

Application example

STOP backlight module

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING



Task

The reflector of a vehicle brake light module, made from the amorphous thermoplastic PMMA, is to be tightly welded to the rectangular light housing made from ABS/PC plastic. The visible surface of the reflector must not be impaired by the joining process. The process parameters must be fully traceable if required.

Solution

As is usual for amorphous plastics, the application can be tightly welded without any problems in a near-field process if the joining seam is designed correctly. The process uses a universal USP3000 welding system with a generator power of 4800 W which offers power reserves for larger types of light. The application programming and entry/storage of process data are carried out with the TCS5 controller. The curved reflector surface is worked into the sonotrode by means of 3D milling.

Configuration advantages

As the amplitude required for welding plastics with an amorphous structure can be relatively small, the function of the electronic PCB in the housing is not impaired. The 3D milling process achieves optimal coupling of the sonotrode to the reflector, which prevents marks on the surface. With the energy director seam design typically used for amorphous plastics, a tight seam connection can be achieved easily with this plastic. The TCS5 process controller offers comprehensive features for process monitoring as well as storage of data, statistical evaluation and quality control.



The application was produced on a USP3000 20 kHz ultrasonic welding system with TCS5 process controller and MAG 4.8 kW generator.