

Bridging the Gap

Alliance Automation Helps North America's Manufacturers Gain Competitive Edge through Automation, Robotics

Alliance Automation, LLC, is one of the many unsung heroes of America's manufacturing renaissance. Since 2001, this determined Grand Blanc, Michigan automation supplier has searched the world for the very best manufacturing and automation solutions, bringing them home and finessing them to meet the needs of American industry. As a result, many of the products we use every day are being produced better, faster, safer and more profitably...right here in America.

Strategically located in the heart of the Motor Capitol of the World, Alliance Automation was originally positioned to bridge the gap between the world's machinery manufacturers and American automotive suppliers who urgently needed automation solutions to maintain competitive in the international marketplace. Alliance has since expanded into numerous industries including automotive, food, healthcare, and plastics. The company offers a wide range of custom automation solutions including robotic waterjet and foam pouring systems, thermoforming machines, high frequency (RF) welding machines, and vertically lapped non-woven machines. In addition, they offer robot replacement parts including coils, mix heads and Rexroth pumps as well as parts refurbishing services.

Ever on the cutting edge of advanced manufacturing processes, Alliance Automation recently unveiled its latest innovation, a highly precise robotic waterjet trimming cell that integrates Yaskawa Motoman HP20D robots with ultra-high pressure waterjet pump technology developed by Jet Edge, Inc. of St. Michael, Minn.

Revolutionary Robotic Waterjet

The automotive industry is no stranger to ultra-high pressure waterjet technology, and neither is Alliance Automation. Robotic waterjets have been used for years in the industry to cut everything from the dashboard to the trunk panel and most parts in between. But now, Alliance Automation is bringing the industry's use of waterjet technology to new heights with its latest generation of robotic waterjet trimming cells, which promise to dramatically increase productivity and profits, and improve worker safety.

Armed with dual wall-mounted Motoman HP20D robots and Jet Edge's 60KSI (4100 bar) iP60-50 waterjet intensifier pumps, Alliance Automation's new 6-axis robotic waterjet trimming cell leads the industry in precision and dependability with Motoman's ± 0.06 mm repeatability and Jet Edge's reliable tie-rod intensifier design. The cell's sturdy, compact frame design allows stability to both the tool and robots to ensure consistent tight part tolerances.



Alliance Automation's robotic waterjet trimming cells combine Motoman HP20D robots and Jet Edge's 60,000 psi iP60-50 waterjet intensifier pumps for industry-leading precision and dependability. Photo credit: Alliance Automation, LLC



Alliance Automation's robotic waterjet trimming cell can be set up so that many different parts can be programmed and selected through the touchscreen HMI on the control panel. Photo credit: Alliance Automation, LLC.

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The robotic waterjet trimming cell precisely cuts shaped parts with many angles from a wide variety of materials, including carpeting, fiberglass, foam and plastic.

Alliance Automation's Steven Cranston notes that the system has numerous automotive interior applications, including trimming headliners, dashboards, dash liners, bed liners, wheel liners, door panels, trunk trim, car carpet, and acoustic dampening components. It also can be used for similar applications in the aerospace and marine industries, he adds.

According to Cranston, Alliance Automation's robotic waterjet trimming cell features numerous design innovations that distinguish it from other robotic systems.

"Our system's wall mounted robots allow for the first 2 axis to be mounted forward, over the part," Cranston noted. "This feature allows for a larger work envelope and motion to work easier around larger shaped parts. The robots also are able to quickly retract to a home position out of the way for the loading and unloading of parts, drastically reducing cycle times and increasing operator safety."

The system lowers operating costs by eliminating the need for complicated trimming dies, he added.

"The cell can be set up so that many different parts can be programmed and selected through the touchscreen HMI on the control panel," he continued. "This allows operators to quickly change tools or products. Everything is set up to maximize productivity. The innovative design of the coil package on the robots allows for a quick change and the coils are a standard design (for each specific robot model), factory wound, pre-coned and pre-threaded."

A Powerful Partner

In the world of waterjets, the pump reigns king. It is the heart of the system, transforming more than a gallon a minute of ordinary tap water into a powerful ultra-high pressure waterjet that can cut virtually anything. High productivity automotive suppliers count on their waterjet pump to run reliably for multiple shifts. If their pump goes down, their profits go down with it.



Wall-mounted robots allow for the first 2 axis to be mounted forward, over the part. This feature allows for a larger work envelope and motion to work easier around larger shaped parts. The system includes a dedicated part holding nest that incorporates a vacuum to remove excess moisture and assist with holding the parts in place.

Photo credit: Alliance Automation, LLC

"Knowing that Jet Edge is a leader in waterjet technology, we knew we could trust the dependability and consistency of the Jet Edge intensifier,"

- Steven Cranston
Alliance Automation, LLC

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With the waterjet pump critical to its customers' success, Alliance Automation chose to power its latest robotic cells with hydraulic intensifier pumps manufactured by Jet Edge, Inc. of St. Michael, Minn.

"Knowing that Jet Edge is a leader in waterjet technology, we knew we could trust the dependability and consistency of the Jet Edge intensifier," Cranston said. "We have been involved in the robotic waterjet market for a number of years and utilizing the Jet Edge Intensifier helps us to provide the product and support we need to satisfy our current and future customers."

Jet Edge's Jeff Schibley played a key role in helping Alliance Automation integrate Jet Edge pumps into its new robotic cells. He explained the key design features that have distinguished Jet Edge pumps.

"Jet Edge's pumps are known for their reliable tie-rod design," Schibley explained. "Our design eliminates threads on the high pressure cylinders, end caps and hydraulic cylinders. This reduces the likelihood of cracking and increases component life. Jet Edge has built some of the longest lasting pumps in the industry. We have customers who have more than 35,000 hours on Jet Edge pumps that are still going strong. We build them for easy maintenance to minimize downtime, and have developed patented metal-on-metal seal technology that cuts in half the number of seals needing replacement."

Like Alliance Automation, Jet Edge is committed to helping customers increase productivity and lower operating costs, Schibley noted.

"At Jet Edge, like Alliance Automation, we're in business to help our customers solve problems and increase productivity, and robotics offer a powerful solution to both," he said. "According to the Robotic Industries Association, only 10% of U.S. businesses that could benefit from robots have any installed, so there is a tremendous growth opportunity here for Alliance and Jet Edge. We're very proud that they chose Jet Edge to be a part of their exciting future."



Alliance Automation's robotic waterjet system features dual wall-mounted robots and a sturdy frame ensuring consistent tight part tolerances. Photo credit: Alliance Automation, LLC



Jet Edge's 60,000 psi, 50hp iP60-50 intensifier pump produces a gallon (3.8 lpm) a minute of ultra-high pressure water for cutting and cleaning applications.

Find Out More

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