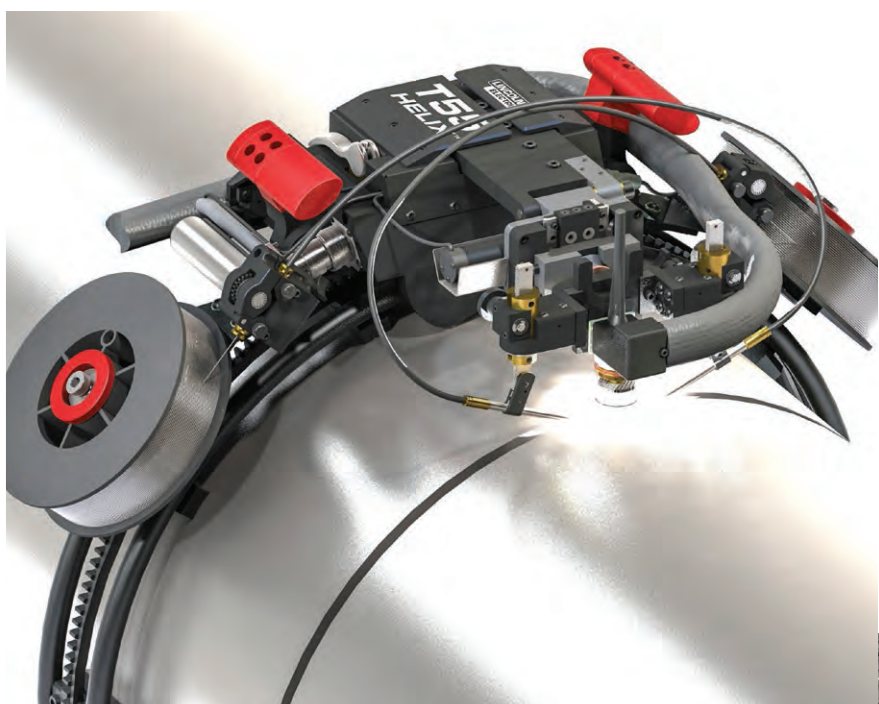
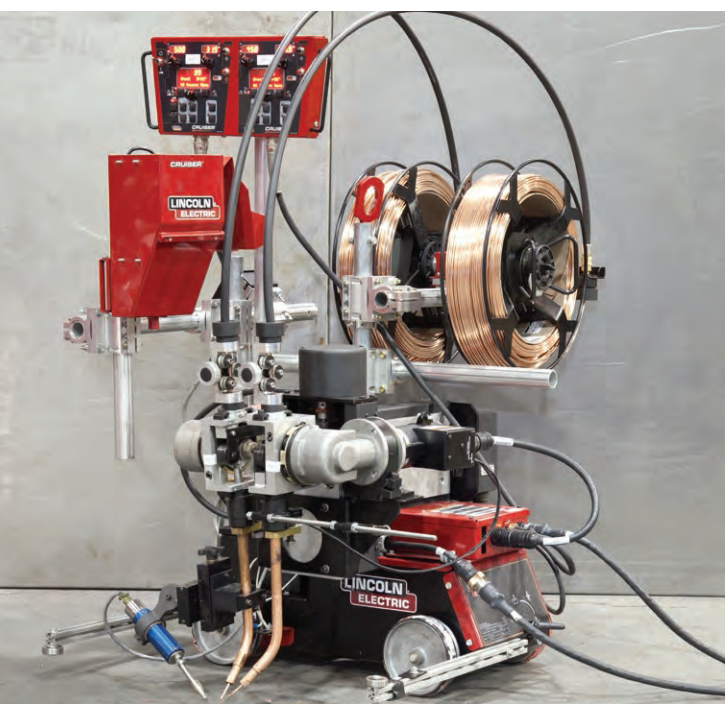




Automation
Solutions

MECHANIZED AUTOMATION CATALOG



Power Sources & Weld Controllers

Power sources, wire feeders and weld controllers for submerged arc welding provide maximum control over deposition and penetration in single or multi-arc environments.

