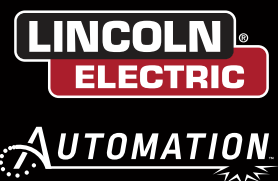




COLDWATER

DELIVERING FLEXIBLE AND AGILE AUTOMATION SOLUTIONS



What we do

We deliver automation solutions that build upon deep industry experience in robotics, vision, lasers, metal forming, joining technologies as well as precision machining capabilities. We develop automated assembly and forming solutions for the Automotive, Appliance/HVAC and Aerospace/Energy industries that range from custom machines to highly automated assembly lines that help build efficiency into your production operations. We are also recognized as a leader in the development and commercialization of solutions for the joining of lightweight materials, and machining services for tight tolerance applications.

Our in-house design, machining, assembly and fabrication capabilities enable us to tightly control quality and schedule at each stage of your project, overseen by our program managers. Our strength lies in our ability to transfer technology and know-how developed in solving specific challenges for one market to other industries. Look to us as a partner committed to excellent customer service that delivers quality solutions on time, with the global resources of Lincoln Electric Automation to support you where you are.

OUR COLDWATER FACILITY

As part of Lincoln Electric Automation, we can support your manufacturing needs with access to over 1,000,000 sq. ft. of manufacturing space in facilities across the globe. Headquartered in Cleveland, Ohio, Lincoln Electric has 60 manufacturing locations, including operations and joint ventures in 19 countries and a worldwide network of distributors and sales offices covering more than 160 countries. At the Coldwater location, our climate-controlled facility features nearly 50 machine tools, three manufacturing bays with 25-ton crane capacity, a Solid State Joining Center and a Materials Evaluation (MET) lab dedicated to the research and development of friction welding technologies.



Custom automation

We have proven experience in developing innovative solutions for automating manufacturing processes for a variety of industries and applications. We offer assembly and fabrication solutions from single cells through fully automated turnkey lines, which include any number of processes such as laser welding, stamping, roll forming, and inspection. Our experience has gained us certification as integration partners with both Fanuc and Yaskawa, in addition to technical capability with other robot manufacturers including ABB and Kuka. From a controls perspective we have the ability to deliver solutions that utilize platforms from AllenBradley, Siemens, Beckhoff, Omron and others.



ROBOTIC CELL EXAMPLES

- » Piercing Stations
- » Rotary Welding Cells
- » Robotic Tube Forming Cells
- » Fully Automated Turnkey Assembly Lines
- » Vision Inspection Cells
- » Weld & Extrude Cells

PROCESS EXPERTISE

- » Adhesive Bonding
- » Bending
- » Clinching
- » Embossing
- » Extruding
- » Flanging
- » Finishing
- » Folding
- » Forming
- » Friction Welding
- » Hemming
- » Laser Cutting
- » Laser Welding
- » Louvering
- » Machining
- » Material Handling
- » MIG Welding
- » Notching
- » Pallet Indexing
- » Piercing
- » Punching
- » Resistance Welding
- » Riveting
- » Robotics Integration
- » Roll Forming
- » Shearing
- » Stamping
- » Tube Fabrication
- » Vision Inspection



Friction welding

Through our Solid State Joining Center, we are a leader in the research, development and manufacture of solid state joining solutions that specifically address lightweight and dissimilar materials joining. We partner with several companies and research institutions to manufacture and commercialize state-of-the-art welding solutions, such as our SpinMeld® and SpotMeld™ systems.

SpinMeld systems use rotary friction welding technology to heat materials and pressure to create a solid state welded joint in only a fraction of a second. These machines can join like or dissimilar materials including aluminum, magnesium, brass, steel and carbon fiber composites, and are available for integration into work cells or as part of an automated processing line.

SpotMeld is a Refill Friction Stir Spot Weld system that enables the joining of aluminum (1000 – 7000 series) and magnesium. This technology uses friction to generate heat between the tool and material to create a soft region. Pressure is then applied, resulting in a solid state joint.

Customers can employ us to run prototype and feasibility tests for either of these systems, as well as having either a SpinMeld or SpotMeld system built to specification for use on their production floor. Our Materials Evaluation and Testing (MET) lab provides microstructural evaluation in addition to mechanical testing for weld tensile and hardness verification. This service provides prompt verification of weld integrity, enabling us to shorten the development time for laser, solid state and arc welding customers.



