

POWER WAVE® 405



INTELLIGENT WELDING SYSTEMS

The Power Wave 405/Power Feed™ 10 welding system is factory programmed with over 60 standard welding programs to optimise the arc for a variety of materials or applications, including steel, stainless steel, aluminum, nickel alloys and others. Simply select a program and you have the right arc characteristics for your application. The software is upgradable, so your Power Wave 405 will grow with your business. If you want to reduce costs by buying a versatile machine that will do multiple jobs and last for years to come, the high efficiency Power Wave 405 delivers.

PROCESSES

Stick TIG MIG Synergic MIG
Pulsed MIG Flux-Cored Gouging

ARC PERFORMANCE

- In addition to MIG, Synergic MIG, Synergic Pulsed MIG and flux-cored welding, the Power Wave 405 is capable of stick, Touch-Start™ TIG, Power Mode™, Pulse-On-Pulse™ and Carbon arc gouging.



- Over 60 standard welding waveform programs offer a broad range of electrode size, type and shielding gas combinations to give you optimal appearance, penetration, beadshape and travel speed for each application.
- Program your own pulse waveform to create arc characteristics, beadshape, penetration and travel speed specifically for your exact application.
- Power Feed 10 wire feeder features adjustable run-in, crater and burnback that provide full operator control over start and stop characteristics.

SYNERGIC MIG- ONE KNOB CONTROL FOR EASY SET-UP AND ADJUSTMENTS

Synergic MIG takes the guesswork out of setting the right voltage and wire feed speed combination for each application. The Power Wave 405 is pre-programmed with wire feed speed/voltage relationships specifically designed for each wire/gas combination. For easy, accurate set-up, simply select a program based on your application and set the wire feed speed – one knob does it all! Make adjustments to the wire feed speed as you weld and the voltage is automatically regulated to maintain a consistent arc length,

giving you optimal arc performance with minimal effort. Every standard Power Wave contains a complete set of synergic MIG programs for a wide variety of applications, including:

- Steel (Argon Blends and CO₂).
- Stainless Steel (Argon Blends and Helium Tri-Mix).
- Aluminum (4000 series and 5000 series).
- Metal Core.

ADVANTAGE LINCOLN

- If you like the Power Wave 455, you'll love the Power Wave 405. The Power Wave 405 is the smaller, lighter version of the Power Wave 455 – same machine, just leaner and lighter.
- Lincoln's Waveform Control Technology™ gives you the ability to select the right waveshape for each application – that means the arc has been optimised for each wire type and size for exceptionally smooth arc performance.
- Controls at the wire feeder, rather than at the power source, make it easy to select all welding parameters close to your work.
- New Power Mode™ maintains a stable, smooth arc for short arc welding on thin materials.
- New Pulse-On-Pulse™ Welding Mode improves cleaning action when welding aluminum and delivers a TIG-like appearance to the weld bead.
- Tighter control of welding process variables, ease of equipment use with a high degree of process versatility, and improved weld consistency are just a few of the benefits of Waveform Control Technology™.
- Digital communication between components allows unprecedented waveform control and expansion capability.
- Three year Lincoln warranty on parts and labour.
- Manufactured under a quality system certified to ISO 9001 requirements.

POWER WAVE® 405

TECHNICAL SPECIFICATIONS

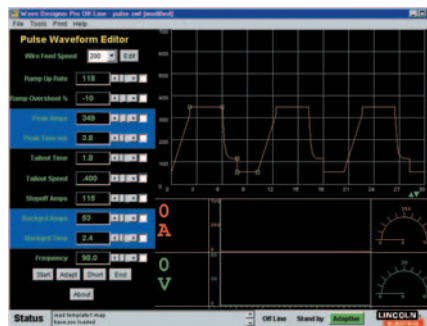
Product Number	Input Voltage	Rated Input	Output Range	Duty Cycle	Dimensions H x W x D (mm)	Net Weight (kg)
K2152-2	3 ph: 200/208-230/380-400/ 415-460/575/3/50/60	3 ph: 50/50-42/28-27/ 26-23/18A	5-425A	350A/34/60% (300A/32/100%)	376 x 338 x 709	37
	1 ph: 208-230/415-460/575/ 1/50/60	1 ph: 94-85/64-42/37A	5-425A	350A/34/60% (300A/32/100%)		

EASE OF USE

- Select a weld program that fits your application – choose from over 60 standard welding programs to obtain optimal appearance, penetration, bead shape and travel speed.
- A single control cable between power source and wire feeder keep things simple.
- Control cables can be extended – not replaced – as your shop layout expands.
- Take advantage of the Power Wave's digitally based system component communication to set up your work station the way you want – with no loss of control.
- Add, customise or replace Lincoln updated welding waveforms for every application using a laptop and Lincoln's drag 'n drop Wave Designer software.



