

Application example

Airbag controller with integrated electronics

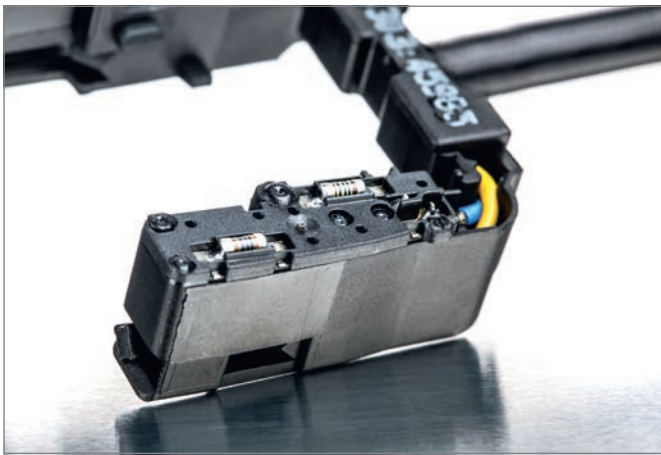
PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING



Task

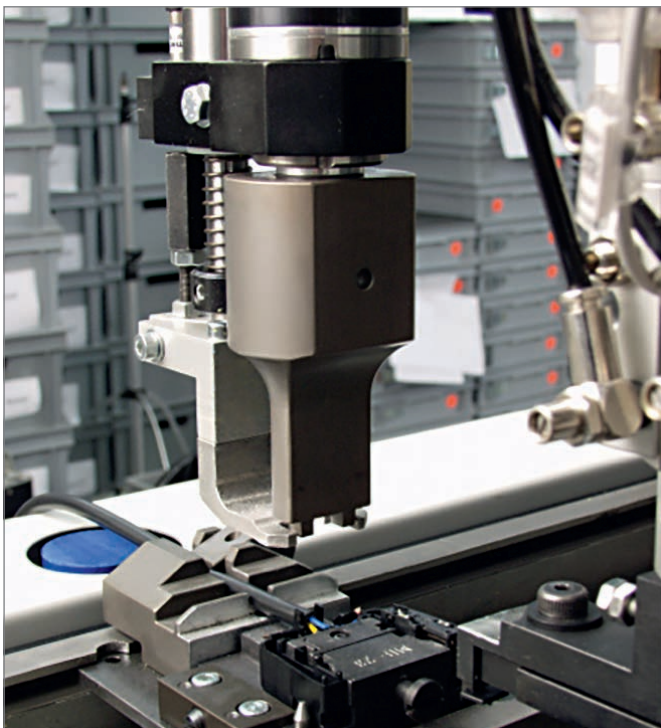
For an airbag control component, a cover and a cable strain relief will be attached to a plastic housing with integrated electronics. The sensitive electronics must not be damaged in the process. Due to the high number of units, an inexpensive method must be selected for the process that can be reliably automated while maintaining consistent high quality.

Solution

For the joining tasks, AC350 ultrasonic actuator units with a frequency of 35 kHz are used. The cable is reliably fixed with ultrasonic flanging and thus protected from excessive tensile forces. To shield the electronics from excessive vibration stress, the cover plate is fastened to the housing using rivets. The ultrasonics is switched off in a defined and path-dependent way by a mechanical/electrical scanning and limitation system.

Configuration advantages

The ultrasonic rivet process permits reliable joining while exposing the component to minimal sound. In this way, the integrated electronics are hardly stressed. Also during ultrasonic flanging, hardly any vibrations reach the lower part, as the plastic on the sonotrode surface melts during riveting, thus absorbing the vibrations. The combined holding-down, scanning and weld path limitation system ensures that part tolerances can be compensated for by differential scanning. This guarantees a reliable and uniformly high joining quality.



The application was accomplished with 35 kHz components and differential weld path limitation systems integrated into a special-purpose system.

www.telsonic.com

THE POWERHOUSE OF ULTRASONICS