The Power Wave® AC/DC Offers:

- Software driven AC, DC+ or DC- output characteristics allows the user to control the deposition rate and penetration.
- Can be coupled with a weld controller or any PLC with standard Ethernet/DeviceNET™ to monitor the weld quality.
- Parallel up to 3 machines as needed and create up to 5 independent arcs for greater deposition.
- Inverter based technology saves energy and reduces phase imbalance.



Shown:
K2803-1 Power Wave®
AC/DC 1000® SD

Applications

- Longitudinal and spiral pipe mills
- Mold rebuilding
- Structural materials for bridges, steel buildings and offshore platforms
- Pressure vessels
- Shipbuilding

Product Name	Amperage (A)	Rated Output Current/Voltage/Duty Cycle	Compatible Weld Controllers				
			NA – 3S	NA – 5	NA – 4	MAXsa 10	HMI PLC
FlexTec® 650	10-815	650/44/100%	✓	✓			
Idealarc® DC 1000	150-1300	1000/44/100%	✓	✓			
Idealarc® DC 1500	200-1500	1500/44/100%	✓	✓			
Idealarc® AC 1200	200-1500	1200/44/100%			✓		
Power Wave® AC/DC 1000® SD	100-1000	1000/44/100%				✓	✓

Cross Slides

Manually, semi-automatically or automatically position the weld head to the weld joint independently from the positioning equipment in both horizontal and vertical axis.

- Compact and lightweight.
- Easy to set up and operate.
- GMAW, FCAW, and SAW processes can be accommodated.
- Simple system selection.
- Slides available starting at 3x3in. (76x76mm)



Shown: (optional)
Tactile Probe



Shown:
CS450 K52015-xyy
with controller and pendant

System Includes:

- Motorized Slide Control of Seam Tracker™ Control
- Advanced Seam Tracker™ Control (optional)
 - Allows entire weld to be programmed. (Start stop, crater and time), auto height control with joystick left/right for cap welds.

Applications

- Tanks
- Pipe
- Truck Rims
- Cylinders
- Wind Tower Sections
- Beams
- Pressure vessels

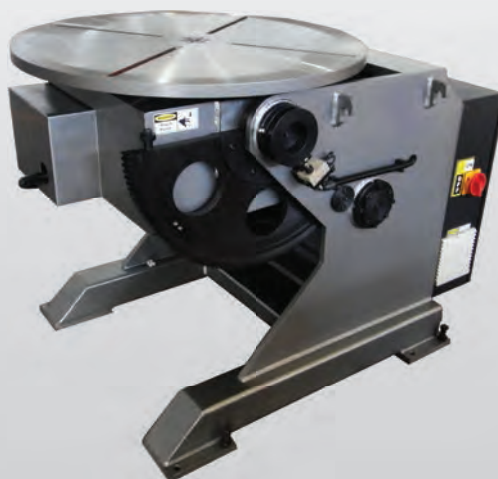
Stroke available in. (mm)	Load lbs (kg)	Motorized	Seam Tracking Tactile
3 - 6 (76-152)	40 (18.1)	✓	✓
5 - 10 (127 - 254)	250 (114.4)	✓	✓
5 - 10 (127 - 254)	450 (204.1)	✓	✓

Contact us for full specification and options.

Positioners

Present heavy or difficult to weld work pieces to the work head using tilt, rotate positioners.

- Variable speed rotation.
- Motorized tilt.



