

Case Study – Hot Melt Application

The manufacturer of seats for Volkswagen located in Mexico required a solid and consistent glue and press process to be able to supply quality seat backs. The robotic solution provided utilized a pre-engineered Process World from Motoman.

The challenges with automating this dispensing process included

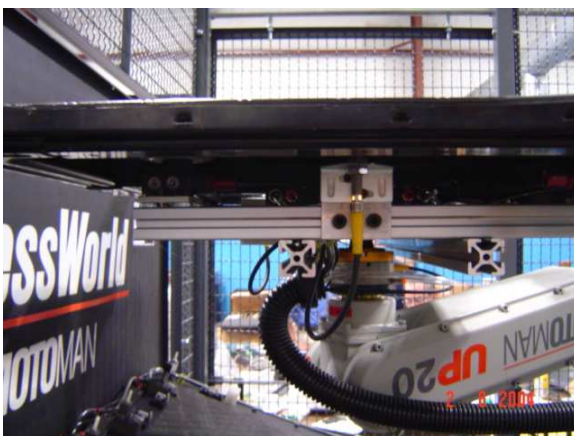
- The takt time was 19 seconds
- The hot melt adhesive has a short open time
- The assembly tolerances are very tight
- Pressure is required to properly seat the carpet to the seat back and spread the adhesive



Operator end of the robotic cell



Close up of the TEC fixtures



The end-of-arm tool vacuum gripper



The bulk tank and hot melt unit



System Requirements

- Clamp and place carper backing within 5 thousandths of an inch
- Press the seat back fabricated metal frame into the hot melt adhesive before clamping – while the hot melt is still open
- Operate at 85% or better efficiency and at a 19 second part-to-part rate
- Be a semi-automatic system with operator load and unload of parts
- Ship in a short time and drop in and run with no delay at the plant

Description of the Solution

The system uses a Motoman Process World pre-engineered cell solution with a UP20 robot with XRC controller, two-position table and common baseplate.

The operator loads the table with one carpet back and one seat back. The parts are each positioned into fixture details and clamped temporarily. The table is indexed into the robot side where the clamps are released and the robot moves to and grips the steel backing.

The robot moves to the fixed nozzles and sequences the nozzles on and of as it applies hot melt to the steel seat back; the carpet waits in the fixture on the table.

The robot then moves to and places the seat back onto the fixture, presses the seat into the hot melt and allows the first portion of the cure to occur. The robot releases its gripper and engages the clamps; the table rotates out of the robot side of the cell for operator exchange.

Customer Benefits

- Consistent throughput
- Predictable cycle time
- No human involvement with the application of hot melt
- The flexible and programmable industrial (automotive spec.) robot will have a long and useful life

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