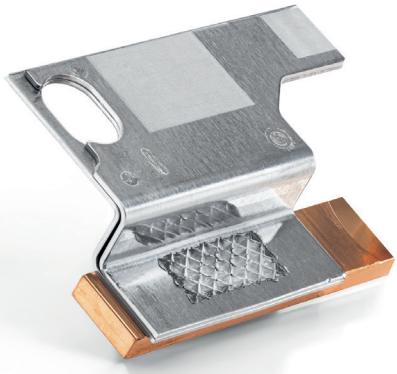
Revolutionizing Battery Cell Connectors on Busbars: A Case Study

PLASTIC WELDING | METAL WELDING | CUTTING | CLEANING | SIEVING



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Telsonic's advanced PowerWheel® welding technology has once again demonstrated its versatility and efficiency, this time in the critical application of battery cell connectors for electric vehicles (EVs). By combining aluminum cell connectors with copper busbars, Telsonic has set a new standard for durable and electrically conductive connections, essential for the future of EV technology.

The Challenge: Limited Accessibility and High Power Requirements

In EV battery systems, aluminum stamped parts are used to connect the battery cells. These connection elements need to be securely attached to a copper busbar to ensure reliable electrical conductivity. However, direct screwing is not feasible due to the relaxation properties of aluminum. The solution lies in welding the cell connectors to a short copper busbar, creating a permanent and electrically conductive bond that can then be screwed in place.

The challenge was significant: the bent shape of the cell connectors severely limited access to the welding site, and the large welding area demanded high power. This required a precise and robust welding solution capable of overcoming these obstacles.

The Solution: Telsonic's PowerWheel® Welding System

Telsonic's PowerWheel® welding system proved to be the ideal solution for this complex application. The PowerWheel® technology offers excellent accessibility to the welding area and can transmit high power necessary for the large welding surface. The process ensures a secure weld between the aluminum cell connector and the copper busbar, which is crucial for maintaining the integrity and conductivity of the connection.

Configuration Advantages

Ultrasonic welding with the PowerWheel® system provides a process-secure and long-lasting bond between dissimilar metals, such as aluminum and copper, with minimal electrical resistance. The integrated process monitoring ensures consistently high-quality connections, which is essential for the reliability of EV battery systems. Additionally, ultrasonic metal welding is significantly more energy-efficient compared to alternative welding methods.

Successful Implementation: Telso®Terminal TT7

This application was successfully implemented using Telsonic's torsional PowerWheel® technology. The ultrasonic welding components of the Telso®Terminal TT7 were integrated into a custom system. The Telso®Terminal TT7, with a maximum welding power of 14.4 kW, showcases Telsonic's capability to meet the demanding requirements of industrial EV applications..

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