

Application example

Cutting contours and sealing the edge in a single stroke

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING



Task

Non-woven breathing masks are usually made from flat pre-cut parts. To ensure that they are comfortable to wear, the edges must be soft to the touch but without any fraying.

Most masks are low-price products and so have to be produced cost-effectively. If possible, the contours should be cut and the edges sealed i

Solution

Ultrasonic technology offers a cost-effective method of cutting out flat contour parts while at the same time sealing the edge zone by heating the cutting area. Cut and seal applications for large-area parts demand extreme levels of force. For this reason, they are achieved using robust and powerful USP8000 or 12000 welding presses with a force of up to 12,000 N. The quality of the process is assured by the universal TCS5 controller.

Configuration advantages

Cutting out the pre-cut parts and sealing the edge zone in a single operation makes the production process extremely cost-effective. The hardened anvil, which is made from wear-resistant special-purpose steel and features CNC-ground contour geometry, can be reground multiple times. The range of possible contours is virtually unlimited. Even shapes with the tiniest inside radii or with sharp corners are possible. If extensively welded zones are required, a two-stage anvil system is used, i.e. the welding and cutting processes are performed in the same position but one after the other. The two-stage process is also monitored by the TCS5 controller.



The application was solved on a USP8000 ultrasonic cut and seal machine with a TCS5 process controller. Hardened anvil with contour geometry for the pre-cut parts.