

SUCCESS

LINCOLN
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THE WELDING EXPERTS

Truck Equipment Manufacturer Moves To Robotic Welding and Meets Growing Customer Demand Head On

System 55 robotic cell with Power Wave® 455M

Taylor Wings of Rancho Cordova, CA

For over 25 years Taylor Wings has been a supplier of parts and accessories to individuals as well as large commercial fleets. Their specialty is aerodynamic wings, toolboxes, and fuel tanks for the trucking industry. A Taylor Wing can save the average RV'er up to 10% on fuel costs.

- CHALLENGE -

- Increase production time and still maintain a high quality weld.
- A second welding department could not be added because they have already outgrown their space.

- SOLUTION -

- System 55 robotic cell with Power Wave® 455M.
- STT® process to weld toolbox doors.
- RapidArc® process to weld toolbox door stiffeners and hinges.

- RESULTS -

- 29% increase in productivity in welding aluminum
- 31% increase in productivity in welding steel



As the big rig and light truck markets have continued to expand, so has demand for Taylor Wings' products. For nearly 30 years, the truck equipment manufacturer has fabricated truck wings, toolboxes, fuel tanks and other accessories for the Class 8 truck market, for manufacturers such as Peterbilt, Kenworth and International.

"Robotic welding has allowed Taylor Wings to better compete both domestically and internationally."

In the late 1990s, Taylor Wings expanded into the light-duty truck and RV market with similar offerings.

With the increased demand, the company, operating out of a 30,000 square-foot facility, found itself running three shifts a day, nearly seven days a week just to keep up with customer orders. Just keeping up wasn't enough for this family-owned firm. It wanted to expand its current business as well as be able to bid for new contracts. So the company took a hard look at its operations and made two major decisions – build a new, larger facility and move to robotic welding.

Robotic welding has allowed Taylor Wings to better compete both domestically and internationally. In many cases, robotic welding has given Taylor Wings the edge it needed to prevail and win new contracts.

The future of welding is here.®

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The Move to Robotic Welding

During the review of the company's operations, John Taylor, who oversees the firm's sales and marketing efforts and is involved with operational decisions, worked with his team to determine what improvements could be made to their existing weld shop.

"When it came down to it, what we really needed was a second weld shop, but current space wouldn't allow for that, and we were more than a year away from being able to move into our new facility," Taylor said.

At this point, Taylor began talking to a couple of manufacturers about what robotic welding options were on the market. While there were a number of viable products, he found that only Lincoln Electric® sales team members Kevin Korabik and Chuck Murray, supported by Shawn Paz from Fresno, Calif., and distributor Barnes Welding Supply, were willing to spend time with his guys, ask the right questions, learn the company's processes and demonstrate the machine.

"They weren't focused on just selling us a machine, they were focused on selling us a solution," Taylor explained. "First they asked a lot of questions and then made sure they understood how we work, what we needed and which welds would benefit most from robotic welding. "After numerous demos, tweaking of weld processes and materials and answering all of our questions, we bought a Lincoln robotic system and power source," Taylor said. "This purchase has allowed us to drastically increase production in our current, limited space."

Taylor Wings purchased and installed a Lincoln System 55, a dual station, dual servo driven positioning robotic cell. It is partnered with a Lincoln Power Wave® 455M, a high-performance, digitally controlled inverter power source with Waveform Control Technology® specifically designed for robotic, hard automation and semiautomatic applications. With the System 55, the company has a modular, multi-process weld system that offers the flexibility to arrange the system in a variety of ways for

optimum, customized performance and easy maintenance.

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Three Taylor Wings' staff members traveled to Lincoln Electric's® Cleveland headquarters for extensive product training on the robotic cell.

"Since we're welding on both aluminum and steel and frequently switching back and forth between the materials, as well as different products, it was critical our team members were ready to go on day one," Taylor stated. "The training gave them a solid foundation, and we found that after the training, programming the robot for individual jobs was easy. This significantly reduced our amount of downtime as we switched jobs over to the robot."

The company also added Lincoln's proprietary STT® or Surface Tension Transfer waveform process. STT® is ideal for applications in which heat input control, minimal distortion, and reduced spatter are essential. While it is using the STT® process to weld the toolbox doors, Taylor Wings uses RapidArc®, a high-speed MIG welding waveform process to weld the toolbox door stiffeners and hinges. RapidArc® allows for faster travel speeds, out-of-position operation, low heat input and low spatter levels. With these processes, Taylor Wings was able to prevent the burnthrough that commonly occurs when welding thin materials.

Taylor Wings is using the System 55 to weld both steel and aluminum products, which the company sells



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through wholesalers, a national dealer network and outfitting stores. After only six months in operation, the robot has tripled production on steel products and doubled it on aluminum applications, which require more preparation time than steel.

