

What are the parameters of a battery pack?

One of the general parameters of the battery pack is the discharging information. For safety reasons, it is recommended to discharge the battery pack before the first step of disassembly (see Section 2.2). The battery pack is connected to the electric vehicle via a high-voltage (HV) and a low-voltage (LV) plug.

How to improve the sorting of battery pack components?

To improve the sorting of the battery pack components to achieve high-quality recycling after the disassembly, a labeling system containing the relevant data (e.g., cathode chemistry) about the battery pack is proposed. In addition, the use of sensor-based sorting technologies for peripheral components of the battery pack is evaluated.

How to evaluate a battery pack group?

The evaluation of a battery pack group involves not only the health status, capacity, and lifespan of the batteries but also the establishment of the battery management system (BMS), which is crucial for ensuring the safe operation of the reorganized battery packs.

What technological challenges are facing the battery pack disassembly process?

In addition to the still comparatively small quantities of battery pack returns to be recycled at the current point in time, there are a number of technological challenges with regard to full sensor-based component detection and automation of the battery pack disassembly process.

How does a car battery pack work?

The battery pack is connected to the electric vehicle via a high-voltage (HV) and a low-voltage (LV) plug. The battery management system that is located in the battery pack controls, among other things, the charging and discharging process of the battery pack and is supplied with power (e.g., 12 V) via the vehicle's electrical system.

Are battery pack grouping strategies a viable solution for battery recycling?

By conducting comprehensive performance assessments on retired battery pack groups, the study seeks more rational battery pack grouping strategies with the aim of increasing the secondary utilization rate of batteries, reducing environmental impact, and providing economically viable solutions for the battery recycling industry.

Waterjet cutting, which is also a process approach, faces the challenge of water getting into the battery pack, which can also lead to short circuits. Therefore, there is a need ...

This work examines the key advances and research opportunities of emerging intelligent technologies for EV-LIB disassembly, and recycling and reuse of industrial products ...

Battery Pack Detachment Technology

Apple's MagSafe Battery Pack is no longer available, but Belkin's BoostCharge Pro Magnetic Power Bank connects just as easily to your iPhone. This MagSafe-compatible battery supports wireless ...

With the module-free pack design, VCTPR and GCTPR can be enhanced to over 60% and 80%. In the previous article, we described the concept, specifications, pros and cons of the BYD Blade Battery...

This study introduces a sophisticated methodology that integrates 3D assessment technology for the reorganization and recycling of retired lithium-ion battery packs, aiming to mitigate environmental challenges and enhance sustainability in the ...

With CTP technology, battery packs are assembled directly from the cells without the need for modules. Many battery manufacturers, such as BYD Auto, CATL, LG Chem, and SVOLT, are exploring CTP ...

The best way to assess this technology is in production vehicles and we can see that the BYD and CATL designs are a step change. Mercedes Vision EQXX . With expert engineering and Formula 1 thinking, our battery ...

SVOLT ENERGY TECH COMPANY LTD, SVOLT ENERGY TECHNOLOGY COMPANY LTD, 2023. Battery pack and power device with improved internal temperature uniformity in immersion cooling. The battery pack has a unique flow path design to prevent temperature gradients in the immersion liquid. The pack has dividing holes in the upper cover ...

The present invention relates to an apparatus for automatically attaching and detaching a battery pack of an electric vehicle, wherein since the separation of a battery pack of an electric...

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As a definition for this paper, semi-destructive disassembly technologies aim to separate components of a EVB by destroying connecting elements such as screws or structural components of the battery pack. The purpose of these technologies is usually to efficiently disassemble non-detachable joints while preserving the ability to reuse key ...

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Besides the machine and drive (Liu et al., 2021c) as well as the auxiliary electronics, the rechargeable battery

Battery Pack Detachment Technology

pack is another most critical component for electric propulsions and await to seek technological breakthroughs continuously (Shen et al., 2014) g. 1 shows the main hints presented in this review. Considering billions of portable electronics and ...

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The system automates several steps. First, a 2D camera identifies the battery pack. The lid is then opened by loosening the screws and a special gripper separates the lid from the housing. In the next step, the exact positions of the battery modules, cables, high-voltage connectors (busbars) and other electronic components are detected. In ...

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