Digital Power Source

Power Wave® AC/DC 1000® SD

Increased productivity, quality and flexibility

Software-driven output delivers maximum control over the deposition rate and penetration in single or multi-arc environments.

Features

- 380-575 VAC, 50/60 Hz Voltage Input – offers the ability to be connected anywhere in the world.
- No hardware reconfiguration required with easy polarity switching – eliminates downtime.
- Easy to parallel machines or run multiple arcs.
- 3-Phase voltage Input – eliminates the imbalance associated with transformer-based AC welding machines.
- 95% power factor correction – enables connection of multiple machines on the same plant infrastructure for lower installation costs.
- Severe duty – can be stored outdoors. IP23 rated.
- ArcLink®, ethernet and DeviceNet™ communication – offers remote process monitoring, control and troubleshooting.
- True Energy™ – measures, calculates and displays instantaneous energy in the weld for critical heat input calculations.
- Production Monitoring™ 2.2 – track equipment usage, store weld data and configure limits to assist in welding efficiency analysis.
- Software based controls – can be upgraded as new features become available.
- iARC™ digital control – 90 times faster than the previous generation, delivering a responsive arc.

Processes
- Submerged arc

Recommended Wire Feeders
- **K3048-1** Cruiser™ Tractor
- **K3083-1** Tandem Cruiser™
- **K2814-1** MAXsa® 10 Controller
- **K2370-2** MAXsa® 22 Feed Head

Key Options
- **K2444-3** CE Filter (Required option for UE)
- **K1811-x** Heavy Duty Process Sense Lead – 15/30 m
- **K2683-x** Heavy Duty ArcLink® Control Cable – 7.5/15/30 m
- **K1785-x** Control Cable (Heavy Duty) – 3.5/7.5/15 m
- **K285** Concentric Flux Cone Assembly
- **K231-1** Contact Nozzle Assembly for 2.4, 3.2, 4.0 mm Wire
- **K148A** Positive Contact Nozzle Assembly for 2.4-3.2 mm Wire
- **K148B** Positive Contact Nozzle Assembly for 4.0-4.8 mm Wire

ArcLink® COMMUNICATIONS PROTOCOL

THE LINCOLN ELECTRIC GREEN INITIATIVE
Inverter Technology reduces energy demand
www.lincolnelectric.com/green

INPUT: 3 PHASE, 50/60 Hz
OUTPUT: CC CV, AC DC

Technical Specifications

Product	Item Number	Input Power	Output Range (A)	Rated Output	Input Current @ Rated Output	Weight (kg)	Dimensions HxWxD (mm)
Power Wave®AC/DC 1000® SD	K2803-1*	380/400/460/500/575V/3/50/60	100-1000	1000A/44V/100%	82/79/69/62/55	363	1250 x 488 x 1174

*(1)Filter is required to meet CE conducted emission requirements. The K2444-3 must be used with the K2803-1.

Digital Wire Feeder

Cruiser® & Tandem Cruiser®

Submerged Arc Welding Tractor

The self-propelled, modular Cruiser™ and Tandem Cruiser™ travel carriages can deliver deposition rates up to 13 kg per arc, per hour for butt and fillet joints on lengthy plate welding applications common in bridge or barge decking, large tank fabrication or shipbuilding.

Features

- Reliable operation – strong, rigid and stiff, especially when you need it most:
  - Sturdy welded base frame.
  - Substantial steel mast stands up to daily construction site use.
  - Simple cast wheels – equipped with high temperature and slip resistant rubber tires.
  - Robust tube and clamp design – trouble-free feeding component mounting.
  - Adjustable extended length outriggers – make it easy to guide tractor movement.
- Advanced control pendant – removable, lightweight, impact resistant aluminium user interface can be used to save procedures, apply limits and lockouts for any or all controls.
- Multiple configurations – flexible system allows set up with or without a track and three- or four-wheel operation. Tandem model not recommended for three wheel operation.

Processes
- Submerged arc

Unit Includes
- Conduit Tubing, 1.5 m
- 4 mm, 600 amps Contact Nozzle Assembly; 4 mm. Contact Tip
- Nozzle Extension 127 mm
- Curved Nozzle Extension, 45°
- Nozzle Extension Insulator
- Flux Tubing and Hose Clamps
- Wire Reel Assembly
- Wheels for Track Operation
- Front and Rear Outriggers
- Enclosed Wire Reel (2 for Tandem)

Note: Does not include a control cable.

