

Knott Brake Solves Outsourcing Challenges, Slashes Lead Times With Cooper Cobot

CUTTING-EDGE CAPABILITIES TURN PAIN POINTS INTO COMPETITIVE ADVANTAGES

INTRODUCTION

Knott Brake, a division of the Knott Group, specializes in industrial brakes all the way to trailer axles. The company has a large presence in Europe and is actively working to replicate its European success in the United States. Initially, Knott Brake bought its product in Germany. It needed a solution to bring manufacturing in house and become self-reliant. This case study explores how Lincoln Electric® Automation, leveraging automated robotic welding technology and a proprietary Cooper™ Cobot programming application, delivered exceptional results, enhancing Knott Brake's manufacturing efficiency and product quality.

About Knott Brake

Founded in 1937, in Eggstatt, Germany, Knott has developed into a world wide leader in high quality customer engineered solutions. In 1987, Knott Brake Company was founded in the United States to bring the same customer focused strategy to the US market.

Knott Brake Company was founded in 1987 by past CEO, Hans Knott. Hans worked from his home selling while product was supplied by the German parent company and warehoused in Lodi, Ohio. Hans quickly realized to grow the business he would need to start manufacturing product in Ohio. In 1989, Hans rented a 10,000 square foot facility. He started bringing components from overseas performing final assembly, introducing flexibility into the delivery of goods.

By 1991, the business had grown to six full time employees. The next stage of business development focused on manufacturing complete brake assemblies. To accomplish this, CNC machines were purchased. In 1992 friction bonding was added, then in 1995 welding processes were added introducing more U.S. content into the German engineered product. In 2002 a new facility was built in Lodi, Ohio and today Knott employs 65 people in many different job functions.

For more information, visit <https://knottbrake.com/>

1 | www.lincolnelectric.com

THE CHALLENGE

- » **Long Lead Time From Vendors:** Purchasing product from vendors in Germany caused long lead times and quality inconsistencies.
- » **Lack of Welding Experience:** Knott Brake hasn't had a solidified welding department for years. The welding experience is limited among the employees and it is difficult to find skilled welders willing to perform the type of welds needed at the company.
- » **Cost Efficiency:** Purchasing product from vendors is expensive and inefficient long term. Paying experienced welders for small custom welds does not make financial sense.
- » **Speed to Market:** Production timelines need to be accelerated to meet industry demands and stay ahead of competition. Outsourcing product is too time intensive.
- » **Innovative Solutions:** Advanced manufacturing technology and techniques were sought to tackle these requirements.

Interview with Knott Brake conducted August 14, 2024

WHY KNOTT BRAKE CHOSE LINCOLN ELECTRIC AUTOMATION

Knott Brake evaluated several suppliers, ultimately selecting Lincoln Electric Automation for its:

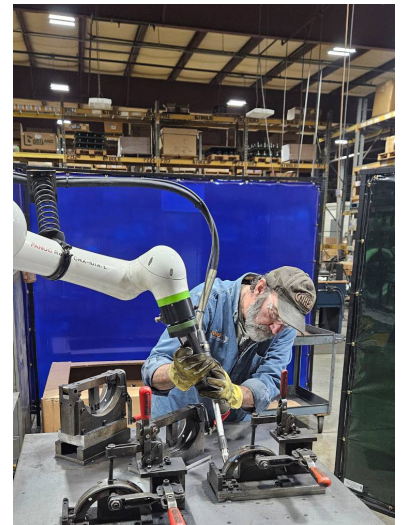
- » **Proprietary Technology:** Lincoln Electric's Cooper App software is proprietary and unparalleled by competitors, and its "point and click" programming style is a "game changer".
- » **Ease of Use:** The Cooper Cobot was designed so workers with no welding experience can easily make welds. Minimal programming experience is needed which allows for a fast learning curve.
- » **Expertise:** Lincoln Electric has over 125 years of experience manufacturing a wide range of welding equipment and industry-leading expertise in complex 5-axis CNC machining, fabrication and quality.
- » **Quality:** Lincoln Electric Automation employs a rigorous quality management system certified to globally recognized, universal standards like ISO 9001.

HOW THE COOPER COBOT PROVIDED A SOLUTION

"From day one, Cooper Cobots provided a user-friendly solution that seamlessly fit into our workflow. With just a day of training, our operators—many of whom had limited welding or robotic experience—were able to learn its controls, set-up, and operate the cobot without needing advanced programming skills," said Jeff Hetrick, who works in the manufacturing engineering department at Knott Brake.

