

Power Wave® 455M & 455M/STT®

Processes

Stick, TIG, MIG, Pulsed, STT^{®(1)} Flux-Cored, Gouging

Product Number

K2202-1 Power Wave® 455M
K2203-1 Power Wave® 455M/STT®
K2202-2 Power Wave® 455M CE
K2203-2 Power Wave® 455M/STT® CE
K2375-1 Power Wave® 455M / Power Feed™
10M Ready-Pak®
K2792-1 Power Wave® 455M/STT®
PipeFab™ Ready-Pak®

See back for complete specs

Input Power

See Back

Rated Output Current/Voltage/ Duty Cycle

See Back

Output Range

5-570A

Weight/Dimensions (H x W x D)

455M	286 lbs. (130 kg)
455M/STT®	293 lbs. (133 kg)
455M CE	280 lbs. (127 kg)
455M/STT® CE	340 lbs. (154 kg)

Machines Only

26.1 x 19.9 x 32.9 in
(663 x 505 x 835 mm)

Superior Arc Performance. Revolutionary Communication.

For welding thicker materials in robotics, hard automation and semiautomatic applications, choose the Power Wave® 455M. For those applications where heat input control, minimal distortion, and reduced spatter are essential, opt for the Power Wave® 455M/STT®.

FEATURES

- ▶ **Lincoln's Waveform Control Technology®** - Gives you the ability to select the right waveform for each application, enabling patented processes like Pulse-On-Pulse® and Power Mode®.
- ▶ **Choose from over 60 standard welding waveform programs** - Offers a broad range of electrode size, type and shielding gas combinations to give you optimal appearance, penetration, beadshape and travel speed for each application.
- ▶ **Optional communication modules** - Provide networking and Production Monitoring™ capabilities.
- ▶ **Push-Pull capability** - Delivers ultimate aluminum welding with the Power Feed™ 10M bench model wire feeder or Power Feed™ 25M portable wire feeder.

⁽¹⁾ Power Wave® 455M/STT® only.



Shown: K2202-1

APPLICATIONS

- ▶ Metal Fabrication
- ▶ Heavy Industrial

INPUT

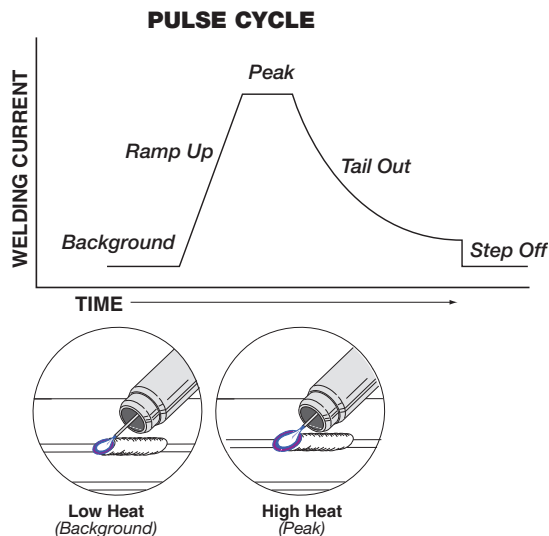


OUTPUT



Two Year Extended
Warranty Available
in U.S.A. and Canada.





Pulsed MIG

Pulsed MIG varies weld current between peak (high heat) and background (low heat) current to provide better control of heat input, which reduces warping and burnthrough on thin materials. Pulsed MIG also enables in-the-flat, horizontal, vertical up, or overhead welding without a slag system. It can be used in hard automation, robotic, and high production semiautomatic applications. Optimized GMAW-P waveforms are readily available to use on aluminum, carbon steel, high strength low alloy steel, stainless steel, and nickel alloys.

For more information see Nextweld® Document NX-2.70

STT® (Surface Tension Transfer®)

STT® (Surface Tension Transfer®) is a controlled GMAW short circuit transfer process that uses current controls to adjust the heat independent of wire feed speed, resulting in superior arc performance, good penetration, low heat input control, and reduced spatter and fumes.

For more information see Nextweld® Document NX-2.20



Conventional CV short circuit transfer using CO₂ and .045" solid wire.



STT® using CO₂ and .045" solid wire. Note reduced spatter and fume.