Optional Features

- Foot Control
- Digital Meter
- Castors or Rail Mount for Portability

Applications

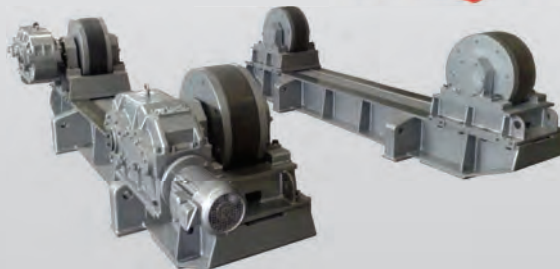
- Cladding and Hardfacing
- Pipe

Capacity (lbs/kg)	Bench Mount	Fixed and Variable Height	Tilt Range (deg.)	Rotation Speed (RPM)
220/100	✓		0 - 120	0-4/1-15
440/200	✓		0 - 120	0-4/1-15
1000/500		✓	0 - 135	0.07 ~ 2.8
2200/1000		✓	0 - 135	0.05 ~ 2.0
5500/2500		✓	0 - 135	0.025 ~ 1
11000/5000		✓	0 - 135	0.025 ~ 1
22000/10000		✓	0 - 135	0.025 ~ 1

Turning Rolls & Idlers

Position the work piece with accuracy or turn at a constant speed depending on the application.

- Increase arc on time by reducing part loading/unloading and setup time.
- Able to weld internally and externally over a wide range of diameters.
- Rotate part continuously and consistently using AC VFD motors.



Optional Features

- Foot Control
- Castors for Portability or Rail Mount
- Digital Speed Read-Out

Applications

- Pipe
- Wind Tower Sections
- Pressure Vessels
- Tanks

Capacity (lbs/kg)	Diameter Range In. (mm)	Speed Range (IPM)	Bench Mount	Standard Duty	Constant Center Line Operation
2200/1000	1-31 (25-787)	3.5 ~ 63	✓		
7700/3500	0.5-55 (12-1,397)	47	✓		
11000/5000	10-110 (254-2,794)	4 ~ 40		✓	
22000/10000	12-125 (304-3,175)	4 ~ 40		✓	
44000/20000	20-177 (508-4,496)	4 ~ 40		✓	
88000/40000	20-196 (508-4,978)	4 ~ 40		✓	
132000/60000	20-196 (508-4,978)	4 ~ 40		✓	✓

Manipulators

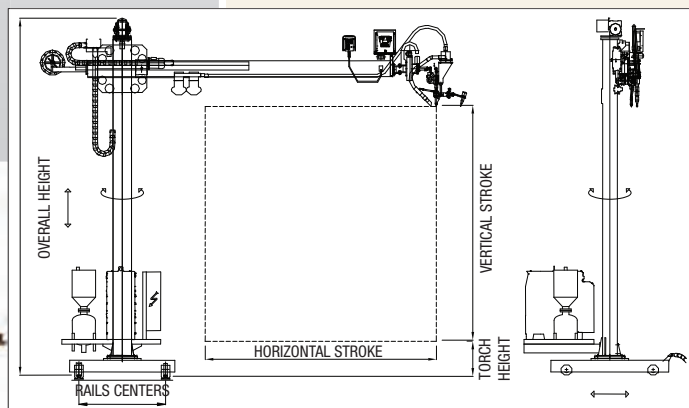
The vibration free column and boom can be used for positioning the weld head for welding a variety of work pieces from small pipe to large tanks. Both longitudinal and circumferential welds can be easily automated using turning rolls or positioners.

- Multiple welding heads can be mounted on the manipulator resulting in greater output.
- AC VFD motors provide variable speed control as well as quick yet smooth start/stop motion of boom.
- Anti-fall arrest devices and limit switched are added to increase safety.



Optional Features

- Cross Slides and Seam Tracking can be added to increase position accuracy.
- Additional column and boom length, variable speed hoist, step over controls for overlay applications, powered column rotation and boom mounted operator chair are all ready to use options.



