Electric Vehicle Battery Shell BMW Lithium Iron Phosphate Battery Pack Frame

Our Product Introduction

Basic Information

- Place of Origin: China
- Brand Name: Dongfeng
- Certification: IATF 16949:2016
- Model Number: H56
- Minimum Order Quantity: 100 piece
- Packaging Details: Metal mesh box packaging
- Delivery Time: Spot goods
- Payment Terms: T/T
- Supply Ability: Annual production of 50000 pieces

Product Specification

- Shockproof: Yes
- Size: Customizable
- Color: Silver
- Weight: Lightweight
- Heat Dissipation: Efficient
- Installation Method: Bolt-on
- Durability: High
- Waterproof: Yes
- Corrosion Resistance: Strong
- Material: Aluminum Alloy
- Warranty: 1 Year
- Compatibility: Universal
- Impact Resistance: Excellent
- Highlight: **BMW Battery pack frame**, **lithium iron phosphate Battery pack frame**,

Product Description

The frame of a new energy battery pack is an indispensable component in electric vehicles (EVs), and its design, materials, and manufacturing process are directly related to the safety, reliability, and service life of the battery pack. The following is a detailed introduction to the frame of the new energy battery pack:
1, The function and importance of battery pack frame
The main function of the battery pack frame is to protect and support the battery module, ensuring its safety and stability under various working conditions. It can effectively prevent damage to battery modules from external impacts, vibrations, and moisture, while providing necessary heat dissipation channels to ensure the normal operation of the battery system. In addition, the battery pack frame is also a key component for integrating the battery pack with the vehicle chassis, playing an important role in the installation, fixation, and disassembly of the battery pack.
2, Material selection for battery pack frame
The material selection for the battery pack frame is crucial, and the ideal material should have lightweight, high strength, corrosion resistance, and good thermal conductivity. At present, the common battery pack frame materials on the market mainly include:
Aluminum alloy: Due to its lightweight, high strength, and excellent mechanical properties, aluminum alloy has become an ideal material for battery pack frames. Aluminum alloy has good formability, is easy to process into various shapes and sizes, and has good corrosion resistance and thermal conductivity, which helps with the heat dissipation of battery packs.
Magnesium alloy: Magnesium alloy is lighter than aluminum alloy, but its strength is slightly inferior and its corrosion resistance is poor. Therefore, the application of magnesium alloy in battery pack frames is relatively limited, and it is usually necessary to enhance its protective ability through coatings or composite materials.
Carbon fiber composite materials: Carbon fiber composite materials have a very high strength to weight ratio, but the cost is relatively high. Its application is usually limited to high-performance electric vehicles or used on specific components to reduce total weight.
3, Structural design of battery pack frame
The structural design of the battery pack frame must take into account strength, rigidity, and space utilization efficiency. Here are some common structural design points:
Module layout: The module layout inside the battery pack should maximize the use of limited space while ensuring sufficient spacing between each battery cell to avoid heat dissipation difficulties or mechanical stress concentration caused by excessive compactness.
Mechanical structure: The battery pack frame should have sufficient structural rigidity to resist vibrations and impacts during vehicle operation. Usually, honeycomb structure and frame reinforcement design are used to improve the strength and stiffness of the frame.
Sealing design: In order to prevent the external environment from affecting the battery pack, such as the intrusion of moisture and dust, the sealing design of the battery pack frame is crucial. Common sealing methods include using rubber sealing rings, sealing strips, etc.
4, Thermal management of battery pack frame
The battery pack generates a large amount of heat during operation, so effective heat dissipation management is one of the key focuses of battery pack design. The battery pack frame is usually designed with heat dissipation channels or fins, which utilize the material's thermal conductivity and air convection to naturally dissipate heat. For high-performance battery packs, active heat dissipation methods such as liquid cooling systems may also be used to improve heat dissipation efficiency.
5, Security design of battery pack frame
The safety design of the battery pack frame aims to prevent and respond to possible dangerous situations such as battery thermal runaway, collision, short circuit, etc. Common security design measures include:
Fireproof insulation layer: Add fireproof insulation material between the battery module and the frame to prevent flame and high temperature diffusion in case of thermal runaway.
Electrical safety design: Optimize electrical wiring and connector design to reduce the risk of short circuits and arcs. Adopt protective devices such as fuses and circuit breakers to cope with overcurrent and short circuits.
Collision safety design: The battery pack frame should have good collision resistance, especially in the side and bottom areas. Usually, reinforced structures and energy absorbing designs are used to minimize damage to the battery caused by impact.
In summary, the frame of the new energy battery pack is an indispensable component in electric vehicles, and its design, materials, and manufacturing process are directly related to the safety and reliability of the battery pack. Through reasonable material selection, optimized structural design, efficient heat dissipation management, and strict safety considerations, the performance and service life of battery packs can be significantly improved.

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DFTD Dongfeng (Shiyan) Torsional Damper Company Limited

gjh.8266@163.com dongfengtorsionaldamper.com

10th Floor, Building B, Donghe Center, Dongfeng 3rd Road, Wuhan Economic and Technological Development Zone, China