Pulse-On-Pulse™ Welding Mode



Waveform Control using Wave Designer Software

PULSE-ON-PULSE™

Pulse-On-Pulse was created by the Lincoln Electric Company to provide a GMAW solution for aluminium welding that made the welding process less difficult than standard pulse and thereby required less operator skill.

Unlike standard pulse welding, which uses a single pulse wave shape, Pulse-On-Pulse uses a sequence of varying pulse wave shapes to produce a GTAW-like bead appearance.

Lincoln's Pulse-On-Pulse process controls the arc length and the heat input together, making it easier for an operator to produce high-quality welds.

RELIABILITY

- PC Boards are mounted in rugged plastic trays for an extra measure of mechanical protection. Each PC board is immersed, or fully encapsulated, in 3mm of epoxy resin to seal components from the elements for market-leading environmental protection.
- Simplified design separates control PC boards from the power components for easy diagnostic troubleshooting and service.
- Three year Lincoln warranty on parts and labour.
- Manufactured under a quality system certified to ISO 9001 requirements.



Fully Encapsulated PC Board

WHAT IS A WAVEFORM?

A waveform is a representation of the dynamic, ever-changing output response of an arc welding machine to the actions of the electric arc. Every arc welding machine has a waveform characteristic. Through the use of computer software and advanced electronic control, Waveform Control Technology™ manages all aspects of the waveform to produce dynamic output characteristics tailored to the needs of a specific application.

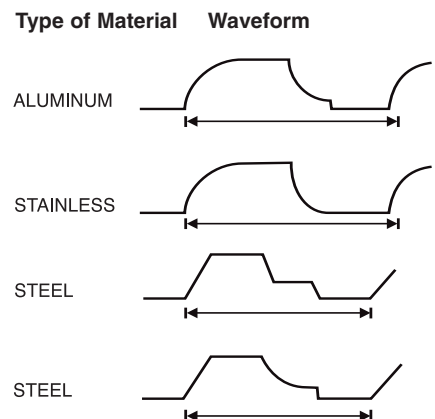


Fig.4 -Typical Welding Waveforms

POWER WAVE[®] 405

UNIT INCLUDES

- Welding cable (3 m) to be connected to the wire feeder with a Twist-Mate on one end and a lug on the other.
- Two male Twist-Mate™ cable plugs.
- Input power cable 3 m (plug required to suit outlet).

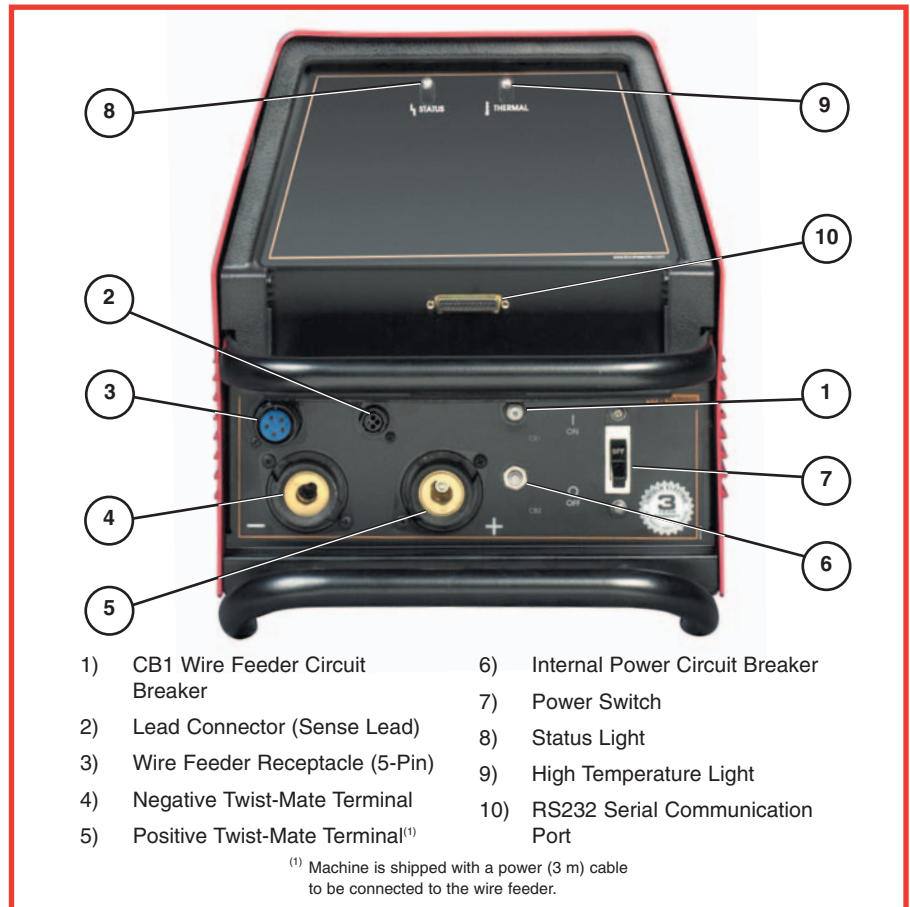
RECOMMENDED WIRE FEEDERS

Power Feed 10 or Power Feed 10 Dual Wire Feeders (A wire feeder is required to run any of the processes listed).

