

The role of the heat dissipation frame when installing the battery pack

What is the heat dissipation performance of a battery pack?

When the charge and discharge rate is 1C, and the environmental temperature is $20\pm 176^{\circ}\text{C}$, the heat dissipation performance of battery pack with double "U" type duct could meet the design requirements only by 70% SOC state.

Can a horizontal battery pack improve heat dissipation performance?

Highlights Changing longitudinal battery pack into horizontal battery pack, it could improve the heat dissipation performance by shorting airflow path. The heat dissipation performance of battery pack with double "U" type duct basically met the design requirements at different temperatures.

What is the Order of heat dissipation performance?

The order of heat dissipation performance from low to high is as follows: longitudinal battery pack, horizontal battery pack, and battery pack with bottom duct mode.

How does a battery design affect heat dissipation?

The design intent is to keep the package changes to the minimum but with better cooling efficiency. The results show that the locations and shapes of inlets and outlets have significant impact on the battery heat dissipation. A design is proposed to minimize the temperature variation among all battery cells.

What is the heat dissipation performance of battery pack with airflow duct mode?

When the charge and discharge rate is 1C, and the environmental temperature is $20\pm 176^{\circ}\text{C}$, the heat dissipation performance of battery pack with all airflow duct modes could not meet the design requirements, but the maximum temperature rising of battery pack with bottom duct mode is $10.36\pm 176^{\circ}\text{C}$, and it approaches the design requirements. Table 6.

How to improve heat dissipation performance?

It could improve the heat dissipation performance by shorting the airflow path in order to improve airflow passing ability. For example, it could change the above longitudinal battery pack into horizontal battery pack, and the air-inlet is also on the opposite position of fan.

The battery pack installation and heat dissipation rack provides a novel conception to solve the problems after combination of batteries and the problem of difficult heat dissipation of a...

In the present invention provides a battery pack installation heat dissipation frame, which includes a baffle which is combined with a battery support frame and an open end of a plurality of lower ends, the open bottom, top and the baffle of the support frame. Horizontally protruding extensions are provided on both sides, and a baffle is provided at an open end of one of the plurality of ...

The role of the heat dissipation frame when installing the battery pack

An appropriate cooling system design is necessary to reduce both $T_{ris,max}$ and $T_{di f,max}$. It is desirable to have the maximum temperature increase be less than 10 °C and the maximum ...

The battery pack with closely arranged batteries, the battery pack with 3mm air gap between batteries and the battery pack with flame retardant thermal protection material between batteries were ...

PDF | On Jan 1, 2023, ??? published Analysis of Heat Dissipation Channel of Liquid Cooling Plate of Battery Pack for New Energy Electric Vehicle Based on Topology Optimization Technology ...

The heat dissipation capability of the battery thermal management system (BTMS) is a prerequisite for the safe and normal work of the battery.

In the present invention provides a battery pack installation heat dissipation frame, which includes a baffle which is combined with a battery support frame and an open end of a...

Research on the heat dissipation performances of vehicle power battery pack with liquid cooling system
Deyou Yin¹, Jimin Ni¹, Xiuyong Shi^{1,*}, Hua Liu^{1,2}
¹School of Automotive Studies, Tongji University, Shanghai 201804, China
²Nanchang Automotive Institute of Intelligence & New energy, Nanchang 330052, China
ARTICLE INFO ABSTRACT

The battery thermal management system plays an important role in electric vehicles, and determines the performance and the lifespan of electric vehicles. In this paper, optimization of the heat dissipation structure of lithium-ion battery pack is investigated based on thermodynamic analyses to optimize discharge performance and ensure lithium-ion battery pack safety.

This study focuses on the battery pack passive heat preservation strategies under a frigid environment (-30 °C), exploring the main factors affecting the heat dissipation of ...

The design intent is to keep the package changes to the minimum but with better cooling efficiency. The results show that the locations and shapes of inlets and ...

Web: <https://www.vielec-electricite.fr>