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STT on Sheetmetal

DeWys Manufacturing, Inc.

A sheet metal fabrication company goes in search of robotic welding solutions to help curb spatter-related downtime, and discovers that Lincoln Electric's System 40 robotic cell with STT is a perfect fit.

- PROBLEM -

- Excessive spatter resulting in expensive per-part clean-up-time on a job requiring multiple welds on thin-gauge material.
- Spatter-related contamination of the part.

- SOLUTION -

- The Lincoln Electric System 40 tabletop robotic cell with STT power source.

- RESULTS -

- Improved weld quality.
- Significant spatter and smoke reduction.
- Faster production rates.



DeWys Manufacturing, Inc., a Michigan-based custom precision sheet metal fabrication company, is no stranger to robotic welding. But an important hydraulic reservoir job was presenting some special challenges. DeWys' robotic GMAW welder was producing excessive spatter as it welded the thin-gauge reservoirs. Operators were spending up to a minute per part on cleanup, and those minutes were adding up to 25 hours weekly. Plus, the grinder being used to clean the spatter was creating debris that contaminated the reservoirs' pumps. DeWys needed solutions.

"After researching, we decided to evaluate three competitive models," says Chris Hawkins, Team Facilitator for DeWys. "One was the Lincoln Electric System 40 tabletop robotic cell."

"What really won us over was that the spatter issue was virtually eliminated"

As a part of the evaluation, DeWys sent 20 sample parts to Lincoln's headquarters in Cleveland. "Lincoln set up our sample, and we watched a demonstration of the System 40.

"The weld quality was excellent. But what really won us over was that the spatter issue was virtually eliminated."

Robotic Specifications

The System 40 selected by DeWys



combines a FANUC Arc Mate 100i, 6-axis robot with Lincoln's Surface Tension Transfer (STT) power source. The System 40 is a "drop-in-place-and-plug-in" work station with a small, forklift-compatible footprint. For DeWys, that translated to easy installation, plus the ability to move the robot around the shop when necessary.

"We just dropped the Lincoln System 40 into place and it was ready to work," says Hawkins. "Other robotic units we've used in the past have required much more installation effort."

The cell's Lincoln STT power source uses high-frequency inverter

The future of welding is here.™

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technology with advanced waveform control to produce a quality weld with reduced spatter and smoke. STT is the industry's only independent current-controlled wire feeding process. The process offers controlled heat input independent of wire feed rate, which translates to high production rates, especially on thin gauge components.

"We just dropped the Lincoln System 40 into place and it was ready to work"

Welding Capabilities

The robot selected by DeWys has two identical sets of tooling, each able to hold the three, 12-gauge HRPO parts that are welded through the three phases. The tooling is mounted on a high-speed 180° indexing table, allowing the operator to unload and load parts while the next reservoir is being welded. The robot completes the ten required fillet welds in five minutes.

The System 40 robotic cell utilizes Lincoln's .035" SuperArc® L-56 GMAW wire which is supplied in convenient 500 lb. drums. A shielding gas of 90 percent argon and 10 percent CO₂ is used to further minimize spatter.

Programming

Hawkins notes that the programming of the robot wasn't a problem for DeWys, largely thanks to the teach pendant. DeWys has three engineers on staff who handle all programming. Those engineers attended a three-day robotics class at Lincoln's Cleveland facility, which helped prepare them to train the DeWys operators.

Safety

The cell has a number of safety features, including steel barriers to protect against flash and unauthorized entry, a flash screen that separates the

operator from the welding area, safety door interlocks, and an easily accessible operator palm button for quick cycling.

The best features. The best performance.

"Of the four robots in our shop, the Lincoln unit gives us the best features, the best program protection, and the best performance," Hawkins says. "The dry air movements of the System 40 robot are twice as fast as our other robots and the teach pendant allows us to lock the system so that operators can't change program settings. And the TorchMate feature lets us calibrate our System 40 in just 15 seconds - our other robots can take up to 15 minutes to calibrate. Plus, the break-away feature means we don't need to replace the entire torch in the event of a torch collision."

Service and support

"Service, support and reliability were important factors in our decision to go with the Lincoln product," explains Hawkins. "Our Lincoln sales rep was here during our entire installation process and continues to be on call whenever we need him. And, it's good to know that we have the support of the entire Lincoln automation team behind us every step of the way."

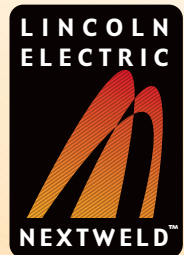
"Service, support and reliability were important factors in our decision to go with the Lincoln product"

Conclusion

"DeWys is sold on the benefits of Lincoln robots," says Hawkins. "Our plan is to convert most of our shop to robotics, and Lincoln is certainly going to play a key role as we undertake that process."

WHAT IS NEXTWELD?

The challenges facing industrial fabricators today are increasingly difficult. Rising labor, material, and energy costs, intense domestic and global competition, a dwindling pool of skilled workers, more stringent and specific quality demands.



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

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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