

Lithium battery energy storage cabinet welding process

Can a battery cell casing be welded?

The findings are applicable to all kinds of battery cell casings. Additionally, the three welding techniques are compared quantitatively in terms of ultimate tensile strength, heat input into a battery cell caused by the welding process, and electrical contact resistance.

Which welding techniques can be used for connecting battery cells?

Brass (CuZn37) test samples are used for the quantitative comparison of the welding techniques, as this metal can be processed by all three welding techniques. At the end of the presented work, the suitability of resistance spot, ultrasonic and laser beam welding for connecting battery cells is evaluated.

How is a 26650 lithium-ion battery welded?

As external conductor a CuZn37 sheet of 0.2 mm thickness was welded at the negative pole of the cell. The negative tab of the battery cells is made of nickel-plated steel. Welding results for the 26650 lithium-ion cells and the chosen geometries of the weld areas are shown in Fig. 16.

How can a laser beam be used to connect a battery cell?

To position the laser beam onto the work piece, the scanner optics Remote Welding Elephant by Arges was used. This section quantitatively compares the three presented welding techniques for connecting battery cells in terms of electrical contact resistance, ultimate tensile force and heat input into the cell.

How CuZn37 sheets were welded on negative terminal of 26650 lithium-ion cells?

CuZn37 sheets welded on negative terminal of 26650 lithium-ion cells; from left to right: resistance spot weld, ultrasonic weld, laser beam weld. These welding processes were recorded by the thermographic camera A325sc by Flir.

How to improve the production technology of lithium ion batteries?

However, there are still key obstacles that must be overcome in order to further improve the production technology of LIBs, such as reducing production energy consumption and the cost of raw materials, improving energy density, and increasing the lifespan of batteries.

In order to prevent damage to the battery cell, it is necessary to ensure that the heat input of the battery terminal welding process is kept low and that the depth of penetration ...

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Using the example of two battery cells connected in parallel, Fig. 1 illustrates the influence of the quality of cell connections on a battery assembly. The higher electrical contact ...

It is a chain-reaction event where one overheated cell causes an adjacent cell to overheat and begin the failure process. The chain reaction may continue until all cells within the battery of origin are failing and can additionally extend to the ...

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