

Application example

Beverage packaging

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING



Task

Various joining tasks have to be performed cost-effectively and reliably on beverage packaging made from plastic-coated cardboard, e.g.:

- Longitudinal welding of overlap seam
- Transverse welding after filling
- Welding in the nozzle

Filling systems have a capacity of several thousand packs an hour, which places heavy demands on the cycle times for the joining process and data logging. If possible, leaky packs have to be detected and removed.

Solution

Beverage packaging is sealed tight and nozzles are welded in using the ultrasonic welding method. This offers many appealing advantages compared with alternative joining methods. Special sonotrodes are produced from a tough titanium alloy that is compatible with foodstuffs. These are specific to the joining task concerned. To generate the ultrasonic waves, there is a choice of converters and modular MAG generators with various frequencies and power classes.

Configuration advantages

Thanks to vibration damping, the ultrasonic welding method generates the sealing heat from inside the packaging material. As a result, it is characterised by very short process times. Ultrasonics are not just capable of welding contaminated sealing areas; they even allow leak-proof connections to be achieved through liquids with a high level of process reliability. The components, such as ultrasonic converters with sonotrodes and MAG generators, can be easily integrated into filling systems. The rapid response to alternating resonance and load conditions, and the process parameter tolerance windows, play a key role in ensuring high quality and the detection of leaky packaging.



These applications were solved using modular ultrasonic components, which were integrated into fully automated filling and sealing systems with a bus connection.