

How does laser cleaning impact the electric vehicle battery manufacturing process?

Laser cleaning is an efficient, non-contact, and environmentally-friendly cleaning method that can significantly increase the quality and performance of most battery products. For our purposes, we will specifically discuss how laser cleaning can impact the electric vehicle battery manufacturing process.

What is laser battery cleaning?

Laser battery cleaning is an environmentally-friendly method that does not use chemicals or produce waste products. Additionally, its non-contact nature reduces risk of potential damage to the components and allows for future-proofing of the production process.

How do you remove a coating from a battery?

The most common methods for removing coatings include burn-off ovens, sandblasting and chemical stripping. Laser cleaning has proven to be particularly good where speed and precision play a major role - as in battery production.

Why is laser cleaning important for EV batteries?

Laser cleaning is extremely useful for battery parts that require bonding preparation. Today's EV manufacturing processes involve an increasing number of adhesives, sealants, pastes, potting components, gap fillers, and encapsulants. They are used to add thermal, structural, sealing and damping features to the battery.

What is the best solution for preparing a battery surface?

Laserax Vice President (VP) and Chief Technology Officer (CTO) Alex Fraser: „Laser cleaning is the best solution for preparing a battery surface. It is recommended by many major adhesive manufacturers. Cleaning zones can be positioned extremely flexibly for a wide variety of part sizes and shapes.

Why should you use laser cleaning for battery cells & busbars?

For instance, laser cleaning for battery cells and busbars can help ensure strong electrical connections between cells and reliability while decreasing the risk of lithium dendrite formation- one of the primary causes of battery failure.

There are two types of lasers that provide solutions for battery applications: pulsed Nd:YAG and fiber. ... Although peel strength remains an important weld test, vibration is also important. As vibration strength places an ...

In the rapidly evolving world of lithium-ion battery manufacturing, laser welding technology stands out as a transformative innovation. As the demand for high-performance and energy-dense batteries ...

Laser cleaning technology is a game-changer in the intelligent manufacturing of lithium batteries. It

effectively removes pollutants, enhances welding quality, and ensures ...

In contrast, laser welding can be done remotely with a laser head that can process up to 150 cells without moving. Number of Interconnections. With ultrasonic welding, every ...

Industrial Laser Solutions for the Battery Industry The world is moving away from fossil fuel dependency, causing a rapid rise in the demand for lithium-ion batteries. Laser technology is a ...

The production of Li-ion batteries requires multiple welding processes. Welded contact connections between the individual battery cells, for example, have proven to be more reliable, sustainable and above all cost-effective than bolted contacts or the use of bimetallic busbars.. The boxes of the rigid battery geometries are also welded, because they have to be gas-tight up to ...

It is interesting to compare the performance of laser welds to those made with resistance and ultrasonic techniques. As shown in FIGURE 2, the lap shear strength of the like-to-like laser welds was several times stronger ...

A good peel-off efficiency was observed here (He et al., ... The potential application of laser technology in battery pack disassembly ... Recommended solutions based on intelligent robotics for ...

Laser cleaning offers a clean and effective solution to this problem. Using high-energy laser pulses to remove contaminants from surfaces, laser cleaning can achieve a level of cleanliness that is difficult or impossible to attain with ...

Laser cleaning is performed on the cmt welds of the battery pack tray, the electrophoretic paint of the upper cover of the battery pack, the oxide layer of the sealant track of the battery pack box, and the oxide layer of ...

Discover BMG's intelligent optical laser welding solution for battery connectors, combining precision, AI-based inspection, and dynamic adjustments to ensure flawless welds in high-volume production. Boost productivity, enhance safety, and guarantee optimal quality control throughout the ...

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