

NA-5 Control and Heads

Processes

Flux-Cored, Submerged Arc

Product Number

K356-2

See back for complete specs

Input Power

115 VAC 50/60 Hz

Wire Size Range

.035 - 7/32 in. (0.9 - 5.6 mm)

Wire Feed Speed Range

25-775 ipm
(0.6-16.5 m/min)

Net Weight/Dimensions (H x W x D)

41 lbs. (18.6 kg)

12.75 x 18.5 x 22.25 in.
(324 x 470 x 565 mm)

Automated Welding Systems

Improve productivity with the NA-5 automatic wire feeders. These systems have been specially designed to deposit significant amounts of weld metal at fast travel speeds on thick materials.

FEATURES

- ▶ **Operating Versatility** - Choice of gear ratios allows use of a wide range of wire sizes and wire feed speeds.
- ▶ **Compact Units With Excellent Flexibility** Mountable on simple fixtures or the most complex automated production lines.
- ▶ **Rugged Construction** - Minimizes downtime and maintenance costs.

RECOMMENDED LINCOLN ELECTRIC POWER SOURCES

- ▶ Idealarc® DC-600, DC-655, DC-1000, DC-1500 and CV-655.

WHAT'S REQUIRED

- ▶ Nozzle Assembly
- ▶ Control Cable
- ▶ Weld Power Cable
- ▶ Power Source
- ▶ Wire Reel(s) and mounting

WHAT'S INCLUDED

- ▶ 10 ft. (3.1 m) Control Cable
- ▶ Specific Drive Roll Kit with Each Head
- ▶ Wire Straightener with Each Head

AC Input Power required for all models is 115 (110) volts, 60 or 50 hertz of 350 volt-amperes capacity for the head and controls. An additional 250 volt-amperes is required for the Lincoln Electric travel carriage and more may be needed for other travel mechanisms. This power can be obtained from the Lincoln Electric power source.

APPLICATIONS

- ▶ Heavy Equipment Fabrication
- ▶ Structural Fabrication



Shown: K356-2
NA-5



Shown: K346A
NA-5S Head
(Shown with
K231-1 Nozzle)

AVAILABLE MODELS

FOR SUBMERGED ARC WELDING

NA-5S HEAD

Includes wire feed head with straightener for solid wire, flux hopper with automatic valve and head mounting. Also includes electrode cables from control box to wire contact assembly, and cross seam adjuster. Does not include control box or wire reel, brake and mounting.

Order K346A, K346B

NA-5SF HEAD

Includes wire feed head with straightener for solid wire. Does not include control box or wire reel, brake and mounting, flux hopper with automatic valve and head mounting, cross seam adjuster, head mounting parts or electrode cable from control box to wire contact assembly.

Order K347A, K347B

INPUT



OUTPUT



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



KEY CONTROLS



1. Control Power Switch – Turns wire feeder input power on and off. Also serves as an emergency stop switch.
2. Pilot Light – Shows when the electrode is "hot".
3. Inch Pushbuttons – Feed electrode up and down when not welding.
4. Start and Stop Pushbuttons – Control welding cycles.
5. Meter Value Pushbutton – Monitor either the preset values or the actual values.
6. Timer Control – For burnback and/or wire react time.
7. Crater Module (optional) – Controls procedure for an adjustable period of time to regulate bead size or fill craters at the end of the weld.
8. Weld Timer (optional) – Eliminates the need to press stop pushbutton.
9. Lockable Cover – Lockout procedure controls when necessary.
10. Digital Display – Monitor wire feed speed and voltage on separate meters.
11. Start Module (optional) – Controls penetration, bead size, or other factors for an adjustable time at the start of the weld.
12. WFS and Voltage Preset Controls – Preset wire feed speed and voltage prior to and during welding. These controls eliminate returning to the power source for routine procedure changes.
13. Travel Switch – Controls the travel mechanism for automatic starting and stopping when welding, travel without welding during setup and travel off.

