

Innovative Battery Cell Connector with Copper Foils: A Case Study

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SIEVING

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Telsonic's advanced ultrasonic metal welding technology has been successfully applied in a groundbreaking solution for connecting battery cell connectors using thin copper foils. This innovative application ensures minimal electrical resistance and high production efficiency, setting new standards for the battery manufacturing industry.

The Challenge: Minimizing Electrical Resistance

In battery cell manufacturing, it is essential to electrically connect the current collectors made of thin copper foils from individual cells and weld them to a central nickel-plated copper busbar. Due to the large number of connection layers, the electrical resistance must be kept as low as possible. The high production volume also requires an automated manufacturing process with continuous quality monitoring after validation.

The Solution: Ultrasonic Metal Welding

Ultrasonic metal welding technology allows for the reliable connection of multiple layers of thin foils due to the excellent flow behavior of copper. The high-frequency friction motion breaks the oxide layers between the foils, creating a cohesive bond with optimal electrical resistance. The application is realized on a modular 20 kHz welding system MPX with Telso®Flex control software.

Configuration Advantages

Ultrasonic welding technology offers extensive options for process and quality monitoring. The modular design of the 20 kHz welding system MPX allows optimal integration into manufacturing lines. Various programs can be managed clearly in the Telso®Flex control software for different contact configurations. The intuitive graphical interface with language-independent operation significantly simplifies use.

Successful Implementation: Modular 20 kHz Ultrasonic Welding System MPX

This application was implemented using Telsonic's modular 20 kHz ultrasonic welding system MPX and Telso®Flex control software. The system's components were integrated into a custom setup, demonstrating Telsonic's ability to meet the demanding requirements of high-volume battery cell manufacturing.



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