

Application example

Breathing air filter

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING



Task

The breathing air filter primarily consists of two housing parts and filter pads to filter out the finest particles. The cut-out filter blanks must not fray at the edges - they are supplied in a magazine of 200 pieces. Critical for filter quality is that no loose particles from the filter material reach the air flow. After inserting the filter, both halves of the housing must be hermetically welded to one another.

Solution

The cut-out filter blanks are cut out using the ultrasonic cut'n'seal process (hardened steel sonotrode and anvil) to keep them from fraying at the edges. The joining zone of the housing halves is designed for a hermetic weld seam seal. An extended step sonotrode with high amplitude and a precise-fit anvil device ensure reliable welding.

Configuration advantages

Thanks to the ultrasonic cut'n'seal process, the filter blanks can be simultaneously cut out and sealed along the edge zone without fraying. Ultrasonics can hermetically weld the housing halves in a durable and environmentally-friendly way without the use of adhesives. Ultrasonic technology permits high production speeds, optimal repeatability and comprehensive process safety options.



Both applications were produced with a 20 kHz USP3000 welding system or components in a special system. The TCS5 process controller offers various quality assurance options.