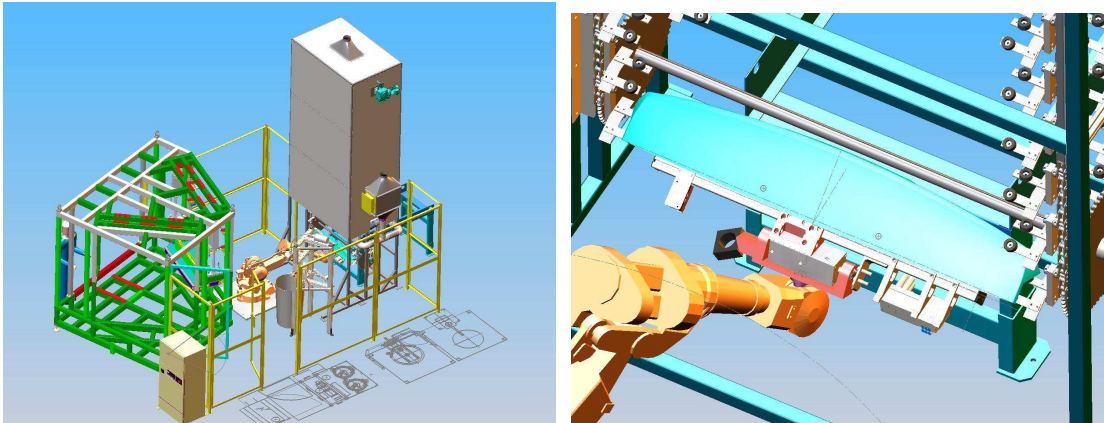


Case Study –Dispensing 2k with Oven

Overview

The cell processes center high mount stop lights (CHMSL) by applying a bead or multiple beads of foam in place gasket material in strategic locations and within a tight tolerance.

The parts are high volume runners for a major auto manufacturer. The preceding process is an ultrasonic welder that combines the two main elements of the CHMSL. The dispensing robot moves to the welder and picks the part to be dispensed. The routine once inside of the dispensing cell is to present the part to the fixed nozzle, initiate the dispense sequence and apply the bead or beads as the case may be, check for the presence of the bead and place the completed part into the curing oven.





Description of the Solution

The TEC scope of supply includes the complete system, starting with picking the part from the customer-supplied welder. The robot is an ABB IRB2400 with the S4C+ controller. The dispensing equipment has a mixing and dosing plant with internal bulk and day tanks for the two components, the mixing chamber and nozzle. The cell controller is an Allen-Bradley PLC that provides traffic control, part sequencing logic and safety device interlocking. This is supplied complete with the system in a top mount cabinet extension to the robot controller. An HMI unit allows the operator to set up and run the cell. TEC also designed and built the curing oven and its exit conveyor and the end-of-arm tool for the robot.

The robot moves to the welder and removes the to be dispensed part from the welder fixture. Presenting the part in the tool to the fixed nozzle, the robot manipulates the part under the nozzle to apply the bead or in some cases with certain parts used in the mix the beads.

The parts then pass through an inspection station where the presence or absence of the bead is determined.

The robot places the completed part onto the next waiting fixture in the curing oven. The oven is a vertical carousel style with chain drive and three distinct zones. The first is a set up area where the material is allowed to rise at room temperature. The second is the controlled heat zone where the temperature set point is established in combination with the part process times.

The per part takt time is approximately 10 seconds and the volume of the oven has been established based on the allowable and required cure time for the dispensed material. The third portion of the oven is a cool down area where the parts cool to near room temperature before they are powered out to the operators for the manual assembly process.

The oven does not stress relieve the welded parts in this case although in other cases, TEC has supplied this function as well.



TEC Automation, Inc.

**30 Hickory Springs Industrial Drive
Canton, GA 30115**

**Phone 770-720-3333
www.tec-automation.com**