Process	Light Duty	Standard Duty	Heavy Duty	Extra Heavy Duty
STANDARD BASE				
Vertical Stroke in. (mm)	48~138 (1,219~3,505)	79~197 (2,006~5,004)	118~276 (2,997~7,010)	157~276 (3,988~7,010)
Horizontal Stroke in. (mm)	48~138 (1,219~3,505)	79~197 (2,006~5,004)	118~276 (2,997~7,010)	157~276 (3,988~7,010)
Payload lbs. (kg)	330~606 (149~275)	880~1433 (399~650)	1100~1984 (499~900)	2315~2866 (1,050~1,300)
Approximate Torch Height in. (mm)	24~141 (609~3,581)	29~226 (736~5,740)	32~307 (812~7,797)	
Horizontal Boom Speed (IPM)	6~118	6~118	6~118	6~118
Vertical Boom Speed (IPM)	52	44	45	46
Overall Machine Height in. (mm)	175~227 (4,445~5,766)	174~292 (4,419~7,416)	222~380 (5,639~9,652)	278~396 (7,061~10,058)
Input Voltage		460 or 600 V, 3 Phase, 60 Hz		
MOTORIZED BASE				
Base Speed (IPM)	10~103	11~110	12~118	11~114
Centerline Distance Rails in. (mm)	46 (1,168)	58 (1,828)	72 (1,828)	116 (2,946)
Rail Type lbs. (kg)	48 (22)	66 (30)	66 (30)	66 (30)
Base Height in. (mm)	46 (1,168)	58 (1,828)	72 (1,828)	116 (2,946)
WELDING APPLICATIONS				
Single Arc	✓	✓	✓	✓
Twin Arc	✓	✓	✓	✓
Tandem Arc	Please Call	✓	✓	✓
WIRE MOUNTING				
60lbs Coils	✓	✓	✓	✓
250lbs Reels	Please Call	✓	✓	✓

Overall machine height is with travel cart base and will decrease in case of fixed base.

Cladding Systems

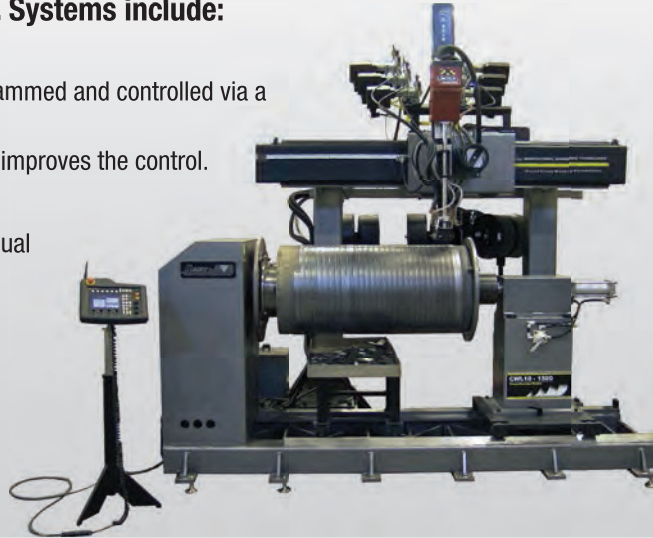
Use Lincoln Electric equipment and process expertise for a wide variety of applications. Systems include:

Advanced Programming Control

- All welding parameters are programmed and controlled via a single digital controller.
- Independent control of each wire improves the control.

Advanced Weld Head

- Can accommodate up to 8 individual isolated wires.
- Quick change, long life contact tip design.



System Includes

- Weld Lathe with headstock, tailstock and controller
- Wire feeder and weld head
- Flux recovery system
- Power Wave® AC/DC 1000 SD®
- Rotary ground

Orbital Systems

Automate precision welds on pipe applications to increase productivity and quality.

- System components can easily and quickly be replaced in the field by operators reducing downtime.
- Built to withstand a rugged production environment and harsh environmental factors.
- Mobile work station cabinet houses controller, pendant, power source and water cooler to increase mobility.
- The controller captures all the weld information and critical data which can be stored on the system internally or exported via USB port for analytical and statistical reporting.