"Cooper's 'point and click' programming style was a game-changer, especially for our operators who had little to no robotics experience. We looked into several welding solutions, but Cooper Cobots stood out for their simplicity, adaptability, and cost-effectiveness. With Cooper, all it takes is grabbing the arm and positioning it where we want to weld. Unlike other systems, this cobot didn't require extensive programming knowledge, which minimized the learning curve and enabled us to achieve high-quality welding results with precision. The Cooper App was intuitive, and its updates only improved the experience by incorporating our feedback and consistently enhancing the software.

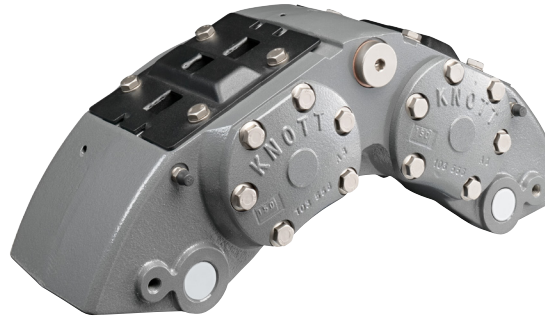
The results speak for themselves: by automating our welding process with the Cooper Cobot, we've improved weld quality, cut lead times, and gained independence from outside vendors. We're now performing small linear and circular welds between 1/8 and 5/16 inches for parts like backing plates and brake shoes." - TJ Warholc and team at Knott Brake



THE RESULTS

"In terms of cost savings, having this technology in-house has had a positive impact on our cash flow position, allowing us to redirect funds toward hiring more team members and investing in additional automation. This has opened new opportunities for bundling products with our existing offerings and exploring different configurations for new sales.

Cooper Cobots have become an essential part of our manufacturing process. It's helped us create a dedicated welding department, expanded our capabilities, and allowed us to maintain the quality and precision that define Knott Brake products. Overall, Cooper Cobots have provided us with a powerful, easy-to-use solution that meets our needs for flexibility, reliability, and consistency. This technology has equipped us to bring high-quality automation in-house, giving us the control and efficiency we need to grow in an evolving market," said TJ Warholic



Within a day we realized the Cooper Cobot's friendly personality. We've been using it while the Cooper App updates come through and Lincoln Electric takes our feedback to help develop the software and continually make it better. With just a day of training, our operators—many of whom had limited welding or robotic experience—were able to learn its controls, set up, and operate the cobot without needing advanced programming skills."

Jeff Hetrick

Manufacturing Engineer
Knott Brake



INCREASED
EBITA AND EMPLOYEE COUNT



DECREASED
LEAD TIMES BY BRINGING WELDING IN-
HOUSE



INCREASED
CASH FLOW POSITION BY NO LONGER HAVING
TO PAY SUPPLIERS

FACING SIMILAR HIRING AND MANUFACTURING CHALLENGES?

With advanced manufacturing technology, some of the largest equipment in North America, comprehensive in-house capabilities, and over a century of expertise, Lincoln Electric is well-equipped to tailor innovative, cost-effective solutions for your complex needs. [Contact us](#) today to learn more about our capabilities and how we can help you streamline supply chain operations and eliminate pain points, achieving exceptional results.



About Lincoln Electric

Lincoln Electric is the world leader in the engineering, design, and manufacturing of advanced arc welding solutions, automated joining, assembly and cutting systems, plasma and oxy-fuel cutting equipment, and has a leading global position in brazing and soldering alloys. Lincoln is recognized as the Welding Expert™ for its leading materials science, software development, automation engineering, and application expertise, which advance customers' fabrication capabilities to help them build a better world. Headquartered in Cleveland, Ohio, Lincoln has 71 manufacturing locations in 20 countries and a worldwide network of distributors and sales offices serving customers in over 160 countries. For more information about Lincoln Electric and its products and services, visit the Company's website at <https://www.lincolnelectric.com>.

CUSTOMER ASSISTANCE POLICY

The business of Lincoln Electric is manufacturing and selling high quality welding equipment, automated welding systems, consumables, cutting equipment and EV charging systems. Our challenge is to meet the needs of our customers, who are experts in their fields, and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or technical information about their use of our products. Our employees respond to inquiries to the best of their ability based on information and specifications provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment, or to provide engineering advice in relation to a specific situation or application. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or communications. Moreover, the provision of such information or technical information does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or technical information, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose or any other equivalent or similar warranty is specifically disclaimed.

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THE LINCOLN ELECTRIC COMPANY
22801 Saint Clair Avenue · Cleveland, OH · 44117 · U.S.A.
Phone: +1 216.481.8100 · www.lincolnelectric.com