NA-3S & NA-4 Controls and Heads

Processes
Flux-Cored, Submerged Arc

Product Number
K210-2 NA-3S Controller
K388-2 NA-4 Controller
K208A NA-3S/NA-4 Head
K209A NA-3SF/NA-4F Head

See Page 4 for additional models and complete specs

<table>
<thead>
<tr>
<th>AC Input Power</th>
<th>Net Weight/Dimensions (H x W x D)</th>
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<tbody>
<tr>
<td>115/1/50/60</td>
<td>NA-3S:</td>
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<tr>
<td></td>
<td>44 lbs. (20 kg)</td>
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<tr>
<td></td>
<td>11.0 x 13.5 x 12.3 in.</td>
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<td></td>
<td>(279 x 343 x 312 mm)</td>
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<tr>
<td>Wire Size Range (Varies by Model)</td>
<td>NA-4:</td>
</tr>
<tr>
<td>.035 - 7/32 in (0.9 - 5.6 mm)</td>
<td>35 lbs. (16 kg)</td>
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<tr>
<td>Wire Feed Speed Range</td>
<td>11.0 x 13.5 x 9.70 in.</td>
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<tr>
<td>NA-3S: 25 - 650 ipm (0.6 - 16.5 m/min)</td>
<td>(279 x 343 x 246 mm)</td>
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<tr>
<td>NA-4: Subject to arc voltage used</td>
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Automatic Welding Systems
Improve productivity with the NA-3S or NA-4 automatic wire feeders. These systems have been specially designed to deposit more weld metal at fast travel speeds which eliminates bottlenecks and cuts costs.

FEATURES
- Operating Versatility - Easily adapt to a wide range of wire feed speeds and wire sizes.
- Compact Units With Excellent Flexibility - Fit into simple fixtures or the most complex automated production lines.
- Rugged Construction - Minimize downtime and maintenance costs.

RECOMMENDED LINCOLN ELECTRIC POWER SOURCES
- NA-3S
  Idealarc® DC-600, DC-655, DC-1000 and DC-1500
- NA-4
  Idealarc® AC-1200

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
A CLOSER LOOK

1. Ammeter – Indicates current only while welding.
2. Voltmeter – Indicates welding voltage only while welding.
3. Power – Turns wire feeder input power on and off.
5. Travel – Set to “Off” for no travel; “On” for travel without welding; “Auto” for welding operations.
6. Inch Up and Inch Down – Press to inch electrode at the speed set by “Inch Speed” control on inner panel.
7. Voltage Control – Adjusts arc volts.
8. Start – Pushbutton begins welding cycle.

NA-3S
Delivers arc sensing or constant wire feed speed control with hot or cold starting for use with either constant current or constant voltage DC power sources.
Applications Include:
• Single and multiple electrode submerged arc.
• Self-shielded and gas-shielded flux-cored welding.

NA-4
Delivers arc sensing control with hot or cold starting for use with constant current AC power sources for submerged arc welding.
Applications Include:
• AC-AC tandem arc and AC-AC-AC triple arc systems.
• Single electrode submerged arc when arc blow limits the DC welding current and travel speeds.

SYSTEM CONFIGURATION

AC Input Power required for all models is 115 (110) volts, 60 or 50 hertz of 360 volt-amperes capacity for the head and controls. An additional 250 volt-amperes is required for the Lincoln travel carriage and more may be needed for other travel mechanisms. This power is obtained from the welding power source.

NA-3S and NA-3SF

Welding Power Source – Constant Current type with on-off control of power source output. Also operates with Constant Voltage type.

Weld Power Cable and Control Cable

K210 Controls – Order separately.

NA-3 Control Box

NA-4 Control Box

Flux Hopper – Included with K208.

Solid Wire Straightener

4 ft (1.2 m) Motor Cord – Included with K208 and K209.

4 ft (1.2 m) Flux Hopper Cord – Included with K208.

4 ft (1.2 m) Electrode Cables – Included with K208.

4 ft (1.2 m) Electrode Cables

Contact Nozzle (optional)

Flux Hopper

Solid Wire Straightener

Reel and Mounting – K299 Order separately.