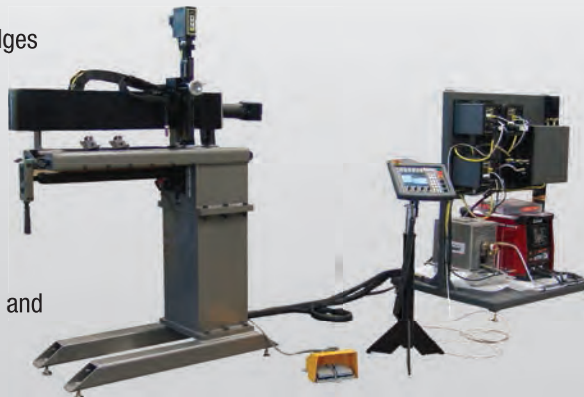
System Includes

- APEX™ 2100 Orbital Controller
- HELIX™ T55 Weld Head
- Track Ring
- Power Wave® S500 Power Source
- Cool Arc® 55 Water Cooler
- Mobile Workstation

Seam Welders

Quality seam welders for inside or outside seam welds of “Can Sections” as well as flat plate applications of varying lengths.

- Adjustable clamping fingers hold the edges of the weld joint firmly to reduce or eliminate tack welding.
- Maximum penetration is achieved with an even weld bead, both top and bottom.
- Precision drive motor ensures maximum accuracy of the welding location.
- Tabletop design ensures less deflection and more heat absorption.



System Includes

- Seamer with pendent controller
- Welder, wire feeder and weld head
- Cool Arc® Water Cooler

Optional Features

- Different bed lengths available
- GMAW, GTAW and SAW process options

Camera Systems

Remotely monitor the weld joint with a quality screen complete with cross hairs.

- **Camera** – High quality S-Video camera with dual LED is enclosed in a rugged frame.
- **Display** – 15 in. (381 mm) VGA LCD with 1024 x 768 display.
- **Cooling System** – The camera has a standard .24 in. (6 mm) air inlet port to accept shop air to keep camera cool from heat generated from continuous welding.
- **Software** – The integrated software control includes auxiliary light intensity adjustment, single or dual cross hairs mode and target grids.



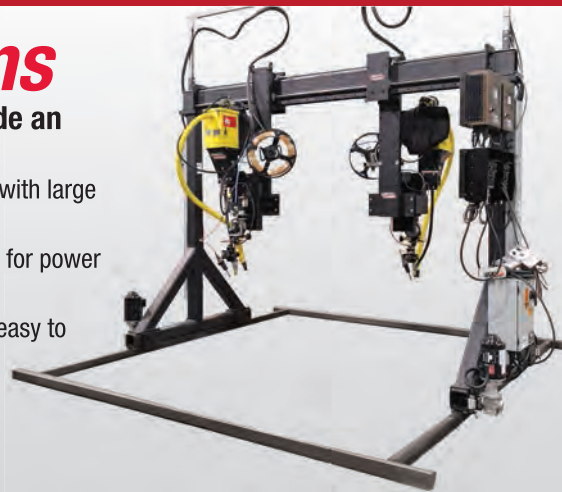
Optional Features

- Several mounting options are available
- Air Filter/Regulator Kit

Gantry Systems

Servo driven gantry systems provide an extra weld axis for extra flexibility.

- The gantry has three degrees of freedom with large stroke length.
- Optional large carriage area on the gantry for power source and wire spool.
- Clear digital display and controls make it easy to set weld modes, strike/start/end options, travel stop/start timers and other parameters.