LINCOLN NEXTWELD® INNOVATIONS FOR CHALLENGING APPLICATIONS

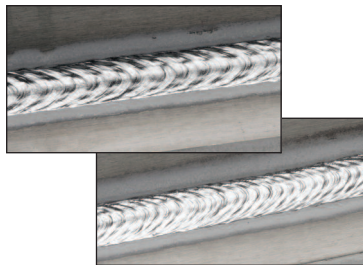
Waveform Control Technology® makes it possible to take advantage of Lincoln Nextweld® innovations like these patented processes using the Power Wave® 455M and a Power Feed™ 10M wire feeder:

TOTAL s2f™ Aluminum Welding Solutions

TOTAL s2f™ Aluminum Welding Solutions from Lincoln Electric providing a complete answer to your aluminum MIG welding needs from “start to finish”.

- Power Wave® welding systems provide the best equipment for light and industrial aluminum welding needs.
- Super Glaze® aluminum consumables deliver consistent wire composition, smooth feeding, and a stable arc.
- Nextweld® welding processes beat all of the challenges you face with aluminum welding.

For more information see Nextweld® Document NX-2.90



Superior Arc Performance

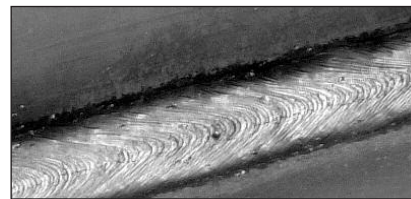
Power Mode®

Power Mode® uses high-speed regulation of output power to deliver extremely fast response to changes in the arc, for example, when using a whip technique. The result is improved MIG welding performance, including low spatter, very uniform, consistent bead wetting and controlled penetration. Power Mode® benefits are especially apparent on low voltage applications on thin steel and stainless steel material less than 20 gauge (0.7 mm). It also delivers excellent arc characteristics on aluminum and other alloys such as silicon bronze and nickel alloys.

