

Application example

Piston

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING



Task

A plastic piston made from plastic consists of two injection-moulded parts, which should be joined together tightly and without additional sealing elements. After validation, the application must be produced in a reliable process with high numbers of parts. As a safety-relevant component, high requirements are placed on it for process reliability and quality monitoring.

Solution

Both plastic parts are joined tightly together in a process-reliable way with a USP750 ultrasonic welding system, frequency 35 kHz, with a maximum output of 1200W. The TCS5 process controller offers comprehensive programming and quality monitoring functions. The correct joint design is crucial for a tight joining seal. In this application, the joining area was implemented as a trapped pinch seam.

Configuration advantages

The ultrasonic joining process can be automated very well. The TCS5 process controller continuously monitors the welding parameters and rejects parts that are outside the tolerance range. The joining seam formation as a trapped pinch seam ensures, first of all, a tight weld connection and, secondly, that the plastic melt remains in the joining seam, thus offering reliable welding quality. Thus no additional sealing elements are required. Ultrasonic welding technology is rapid, efficient and environmentally-friendly.



The application was produced on a 35 kHz USP750 ultrasonic welding system with MAG generator and TCS5 process controller with touchscreen operation or with components integrated into an automatic production line.

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