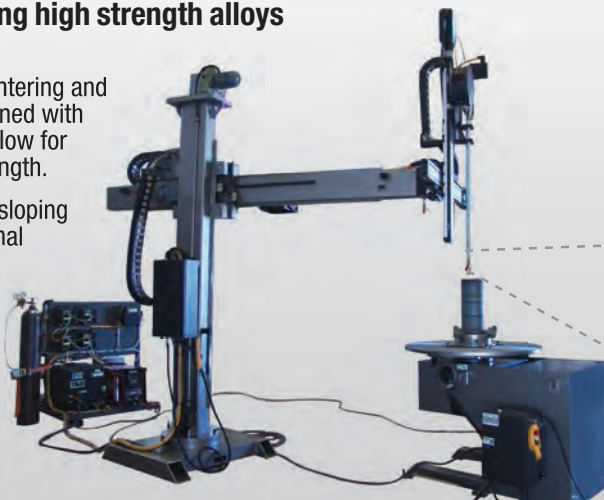
Optional Features

- Customized lengths and pay loads are available for specific needs
- Seam Tracker™ System can be added to guide welds precisely
- Multiple welding heads can be added for greater output
- Full line of flux recovery

Bore Welding/Cladding

Hotwire GTAW welding, depositing high strength alloys for surfacing applications.

- 4 axis fixture with automatic torch centering and advanced vector control drives combined with precision fixturing and servo drives allow for unparalleled voltage control for arc length.
- Programmable current pulsation and sloping provide ideal pulse control with minimal dilution especially at the starts/stops on intersecting bores.
- Integrated tolerance checking and Ethernet connectivity provide convenient process verification on critical components.

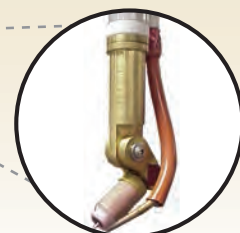


System Includes

- Bore cladding manipulator with pendant controller
- Power Wave® S350 with ArcLink®

Optional Features

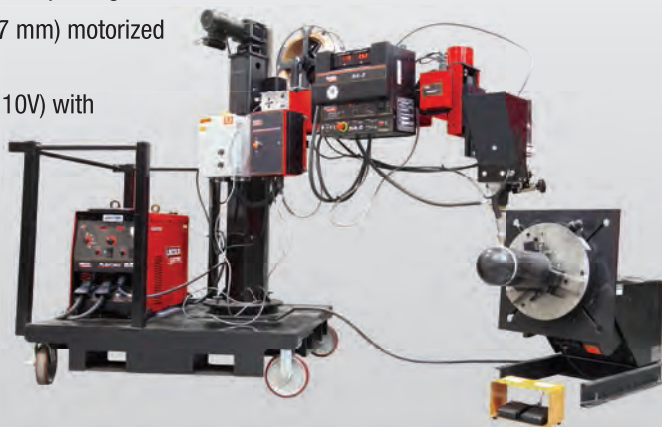
- Camera system can be added to monitor the process



Manipulator

Portable self-contained welding system with tilt rotate positioner and gripper.

- 4x4 ft (1.2 m) portable manipulator with telescopic arm (110V).
- FLEXTEC® 650/NA-5 submerged arc package.
- 250lb (113 kg), 5X5 in. (127x127 mm) motorized slides with joystick control.
- 1500lb (680 kg) tilt positioner (110V) with foot control.
- Gripper suitable for 1 in to 20 in. (508 mm) pipe diameter.



Options

- Tactile Seam Tracker
- Flux recovery
- MIG package to replace submerged arc package