Lincoln Electric
THE WELDING EXPERTS

[2] NA-3S and NA-4
RECOMMENDED ACCESSORIES

SINGLE ELECTRODE

Submerged Arc Contact Nozzle Assembly
For 5/64 thru 3/16 in. (2.0 thru 4.8 mm) electrode at currents generally below 600 amps. Outer flux cone gives full flux coverage with minimum consumption. Order K231-1

Innershield® Positive Contact Nozzle Assembly
For welding with innershield®-flux-cored wire at high currents. Optional water cooling attachment (T12928) recommended for currents over 600 amps. Order K148A for 3/32-1/8 in. (2.4-3.2 mm) wire. Order K148B for 3/32-3/16 in. (3.2-4.8 mm) wire.

Concentric Flux Cone Assembly
For use with K148, K148 with a K148A for 3/32-1/8 in. (2.4-3.2 mm) diameter wire. Order K226R.

Narrow Gap Deep Groove Nozzle
Water cooled submerged arc nozzle for welding in a 5/8 in. (15.9 mm) minimum gap up to 10 in. (254 mm) deep. Includes flux delivery tube, flux hose and nozzles. Order K386.

Horizontal Head Adjuster
Provides crank adjustment of head position. Order K96.

Vertical Lift Adjuster
Provides in (0.2 mm) hand crank adjustment of vertical head position. Order K29.

TC-3 Self-Propelled High Capacity Travel Carriage
Carries head and controls in either direction on a beam of suitable length. The TC-3 operates either automatically with the weld controls or manually. The speed range, set with a continuous, calibrated speed control without gear change, for the available model is 1.5-7.5 ipm (0.04-0.19 m/min). Plugs into the 110 (115) volt AC, 60 or 50 hertz travel receptacle of the Automatic Wire Feed Assembly. Order K325HCS.

Mounting Kit
For mounting control box to the TC-3 Travel Carriage. Order T14469.

Flux Hopper Kit

Wire Reel Assembly
Includes wire reel for 50-60 lb. (22.7-27.2 kg) coils, wire reel mounting and brake. Order K299.

Extended Life
KP3162-2B1 for 3/32 in. (2.4 mm) wire
KP3162-1B1 for 1/8 in. (3.2 mm) wire
KP3162-4B1 for 5/32 in. (4.0 mm) wire
KP3162-2B1 for 3/16 in. (4.8 mm) wire
KP3162-5B1 for 7/32 in. (5.6 mm) wire

Options

Start Controls P.C. Board
Adjusts starting current and voltage on NA-3S installations and voltage only on NA-4 installations for a settable period of time as needed to control penetration, bead size or other factors. Order K221.

Crater Fill Controls P.C. Board
Adjusts ending current and voltage on NA-3S installations and voltage only on NA-4 installations for a settable period of time as needed to control bead size or fill craters. Order K245.

GENERAL OPTIONS

5 in. Nozzle Extension
Extends the wire by 5 inches [up to 1.4 in. (6.4 mm) diameter wire]. For K231-X only. Order K22721-1.

K231 Nozzle Contact Tips
Order K2082-2B1 for 5/64 in. (2.0 mm) wire
K1392-3B1 for 3/32 in. (2.4 mm) wire
K1392-1B1 for 1/8 in. (3.2 mm) wire
K1392-4B1 for 5/32 in. (4.0 mm) wire
K1392-2B1 for 3/16 in. (4.8 mm) wire
K1392-5B1 for 7/32 in. (5.6 mm) wire.

Solid State Spreadarc
 Oscillates the head across the line of travel. For hand-facing build-up using a Twinarc® or single arc nozzle. Calibrated dwell time and oscillation speed controls permit the Spreadarc to cover large areas quickly with smooth beads of minimum admixture. Flux-cored electrode, open arc and submerged arc procedures can be used. Order K278-1.

TWINARC®

Tiny Twinarc® Contact Assemblies
Feeds two electrodes for high speed submerged arc welds. Includes contact nozzle, wire guides, drive rolls and guides, and a second wire reel and mounting bracket. Order K219-1/16 for 1/16 in. (1.6 mm) wire. Order K219-5/64 for 5/64 in. (2.0 mm) wire. Order K219-3/32 for 3/32 in. (2.4 mm) wire.

Large Wire Twinarc®
Feeds two 5/64, 3/32, or 1/8 in. (2.0, 2.4, or 3.2 mm) electrodes for high speed submerged arc welding on “Fast Fill” joints or hardfacing beads. Order K225.

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

TANDEM ARC

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 Cartage, or to the user’s gantry or fixture for either direction of travel. