

Vibration welding seals brake light housing against damage from the elements for auto maker

RESULTS

- Weld strength and repeatability help meet quality demands and government regulations
- Large parts with complex contours are no problem
- No consumables or manual assembly costs are required
- Interchangeable tooling produces different size parts on same machine



APPLICATION

Hermetic seal for Center High Mount Stop Lights (CHMSL)

CUSTOMER

Automotive manufacturer

CHALLENGE

Several years ago, in response to new government regulations governing auto safety lighting, a major automotive manufacturer had to incorporate a new brake light known as a Center High Mount Stop Light (CHMSL). The lamp is positioned high above the bumper to improve the visibility of brake lights. The housing could not be a one-piece mold, because the bulbs needed to be installed prior to sealing the housing. So the parts needed a lens to be joined to the bezel after the bulbs were in place.

The manufacturer wanted the final assembly to have a hermetic seal, as their new lamps would be mounted where they would be exposed to rain, snow, ice, and road dust that could penetrate the housing seal and damage internal components.

The manufacturer considered using screws and gaskets, but such a mechanical method would have added several steps to the process, slowing throughput. It would also require consumables that added cost, and involve a work force that required training and introduced the potential for human error.

In addition, most of the assemblies were large, which limited the type of welding technology that could apply.

Lights fantastic

Branson vibration welding technology from Emerson meets the quality needs and the regulatory requirements of a major auto manufacturer.

SOLUTION

Faced with such formidable challenges, the automaker turned to Branson technology from Emerson for a solution. Using its industry-leading expertise in polymer science, part design, and plastics welding, Branson technology was able to show the manufacturer how vibration welding could achieve the hermetic seal its brake light housings required.

The auto maker also saw how vibration welding technology could overcome several other challenges. It could handle large parts with complex contours. It required no consumables or the labor needed for manual assembly. Its high-speed, automatic operation could also meet the demands of high-volume production.

Branson tooling expertise also enabled the customer to weld different-size CHMSL housings using interchangeable tools in the same machine.

In all, vibration welding technology proved to be capable of delivering the repeatable weld quality, the hermetic seal, and the tooling flexibility the manufacturer needed to satisfy its own quality standards, while cost-effectively complying with new government mandates.

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