

Title: Research on direct cooling and heating technology of battery cabinet

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Can direct cooling improve battery thermal management?

Provided by the Springer Nature SharedIt content-sharing initiative Direct cooling technology is regarded as a promising method for battery thermal management owing to its high heat transfer efficiency. However, the overhea

What is a direct cooling battery thermal management system?

To address high-temperature conditions during summer, a direct cooling battery thermal management system was designed. Based on the structure of the direct-cooled battery pack, a model of the battery pack was developed to analyze its temperature behavior during discharge.

Is direct refrigerant cooling better than other power battery cooling technologies?

Compared with other power battery cooling technologies, direct refrigerant cooling not only has higher cooling efficiency, but also can significantly reduce the cost of the whole vehicle, which is an important development direction for future power battery thermal management system design.

Does battery thermal management system have good cooling effect and temperature uniformity?

The experimental results show that the designed battery thermal management system has good cooling effect and temperature uniformity. With the rapid development of new energy vehicle technology, the range of new energy vehicles is becoming a pain point for the majority of car owners.

Due to the high cooling efficiency of direct refrigerant cooling, the direct refrigerant cooling technology is applied to achieve rapid cooling during the super fast-charging of power batteries.

Existing BTM technologies mainly include air cooling [4], [5], liquid cooling [6], [7], PCM (Phase Change Material) cooling [8], [9], and direct refrigerant cooling [10]. Each technology has its own advantages ...

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It then delves into direct cooling battery thermal management technology, which utilizes the principle of refrigerant evaporation to absorb and dissipate heat effectively.

A refrigerant direct cooling thermal management system is designed to give consideration to the thermal management of batteries and cabin comfort. The control strategies is proposed for ...

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In addition, they managed to control the maximum temperature under 40 & #176;C for an evenly distributed 192 battery cells. Air cooling, utilizing fans or blowers to direct airflow across the battery ...

It is of great significance for promoting the development of new energy technologies to carry out research on the thermal model of lithium-ion batteries, accurately describe and predict the ...

This paper examines direct refrigerant cooling systems for prismatic lithium-ion battery packs, offering superior heat dissipation and compact integration compared to traditional air or liquid ...

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