

## Application example

**Membrane in an injection-moulded part**

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING

**Task**

A membrane that has been punched out mechanically is to be welded into a medical component made from polycarbonate. The connection must be tight, no loose particles must be created and the membrane must not be damaged by the joining process.

**Solution**

The injection-moulded polycarbonate part is equipped with fine energy director structures. After inserting the punched-out filter membrane into the component, the energy director structures are melted with ultrasonics to create a liquid-tight connection with the membrane material. The process uses a USP750 ultrasonic welding system with a frequency of 35 kHz and a modern TCS5 process controller. The sonotrode is made from a wear-resistant titanium alloy.

**Configuration advantages**

Ultrasonics are used to create a reliably tight connection between the filter membrane and the injection-moulded part without damaging the membrane. The reliable joining process meets the high quality requirements for medical technology and can be automated without any problems. The MAG generator keeps the power and amplitude constant over a voltage range of 180V to 260V, thus helping to ensure consistent welding quality. The TCS5 process controller offers comprehensive features regarding data entry and quality control which meet the high standards in the field of medical technology.



The application was produced on a USP750 35 kHz ultrasonic welding system with MAG generator and TCS5 process controller, or with corresponding components integrated in a special system.