Robot Equals Increased Productivity, Greater Flexibility

Currently, the robot is primarily being used for steel, but the company is also using it for work on aluminum fuel tanks two days a week. Taylor pointed out that the System 55 allows his team to easily switch between steel and aluminum applications – whereas before they had dedicated welders doing hand work on one material or the other.

“Prior to the robot, we often experienced a bottleneck at the weld stage. That is no longer the case. It’s now one of the fastest, most efficient steps in our operations,” he added.

On the steel toolboxes, the company is using Lincoln Electric® MIG wire and

a majority of the parts are being tacked and fed to the robot. The doors are 100 percent welded by the robot, including on the door corners using STT® and for the door stiffeners and stainless steel hinges using the RapidArc® process.

Previously, the welders would spend 45 minutes tacking an entire toolbox. The robot has shaved 25 minutes off the

tacking time. The toolboxes are constructed from 14- through 20-gauge steel sheets. They are cut to size, bent and formed by the press break, tacked and welded. The welding on the larger toolboxes now takes 16 minutes from start to finish, allowing four an hour to be completed. The smaller boxes are now produced every six minutes, or up to nine boxes per hour. After the welding stage is complete, the toolboxes go through an acid wash and powder coat finishing process, providing a durable, high-quality finish that stands up to the elements.

For the aluminum fuel tanks, the run time is now 12 minutes with the robot, versus an hour and 15 minutes when done by hand.

“We are producing now in a 10-hour shift what it used to take us up to two weeks to fabricate,” Taylor said. “Another tangible comparison for us is that before the robot, I had one full-time employee just welding toolbox doors.”

Taylor Wings has also taken advantage of Lincoln’s Powerwavesoftware.com, a web site which allows customers access to

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free online downloadable software updates, the latest information on improvements and capabilities and instant access to welding procedure guides.

With the purchase of the Lincoln System 55, Taylor Wings was able to eliminate an entire shift.

“With the robot, we’re operating on one less shift and five days a week, versus three shifts and often seven days a week previously,” Taylor stated. “We’re now able to take on more work and bigger projects when needed, without overworking our team.”

Taylor Wings is anxiously awaiting the time when it can move into its new space, which will encompass 110,000 square feet with plans to initially occupy 75,000 square feet and leave 35,000 for future growth. It also plans to purchase a second robotic cell for the new facility. But until then, the firm is in a great position and has been able to successfully expand its capabilities, keep up with customer demand and win new business – all while improving the quality of its products.

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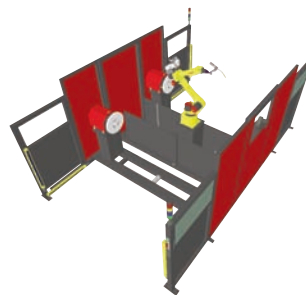


Featured Lincoln® Products



Power Wave® 455M & 455M/STT®

For welding thicker materials in robotics, hard automation and semiautomatic applications, choose the Power Wave® 455M. For those applications where heat input control, minimal distortion, and reduced spatter are essential, opt for the Power Wave® 455M/STT. Both models feature Waveform Control Technology® for superior arc performance on a variety of materials, including steel, stainless steel, aluminum and nickel alloys. Both deliver custom control of the arc for a given wire type, size and shielding gas configuration for consistent welds time after time. The Power Wave® 455M and 455M/STT® are designed to be components in a modular, multi-process welding system capable of digital communication with other industrial machines to create a highly integrated and flexible welding cell.



System 55

Workzone Dimensions:

84" – 108" Span, 36" – 48" Swing
(2131 – 2743, 914 – 1219 mm)

Weight Capacity:

350 – 5000 lbs / side
(159 – 2268 kg)

Footprint:

179" x 106"
(4547 x 2692 mm)

WHAT IS NEXTWELD®?

The challenges facing industrial fabricators today are growing in number and complexity. Rising labor, material and energy costs, intense domestic and global competition, a dwindling pool of skilled workers, more stringent and specific quality demands all contribute to a more difficult welding environment today.



Through our commitment to extensive research and investments in product development, Lincoln Electric® has established an industry benchmark for applying technology to improve the quality, lower the cost and enhance the performance of arc welding processes. Advancements in power electronics, digital communications and Waveform Control Technology® are the foundation for many of the improvements.

NEXTWELD® brings you a series of Process, Technology, Application and Success Story documents like this one. NEXTWELD® explains how technologies, products, processes and applications are linked together to answer the important questions that all businesses face:

- How can we work faster, smarter, more efficiently?
- How can we get equipment and people to perform in ways they've never had to before?
- How do we stay competitive?

NEXTWELD® is the future of welding but its benefits are available to you today. Ask your Lincoln Electric® representative how to improve the flexibility, efficiency and quality of your welding operations to reduce your cost of fabrication.

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