



# How to Properly Implement Welding Automation to Improve Return on Investment (ROI)



**GULLCO INTERNATIONAL**  
WELDING AND CUTTING AUTOMATION

Welding automation systems use a series of robotic controls and automated equipment attached to a programmed controller. These systems produce high-quality, consistent welds of various types and styles with limited or no human intervention. There are multiple different types of welding automation systems, including units that can only perform a single weld type in a specific orientation and more flexible and programmable units that can accommodate multiple different weld styles and orientations for complex configurations.

At Gullco International, we serve our clients with comprehensive welding automation implementation services, complete with in-house engineering, setup, manufacturing, and integration so you have the right solution for your existing equipment and your future production needs. Learn more about the value of automated welding systems, how to calculate your automation ROI, and how to get started.

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# How to Know When It's Time to Move to an Automated System

Manufacturers are rapidly moving toward automation because of the numerous efficiencies, increases in high-quality production, and reduction in safety hazards and costs the transition can bring. Welding automation, in particular, can be a smart investment for your organization. Two of the key concerns that motivate companies to switch to welding automation are:

## 1 Shortage of Skilled Labor

Automated welding systems require less human labor to produce the same output. If there is a temporary shortage of labor driven by a peak in demand or long-term labor shortages because of dwindling availability, welding automation can fill in the gaps and supplement the shortage. Automated systems that do require human operators or overseers require less training and experience, making it easier to fill those roles.

Automated welding solutions are ideal for anything that requires continuous welding, such as shipbuilding, rail car production, and bridge construction. Rather than fall behind on key deadlines or risk losing clients, see how Gullco can facilitate a partial or complete transition to weld automation implementation.

## 2 Quality and Consistency Concerns

Human welders can offer manual and customizable welding techniques for special projects, but there's a price for manual welding. Manual labor is naturally going to incur variation from unit to unit, especially as welders become fatigued from prolonged periods of welding, have distractions, and encounter other obstacles. This results in unpredictable product quality and project slowdowns.

With automated welding systems, facilities can significantly speed up turnaround times, increase overall efficiency, and reduce unwanted variability. While human welders operate at approximately 25% efficiency in weld delivery, automated systems deliver between 80% and 90% efficiency.

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## How Do You Pick the Right Equipment?

With so many weld automation systems, customizations, and add-ons available, it's important to choose the right solution for your specific needs. Consider the following factors:

- The position and orientation of the weld in relation to the assembly
- How much manual control of the torch should be retained for human operators
- Precision and safety add-ons, such as height-sensing equipment, cameras, positioning tools, and remote controls
- Weld profile requirements
- Strategies for reducing direct material handling

During this stage of planning, working with a professional consultant or support team can be invaluable. The right turnkey service team will assess your shop floor or onsite conditioning, provide suggestions based on the environment and the desired applications, and provide advice to optimize the use of current and future equipment. Gullco systems can be designed for on-site and factory applications.

# How Can You Calculate the ROI for Welding Automation Equipment?

Welding automation equipment is a business expense. So, it's important to know the upfront and ongoing expenses, as well as the increases in revenue and related reduced costs. Some of the key factors to include in your calculations are:

## ARC-On Time



Manual welding, or SMAW, is incredibly inefficient and only has an arc-on time efficiency of only approximately 25%. Further, manual welding requires high skill levels – and it can be very difficult to hire experienced welders. Semi-automatic welding, including MIG/MAG, MCAW, and FCAW, has greater arc-on efficiency with up to 60% uptime.

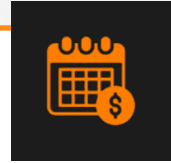
Fully automated welding, in which the machine holds and directs the torch, is the most efficient option, with arc-on times reaching 80-90% efficiency rates.

## Quality and Potential for Defects



Over-welding, mistakes, and inconsistencies result in delays and costly material waste. Overwelding costs organizations millions of dollars in wasted parts and welding materials each year.





## Target Payback Period

The “payback period” is the amount of time you can expect it to take to recoup the costs of transitioning to an automated system. For larger organizations, one year or less is an optimal payback period. Working with a capital expenditure program can help you calculate how long it will take your organization to recoup the total cost of welding automation implementation.



## Labor Replacement

Semi-automatic welding systems reduce your reliance on skilled laborers so you can quickly train operators to manage the equipment. Fully automated systems more completely replace your labor requirements and can even open your equipment to increased use cases and applications.



## Reduced Material Cost

Welding is an expensive portion of total production costs, making up approximately 28% of the cost of welded goods. With automated processes, you can reduce material costs, increase efficiency, and reduce labor costs with near-immediate benefits on your bottom line.



# When Should Companies Expect ROI?

Calculating the timeline in which you begin to recoup your costs on automated welding equipment is essential so you can predict your payback date and gain insight into the ROI of the transition. Manufacturers can expect both direct and indirect returns quickly:

## Direct Returns

Automated processes can quickly improve efficiency. If your organization manages large-scale welding orders, you'll see a faster direct ROI.

## Indirect Returns

Indirect returns should also factor into your calculations. Some of the most beneficial indirect returns include:

- Increased product quality and consistency
- Fewer reworks and expensive replacements
- Reduced material waste due to inefficiencies or mistakes
- Greater production capacity due to reduced delays and time waste

Calculating both direct and indirect returns can help you predict your facility's anticipated payback period. Once the new equipment has been paid for, the efficiencies represent pure profit and the ability to grow your organization.



# Case Studies

See these examples of the success two organizations gained from switching to welding automation from Gullco:



## Bridging the Gap

HCC was constructing the Bogibell Rail-Road Bridge in December 2018. This infrastructural project needed welded steel trusses with an emphasis on both consistent quality and speed. They chose Gullco to automate their processes with a KAT oscillator carriage for easy-to-operate, portable equipment that was able to get the job done.



## Pillars of Support

Our KAT weld oscillator carriage was chosen to help complete the Oculus subway project in the PATH train station to create a secure station with bomb-proof supports.

The critical factor these projects had in common was the importance of meeting the deadline. Failure to complete the work on time would have resulted in costly thousand-dollar fines, and manual welding jeopardized their ability to meet those deadlines. Gullco assessed their needs, implemented the right automation solutions, and helped them succeed with these projects. Learn more about our capabilities and the benefits of automated welding [here](#).



# Welding Automation From Gullco

Automating your organization's welding processes can improve your production capabilities, speed, quality, and services offerings. [Contact Gullco today](#) to learn more about our turnkey implementation solutions or [request a quote](#) to start developing the right solution.

Contact Us

Request a Quote

## About Gullco International

Gullco is a family-owned company, with its world headquarters located in Newmarket, Ontario, Canada. Gullco International serves the entire world market through its companies in Canada, United States, United Kingdom, India, Australia, and China as well as its strong world wide distributor network with high quality automated welding machines for welding and cutting applications. Gullco International is engaged in a continuous research and development program to provide weld automation equipment and systems geared to the fast changing needs of the welding industry and equipment that can stand up to the tough environments in the field. Gullco is dedicated to providing productivity, cost savings, durability and service.



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