

Application example

LED backlight module

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING



Task

A coloured, transparent, curved PMMA panel is to be welded onto the ABS/PC plastic housing of a bus LED backlight module with a watertight connection. The integrated LEDs must not be damaged by the joining process and the light panels must retain their flawlessly injection-moulded, smooth surface. As is usual for vehicle construction, the process parameters must be saved and logged to ensure complete traceability.

Solution

The application was produced using a near-field ultrasonic welding process and a USP3000 joining system with a modern MAG ultrasonic generator and a professional TCS5 process controller. The welding system can be converted quickly and easily for other types of light by replacing the tool set. The curved shape of the panel is worked into the sonotrode contact surface by means of 3D milling.

Configuration advantages

The universal high-performance USP3000 welding system and TCS5 controller can be used for a multitude of different applications. The targeted formation of the connecting seam and the optimisation of the welding parameters minimise the energy input to avoid impairing the function of the LEDs. The 3D-milled tool surface ensures that no marks are left on the panel.

The TCS5 controller offers comprehensive process and quality monitoring functions. The MAG generator offers a soft-start function for heavier sonotrodes when welding larger panels.



The application was produced on a USP3000 20 kHz ultrasonic welding system with MAG 3600W generator and TCS5 process controller.

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