Key Options
- **K1733-5** Wire Straightener
- **K396** Track Section
- **K3070-1** Tiny Twin Kit

ArcLink® COMMUNICATIONS PROTOCOL

INPUT: 40 VDC
OUTPUT

Technical Specifications

Product	Item Number	Input Power	Rated Output	Travel Speed (m/min)	Gear Box	Wire Feed Speed range (m/min)	Wire Size Range (mm)	Weight (kg)	Dimensions HxWxD (mm)
Cruiser Tractor	K3048-2	40V DC	1000A / 100%	0.25-2.5	142:1 95:1(1) 57:1(1)	0.4-5.0 0.4-7.6 1.3-12.7	2.4-5.6 1.6-3.2 1.6-2.4	94	736 x 584 x 914
Tandem Cruiser™ Tractor	K3083-1							136	927 x 1156 x 1054

(1) Optional

Digital Wire Feeder

MAXsa™ 10 controller

ArcLink® - enabled Controller for Power Wave® AC/DC 1000® SD Systems

The MAXsa® 10 controller offers a single monitoring and control point for the entire hard automation welding system. Operators have full control over AC and DC welding parameters and easy PLC interfacing to control fixture travel, timers and other system commands.

Features

- Severe duty ready – the controller is IP23 rated and ready for operation in harsh environments.
- Pendant box – mount the controller in the standard protective box or remove the pendant for hand-held operation. Extend hand-held operation from 1.2 m up to 30.5 m with an ArcLink® extension cable.
- Eight procedure memories – pre-set and save your optimal welding parameters for repeating applications and recall later for fast changeovers.
- User-friendly controls – clear digital display and controls make it easy to set weld modes, AC operation, strike/start/end options, travel stop/start, timers and other parameters.
- Limit control – apply operator procedure limits or lockout on any or all parameters.
- Waveform Control Technology® – allows the user to choose from a library of pre-programmed weld modes. Parameters for each mode can be adjusted within a limited range to achieve optimal balance between deposition rate and penetration.

Processes
- Submerged arc

Recommended Power Source
- Power Wave® AC/DC 1000® SD

Key Options
- **K2462-1** MAXsa® 10 Mounting Bracket (only required for TC-3 Travel Carriage)

INPUT 40 VDC OUTPUT

Technical Specifications

Product	Item Number	Input Power	Weight (kg)	Dimensions HxWxD (mm)
MAXsa™ 10	K2814-4	40V DC	11.3	381 x 259 x 102

Digital Wire Feeder

MAXsa™ 22 Feed Head

Submerged Arc Hard Automation Wire Drive for Power Wave® AC/DC 1000® SD Systems

Designed specifically for hard automation applications, the MAXsa® 22 Wire Drive delivers accurate wire feeding of submerged arc wires. Based on Lincoln's proven gearbox and extruded aluminium feedplate, the MAXsa® 22 model features a 32VDC permanent magnet, high torque motor that delivers plenty of torque to push up to 5.6 mm diameter solid wire. A top speed of up to 12.7 m/min can be achieved by changing the gear ratio.

Features

- Flexible configuration – can be used in single, tandem, Twinarc® or multiple arc applications.
- Closed loop speed control – facilitates full control over starting, running and stopping wire feed speed.
- IP23 rated – tested to withstand harsh environments.
- Standard conversion kits – used to change the speed ratio to match the requirements of your application.
- Multi-axis rotation – rotational feed head adjustment in two planes allows flexible, accurate setup for fixturing or arc locating. Additional positioning flexibility can be achieved with the optional horizontal and vertical lift adjuster.

Processes
- Submerged arc

Unit Includes
- Adjustable wire straightener
- Cross-seam adjuster
- Electrical valve flux hopper
- Mounting bracket

Key Options
- **K2163-60** Weld Power Cable, 18 m
- **K1842-110** Weld Power Cable, 33 m
- **K219** Flux Hopper Assembly
- **K231-1** Contact Nozzle (2.4, 3.2, 4.0 mm)
- **K148A** Positive Contact Nozzle (2.4-3.2 mm)
- **K148B** Positive Contact Nozzle (4.0-4.8 mm)
- **KP2721-1** Nozzle Extension, 5 inches
- **K149-5/32** Nozzle Extension (4.0 mm)
- **K386** Narrow Gap Nozzle
- **KP2108-1B1** Contact tip
- **K285** Concentric Flux Cone Assembly
- **K225** Sub Arc Twinarc® Nozzle for 2.0-2.4 mm
- **K129-x** Tiny Twinarc® (1.6/2.0/2.4 mm)
- **K281** Tiny Twinarc® Solid Wire Straightener
- **K162-1** Spindle Kit, 2 Inch Hub
- **K29** Vertical Lift Adjuster, 100 mm
- **K96** Horizontal Adjuster, 50 mm
- **K278-1** Spreadarc Oscillator