For more information see Nextweld® Document NX-2.60

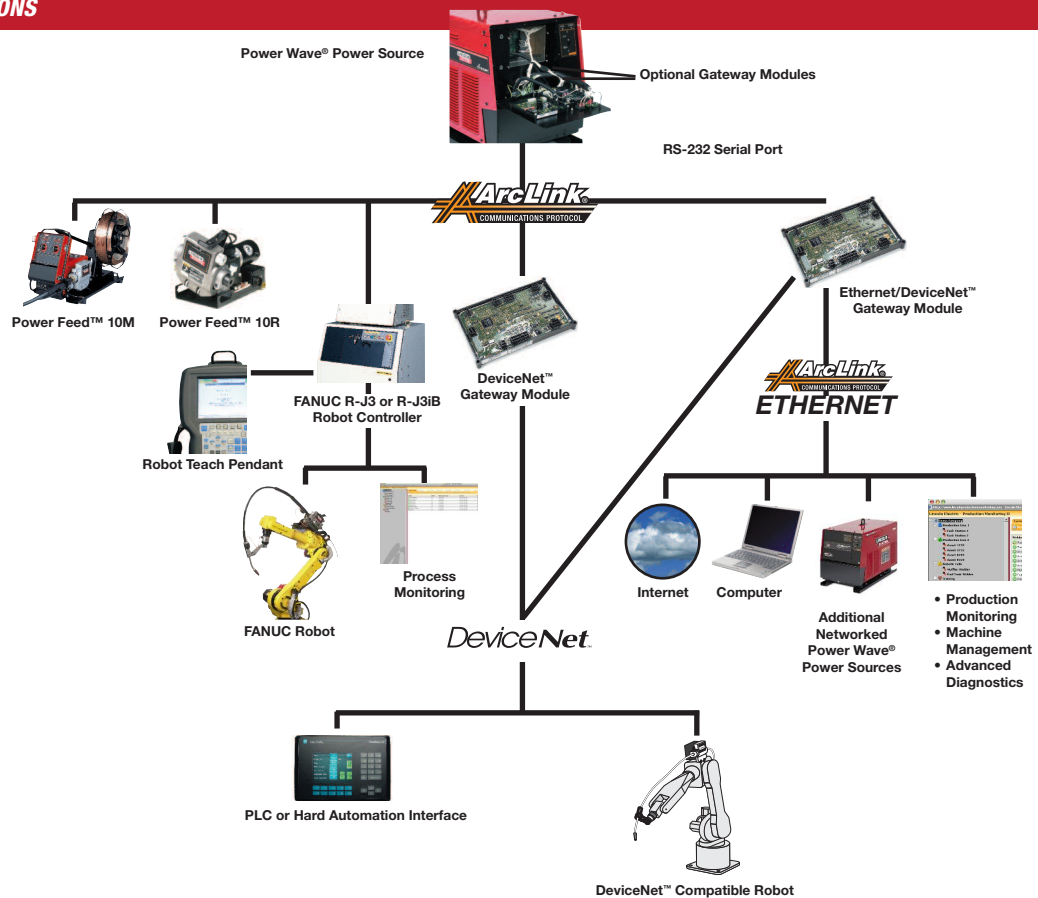


Power Mode® reduces spatter and improves bead appearance, even for low voltage procedures on stainless.



Power Mode® aids bead wetting and penetration on aluminum.

Seamless Integration



Fast, Reliable, System-Wide



ArcLink® is the leading digital communications protocol for the arc welding industry. It integrates all welding components for seamless, time-critical data transfer. The strength of ArcLink® lies in the ability to communicate with each system component in a pre-defined welding language. In addition, ArcLink® is an open communications protocol, meaning that Lincoln Electric publishes how it works and encourages other companies to adopt it.

DeviceNet

DeviceNet™ is a communications protocol widely used throughout the automotive, semiconductor, and packaging industries.

In its typical application, DeviceNet™ works in conjunction with a Programmable Logic Controller (PLC) and several system devices to provide a framework for data trafficking and monitoring.

True Energy™ is a proprietary Lincoln Electric technology that uses the digital control system embedded in each Power Wave® arc welding power source to measure and calculate the instantaneous amount of energy put into a weld. Customers can then use this value, in conjunction with the length of the weld, to get the Heat Input.

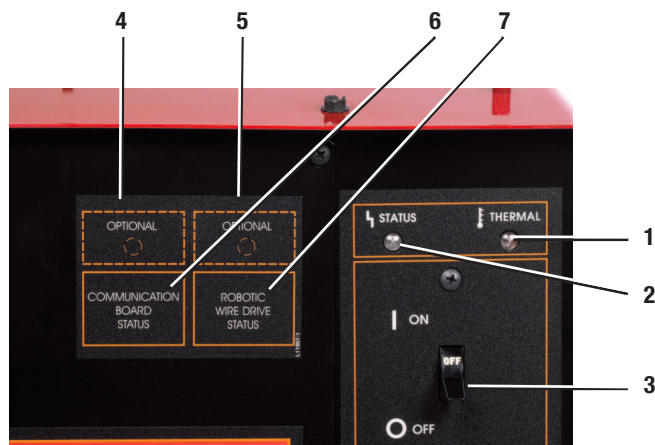


Ethernet is a specification for networking that provides the ability to pull large amounts of information into monitoring and supervisory applications.

For more information see Nextweld® Document NX-1.30

Production Monitoring™ 2 is the welding industry's most advanced weld data collection and monitoring tool designed to allow fabricators to analyze and improve their welding operations and processes. It will also aid in your company's ISO, Six Sigma, statistical process control (SPC), quality cost delivery (QCD), overall equipment effectiveness (OEE) and lean manufacturing efforts.

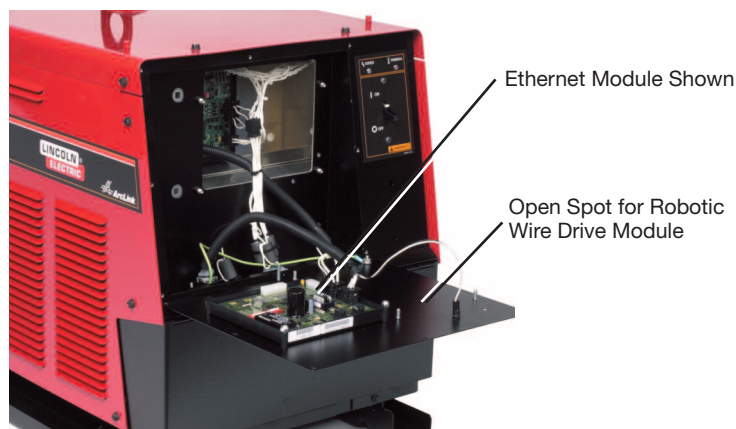
Welder	Welds	Welds Out of Limit
Task Station 1	85	0 (0.0 %)
Task Station 2	73	0 (0.0 %)
Asset 1735	77	0 (0.0 %)
Asset 1732	74	0 (0.0 %)
Asset 1229	81	0 (0.0 %)
Asset 1229	72	0 (0.0 %)
Miller Welder	74	0 (0.0 %)
Task Welder	67	0 (0.0 %)
PP255	91	0 (0.0 %)



