

APPLICATION

Automotive Gasketing

- Timing chain covers and engine plates

Objective

Build a turnkey automated dispensing workcell to apply and cure two-part LSR (liquid silicone rubber) gaskets onto various engine components. The workcell needed to automatically identify the part type and apply a bead of material in the specified pattern.

Parts

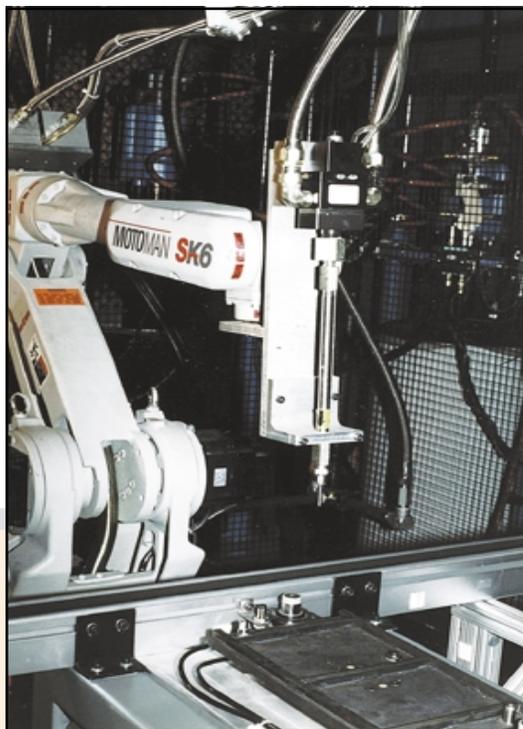
Five (5) unique stamped-metal timing chain covers and engine plates

- > Six (6) programmed dispensing patterns
- > Two- and three-dimensional patterns

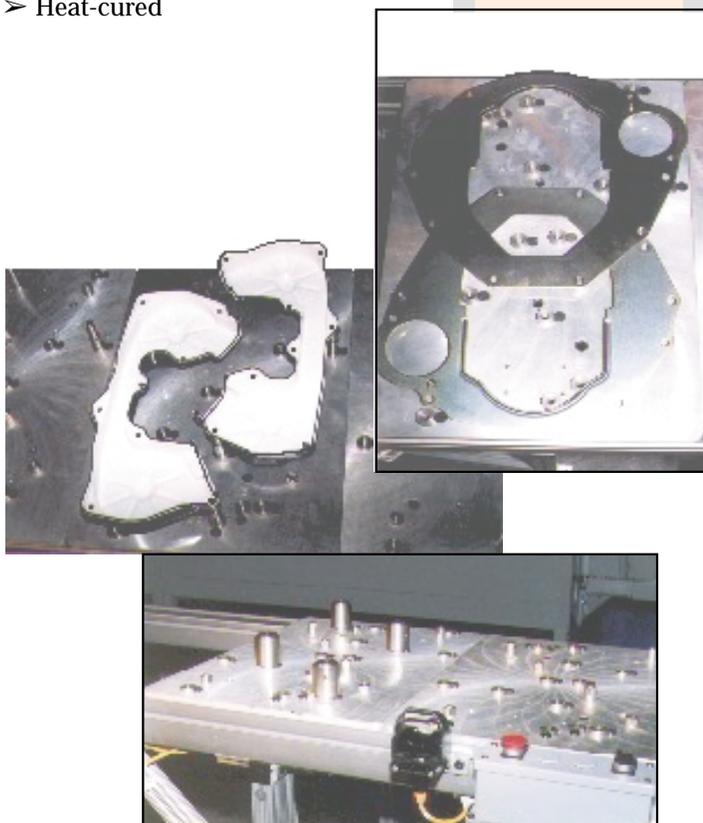
Material

Liquid silicone rubber

- > Two-part material
- > Heat-cured



Dispensing robot and pallet lifter



Top and center: two of the five types of parts.
Bottom: two types of pallets with flexible fixturing.

Key System Features

- > **Custom 6-axis arm robot** automated dispensing system with teach pendant
- > Two-part LSR dispensing and pneumatics
- > Material delivery system: Dual patented two-part **Program-A-Flow™** continuous-output meter/mix system
- > Palletized workcell using conveyors and pneumatic shuttles to move parts
- > Custom part pallets with flexible fixturing for each part type
- > Integrated Allen-Bradley PLC (programmable logic controller)—Controls the entire work cell
- > Hi/Lo pressure monitoring
- > Four 55-gallon material supply pumps with automatic crossovers
- > Modular Robotics, Inc. three-zone oven with cooling zone
- > Operator safety guarding with electronic locking gate



View of Cured-In-Place-Gasketing (CIPG) system. Operator load/unload station is indicated by arrow.

Sequence of Operations

1. Operator places two parts onto pallet fixture and presses "Cycle Start" button. Operator continues to load parts while the preceding parts are automatically moved through the work cell.
2. Parts are conveyed through a sensing station for part identification and pass into the dispensing zone.
3. The pallet is raised and locked into dispensing position and the LSR bead is dispensed.
4. The pallet is conveyed to a corner transfer and shuttled to the oven conveyor.
5. After the LSR bead is oven-cured, the parts move through a cooling zone.
6. Cooled parts are shuttled back to the operator station.
7. Operator removes dispensed parts.

Systems & Support

Robotics, Inc. has decades of experience designing and building automated dispensing systems. We provide complete system solutions, including start-up and installation assistance, training, field service support, and complete documentation. Dependent on your specific project considerations, Robotics Inc. staff will design and build a system that is right for you.

Information

Robotics, Inc. has designed and built hundreds of dispensing systems for a variety of industries. For more information on this application or other products and services, contact a Robotics Inc. Sales Representative:



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Process Specifications*

Parts	Stamped-metal timing chain covers and engine plates (five unique parts)
Robot Cycle Time	40 seconds per pallet of 2 parts (avg.)
Production Rate	180 parts per hour
Material	Two-part liquid silicone rubber
Mix Ratio	1:1
Bead Dimensions & Tolerance	2.1mm dia. +0.6mm, -0.2mm
Cure Time/Temp.	12 minutes at 150°C

* Values are based on customer's specific requirements and do not necessarily indicate optimum values. Call for further information regarding system capabilities and product specifications.

Since 1971, Robotics Inc. has designed, built, and supported automated dispensing around the world!

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