FRICITION WELDING BENEFITS

- » Low distortion
- » Leak-proof joints
- » Non-corrosive bonding
- » No flux, filler or other consumables
- » High energy efficiency
- » Environmentally friendly
- » Weld near original material strength

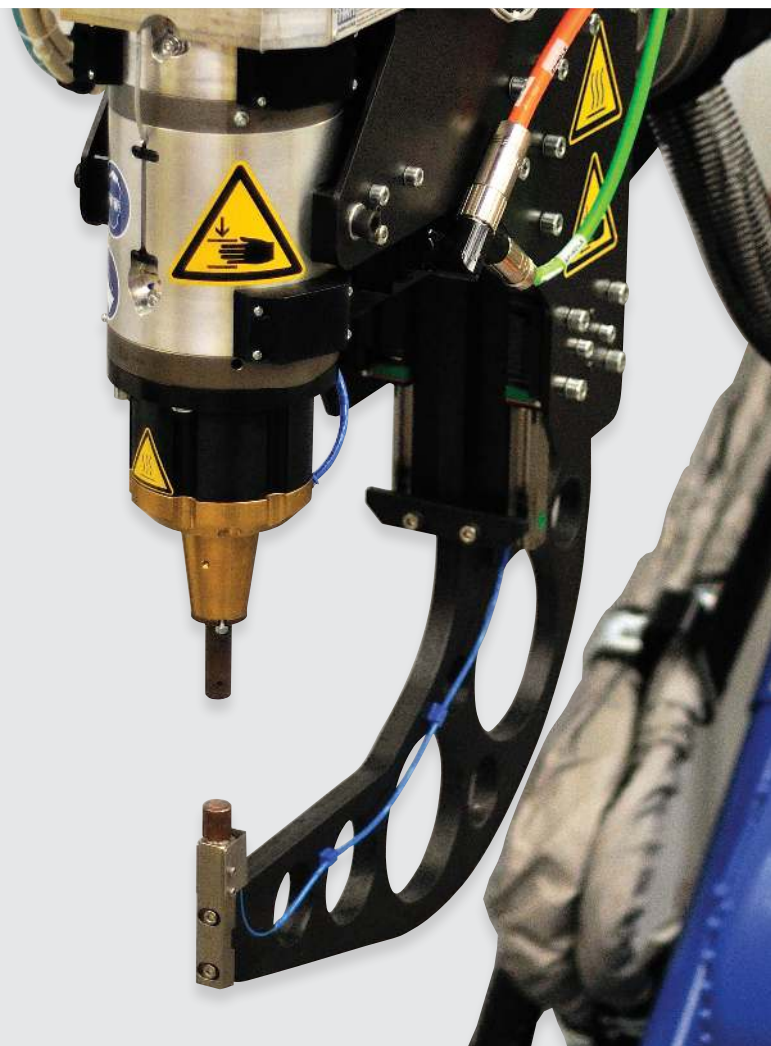
SPINMELD®



Cut cross-section of
a round tube friction
welded to a plate.



SPOTMELD™



Precision machining

We offer a variety of precision machining services, from prototype and low volume production to the manufacture and assembly of complete machines built from your designs. With nearly 50 machine tools including 5-axis centers and a "mother machine" jig bore, we are a one stop source for your machining needs. We are able to produce highly complex components and assemblies based upon your supplied specifications or we can employ our engineering team to assist in your design. We are specialists in providing jigs, fixtures and workholding for high tolerance precision applications for operations such as assembly, inspection, repair, welding, and machining, consistently delivering machining tolerances of .0002"–.0004" to meet the most stringent requirements.