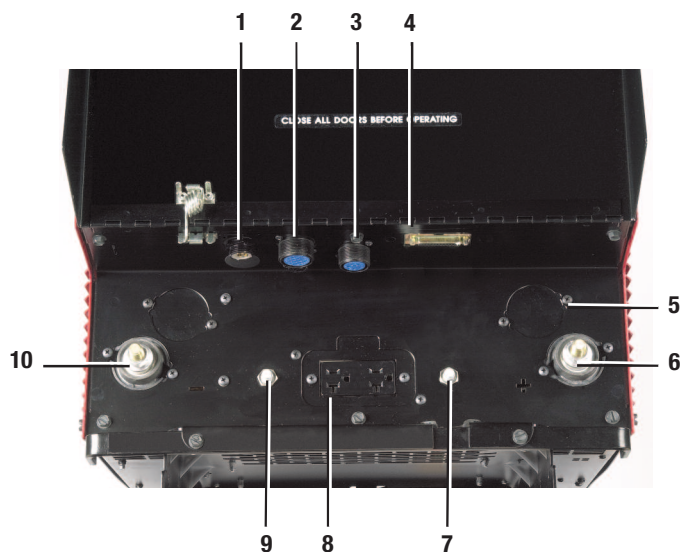
Power Wave® 455M and 455M/STT® Front Panel

1. Thermal Light
2. Power Supply Status Light
3. On/Off Switch
4. Communication Module Status Light (DeviceNet™ or Ethernet/DeviceNet™) (Optional)
5. Feeder Status Light (for Power Feed® 10R) (Optional)
6. Communication Interface Module – DeviceNet™ or Ethernet/DeviceNet™ upgrades can be field installed.
7. Robotic wire drive module upgrade can be field installed.

Easy Modular Expansion



Power Wave® 455M and 455M/STT® Front Panel



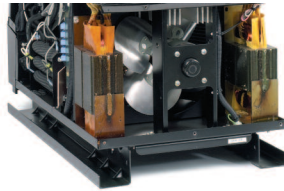
Front Lower Panel

1. DeviceNet™ or Ethernet/DeviceNet™ Receptacle (optional)
2. ArcLink® Receptacle
3. Work Sense Lead Receptacle
4. RS-232 Serial Communication Port
5. STT® Stud (not shown)
6. Positive Output Stud
7. CB1 (10A) 40VDC
8. 115 VAC Duplex Receptacle
9. CB1 (10A) 40VDC
10. Negative Output Stud

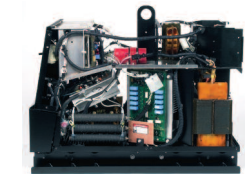
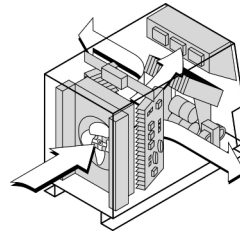
Design

Safety, reliability and serviceability are built into Lincoln's inverter design.

- A Power Wave® inverter operates at a high efficiency (88-90%) with a 95% minimum power factor at rated output (K2202-1 and K2203-1) and is capable of operating from a universal input voltage (208 to 575 volts).
- Open construction for preventative maintenance and diagnostics.
- Thermostatically protected.
- Electronic output over-current protection and electronic input over-voltage protection.
- Operating Temperature Range: -20°C to +40°C.
- Storage Temperature Range: -40°C to +40°C.
- Double insulation and varnish on main transformer.
- Shielded heavy duty input contactor in tightly sealed environmental enclosure.
- Electrical connections coated with insulating compound for long term reliability in harsh environments.
- Automotive grade sleeves protect leads from abrasion.
- Tough PC Boards — potted and trayed, filled with epoxy, double locked harness connectors, environmentally protected connectors, electrical silicone grease, high current rating. Extra attention to detail provides excellent protection from dirt, dust and the environment.
- Efficient Cooling System with industrial motor with sealed bearings and metal fan blade.
- Fan-As-Needed™ — reduces power consumption and the amount of debris that gets drawn into the machine by shutting the fan down when it is not needed.



