Laser welding technology enhances flexibility for designers, speeds production for manufacturers

RESULTS

- Unequaled flexibility to weld complex part geometries
- Incomparable weld speeds to increase throughput
- Clean, particulate-free welds
- Savings on materials and weight

The Laser Solution

Branson laser technology offers unmatched combination of speed, strength, and flexibility to weld complex part geometries.

APPLICATION

Instrument cluster lens assembly

CHALLENGE

Speedometers, tachometers, and other gauges contained in a dashboard instrument cluster are protected from damage and environmental contaminants by clear, PMMA lenses welded to the housing ABS material. Traditionally, vibration welding has been the industry standard for this assembly process and continues to be the preferred joining method for most cases.

However, certain weld joint designs make it difficult or impossible to vibration weld because of the vibration amplitude clearance required at the part interface. Also, certain designs are sensitive to the particulates and flash that are sometimes visible by-products of vibration welding. When part geometry requirements do not allow for flash traps to contain the particulates, problems arise.

SOLUTION

Branson technology from Emerson offers a laser welding alternate solution for instrument cluster assembly that allows automotive manufacturers to weld extremely complex geometrical interfaces while eliminating any need for particulate containment or flash concealing features.

Laser energy is applied at points all along the entire length of the interface to melt and join the lens and housing materials. This method eliminates the use of friction caused by the lateral movement inherent in vibration welding.

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Laser welding technology also has tooling flexibility to give engineers total freedom in creating instrument panel designs. In addition, because of the precise, movement-free welding capability of laser technology, designers are also able to reduce material requirements, saving on weight and cost. Laser welding also offers cycle times of unmatched speed compared to other technologies, significantly increasing manufacturing throughput.

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