



CONSUMABLE ADVANTAGES

LINCOLN[®]
ELECTRIC

THE ACTUAL IS LIMITED, THE POSSIBLE IMMENSE.

A SOLID FOUNDATION

Lincoln Electric is the global manufacturer and market leader of the highest quality welding, cutting, and joining products. Our enduring passion for the development and application of our technologies allow us to create complete process solutions that continues to make our customers successful. Established by John C. Lincoln in 1895, and joined by his brother James F. in 1911, Lincoln Electric will always bear the mark of it's founders - innovative, high-quality products, and unparalleled support.

GLOBALLY LOCAL

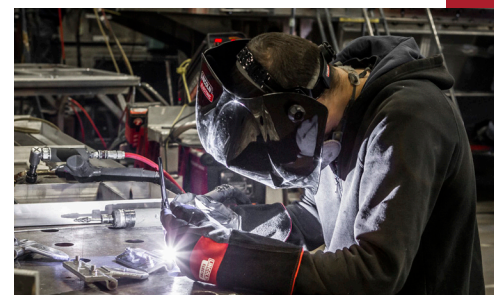
From our beginning, Lincoln Electric's products have been in demand around the globe. Our commitment to global support is evident in our continued organic growth and acquisition expansion in the past several years. From our first international plant built in Australia, in 1938, to the development of over 160 factories and technical sales offices around the world.

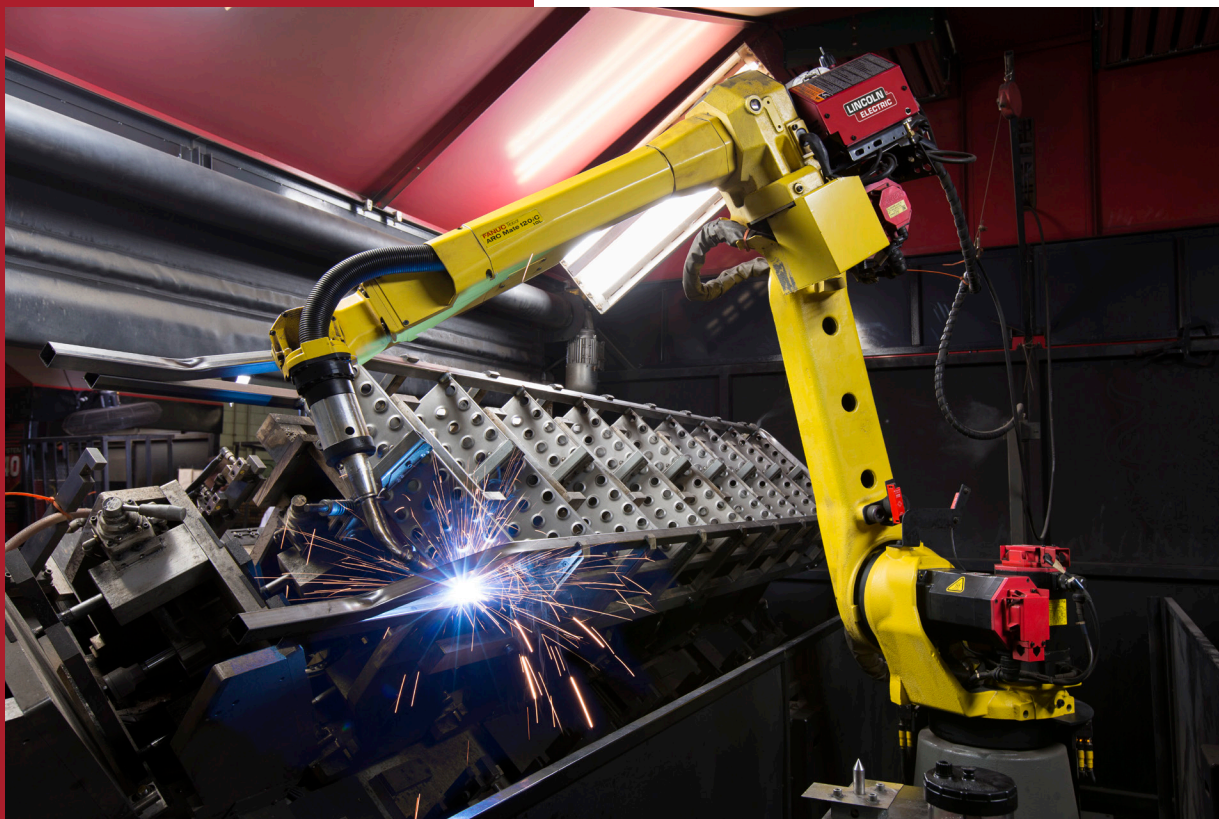
A SAFE WELDING ENVIRONMENT

Lincoln Electric continues to endorse the promotion and education of welding as a safe and viable career. Our world renowned welding school, established in 1917, has graduated well over 100,000 certified welders. With the expansion of 180 weld booths in 2017, Lincoln Electric is committed to advancing welding technology and education for the future generations of welders. Additionally, the James F. Lincoln Welding Foundation, created in 1936, is dedicated to educating the public and industry about the art and science of welding.