As your manufacturing partner, we guarantee complete confidentiality regarding your designs, allowing you to concentrate on advancing your technology while leaving the manufacturing to us. Our combination of machining experts, skilled tradesmen and cutting-edge tools will result in products of the highest quality for you and your customers. Some examples of our work include:

PROCESSES: Milling, Turning, Boring, EDM, Grinding and 5-Axis Machining

MATERIALS: Stainless Steel, Aluminum, Inconel, Hastelloy and other exotic metal alloys

WORKPIECE SIZE: Up to 236" x 98"

CERTIFICATIONS: ITAR and ISO9001:2015

QUALITY & INSPECTION: NDT, CMMs, 3D portable laser tracker, load testing



- » Dollies
- » Transport Trailers
- » Custom Hand Tools
- » Assembly Aids
- » Ground Support Equipment
- » Assembly Tools
- » Turbine Blade Removal Machine
- » Machining Fixtures
- » Lifting Fixtures
- » Engine Components
- » Machine Tool Components



Automotive solutions

Whether you need tooling for your production line, a precision fixture, a destacker, a laser weld cell, equipment refurbishment or a turnkey automated system, we can develop a solution that meets the production and quality requirements of the automotive industry. Our engineers are experts in designing efficient manufacturing solutions that achieve the high accuracy and repeatability required by OEM and Tier suppliers making you more efficient, productive and cost-effective.

BODY COMPONENTS AND STRUCTURES

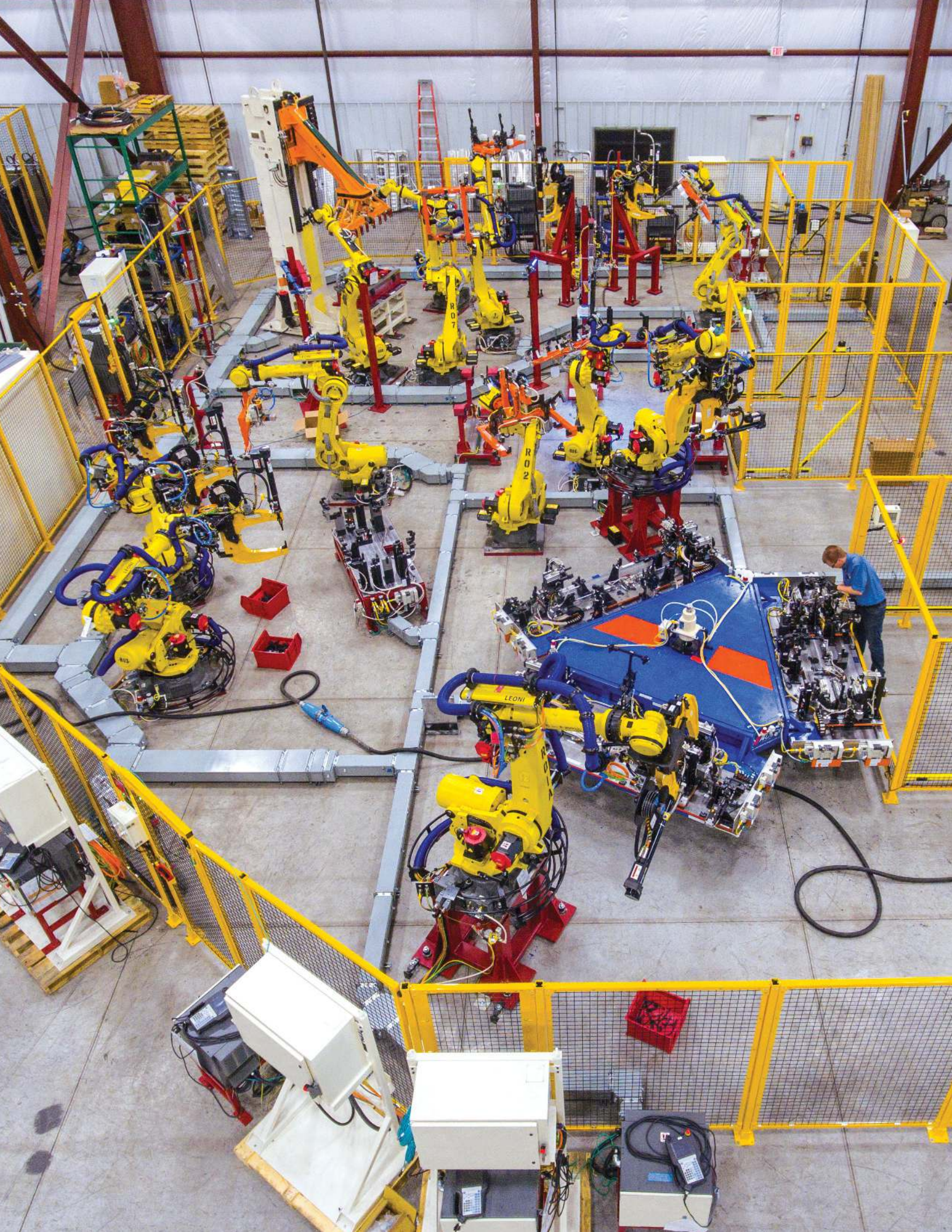
We provide the design and build of modular cells or turnkey automated welding and joining systems that are used in vehicle body-in-white assembly by Tier suppliers for both steel and aluminum structures. Production processes in these assembly lines incorporate a variety of material handling solutions as well as various joining technologies such as welding, hemming, adhesive bonding, clinching, riveting, etc. Typical applications include assembly and sub-assembly lines for tailgates, doors, hoods, wheelhouses, roofs, and structural components such as pillars, cross and front beams, reinforcements, etc.

