

METALWORKS INC.

IMPROVING ROBOTIC MANUFACTURING EFFICIENCY AND MAXIMIZING RESOURCE UTILIZATION WITH SOLIDWORKS MANUFACTURING SOLUTIONS

Case Study



By adding the Robot Programmer Standard application, which operates on the cloud-based **3DEXPERIENCE** platform, to its SOLIDWORKS design and SOLIDWORKS CAM manufacturing solutions, Metalworks gained the ability to offline program its 27 manufacturing robots at six locations from anywhere and on any device, improving its robot programming, welding, and forming efficiencies. The result was increased throughput and robot uptime, and maximized robotic and human resource use.

Challenge:

Improve robot programming, welding, and forming efficiencies while maximizing resource utilization to boost productivity, shorten delivery times, and increase the competitiveness of pricing.

Solution:

Add the Robot Programmer Standard to its existing SOLIDWORKS installation to leverage the cloud-based **3DEXPERIENCE** platform to automate and support remote programming of manufacturing robots.

Results:

- Improved robot programming, welding, and forming efficiencies
- Acquired ability to program 27 robots remotely
- Increased throughput and robot uptime
- Maximized human and robot resource utilization

Metalworks Inc. is a leading contract manufacturer of products, parts, and assemblies made from various types of metal. Founded in 1997 in a small warehouse in Nebraska with 7,500 square feet of production space, the company has grown continuously and now operates six different production facilities totaling 225,000 square feet of manufacturing space.

The contract manufacturer serves a diverse and growing customer base of original equipment manufacturers (OEMs) that need efficient, high-quality metal manufacturing services, such as machining, forming, bending, sheet metal processing, welding, finishing, and 3D printing. Metalworks clients come from a variety of industries, including agricultural equipment and accessories, turf equipment, construction equipment, consumer outdoor products, aftermarket and OEM motorcycle accessories, consumer hearth products, transportation parts and accessories, athletic equipment, and restaurant furnishings.

Metalworks' growth trajectory has been predicated on leveraging the latest design, machining, and manufacturing technologies to successfully compete and grow in the contract manufacturing market.



"We might run three to five different programs on an individual robot in a single day, depending on the order quantity for the product, and each robot might have 30 to 50 different programs that can be run at any time. Using the Robot Programmer Standard app, we're eliminating setup time at the robot and can transition from one job to the next as seamlessly as possible, resulting in greater efficiency, more robot uptime, and increased throughput."

– Todd Blacksher
Quick Response Manufacturing (QRM) Designer

That's why the company implemented SOLIDWORKS® design and machining solutions, in 2005, according to Quick Response Manufacturing (QRM) Designer Todd Blacksher. "We realized productivity gains when we started using SOLIDWORKS CAM for 2½-axis machining, which makes up the brunt of our work," Blacksher recounts.

"With our increased use of robotic technology for production — we now have 27 robots at three different locations — we needed a solution for remote programming of our robotic cells to increase efficiencies and robot uptime," Blacksher explains. "We saw a demo for the Robot Programmer Standard app, and chose to add those solutions in order to leverage the cloud-based **3DEXPERIENCE**® platform for offline programming of manufacturing robots."

Metalworks added offline robotic programming, design, data management, collaboration, and communication solutions to its existing SOLIDWORKS installation in 2025 to take advantage of cloud-based offline programming solutions on the **3DEXPERIENCE** platform in an effort to increase productivity and maximize resource utilization. "With the Robot Programmer Standard app, we sought to increase robot uptime and boost throughput," Blacksher recalls. "The closest robot is seven to eight miles away from me, and with this solution, I can program a job on the robot without visiting the facility where the robot is operating or taking it offline to program it."