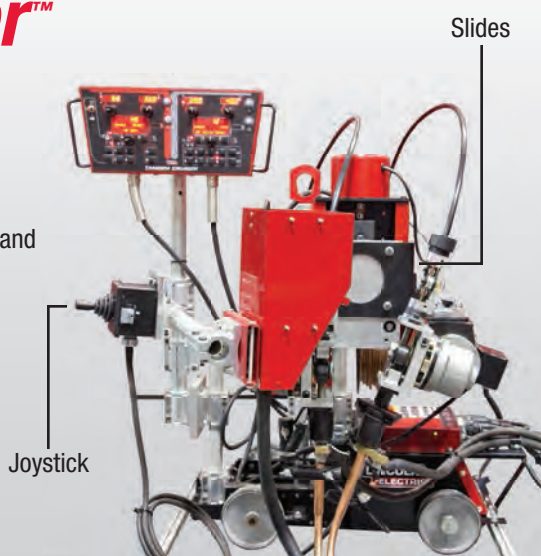
Applications

- Pipe spooling

Tandem Cruiser™

Tandem Submerged Arc Tractor

- Strong and rigid design ensures weld head stability.
- Removable, lightweight, impact resistant aluminum user interface can be used to set and save procedures, apply limits and lockouts.
- Multiple configurations allows for flexible system for set up with or without a track.
- 5x5 in. (127x127 mm) 250 lbs. (113.4 kg) motorized slides with joystick control.



Options

- Track sections 70 in. (1,778 mm)
- Butt Joint Guide Kit

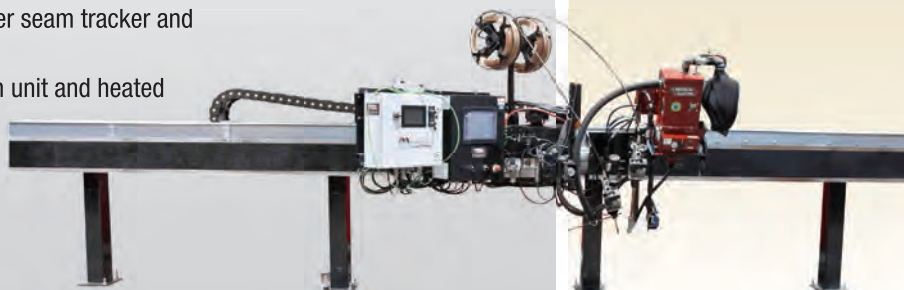
Applications

- Shipyards
- Heavy plate fabrication

Side Beam

Tandem Submerged Arc

- Side beam with 25 ft (7.62 m) of stroke along the main axis with 10x10 in. (254x254 mm) of fine turning along minor axis.
- 2 x Power Wave® AC/DC 1000SD®, with 2x MAXsa® 29 Feed Heads and 2 x MAXsa® 19 Controllers and tandem Sub Arc head.
- LIN-CS450 motorized slide system with laser seam tracker and vision system.
- Flux recovery system with separate vacuum unit and heated separation chamber.
- All control and weld cables



Options

- Tactile seam tracking
- MIG package

Applications

- Trailer frames
- Beam fabrication
- Truck frames

Lincoln Electric, founded in 1895 is the world leader in the design, development and manufacture of arc welding products, robotic welding systems, weld fume removal products, and plasma and oxyfuel cutting equipment. Recognized internationally as The Welding Experts®, Lincoln Electric provides leading technology products and solutions.

Lincoln Electric is proud to offer both Mechanized Automation Products and complete Integrated Solutions. We understand the important factors that can increase or hinder a customer's welding productivity. Advancement of welding processes themselves has been complemented by the continuous development of these systems and accessories to meet the changing needs of our customers. If your application involves welding carbon steels, stainless steel, low alloy or nickel based steel you can be assured that by choosing Lincoln Electric, you are investing in a welding partner with the right experience and the right products to help you be a world class fabricator.

Cleveland, World Headquarters
22801 St. Clair Ave. Cleveland, OH 44117

Automation Center
22221 St. Clair Ave. Cleveland, OH 44117

Toronto, Ontario Headquarters
179 Wicksteed Ave. Toronto, ON M4G 2B9

Automation Centre
939 Gana Court Mississauga, Ontario L5S 1N9

Lincoln Electric Mexicana S.A. de C.V.
Calz. Azcapotzalco La Villa No. 869 Colonia Industrial
Vallejo Delegacion Azcapotzalco 02300, Mexico, D.F.

Automation Center
Carretera Aqua Fria No. 1000 Bodega 1
Parque Industrial Hasna II, Apodaca, N.L. C.P. 66600