
Dynamic analysis of new energy battery cabinets

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.

How can Ansys reduce the weight of a battery box?

Based on this, the ANSYS software's topology optimization tool was 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.

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.

Does a lower battery pack design have significant redundancy?

The analysis results indicate that the strength of the battery pack meets the allowable requirements, suggesting that the lower housing design has significant redundancy, providing guidance for subsequent optimization.

This work incorporates base year battery costs and breakdowns from (Ramasamy et al., 2022), which works from a bottom-up cost model. The bottom-up battery energy storage system ...

This study investigates the co-optimization of structural stability and light weighting for a pure electric vehicle battery pack casing under bumpy road loading, using ANSYS finite element ...

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 finite ...

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

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