

ContainerPower Energy Solutions

Pack battery design and structural design



Overview

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 battery packaging design improve battery safety?

A robust and strategic battery packaging design should also address these issues, including thermal runaway, vibration isolation, and crash safety at the cell and pack level. Therefore, battery safety needs to be evaluated using a multi-disciplinary approach.

How to design a battery pack?

The dimensions of battery packs also require a design to space evaluation. The occupied volume of the pack should be suitable for the related car chassis. As previously mentioned in Section 1, CTP and CTC are two different strategies for packaging design. These approaches differ from the modular one.

How to design a battery system?

As Pumpel et al. suggested, it is necessary to consider space for the complete battery system during the early design phases. They defined essential design parameters such as component dimensions, wall thicknesses for module and pack housings, longitudinal and cross beams, air gaps, etc.

What is lithium-ion battery pack construction?

Lithium-ion battery pack construction requires systematic engineering methodology across electrical, mechanical, and safety disciplines. The design process demands careful evaluation of technical trade-offs at each stage, from initial cell selection through final certification compliance.

How does connection system design affect battery performance & safety?

Connection system design significantly influences overall battery pack performance and safety. Proper implementation ensures efficient power delivery throughout the system's operational life, while inadequate design can compromise even the most advanced battery technologies.

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