



### APPLICATION

Turnkey automated work cell to apply liquid silicone rubber (LSR) onto automotive radiator end tanks

### Objectives

- To replace an EPDM gasket with a cured in place gasket (CIPG)
- Cost-effectively and accurately apply LSR to non-repeatable end tanks in a high volume production environment.
- Automatic adjustment of the dispensing path program to compensate for part shape variance.

### Part

Glass-reinforced nylon radiator end tanks

- Three part styles
- Non-repeatable part dimensions

### Customer Benefits

This system provides several benefits:

- Repeatable precision dispensing on non-repeatable parts in high volume production
- Accurate placement of bead through part profiling and mapping
- Bead height measurement to confirm bead is within specification
- Automatic rejection of parts out of specified tolerance



Pallets move through the three robots (left), then through the curing and cooling on the right. The entire work cell is controlled from a PC. Each robot incorporates a PC with a touch screen for individual programming.

### Key System Features

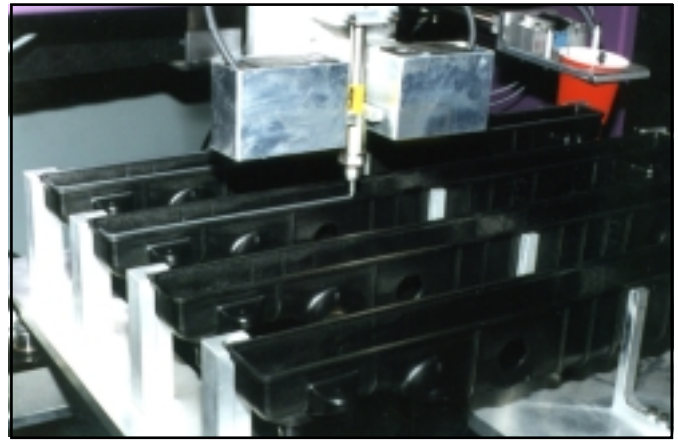
- Palletized work cell with conveyors and pneumatic shuttles to move pallets
- Three Robotics Inc. Cartesian-coordinate 3-axis dispensing robots with Windows NT® based operator interface
- PC-based work cell controller with QC and SPC data collection
- Dimensional part profiling and mapping
- Bead height measurement
- Part reject pick-and-place with clip assembly verification
- Modular curing oven and cooling zones
- Two-part LSR material delivery system (for each robot). Includes the patented two-part Program-A-Flow™ **SmartFlow**™ for continuous output metering and mixing; Hi/Lo pressure monitoring
- Pallet ID and tracking
- Part pallets with common fixturing for all three part styles



To meet production requirements, three robots work simultaneously.



The bead of LSR is precisely applied at 400 inches per minute.



A pallet with four parts during LSR application

## 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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## Major System Components

Flexibility and redundancy are key features of this turnkey work cell. Major components:

- High Precision Cartesian-Coordinate Robots
- Part Mapping and Bead Measurement Equipment
- Work Cell Controller
- Automated Reject Station
- Curing/Cooling Zones
- LSR Delivery System
- Conveyors and Pallets

## Process Specifications\*

<b>Parts</b>	Injection molded glass-reinforced nylon radiator end tanks (3 styles)
<b>Total Cycle Time</b>	48 seconds per pallet of 4 parts (includes mapping, dispensing, and bead measurement)
<b>Production Rate</b>	300 parts per hour (6,800 parts per 24 hour day)
<b>Dispense Rate</b>	400 ipm (Approx.)
<b>Total Bead Length</b>	59"
<b>Bead Dimensions &amp; Tolerance</b>	2.50mm ±0.30mm (height) 3.35mm ±0.42mm (width)
<b>Material</b>	Two-part liquid silicone rubber, heat cured
<b>Mix Ratio</b>	1:1
<b>Cure Time &amp; Temp.</b>	7 minutes @ 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.

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