POWERTRAIN LASER WELDING SYSTEMS

Using laser welding modules, we build powertrain laser welding lines to meet your requirements. Our solutions include palletized transfer of components with RFID tracking through the assembly and welding process, laser ablation, robotic material handling, servo-controlled presses, laser welding and ultrasonic inspection of the weld.



- » Bearing Presses
- » Body Assembly Systems
- » Conveyor Track Assemblies
- » Engine Assembly Workstations
- » Fixtures
- » Workholding Stations
- » Friction Welding Systems
- » Laser Welding Systems
- » Custom Machining
- » Vision Inspection Systems
- » Operator Assist Units



Appliance and HVAC solutions

We are a leading automation supplier for turnkey automated systems for the appliance and HVAC industry. With over 50 years of developing effective solutions, we deliver positive results by leveraging our breadth of experience in fabrication and assembly to optimize your production. We focus on providing flexible and agile production systems that speed product changeover and new product launches, address mixed production, and deliver superior OEE through modular stations and robotic handling.

Whether you need a solution for a brand-new product or an improvement to your existing equipment, our engineering team has the experience to design, build and install a solution that meets, and even exceeds, your particular requirements. We are problem-solvers that strive to discover inventive ways of building greater efficiency into your operations. We've provided automated assembly lines that help to produce washers, dryers, dishwashers, cooktops, refrigerators, heating and cooling units and more.



ASSEMBLY SYSTEM EXAMPLES

- » Cabinet lines with material cut and prep, forming, scoring, robotics, toggle locks, spot welding, inspection
- » Stainless steel panel line with destacking, embossing, notching, piercing, bending, and louver
- » Drum lines with robotics, laser welding, stamping, roll forming, assembly and inspection
- » Wire basket manufacturing inclusive of all forming, welding and trimming
- » Conveyor/Track assemblies



D. SHAZO
BINTU NGAYAN

10-TON

D. SHAZO

4-72-201

E14

WARNING
SAFETY PLATE

NEVER

NEVER

NEVER

NEVER

NEVER

Aerospace and energy solutions

We have over 50 years' experience in developing effective solutions and maintaining long-standing relationships within the aerospace industry. We are able to deliver effective results by leveraging our technical skills in machining, fabrication, and assembly to optimize your operations.