HISTORY OF INNOVATION

Lincoln Electric's innovation continues to lead with growing industry trends since the first changes to arc welding practices in the 1920s. Fleetweld®, stick electrodes, then revolutionized consumables in the 1940s with improved arc characteristics, weld properties, and operator appeal. Innershield®, self-shielded flux-cored wire, increased production in the 1960s. SuperArc® then set the bar on quality and performance with MIG wires with unparalleled arc stability, weldability and feedability. The Power Wave® platforms created new possibilities in the 1990s, allowing customized waveforms for specific wires and applications. Our next innovation is, literally, right around the corner.







QUINTESSENTIAL QUALITY

Lincoln Electric's reputable quality assurance provides product reliability, consistency, and a commitment to continuous improvement. The Controlled Chemical Composition system ensures quality from beginning to end, starting with purchasing the highest quality raw materials from around the world through global sourcing and only select suppliers. Lincoln Electric's quality assurance efforts will continuously meet your demanding requirements, today and in the future.

MANUFACTURING CONTROL

QA Analysis

Lincoln Electric understands the critical importance of a quality chemical composition for steel in a welding electrode. Recognizing that the steel quality determines performance, we undergo a thorough steel analysis. Furthermore, we implement a unique system of chemically controlled rods and mixes, which is outlined in the AWS, MIL, ASME, and many other specifications. While most welding consumable manufacturers only rely on heat certificates from steel to verify the steel's chemical composition, Lincoln Electric additionally tests every bundle to ensure consistency.

This analysis involves checking the composition of the heat over 100 times that of most steel mills. Also, we analyze each chemical mixture made for fluxes and flux coating for up to 25 critical elements to ensure the composition meets our restrictive specifications. Lincoln Electric practices tight quality controls throughout the manufacturing process to guarantee consistency in the final product.

Process Control

In order to validate your consumables, Lincoln Electric employs highly qualified chemists, physicists, metallurgists, welding engineers, and technicians. We provide a fully functioning chemical lab, mechanical test lab, and microscopy lab with cutting edge equipment for testing. Additionally, Lincoln Electric applies an incentive management system that encourages quality and new innovative ideas. Lincoln Electric monitors every stage of the manufacturing process to guarantee consistent consumable arc performance and properties. Our 500 technical representatives and multiple subsidiary operations around the globe support your Lincoln Electric product.

Q1LOT® Standard Products	Q2LOT® Lot Controlled & Tested Product	Q3LOT® Lot Controlled and Product Tested to Customer Specification and Requirements
All Lincoln Electric Products: <ul style="list-style-type: none"> Controlled Chemical Composition Lincoln Electric standard ISO manufacturing system Certificates of Conformance Lincoln Electric Q Lot® number on product meets AWS A5.01 lot definition requirements Traceable to Lincoln Electric manufacturing date, shift, and operator 	Q1 Product Standards Plus: <ul style="list-style-type: none"> Lot controlled throughout the Manufacturing Process Recorded steel chemistry Lot control number per a specification (ASME code, for instance) Actual Test Results for every Q2 Lot Verification of all tests Test results traceable to Lincoln Electric archived records 	Q1 Product Standards and Q2 Product Standards Plus: <ul style="list-style-type: none"> Certification with test results issued to customer Certification with test results traceable from Lincoln Electric to customer Lincoln Electric keeps records on file Certification issued to customer

A Q-Cert is your assurance of:

- Controlled chemical composition
- Industry-leading manufacturing standards

QUALITY CERTIFICATION

Q LOT CERTIFICATES

A Lincoln Electric Quality Certificate Number – Q-Cert, for short – leads the industry as the premier quality indicator for welding consumables. Lincoln Electric offers three levels of Q Lot Certification, which represent our stringent quality processes and the guarantee that our welding consumables prove to be consistent in operability and properties in every package.

As a standard industry practice, Lincoln Electric conducts a series of tests on all standard products, starting with raw materials used in manufacturing and ending with the finished product and weld deposit. For customers who require additional testing, validity, or tractability, Lincoln Electric offers lot controlled and custom tested products as special orders.

CERTIFICATE OF CONFORMANCE

A typical certificate of performance, or Q1, shows the product compliance with AWS specifications, but does not provide actuals from a specific manufacturing run, batch, or lot of product. Customers may acquire a typical certificate of performance, or Q1, for each product on the company's website.

WELDING FROM AIRPLANES TO ZIPLINE STRUCTURES

CONSUMABLES FOR ALL APPLICATIONS

Lincoln Electric continues to invest in R&D, manufacturing, and resources to provide innovative solutions to meet the demanding needs of any industry as a whole. Whether it is carbon steel, low alloy steel, stainless steel, nickel, or hardfacing applications, Lincoln Electric has a product to meet your specific requirements.