REQUIRED EQUIPMENT

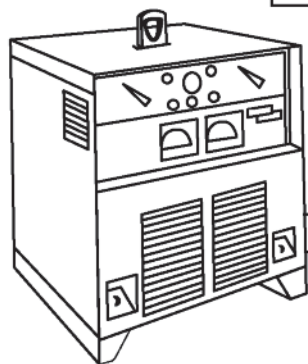
NA-5S and NA-5SF

For Submerged Arc Welding

DC Power Source –
Constant Voltage type with on-off control of power source output.

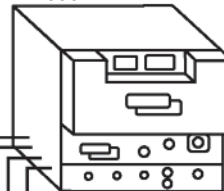
Two 4/0 electrode cables and the multi-conductor control cable.

K335-26 Extension – Motor, flux hopper and electrode cables. Optional when more than 4 ft. (1.2 m) is required.



Work Cable –
Two or more 4/0

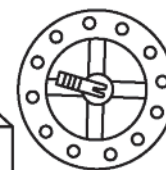
NA-5 Control
K356-2



4 ft. (1.2 m) Motor Cord –
Included with K346.

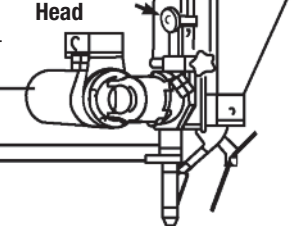
4 ft. (1.2 m) Flux Hopper Cord –
Included with K346.

4 ft. (1.2 m) Electrode Cables



K299 Reel and Mounting –
Order separately.

Solid Wire Straightener Head



Flux Hopper –
Included with K346.

Contact Nozzle
(optional)

RECOMMENDED ACCESSORIES



Solenoid Assembly
Valve to automatically control water flow when using cooling attachment on K148 contact assemblies. Can also be used to control gas.
Order K223



Starting or Crater Module
Permits additional settings of wire feed speed and voltage for an adjustable period of time (10 seconds max). Can be used for either a starting procedure or a crater fill procedure. If both are required, two assemblies must be ordered.
Order K334



Remote Interface Module
Permits remote operation of the NA-5 Inch Up, Inch Down, Start and Stop Functions by either of the following user-supplied external signals and provides electrical isolation of the NA-5 control circuitry from these signals:

- **Switches**
Momentary closure of contacts rated for 24 volts, 5 milliamperes, DC.
- **24 Volt Signals**
Momentary application of 24 volt $\pm 10\%$ AC or DC signal capable of 5 milliamperes steady state. (.15 amp peak capacitive in rush) per input. This module can be used with all codes of NA-5 Controls and replaces the earlier K336 Remote Pushbutton Interface Module, which provided for only external switch closure signals.

Order K336



Weld Timer Module
Permits setting of weld time for an adjustable period of time. Eliminates need to press stop pushbutton. The timer unit is adjustable from 0.00 - 9.99 seconds.
Order K337-10



Control To Head Extension Cable Assembly
The standard head is equipped with cables which permit the head to be mounted up to four feet from the controls. "F" models, however, do not include electrode cables. When the head is mounted further away from the control, extension cable assemblies must be purchased. For the NA-5S head: Includes motor, tachometer, and flux valve lead extensions with polarized plugs and electrode. 26 ft. length.
Order K335-26



Recommended for the NA-5N, and SF heads. It is the same as the K335 without the flux valve lead extension. Available in 46 ft. lengths.
Order K338-46

Mounting Kit

For use if the NA-5 control box is to be mounted on the carriage.
Order T14469

SINGLE ELECTRODE

Submerged Arc Contact Nozzle Assembly for 3/32 in. (2.4 mm), 1/8 in. (3.2 mm) and 5/32 in. (4.0 mm) electrodes.
For 5/64 in. (2.0 mm), 3/16 in. (4.8 mm) or 7/32 in. (5.6 mm) sizes, order additional appropriate KP1962 tips. Outer flux cone gives full flux coverage with minimum consumption.
(Rated up to 650 amps.)
Order K231-1



