

KMT Robotic Solutions Success Story INDUSTRIAL MODELS

Industrial Models Increases Productivity, Competitiveness and Reduces Overtime with a RoboTrim® RT-1000 System



Challenge

Industrial Models, Inc., in Gainesville, Texas, specializes in the manufacture of vacuum-formed plastics, open mold fiberglass and resin transfer-molded parts for the heavy truck industry. Prior to working with KMT, the company used manual processes to trim all vacuum-formed parts.

Industrial Models needed an automated system that would provide a cost-effective, reliable and safe way to trim a wide variety of parts. The company hoped to become more competitive in its markets by reducing defects, increasing production capacity and improving overall quality.

Solution

The 2004 Society of Plastics Engineering Thermo-forming Conference helped to provide a solution. Industrial Models visited several vendors at



Since purchasing the RoboTrim RT-1000, Industrial Models saw a 60 percent increase in production.

the conference and decided that the RoboTrim® RT-1000 system exhibited by KMT Robotic Solutions (then Robotic Production Technology) appeared to be faster and more flexible compared to the CNC systems they investigated.

“With our hand trimming process, we had parts that required six or seven fixtures. Hard to trim parts with complicated set-ups are eliminated since only one trim fixture is necessary with this system,” said Ben Lyson, Product Manager for Industrial Models. “The KMT RoboTrim RT-1000 eliminates that waste. Our new system is safer, faster, more accurate and more repeatable.”

How the KMT RoboTrim® RT-1000 system works: The KMT RoboTrim® RT-1000 system is equipped with an KMT AccuTrim® R-44 robot. There are two fixtures, one located on each side of a two position rotating table. One side of the table is inside the enclosure with the robot, the other is outside the enclosure for operator access. Part or parts (depending on size) are placed on the “A” side fixture, which is then rotated into the cell. While a part is being trimmed inside the cell, another part can be loaded onto the “B” side of the cell. There are safety interlocks to prevent the table from rotating while the operator is loading the fixture. When the “A” side part is complete and the loading station is clear, the wall rotates, presenting the “B” side part to the robot for trimming.

The RoboTrim® system also included KMT’s RouterVac®, a vacuum system used to remove waste and hold parts in place during trimming.

“...It has helped us procure more business because the customer knows they will receive a consistent, repeatable product that is defect-free.”

- Ben Lyson, Industrial Models Product Manager

Additional system features

When the fixture is placed on the cell, a tag reader identifies the correct robot system program for that particular fixture. Each fixture is lightweight enough for two employees to lift and set it on the cell. Two alignment pins set the fixture in the correct location. This operation can take place while a part is being trimmed inside the cell because set-up time takes place in seconds.

“We didn’t know how simple it would be to use the system. The tag reader tells the whole story and makes it a Poke-Yoke process. All the employee needs to do is push a button,” said Lyson. “The more I learned about the RoboTrim RT-1000, the happier I was. The unit ran like clockwork right from set-up.”

The system also included KMT and FANUC Robotics’ jointly-developed Accuracy Enhancement Tools to help accommodate the variance in parts. The tools allow users to quickly and accurately set-up and maintain the key components required to achieve process repeatability. One key feature is the ability to automatically realign the router spindle in less than one minute. The software also gives the robot the ability to locate the part fixture and automatically adjust the robot program to compensate for any changes. This software also ensures the robot spindle is aligned.

Results

Industrial Models installed the RoboTrim® router trimming system in May 2005. Since that time, production has increased by 60 percent and overtime has been reduced by 12 percent. Part quality, repeatability and employee safety have improved and the company is more cost competitive when quoting new business. Industrial Models also saved valuable floor space, since several part styles can be processed on a single system.

“We lost some business when we quoted complicated, hard-to-fixture parts with the hand trimming process. In the future, we will be more cost effective and win more bids since our process is predictable now,” said Lyson. “We know exactly how long it will take since we can predict cycle times and throughput more accurately. Our trim time won’t depend on how an employee feels that day.”

The new system also helped to improve quality since the hand trimming process caused inconsistencies and missed features.

“With our end customers, it has helped us procure more business because the customer knows they will receive consistent, repeatable product that is defect-free,” said Lyson. “The robotic system has been received very well.”



Shown above are some of the 39 different part styles trimmed on Industrial Models’ RoboTrim RT-1000 system.

KMT Robotic Solutions.
Creating value through automation.



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