

Bonding Plastic with Model 5194 Infrared Line Heaters

Application

An automobile manufacturer heating plastic parts of a two-piece glovebox door to bond them together.

Problem

Volatile Organic Compounds - Using solvent-based adhesives to join the parts resulted in the emission of volatile organic compounds which was not a satisfactory condition for the manufacturer.

Excessive Cost - More environmentally safe bonding techniques, such as the use of sonic welders, were effective but expensive.

Production Output Requirements - The manufacturer required that the bonding process be complete within 12 seconds.

Solution

Heat - Two sets of four Model 5194-05 Infrared Line Heaters with 1200 watt lamps applied heat to the plastic parts to prepare them for bonding.

Power Control - A Model 5620 Phase Angle SCR Power Controller controlled the power to each set of four heaters.

System Integration - The Infrared Line Heaters were installed on movable racks on the assembly line. The six-second heating cycle was controlled by a programmable logic controller connected to the SCR Power Controllers. After each heating cycle was complete, the heaters were retracted and a pair of hydraulic rams pressed the parts together to complete the bonding process.

Benefits

Environmentally Safe - The Model 5194-05 Infrared Line Heaters provided the manufacturer with an environmentally safe method of bonding the plastic glovebox parts.

Cost Effective - The infrared bonding system was installed for a fraction of the cost of other environmentally friendly bonding systems, such as sonic welders.

Production Output - With the infrared bonding system, the manufacturer was able to complete the bonding process within 12 seconds to meet production output requirements.