

KMT Robotic Solutions Success Story

MEDALLION PLASTICS, INC.

KMT Robotic Solutions Helps Medallion Plastics Increase Production, Reduce Scrap and Improve Trimming Quality

Challenge

Medallion Plastics, Inc., one of the largest custom thermoformers in Indiana, has undergone tremendous growth in size and diversification since the company was founded in 1976. The company started as a manufacturer of thermoformed products for the recreational vehicle industry and now supplies quality products around the world to industries such as communications, defense, automotive, transportation, recreational vehicle and manufactured housing.



Mike Kish, Director of Sales and Marketing at Medallion Plastics, said they've been able to trim more complex parts on the KMT system.

Medallion Plastics, Inc. needed a trimming solution for its custom thermoformed parts that would be more productive, reliable and cost effective than the 5-axis CNC trimming system they were using. They wanted improved repeatability and quality and reduced scrap and labor costs. Medallion found that the CNC machine was less flexible and reliable and more costly to run than what they desired. At times the CNC machine could be down for days.

Solution

KMT Robotic Solutions, Inc. (formerly Robotic Production Technology) worked with Medallion Plastics to develop a large capacity RoboTrim® router trimming system that could accommodate hundreds of custom part sizes. After reviewing Medallion's requirements, KMT recommended an enclosed RoboTrim router trimming system with an R-2000 robot and a servo-controlled, two position table. The R-2000 robot can trim in a part as large as 100" x 49" x 21" tall. The servo table allows the operator to load and unload parts while the robot trims inside the cell. This greatly improved the productivity of these parts over the CNC trimming system.

The RoboTrim system can run hundreds of different parts a necessity being that Medallion is a custom thermoformer. Medallion's RoboTrim system included KMT's TrimPro® off-line programming software and the Accuracy Enhancement software to help accommodate the variance in parts.

TrimPro®

TrimPro® router software enables the off-line simulation and programming of FANUC robots used in KMT's router trimming systems. Users can import unique CAD models of parts, create a work cell including machines, part transfer devices and obstacles and teach robot paths to simulate the operation and performance of a robotic application.

TrimPro® (continued)

Reach verification, collision detection, accurate cycle time estimates and other visual system operations are simulated in TrimPro's unique graphical virtual environment.

Accuracy Enhancement Tools

KMT and FANUC Robotics jointly developed a set of complementary accuracy enhancement tools to allow users to quickly and accurately set-up and maintain the key components that are required to achieve process repeatability. In addition, users gain the ability to transfer programs from one robot system to another with minimal touch-up of programmed points, further saving time and simplifying program maintenance.

Key features of the Accuracy Enhancement tools are the ability to automatically realign the router spindle in less than one minute. The software also gives the robot the ability to automatically locate the part holding fixture and orient the robot program to that fixture's exact position. This software ensures the robot spindle is aligned and that the exact fixture location is known before the first part is ever run.

The RoboTrim system also included a fixture ID system. With the fixture ID system the robot knows what fixture is on the machine and can automatically call up the correct program for that particular part. By utilizing the fixture ID system, the Accuracy Enhancement tools can also automatically be called into action during the set up process.

Results

In a demonstration of the RoboTrim system prior to installation, KMT achieved a cycle time of less than four minutes to trim an instrument panel versus the nine minutes needed to trim the part on a 5-axis CNC machine.

KMT installed the RoboTrim router trimming system in early 2004. Since that time, Medallion Plastics has achieved the results it wanted: production increased by 35 percent, quality has improved and scrap has been reduced.



Mack truck grilles are just one of the many components trimmed by Medallion Plastics, Inc.

"The test cuts blew away the CNC and we are very happy with the quality and response time from the RoboTrim system," said Mike Kish, director of sales and marketing, Medallion Plastics, Inc. "Better yet, we have been able to trim more complex parts that we were not able to do by hand."

Medallion Plastics has been recognized as one of the premier thermoformers in the Midwest for nearly 25 years.

KMT Robotic Solutions, Inc. is FANUC Robotics' exclusive partner for waterjet and non-metallic routing applications in North America.

KMT Robotic Solutions.
Creating Value Through Automation.



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