K231 nozzle tips

Designed for long life.
Order
KP1962-1B1
for 1/8 in. (3.2mm) wire
KP1962-2B1
for 3/16 in. (4.8 mm) wire
KP1962-3B1
for 3/32 in. (2.4 mm) wire
KP1962-4B1
for 5/32 in. (4.0 mm) wire
KP1962-5B1
for 7/32 in. (5.6 mm) wire
KP2082-2B1
for 5/64 in. (2.0 mm) wire



Narrow Gap Deep Groove Nozzle

For single arc 3/32 in. (2.4 mm) diameter wire welding on thick walled steel plate with nearly parallel-sided, narrow gap joint preparations.
Order K386



Contact Jaw Assembly

Single arc contact jaw assembly for 1/8-7/32 in. (3.2-5.6 mm) diameter wire. Rugged contact jaws for maximum life at currents over 600 amps.
Order K226R



TWINARC®

Tiny Twinarc® Wire Straightener
Straightens wire diameters .045 thru 3/32 in. (1.2 thru 2.4 mm). Particularly valuable on longer electrical stickout procedures.
Order K281



Tiny Twinarc®

Feeds two 1/16, 5/64, or 3/32 in. (1.6, 2.0, or 2.4 mm) electrodes for high speed submerged arc welds on thin gauge (1.89 mm) to heavy plate. Includes contact nozzle, wire guides, drive rolls and guides, and a second wire reel and mounting bracket.
Order
K129-1/16
K129-5/64
K129-3/32



Large Wire Twinarc® Contact Assemblies
Feeds two 5/64 in. (2.0 mm), 3/32 in. (2.4 mm) or 1/8 in. (3.2 mm) wires for submerged arc welding on "Fast-Fill" joints or hardfacing beads.
Order K225

GENERAL OPTIONS

Concentric Flux Cone Assembly

For use with K148B, Positive Contact Nozzle Assembly. Gives concentric flux coverage around the electrode.
Order K285



Positive Contact Assembly

For single arc welding at high currents (optional T12928 water cooling attachment recommended when welding over 600 amps).
Order K148A
(for 3/32 to 1/8 in. wire)
Order K148B
(for 5/32 to 3/16 in. wire)



ESO (Extended Stick-Out) Extension

Linc-Fill long stickout extension for K148A Single Arc Positive Contact Nozzle Assembly. Required for long stickout technique.
Order K149-5/32



5 in. Nozzle Extension

Extends the wire for subarc nozzles by 5 inches (up to 1/4 in. (6.4 mm) diameter wire).
Order KP2721-1



Horizontal Head Adjuster

Provides crank adjustment of head position. Has 2 in. (51 mm) horizontal travel.
Order K96



Vertical Lift Adjuster

Provides 4 in. (102 mm) hand crank adjustment of vertical head position. It also includes up to 3-3/4 in. (95.2 mm) in-and-out horizontal adjustment with stops that can be preset for simple repetition of the same adjustment.
Order K29



SpreadArc Oscillator

Oscillates head across the line of travel. Calibrated dwell time and oscillation speed controls permit the SpreadArc to cover large areas quickly with smooth beads of minimum admixture.
Order K278-1



TC-3 Self-Propelled Travel Carriage

The TC-3 travel carriage allows the mounting of up to two feed heads/controllers and wire reels to a beam for basic hard automation installations.
Order K325 HCS
(for 5-75 ipm)



RECOMMENDED ACCESSORIES



Automatic Flux Hopper Assembly
Flux Hopper for MAXsa™ 29 Heads (included standard on the MAXsa™ 22 Heads).
Order K219



Wire Reel Assembly for 50-60 lb. Coils
Accommodates 50 lb. (22.7 kg) or 60 lb. (27.2 kg) coils of wire on automatic wire feeders. The unit includes a wire reel mounting spindle and braking system. Cannot be used with K2462-1.
Order K299



