

# 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



## 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



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## 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

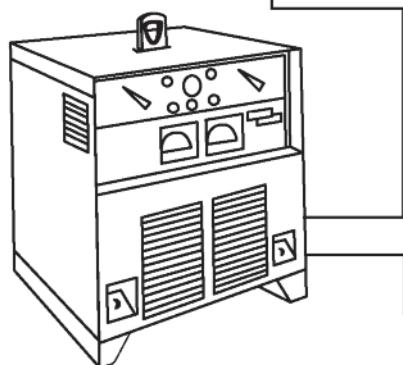
### NA-5S and NA-5SF

#### For Submerged Arc Welding

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

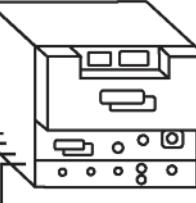
Two 4/0 electrode cables and the multi-conductor control cable.

**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

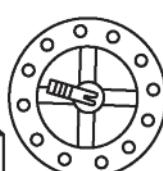


**4 ft. (1.2 m) Motor Cord** – Included with K346.

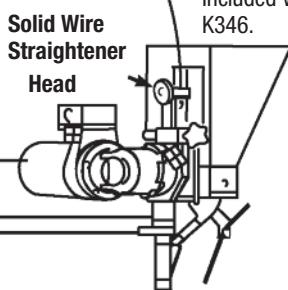
**4 ft. (1.2 m) Flux Hopper Cord** – Included with K346.

**4 ft. (1.2 m) Electrode Cables**

**K299 Reel and Mounting** – Order separately.



**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 Grove 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 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)

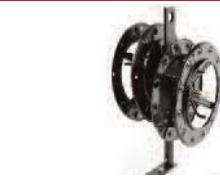
## RECOMMENDED ACCESSORIES



**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

<b>WELD POWER CABLES</b>	
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)

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

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

<sup>(1)</sup> For the K347 Head, order the K338 extension.

<sup>(2)</sup> For gear ratios shown.

<b>PRODUCT SPECIFICATIONS</b>					
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)