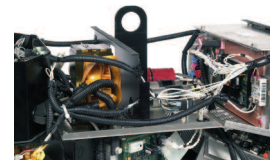
Cooling System



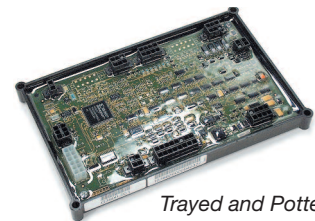
Open Construction



Coated Electrical Connections



Automotive Grade Sleeves



Trayed and Potted PC Board

Testing and Reliability

All Lincoln inverters are fully tested for reliability before and after assembly.

- Each machine undergoes a functional weld test to ensure performance.
- Lincoln inverters are operated in an environmental chamber under extreme conditions of temperature and humidity.
- Mechanical testing, including vibration and drop testing, is performed.
- Extensive temperature testing is performed to ensure that all components are running within allowable range.
- Three-year warranty on parts and labor.
- Manufactured under a quality system certified to ISO 9001 requirements and ISO 14001 environmental standards.
- Designed to the IEC/EN 60974-1 standard. Meets tough NEMA EW 1, CSA NRTL/C standards.
- Meets rigorous IP21S environmental rating.



Environmental Chamber



Manufacturing and Testing

Power Wave® 455M/Power Feed™ 10M Ready-Pak®

Take the hassle out of ordering — Order a Ready-Pak® pre-assembled welding package.

Includes:

- Power Wave® 455M Power Source
- Power Feed™ 10M Single Bench Model Wire Feeder
- .040-.045 in. (1.0-1.1 mm) Drive Roll and Guide Tube Kit
- Magnum® 400 Gun and Cable Kit
- Work Lead Package
- Harris® Flowmeter Regulator (includes adapter and 10 ft. hose)

Order K2375-1

**Power Wave® 455M/STT® PipeFab™ Ready-Pak®****Includes:**

- K2203-1 Power Wave® 455M/STT
- K1570-1 Dual Cylinder Platform Undercarriage
- K2234-1 Power Feed™ 10M Dual Bench Model
- K2149-1 Work Lead Assembly
- KP1505-045S .045 in. (1.1 mm) Steel Drive Roll Kit
- KP1505-045C .045 in. (1.1 mm) Cored Drive Roll Kit
- K497-21 Magnum® 200 gun
- K470-2 Magnum® 300 gun
- K466-10 Gun Connector kit
- KP2051-1 Diffuser for Magnum® 200 to use 100 series parts
- KP11T-45 100 series Contact Tip .045 in. (1.1 mm)
- KP21-50-F 100 series Nozzle
- KP14H-45 300 series Contact Tip .045 in. (1.1 mm)
- KP23-50 300 series Fixed Nozzle Tip Recessed
- 3100211 (two required) Harris® Flowmeter and Hose

Order K2792-1



GENERAL OPTIONS

DeviceNet™ Interface Module

This module provides networking capabilities for Output Control, Weld Settings, Weld Mode Selection and Data Logging.
Order K2206-1



Ethernet/DeviceNet™ Interface Module

This module provides all DeviceNet™ functionality as well as networking capabilities for Weld Development, Data Logging, Systems Updates, Diagnostics, Weld Settings and Weld Mode Selection.
Order K2207-2



Analog Interface Module

This module provides Analog and Discrete Inputs/Outputs (I/O) for trigger controls plus feedbacks.
Contact Lincoln Automation at (216) 383-2667 for information.



Dual Cylinder Platform Undercarriage

Platform undercarriage for mounting two gas cylinders at rear of welder.
Order K1570-1



Cool Arc® 40 Water Cooler

Energy-efficient long life cooler for water-cooled welding applications.
Order K1813-1 for 115V
Order K2187-1 for 230V



Work Lead Package

4/0 cable lugged at one end with work clamp attached at the other end. 15 ft (4.6 m) length.
Order K2149-1



WIRE FEEDER OPTIONS

Power Feed™ 10M Bench and Dual Bench

Choose the Power Feed™ 10M Bench Models for automotive manufacturing, shipbuilding, pressure vessels/heavy plate, oil, gas and pipeline construction, particularly where code-quality work is required. The Power Feed™ 10M Dual Bench has all the features of the Power Feed™ 10M Bench, plus a second wire reel for twice the productivity.
Order K2230-1 Bench
Order K2234-1 Dual Bench

Power Feed™ 10M Boom and Dual Boom

Choose the Power Feed™ 10M Boom Models for boom arm applications in automotive manufacturing, shipbuilding, pressure vessels/heavy plate, oil, gas and pipeline construction, particularly where code-quality work is required. The Power Feed™ 10M Dual Boom has all the features of the Power Feed™ 10M Boom, plus a second wire reel for twice the productivity.
Order K2314-1 Boom
Order K2316-1 Dual Boom

Power Feed™ 10R

The Power Feed™ 10R is a high performance, digitally controlled wire feeder designed to be part of a modular, multi-process welding system. It is specifically designed to mount to a robot arm or to use in hard automation applications.
Order K1780-2
Contact Lincoln Automation at (216) 383-2667 for Power Wave® Robotic upgrade.



Power Feed™ 25M

Rugged, portable advanced process wire feeder for shop, construction or shipbuilding environments. Features standard push-pull capability, our MSP4 Mode Select Panel to access Waveform Control Technology® waveforms and eight memory presets for commonly accessed procedures.
Order K2536-2 Aluminum Case
Order K2536-3 Plastic Case



STICK OPTIONS

Accessory Kit

For stick welding. Includes 35 ft. (10.7 m) 2/0 electrode cable with lug, 30 ft. (9.1 m) 2/0 work cable with lugs, headshield, filter plate, work clamp and electrode holder. 400 amp capacity.
Order K704



TIG OPTIONS

PTA-17V TIG Torch (12.5 ft. 2 pc)

Air-cooled TIG torch, rated 150 amps at 60% duty cycle. Equipped with a valve for gas flow control.
Order K1782-7



PTA-26V TIG Torch (12.5 ft. 2 pc)

Air-cooled TIG torch, rated 200 amps at 60% duty cycle. Equipped with a valve for gas flow control.
Order K1783-7

PRODUCT SPECIFICATIONS

Product Name	Product Number	Input Power	Rated Output Current/Voltage/Duty Cycle	Input Current @ Rated Output	Output Range	H x W x D inches (mm)	Net Weight lbs. (kg)
Power Wave® 455M	K2202-1	208/230/460/575/3/50/60	60Hz: 450A/38V/100% (570A/43V/60%)	60Hz: 58/53/25/22A (82/78/37/31A)	5-570A	26.1 x 19.9 x 32.9 (663 x 505 x 835)	286 (130)
Power Wave® 455M/STT®	K2203-1		50Hz: 400A/36V/100% (500A/40V/60%)	50Hz: 49/45/23/18A (67/61/31/25A)			293 (133)
Power Wave® 455M CE	K2202-2	380/415/3/50/60	60Hz: 400A/36V/100% (500A/40V/60%)	60Hz: 36/33A (48/44A)	5-570A	26.1 x 19.9 x 32.9 (663 x 505 x 835)	280 (127)
Power Wave® 455M/STT® CE	K2203-2		50Hz: 400A/36V/100% (500A/40V/60%)	50Hz: 36/33A (48/44A)			340 (154)
Power Wave® 455M/ Power Feed™ 10M Ready-Pak®	K2375-1	208/230/460/ 575/3/50/60	60Hz: 450A/38V/100% (570A/43V/60%) 50Hz: 400A/36V/100% (500A/40V/60%)	60Hz: 58/53/25/22A (82/78/37/31A) 50Hz: 49/45/23/18A (67/61/31/25A)	5-570A	NA	400 (181)
Power Wave® 455M/STT® PipeFab™ Ready-Pak®	K2792-1	208/230/460/ 575/3/50/60	60Hz: 450A/38V/100% (570A/43V/60%) 50Hz: 400A/36V/100% (500A/40V/60%)	60Hz: 58/53/25/22A (82/78/37/31A) 50Hz: 49/45/23/18A (67/61/31/25A)	5-570A	NA	549 (249)

For best welding results with Lincoln Electric equipment,
always use Lincoln Electric consumables. Visit www.lincolnelectric.com for more details.

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.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.