» STICK ELECTRODES

An array of cellulosic, rutile and low hydrogen electrodes designed to provide maximum weldability in demanding welding environments.

» SELF-SHIELDED FLUX-CORED WIRE

Innershield® electrodes are ideal for outdoor welding, and non-critical and critical structural fabrication.

» GAS-SHIELDED FLUX-CORED WIRE

Outershield® and UltraCore® gas-shielded wires offer every strength level, application, and required mechanical property.

» METAL-CORED WIRE

Metalshield® products are ideal for carbon and low alloy steel with high deposition rates and fast travel speeds.

» MIG WIRE AND TIG CUT LENGTHS

SuperArc® MIG and Lincoln® TIG wires set the industry benchmark in quality, performance, and consistency.

» ALUMINUM MIG AND TIG CUT LENGTHS

SuperGlaze® aluminum MIG and TIG quality wires are available in all alloys and a variety of packages to suit your needs.

» PIPELINER®

Pipeliners branded electrodes were designed and optimized for cross country pipe welding. Available in all welding processes and every strength level needed- All Q2 lot tested.

» SUBMERGED ARC

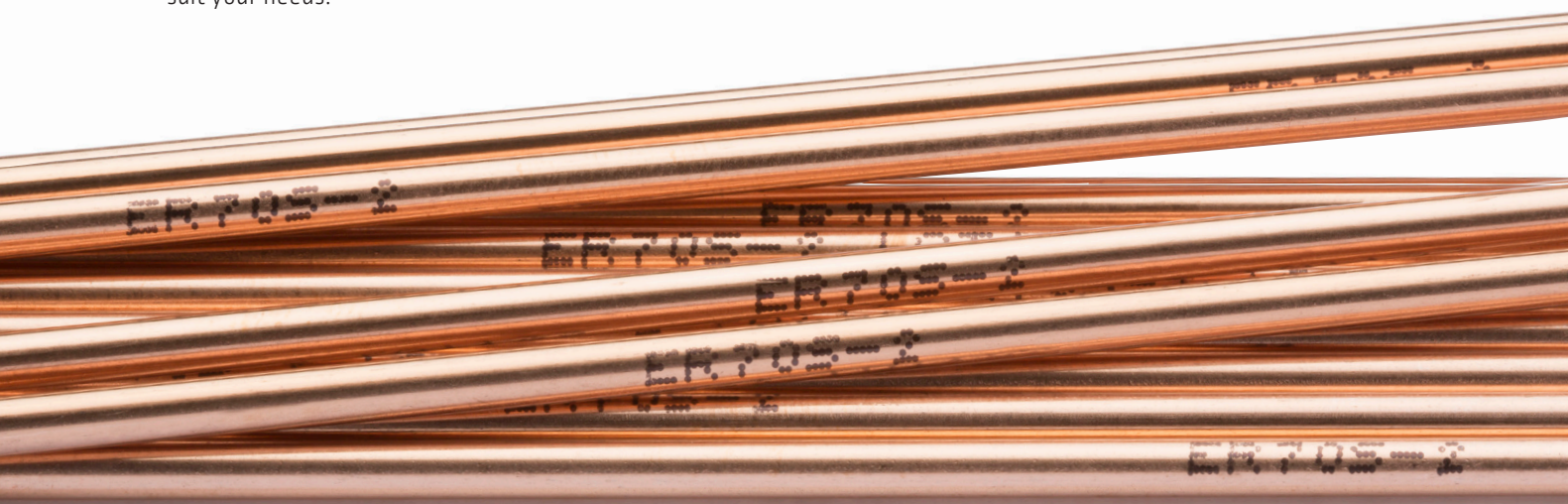
Lincolnweld® SAW wire and fluxes for single and multiple pass welding with over 150 combinations of fluxes and wires.

» NICKEL, STAINLESS STEEL, AND HIGH ALLOY

Offering a solution in every process; Techalloy® products support Nickel applications while Metrode® products excel in high alloy solutions. All Lincoln Electric's stainless steel products can meet base material and process requirements.

» HARDFACING

Iron, nickel, and cobalt based hard surfacing products extend the life and wear of your parts and components.





Lincoln Electric continues to expand our consumable portfolio to meet every industry segment's needs through our existing global manufacturing facilities and strategic acquisitions. We serve all industry segments of different industries with our welding consumables products and solutions.

These segments include:

- » Automotive and Transportation
- » General Fabrication
- » Heavy Fabrication
- » Maintenance and Repair
- » Offshore
- » Pipeline
- » Pipe Mill
- » Power Generation (LNG, Nuclear Energy, Pressure Vessel, Thermal Energy, Wind Power)
- » Shipbuilding
- » Structural

The industry impact of Lincoln Electric's consumable and equipment innovations prove that when it comes to welding, **Lincoln Electric is the only source you need.**

