

SUCCESS

**LINCOLN®**  
**ELECTRIC**  
THE WELDING EXPERTS

# Waveform Control Technology™

## Automation

**U.K. supplier of excavator buckets and quick hitches to the European OEM market, Harford Manufacturing speeds up assembly time with automated systems from Lincoln Electric.**

### - PROBLEM -

Manual welding time of excavator buckets varied depending on size between 30 minutes to one hour and 45 minutes.

### - SOLUTION -

Two automated systems with the Arcmate 120i Robot and the FANUC R-J3 Controller.

### - RESULTS -

Welding cycle time was reduced from 30 minutes to 8 minutes on a 12" bucket. One cell welds various size buckets with consistent weld size and no post-weld cleanup, all leading to substantial overall cost reduction.



## Harford Manufacturing

**H**arford Manufacturing specialises in supplying excavator buckets and quickhitches in the OEM market in the UK and Europe. Their reputation for quality and fast turnaround has established them as a dominant player in this competitive sector over the last decade.

Production Manager Julian Garrood explained, "The ability to weld quickly to a high standard is a key element in our manufacturing process. In the early years, our welding equipment was bought second-hand and maintained in-house. As the company grew, this became impractical and we invested in new equipment from three different manufacturers. Our experience showed that the Lincoln equipment was highly reliable, easy to use and produced consistently good results. The level of service we have received from Lincoln over the years has been outstanding."

Several years ago, Harford began to focus on robotic welding to increase productivity further. "Several months into the project, we were convinced that robotics

was the way to go but were unconvinced of potential partners' commitment to a one-unit purchase." That changed when Lincoln became involved through their local represen-



**"Our experience showed that the Lincoln equipment was highly reliable, easy to use and produced consistently good results."**

tative. "Their approach was entirely different. From day one they familiarised themselves with our

process in such a way that we knew the application would be a success even prior to the system build. In the process, we completely re-

The future of welding is here.®

## Harford Manufacturing

designed our bucket components, making assembly time much quicker.

**“...we are achieving production increases in excess of 100%.”**

Installed by November, the first Harford robot was running at full capacity. Welding Supervisor Kevin Holmes said, “The output of

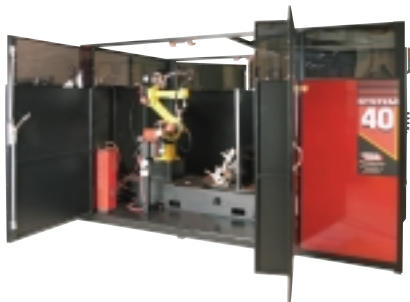
the robot has exceeded our expectations in terms of quality and quantity – we are achieving production increases in excess of 100%. And the system is easy to use and reliable.”

Less than six months later, robot number two was installed and expanded its business to the U.S., proving that in the competitive world of small batch fabrication, Lincoln has the ability to provide powerful tools – fast.

## Featured Lincoln Products Automation Cells

### System 30

Pre-engineered systems like the **System 30** can dramatically enhance standard parts production with shorter delivery times, lower costs and consistent quality. This arc welding robot cell is a pre-engineered, two-fixed table workstation designed for medium sized parts that can be welded without reorientation. The two-fixed table layout creates a small, economical system that takes up very little floor space.



### System 40

Pre-engineered systems like the **System 40** can dramatically enhance standard parts production with shorter delivery times, lower costs and consistent quality. This arc welding robot cell is a pre-engineered, 180 indexing turntable workstation designed for medium sized parts that can be welded without reorientation. The rapid indexing 58-inch or optional 71-inch diameter turntable offers a more spacious workspace. The two-sided table allows the operator to load and unload on one side while the robot welds on the other to create an economical, versatile means to improve productivity while reducing operator fatigue.

## WHAT IS NEXTWELD?

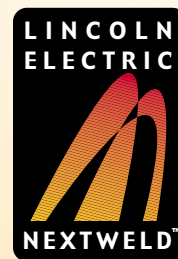
*The challenges facing industrial fabricators today are increasingly difficult. Rising labor, material, and energy costs, intense domestic and global competition, a dwindling pool of skilled workers, more stringent and specific quality demands.*

*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.*



THE WELDING EXPERTS

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