REMOTE PROGRAMMING ELIMINATES ROBOT DOWNTIME

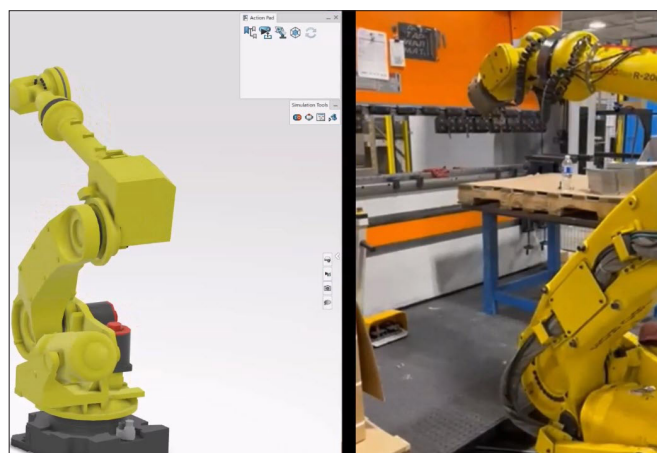
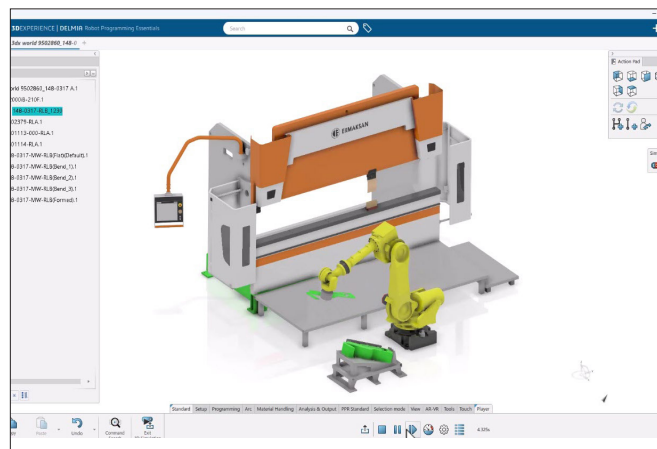
Prior to implementing offline robot programming solutions, Metalworks personnel had to program the company's three DENSIO and 24 FANUC robots at the robot itself, using each robot's pendant. That approach has its disadvantages, including having to travel to each robot's location to program it, and stopping operations and taking the robot offline in order to use the robot pendant.

Using the Robot Programmer Standard app, Blacksher can remotely program all of the robots from anywhere without having the robot stop running. "A robot is not running product when someone's programming at the pendant, which decreases production and throughput," Blacksher stresses. "With the Robot Programmer Standard app, which operates in the cloud, our robots never stop because while we're running production, we're setting up for the next job."

IMPROVING PRODUCTION EFFICIENCIES AND THROUGHPUT

Since implementing offline robot programming solutions, Metalworks has realized production efficiencies and increased throughput by maximizing robot uptime. The contract manufacturer is unique because it is constantly changing programs on its robots. While many companies likely set up a robotic cell and run the same program for an extended period of time, frequently changing out parts and programs on its robots is Metalworks' standard operating procedure.

"We might run three to five different programs on an individual robot in a single day, depending on the order quantity for the product, and each robot might have 30 to 50 different programs that can be run at any time," Blacksher points out. "Using the Robot Programmer Standard app, we're eliminating setup time at the robot and can transition from one job to the next as seamlessly as possible, resulting in greater efficiency, more robot uptime, and increased throughput. We can even program a



An important advantage of offline programming of production robots with the Robot Programmer Standard application is maintaining robot operations while programming the next job instead of taking the robot offline to program it, which was previously the case.

robot based on a quote, so we're up and running as soon as the order is received."

MAXIMIZING RESOURCE UTILIZATION

With the addition of the Robot Programmer Standard app, Metalworks has been able to maximize utilization of both human and robotic resources. "There are some jobs that are more suitable for a robot to handle and some better suited to a human being," Blacksher notes. "For example, we have a mower deck that is six feet long and made of 7-gauge steel that weighs 125 pounds. I don't want to be the guy who has to put three bends in the part because a robot can do it more efficiently and run for longer periods of time."

"The big advantage of industrial robots is being able to utilize our team members for jobs that we want them running and take them off jobs that are best served by a robot," Blacksher adds. "With the Robot Programmer Standard app, we are maximizing both our robotic and human resources. It's made all the difference in the world."

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Products:

- SOLIDWORKS Standard
- SOLIDWORKS Professional
- SOLIDWORKS CAM
- Robot Programmer Standard
- Collaborative Industry Innovator
- Collaborative Designer for SOLIDWORKS
- 3DSwymer

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