No buzz, squeak, or rattle and increased passenger safety for car makers using vibration or infrared welding to assemble glove boxes

RESULTS

- Greater part design flexibility
- Improved passenger safety
- Reduced noise, material costs, and assembly time
- No manual labor or employee expense

A-surface solution

Branson vibration or infrared welding solves multiple glove box assembly challenges.

APPLICATION

Automotive glove box door

CHALLENGE

The front door panel of automotive glove compartments serves a variety of purposes: protecting glove box contents, providing passenger safety in case of accidental knee impact, and interior design aesthetics. The front panel (A-surface) visible to passengers is fastened to the outer wall of the glove box structure.

Original glove box design called for the use of mechanical fasteners to assemble the A-surface panel to the glove box. This joining method created a number of problems, including: failures in Buzz/Squeak/Rattle extra (BSR) specifications, difficulties integrating knee impact geometries to provide maximum passenger safety, and the need for manual labor and materials. Adhesives also required consumables that increased costs, assembly weight, and slowed production similar to fasteners.

SOLUTION

Auto makers found a solution to the various problems created by fasteners and adhesives in Branson technology from Emerson.

By using Branson vibration or infrared welding technology to join the front A-surface panel to the glove box structure, manufacturers were able to reduce costs associated with extra labor and production time required for manual assembly, and eliminate consumables from their manufacturing process.

In addition, the rigid, single-piece assembly that results from vibration or infrared welding easily passes BSR specifications tests, assuring a more pleasant, noise-free driving experience for consumers.

Both these welding methods also offered design opportunities unavailable when using fasteners and adhesives. The flexibility inherent in vibration or infrared welding technologies allowed manufacturers to develop A-surface materials and glove box geometries that vastly improved knee-impact test results, significantly improving passenger safety.

Vibration welding and infrared welding are often both applicable to a given glove box design. However, one technology may be more optimal. The main criteria that would point to one technology versus the other are contact area constraints between the surface panel and structure, materials used, molded part tolerances, and production throughput.

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