

Disassembly of 36V liquid-cooled energy storage battery pack

How do you disassemble a battery pack?

To conduct the operations, destructive disassembly has been a prevailing practice. The disassembly phase of the battery pack includes cutting cable ties, cutting cooling pipes, and cutting bonded battery modules and the battery bottom cover for separation.

How ATEX 3 battery pack was disassembled?

Following the recommendations given after the safety analysis, as a specific potentially explosive atmosphere (ATEX) 3 zone, the battery pack was manually disassembled. The manual disassembly brought to a disassembly procedure which was decomposed and analysed to identify how to automate the same operations with a robot.

How to discharge a battery before disassembly?

For a controlled discharging before first step of disassembly, the specific connector models of the high-voltage plug and low-voltage plug, the CAN Connections, the necessary current flows for the battery management system (e.g., 12 V), as well as the specific release commands must be given by the OEM.

Is a fully automatic battery pack disassembly possible?

Battery pack disassembly is a part of this field of applications as a practical approach to preserving operators' safety and health by coping with the high variability of products [38,64]. However, most authors agree that a fully automatic battery pack disassembly is not feasible with the current constraints [17,21,37,41,56].

Can a robotic cell disassemble a battery pack?

The analysis highlights that a complete automatic disassembly remains difficult, while human-robot collaborative disassembly guarantees high flexibility and productivity. The paper introduces guidelines for designing a robotic cell to disassemble a battery pack with the support of an operator.

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.

GTEF-832V-230KWH-R Large Power System | GTCAP. GTEF-832V/230kWh-R liquid-cooled energy storage integrated cabinet 1. The system integrates PCS, battery, BMS, EMS, thermal management, power distribution and fire protection, etc., and adopts a single string design to achieve zero loss tolerance in parallel;
2.

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By performing time-dependent and temperature analyses of the liquid cooling process in a Li-ion battery pack, it is possible to improve thermal management and optimize battery pack design. Next Steps. Try modeling a liquid-cooled Li-ion battery pack yourself by clicking the button below. Doing so will take you to the Application Gallery, where ...

As part of this project, Liebherr is developing strategies and processes for the automated disassembly of battery packs. The aim is to recover and recycle the highest possible proportion of raw materials by mechanically disassembling and sorting the components.

To become more environmental friendly, Volvo wants to exchange the combustion engines with electrical engines and replace the liquid fuel with batteries. Adding a part to a vehicle means it must be assembled as well as disassembled which results in a need for a product that is optimal for an assembly-line.

In order to realize an automated disassembly, a computer vision pipeline is proposed. The approach of instance segmentation and point cloud registration is applied and validated within a demonstrator grasping busbars from the battery pack.

Web: <https://doubletime.es>

