

## UTILIZING ROBOTS AND PROCESS IMPROVEMENT TECHNIQUES TO IMPROVE TURNAROUND TIME

**ABOUT IMPACT RECOVERY SYSTEMS, INC.** At the forefront of Impact Recovery Systems, Inc.®, is the mission to provide quality safety products to its customers. Since 1991, they have manufactured flexible, high-impact traffic and safety devices for roads, pedestrian safety, warehouses, and facilities worldwide.

**THE CHALLENGE.** In 2021, Impact Recovery Systems, Inc., was experiencing rapid growth and was feeling the growing pains. Without hesitation they reached out to TMAC, part of the MEP National Network™, for assistance in automating processes and for improving production flow based on new processes and product mix.

**MEP CENTER'S ROLE.** Part one of the solution involved automating a key process step. Dexterous handling of components during a plastic spin welding process created an obstacle for affordable automation integration. Plant engineers wanted to know if it was possible to utilize a robotic pick and place solution for the spin welding process that could also co-exist with human operators on a busy factory floor. TMAC re-created the spin welding work cell at TMAC's Collaborative Robotic Facility with the intent of showing how a collaborative robot, a system that may be safely used around humans with a semi-custom end of arm tool, can reliably assemble components for spin welding process. TMAC engineers were able to demonstrate the collaborative robotic pick and place solution in various configurations that completed the pick and place process within the required process time. In parallel, TMAC analyzed the company's products, processes, technologies, and people. One of the key tools involved was value stream mapping, which allowed the Impact Recovery Systems, Inc., team to clearly analyze their current process and identify opportunities. Once the key opportunities were identified, the team utilized tools such as cellular manufacturing, total productive maintenance and 5S (workplace organization) to further delve into areas of improvement. However, process improvement alone cannot guarantee a company's success. The culture of the company, from its leadership to the workers, must be one of growth and progress. Every employee must believe that what they do is important and plays an important role in the success of the company. They must also be encouraged to take ownership by speaking up about broken processes or finding solutions to existing challenges. By incorporating process improvement practices into its daily manufacturing practices, the culture of continuous improvement will become second nature.

"TMAC has always fulfilled our needs when we have leveraged their help. Their team is very knowledgeable and has vast experience in helping manufacturers become better."

-Barbara Cheatham, Production/Purchasing/Inventory Manager

## RESULTS



20% improved throughput



Work in process reduced by 40%



Improved turnaround time



Yield more consistent product



Improved customer satisfaction

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