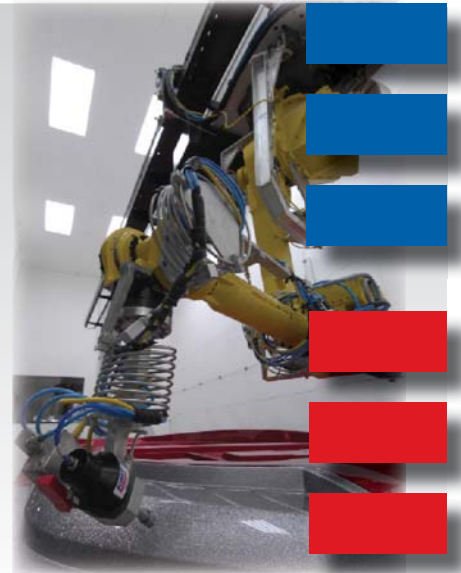


KMT Robotic Solutions Success Story

RANGER BOATS

Custom JetTool® waterjet trimming system improves cycle time, working conditions while reducing costs



Challenge

Ranger Boats, located in Flippin, Ark., USA, is a world-renowned manufacturer of recreational and tournament bass fishing boats.

Ranger approached KMT for a robotic trimming system that would produce more parts per hour than their current manual trimming method. The manual method took four operators - each dressed in head-to-toe protective gear - 25 minutes to trim a 21 foot long fiberglass boat deck using routers, saws and drills. This time consuming and labor-intensive process was a production-limiting operation.

Ranger's goal was to produce 25 boats per day in an 8-hour continuous flow operation. In order to achieve this, they needed a reliable automated solution.

Solution

KMT Robotic Solutions designed and developed a custom JetTool® robotic waterjet cutting system with an overhead rail-mounted AccuTrim® WJ-110 robot equipped to withstand exposure to severe environments. The trimming process starts once the boat deck, mounted on a specially designed fixture cart, is rolled into the trimming area and locked into place. The operator then scans a barcode that signals the robot to use the corresponding trimming program, and hits the "Cycle Start" button. Because the fiberglass deck will vary slightly in size and thickness, KMT's AccuFind device is then used to determine the exact dimensions and location of the deck and automatically offsets the robot trimming program to match the new location. The robot then trims the deck using high pressure water at 60,000 psi. When trimming is complete, the operator is notified and the cart and deck are manually rolled out of the trimming cell.

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The enclosed JetTool waterjet cutting system keeps operators safely away from the trimming area while the robot is at work.

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"We will save approximately \$100,000 per year just in perishable tooling."

- Lance Newton, Engineering Project Manager, Ranger Boats

Results

Ranger's new custom JetTool robotic water-jet trimming system has helped the company reduce cycle time and produce more parts per day. The trimming process that once took four employees 25 minutes to complete now takes a single robot 16 minutes. The waterjet cutting process is also much tidier than router trimming because it virtually eliminates dust - a significant achievement when trimming fiberglass.

The system also reduced money spent on perishable tooling. According to Engineering Project Manager Lance Newton, "The implementation of the robot has eliminated the need for numerous fiberglass cutting jigs that take many hours to make and maintain throughout the life cycle of the boat. We will save approximately \$100,000 per year just in perishable tooling."

More than a dozen boat models are currently being trimmed in the cell, which relates to approximately 85 percent of production. In the future, consoles and other small parts may also be trimmed on the JetTool system, Newton said. Ranger plans to optimize its manufacturing operations even further by eliminating manual trimming in the grinding booth and offering those employees the opportunity to have a more desirable job in the plant.

"As our processes become leaner, not only with the robotic trimming system but with other processes as well, it will help offset the rising cost of raw materials," Newton said. "This results in decreased manufacturing costs for Ranger, which can ultimately result in a more stable cost to our dealers and customers from year to year."



Robot programming is made easy with specialized software including KMT's TrimPro®, used for offline programming and virtual workcell creation.



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