Tandem Reels
Two Wire Reel Mounting for TC-3.
Order K390

Tandem Arc Framework
Provides mountings with desired positioning adjustments for two standard Automatic Wire Feed Heads. Includes insulation and hardware to permit direct mounting to a high capacity TC-3 Carriage, or to the user's gantry or fixture for either direction of travel.
Order K387



Flux Hopper
Tandem Arc Flux Hopper for K387 mountings.
Order K389

Wire Straightener (Subarc) up to 7/32 in. (5.6 mm)
Includes a three roll wire straightener with adjustable pressure. (1 included with each tractor and MAXsa™ Feed Head.)
Order K1733-5

WELD POWER CABLES

Product Number	Description
K2163-35	Lug to Lug, 4/0, 35 ft. (10.7 m) (Two cables per package)
K2163-60	Lug to Lug, 4/0, 60 ft. (18.3 m) (Two cables per package)
K1842-110	Lug to Lug, 4/0, 600A, 60% duty cycle, 110 ft. (33.5 m)

DRIVE ROLL / GUIDE TUBE KITS

Product Number	Wire Size in. (mm)	Gear Ratio Head
KP1899-1 KP1899-2	3/32 – 7/32 (2.4 – 5.6) 1/16, 5/64, 3/32 (1.6, 2.0, 2.4)	142:1 and 95:1
KP1899-2 KP1899-3 KP1899-4	1/16, 5/64, 3/32 (1.6, 2.0, 2.4) .035, .045, .052 (0.9, 1.1, 1.3) .045 – .052 Cored (1.1 – 1.3)	57:1

NA-5S and NA-5SF

Product Name	Product Number	Wire Size in. (mm)	Gear Ratio	Wire Feed Speed ipm (m/min)	Max. Solid Wire Size ⁽²⁾ in. (mm)
NA-5S	K346A	3/32-7/32 (2.4-5.6)	142:1	15-290 (0.4-7.4)	7/32 (5.6)
NA-5S	K346B	1/16-3/32 (1.6-2.4)	95:1	22-425 (0.6-10.8)	1/8 (3.2)
NA-5SF	K347A ⁽¹⁾	3/32-7/32 (2.4-5.6)	142:1	15-290 (0.4-7.4)	7/32 (5.6)
NA-5SF	K347B ⁽¹⁾	1/16-3/32 (1.6-2.4)	95:1	22-425 (0.6-10.8)	1/8 (3.2)

⁽¹⁾ For the K347 Head, order the K338 extension.

⁽²⁾ For gear ratios shown.

CONTROL CABLE, EXTENSIONS AND ADAPTER

Product Number	Description
K1820-10	Control Cable Female 9 pin to Male 14 pin, 10 ft. (3.1 m)
K1797-10*	Control Cable Extension, Male 14 pin to female 14 pin, 10 ft. (3.1 m)
K1797-25*	Control Cable Extension, Male 14 pin to female 14 pin, 25 ft. (7.6 m)
K1797-50*	Control Cable Extension, Male 14 pin to female 14 pin, 50 ft. (15.2 m)
K1798	Control Cable Adapter Female 14 pin to terminal strip

* Requires K1820-10

WIRE SIZE CONVERSION KITS

Kit No.	Wire Size in. (mm)	Gearbox
T13724B	1/16 – 3/32 (1.6 – 2.4)	142:1
T13724B	1/16 – 3/32 (1.6 – 2.4)	95:1
T13724B T13724C T13724D	1/16 – 3/32 (1.6 – 2.4) .035 – .052 (0.9 – 1.3) .045 – .052 (1.1 – 1.3) Cored	57:1

PRODUCT SPECIFICATIONS

Product Name	Product Number	Input Power	Wire Feed Speed Range ipm (m/min)	H x W x D inches (mm)	Net Weight lbs. (kg)
NA-5 Control	K356-2	115 VAC 50/60 HZ	25-775 (0.6-16.5)	12.75 x 18.5 x 22.25 (324 x 470 x 565)	41 (18.6)

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.