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## **ROBOTIC DISPENSING SYSTEM HELPS REFRIGERATION UNIT MANUFACTURER WITH A STICKY SITUATION IN PUERTO RICO**

PRI Robotics designed and integrated a robotic system to automate and control the application of adhesive glue which Thermo King utilizes in the assembly of the doors for its refrigeration trailer units. The solution eliminated costly inconsistencies of an expensive adhesive, allowing Thermo King to mass produce the highly customized doors efficiently with dramatic costs savings in both materials and labor.

### **OVERVIEW**

Thermo King Corporation manufactures trailer refrigeration units at its plant site located in Puerto Rico. Each trailer unit has 6 unique doors. The design required the adherence of an interior insulated door piece to an exterior door piece. Further, the solution must be able to produce 720 doors per day matched to Thermo Kings exacting quality requirements.

### **SITUATION**

Thermo King looked to automate the manufacturing of the six different doors that were part of its trailer refrigeration unit product line. The process requires up to 30 linear feet of a liquid epoxy to be applied to bond the two parts together. In manual builds, there were numerous inconsistencies, waste of a costly adhesive glue and a production bottleneck. Thermo King needed to automate their Puerto Rico production facility to be able to mass produce doors to meet production goals because of the ever increasing global demand for refrigeration units.

In manual production efforts, Thermo King experienced production bottlenecks and quality issues. Thermo King's engineers, Scott Pearce and John Miller, worked closely with PRI Robotics' engineers on various design concepts until the "best solution" was agreed upon by both companies. Thermo King and PRI Robotics had already partnered on seven robotic automation welding projects in Puerto Rico with great success.

### **SOLUTION**

After four months of cooperative efforts, Thermo King awarded PRI Robotics a purchase order to provide a complete turnkey automated solution for the application. The system included a six-axis long reach robot, a sophisticated two part epoxy dispensing system with automatic pail changeover, three large 180 degree positioning turntables with two different clam-shell style fixtures each, safety guarding and complete integration. All six door assemblies were custom programmed at PRI's facility in Minneapolis and a rigorous run-off was conducted prior to shipment and installation in Puerto Rico. Thermo King's project engineer Scott Pearce states that "The automated project satisfies our production requirements, generates nearly a \$200,000 annual adhesive savings and greatly reduced direct labor."

## **INTEGRATED AUTOMATION - THE KEY TO CONSISTENT PRODUCTION & COST CONTROL**

PRI Robotics' passion and commitment to the integration of robotic automation has allowed them to problem solve and design custom solutions with efficiency, ergonomics, safety and flexibility in mind. PRI Robotics has over 300 robots installed in applications such as welding, machine tending, dispensing, assembling, pick and place, and material removal. PRI's in-house tooling capabilities and "certified" service department compliment their capabilities.

The system designed by PRI Robotics has delivered several key benefits: a reduced failure rate to within accepted parameters, savings in materials cost, labor, and production time. "PRI's ability to provide superior technical service support for our systems in Puerto Rico has been essential to our continued partnership. PRI Robotics has been a key automation partner of Thermo King's for over 10 years and we continue to work very close with them on a number of projects" says John Miller of Thermo King. John has been in key manufacturing excellence positions at Thermo King for over 42 years.

### **ABOUT PRI ROBOTICS**

PRI Robotics is a leading integrator of robotic systems providing a wide range of productive solutions in manufacturing and specializing in Arc Welding, Machine Load/Unload, Dispensing, Material Handling, Assembly and Material Removal.

Website: [www.prirobotics.com/](http://www.prirobotics.com/)

### **ABOUT THERMO KING CORPORATION**

Thermo King Corporation, a unit of Ingersoll Rand Company Limited, was founded in 1938 and manufactures transport temperature control systems for a variety of mobile applications, including trailers, truck bodies, buses, shipboard containers and railway cars.

Website: <http://www.thermoking.com/tk/index.asp>