vehicles and energy storage systems, traditional battery pack designs often encounter multi-objective conflicts. Optimizing the battery ...

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 ...

This work proposes a multi-domain modelling methodology to support the design of new battery packs for automotive applications. The methodology allows electro-thermal ...

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.

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