

Application example

Battery cell connector with copper films 100×30 µm

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING

**Task**

The thin Cu film electrical conductors in individual battery cells need to be connected together electrically and welded onto a central, nickel-plated bus bar made of copper. Due to the high number of connection levels, the electrical contact resistance has to be as low as possible. The high quantity also calls for automatic production with ongoing quality monitoring following validation.

Solution

Thanks to copper's good flow characteristics, ultrasonic metal welding technology can be used to reliably bond several layers of thin film. As a result of the high frequency of the frictional motion, the layers of oxide between the films are broken up to create a firm bond with optimum electrical contact resistance. The application was created on a modular 20 kHz MPX welding unit with the TCS5 process controller.

Configuration advantages

Ultrasonic welding technology offers a wide array of options for monitoring the process and quality. The modular design of the 20 kHz MPX welding system means that it can be easily integrated into production systems. Various programs can be managed in the TCS5 process controller for a variety of contact configurations. The intuitive graphic interface with language-independent operation makes controlling the system much easier.



The application was produced on a 20 kHz MPX ultrasonic welding system and TCS5 process controller, as well as with corresponding components integrated into a special system.