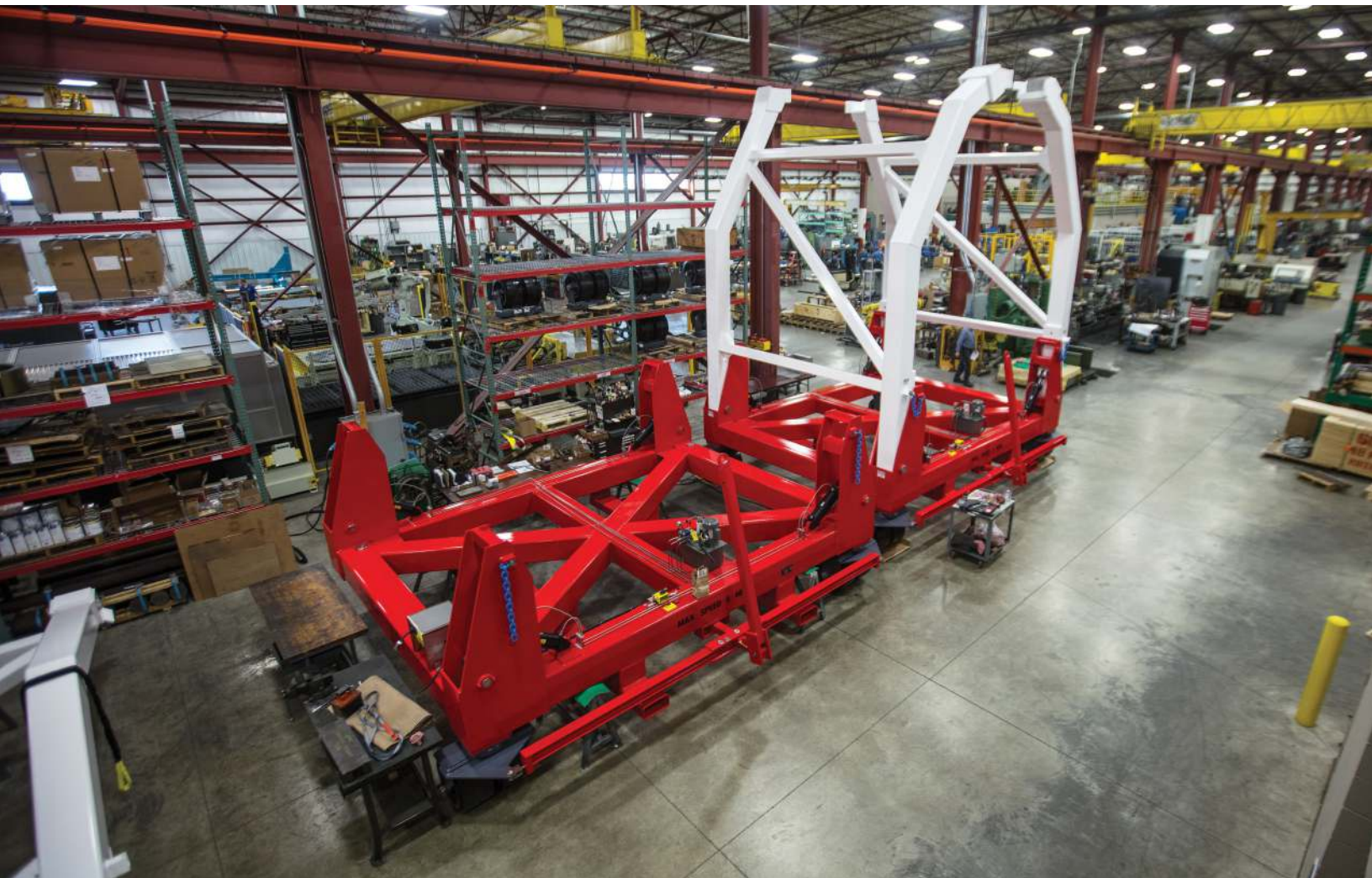
And, we have the distinctive difference of not only being able to manufacture tools, automation and material handling systems to your requirements, but to work with your team to solve unique challenges such as the manufacture or repair of complex equipment. We are especially skilled at turbine-based engine and aerospace assembly, machining and repair.

When it comes to keeping equipment functioning optimally in the field, there is no room for delay due to inaccurate or problematic tools. Our precision machining expertise ensures that all fixtures, jigs, tools or other equipment achieve the tolerances required for your high precision applications. We are especially skilled at turbine-based engine and aerospace assembly, machining and repair.

AS9100D with ISO 9001:2015



- » Composite Mold Cleaning Station
- » Dollies and Transport Trailers
- » Fan Case Grinding Machines
- » Field Service Tool Kits for Turbine and Aircraft Maintenance
- » Fixtures, Jigs and Tooling
- » Hand Tools and Assembly Aids
- » Lift Assists
- » Robotic Engine Repair
- » Engine Test Rigs and Related Ancillary Equipment
- » Turbine Stator Bar Loader





Lincoln Electric Automation, Coldwater, has a 50+ year history of providing quality manufacturing solutions and services to OEM and Tier suppliers who require precisely machined components or automated solutions for assembly, fabrication or maintenance of components with tight tolerances. We are recognized for developing effective solutions that improve production operations whether it be dies, fixtures, gauges or special purpose automated metalworking and assembly equipment. All our solutions are engineered and built to be durable, reliable and maintainable.



COLDWATER
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CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company® is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information 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. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

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