



FTMRS SOLAR

Air-cooled battery pack





Overview

Can air cooled battery pack improve temperature uniformity?

An optimal design concept of air-cooled battery pack has been proposed. The cooling strategy to improve battery temperature uniformity has been studied. This paper describes a cooling strategy development method for an air cooled battery pack with lithium-ion pouch cells used in a hybrid electric vehicle (HEV).

What is a battery cooling system?

Accordingly, a cooling system is typically employed with the battery cells in the battery pack. A typical air cooled battery pack includes single or multiple strings of battery cells, a plurality of spaced apart battery cooling plates, cooling ducts, and control modules.

Do cooling strategies affect battery pack thermal behavior?

Analytical DOE studies are performed to examine the effects of cooling strategies including geometries of the cooling duct, cooling channel, cooling plate, and corrugation on battery pack thermal behavior and to identify the design concept of an air cooled battery pack to maximize its durability and its driving range. 1. Introduction.

Which structure has the best air-cooling effect in lithium-ion battery packs?

It is found that the square arrangement is the structure with the best air-cooling effect, and the cooling effect is best when the cold air inlet is at the top of the battery pack. We hope that this work can provide theoretical guidance for thermal management of lithium-ion battery packs. Export citation and abstract BibTeX RIS



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A Thermal Investigation and Optimization of an Air-Cooled

Jun 9, 2020 · An effective battery thermal management system (BTMS) is essential to ensure that the battery pack operates within the normal temperature range, especially for multi-cell ...

Optimizing thermal performance in air-cooled Li-ion battery packs ...

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Study on The Cooling Performance By Cooling Air Channel Design For Air

Dec 20, 2024 · In this study, a cooling structure is designed that can improve the cooling efficiency of an air-cooled battery pack, which is an important component of hybrid electric ...

Optimal Structure Design and Temperature Control Strategy of Air-Cooled

May 11, 2025 · A reliable battery thermal management system is essential to maintain optimal battery performance. In this article, simulation is carried out for the design of air-cooled battery ...

Thermal management of air-cooled helical and conventional ...

Dec 1, 2025 · To address these limitations, the present study introduces a novel air-cooled battery pack configuration featuring helical arrangements of both cooling channels and cylindrical ...

Thermal Management of Air-Cooling Lithium-Ion Battery Pack

Dec 1, 2021 · We discuss the air-cooling effect of the pack with four battery arrangements which include one square arrangement, one stagger arrangement and two trapezoid arrangements.

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A Thermal Investigation and Optimization of ...

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Development of cooling strategy for an air cooled lithium-ion battery pack

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Design and Optimization of Air-Cooled Structure in Lithium-Ion Battery Pack

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Air-Cooled Lithium-Ion Battery Pack

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