INPUT 40 VDC OUTPUT

Technical Specifications

Product	Item Number	Input Power	Rated Output	Gear Box	Wire Feed Speed range (m/min)	Wire Size Range[1] Solid (mm)	Weight (kg)	Dimensions HxWxD (mm)
MAXsa™ 22 Head	K2370-2	40V DC	1000A / 100%	142:1 95:1[1] 57:1[1]	0.4-5.0 0.4-7.6 1.3-12.7	2.4-5.6 1.6-3.2 1.6-2.4	36.3	305 x 355 x 254

[1] 142:1 gear box is standard. Conversion Kit supplied for conversion to 95:1 with Wire Drive (K2370-2, K2312-2, or K2311-1)

Digital Wire Feeder

MAXsa™ 19 Controller

Submerged Arc Systems for Integrators and Robotic Applications for Power Wave® AC/DC 1000® SD Systems

The MAXsa® 19 controller is specifically designed to relay wire feed commands to the MAXsa® 29 when a customer-supplied user interface is used in place of the MAXsa® 10 controller. Typically, this occurs in a variety of third party integrator solutions that include integration hardware like turning rolls, panel lines, seamers and pipe mills fixturing.

Features

- Compact size – makes it easy to position in custom integrator solutions.
- Fast digital communication – with the Power Wave® AC/DC 1000® SD via ArcLink® cable and to the wire drive via a 14-pin control cable.
- Standard I/O connector block – for start/stop, forward/reverse feed and shutdown input interfacing with external accessories.
- Standard status indicator – aids diagnostic system troubleshooting.
- IP23 rated – tested to withstand harsh environments.

Processes
- Submerged arc

3 Year warranty Parts & Labour

ArcLink® COMMUNICATIONS PROTOCOL

INPUT 40 VDC *OUTPUT* 40 VDC

Technical Specifications

Product	Item Number	Input Power	Weight (kg)	Dimensions HxWxD (mm)
MAXsa™ 19	K2626-4	40V DC	3.2	229 x 267 x 76

Digital Wire Feeder

MAXsa™ 29 Feed Head

Submerged Arc Systems for Integrators and Robotic Applications for Power Wave® AC/DC 1000® SD Systems

The compact MAXsa® 29 Feed Head is intended for integrator solutions, as well as the latest submerged arc robotic applications.

Features

- Closed loop speed control – facilitates full control over starting, running and stopping wire feed speed.
- 32V DC permanent magnet, high torque motor – delivers plenty of torque to push up to 5.6 mm diameter solid wire. Top speed of up to 12.7 m/min can be achieved by changing the gear ratio.
- IP23 rated – tested to withstand harsh environments.
- Standard conversion kits – used to change the speed ratio to match the requirements of your application.
- Standard adjustable wire straightener.
- Multi-axis rotation – rotational feed head adjustment in one plane allows flexible, accurate setup for fixturing.

Processes
- Submerged arc

Key Options
- **K2163-60** Weld Power Cable, 18 m
- **K1842-110** Weld Power Cable, 33 m
- **K219** Flux Hopper Assembly
- **K231-1** Contact Nozzle (2.4, 3.2, 4.0 mm)
- **K148A** Positive Contact Nozzle (2.4-3.2 mm)
- **K148B** Positive Contact Nozzle (4.0-4.8 mm)
- **KP2721-1** Nozzle Extension, 5 inches
- **K149-5/32** Nozzle Extension (4.0 mm)
- **K386** Narrow Gap Nozzle
- **KP2108-1B1** Contact tip
- **K285** Concentric Flux Cone Assembly
- **K225** Sub Arc Twinarc® Nozzle for 2.0-2.4 mm
- **K129-x** Tiny Twinarc® (1.6/2.0/2.4 mm)
- **K281** Tiny Twinarc® Solid Wire Straightener
- **K162-1** Spindle Kit, 2 Inch Hub
- **K29** Vertical Lift Adjuster, 100 mm
- **K96** Horizontal Adjuster, 50 mm
- **K278-1** Spreadarc Oscillator

3 Year warranty Parts & Labour

ArcLink® COMMUNICATIONS PROTOCOL

INPUT 40 VDC *OUTPUT*

Technical Specifications

Product	Item Number	Input Power	Rated Output	Gear Box [1]	Wire Feed Speed Range[1] (m/min)	Wire size Range [1] Solid (mm)	Weight (kg)	Dimensions HxWxD (mm)
MAXsa™ 29 Head	K2312-2	40V DC	1000A / 100%	142:1 95:1[1] 57:1[1]	0.4-5.0 0.4-7.6 1.3-12.7	2.4-5.6 1.6-3.2 1.6-2.4	35	330 x 406 x 254

[1] 142:1 gear box is standard. Conversion Kit supplied for conversion to 95:1 with Wire Drive (K2370-2, K2312-2, or K2311-1)