RECOMMENDED OPTIONS

Magnum MIG Guns, Magnum Flux-Cored Guns, Work & Wire Feeder Power Cables. Gas Flowmeter, Inverter and Wire Feeder Cart, Sense Lead Kit, Wave Designer Pro Software.

A CLOSER LOOK



PROCESS CAPABILITIES

Process	Electrode	Electrode Polarity	Shielding Gas
Mild Steel MIG CV, Power Mode™, Synergic CV, Pulse	0.6 - 1.2mm UltraMag S4 & S6	Positive (DC+)	CO ₂ or Argon Blends
Stainless Steel MIG CV, Power Mode™, Synergic CV, Pulse	0.8 - 1.2mm Wires	Positive (DC+)	Argon Blends or Tri-Mix
Nickel Alloys	0.9 - 1.2mm Wires	Positive (DC+)	Ar/He Blends
Aluminum MIG CV, Power Mode™, Synergic CV, Pulse-On-Pulse™	0.9 - 1.6mm Super Glaze™ 4043, 5183 and 5356	Positive (DC+)	100% Argon
Mild Steel - FCAW Gas-Shielded Wire	1.2 - 1.6mm Outershield® Wire	Positive (DC+)	CO ₂ or Argon Blends; Depending on the wire
Mild Steel - Metal Cored Wire	1.2 - 1.6mm Outershield®	Positive (DC+)	Argon/CO ₂
Mild Steel - FCAW Self-Shielded Wire	1.2 - 1.7mm Innershield® Wire	Negative or Positive (DC-, DC+)	None Required (Self-Shielded)
Mild Steel MMAW Stick	E6010 (crisp mode) - E7018 (soft mode) Fleetweld®, Jetweld® and Shield-Arc Electrodes	Positive (DC+)	None Required (Self-Shielded)
Stainless Steel MMAW Stick	Limarosta or Arosta Electrodes (soft mode)	Positive (DC+)	None Required (Self-Shielded)
Touch-Start TIG™	All sizes and types steel and stainless	Negative (DC-)	100% Argon
Air Carbon Arc Gouging, CC	Carbon Electrode	Positive (DC+)	Compressed Air

POWER WAVE[®] 405

RECOMMENDED OPTIONS



Valet Style Undercarriage

Offers a unique pull-out handle. It provides cable storage and the ultimate in portability.

Order K1838-1.



Sense Lead Kit

Recommended for extended cable length 8m. Application allows machine to sense voltage directly at the work piece for improved arc performance.

Order K940-25



Twist-Mate Torch Adapter

For connection of PTA-9 or PTA-17V torches (1 piece cable) to power sources with no gas passing through the Twist-Mate connection.

Order K960-1.



Linc-Net Cable

Control cable extension increase the length at control cable between Power wave 405 and PF10 in 8 metre increments.

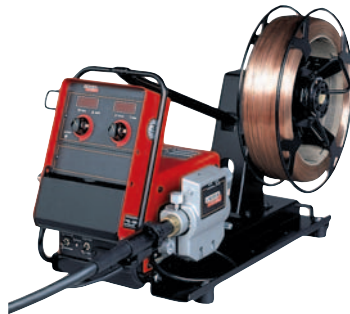
Order K1543-25.



Inverter and Wire Feeder Cart

Rear-wheeled cart includes front casters and no-lift gas bottle platform. Convenient handles allow for easy cable storage while full length side trays store parts and tools. Shipped fully assembled. Small foot-print fits through a doorway.

Order K1764-1.



Power Feed 10

Four driven roll wire feeder specially designed to suit Power Wave 405. All machine controls are located on the wire feeder for easy access by the operator.

PF10 is required to operate the Power wave 405.

Order K1541-2

Wave Designer[™] PRO Software

All the features of Wave Designer, plus Arc Scope[™], the arc analysis tool for those who need to monitor more than voltage and current. Arc Scope also tracks the arc power, arc resistance and heat input.

Order K1705-2.

Pro-Torch[™] TIG Torches

A full line of air-cooled and water-cooled torches available.

Request Lincoln publication E12.150.

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 advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric is not in a position to warrant or guarantee such advice and assumes no responsibility, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

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.

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ELECTRIC
THE WELDING EXPERTS

Your local Lincoln distributor is: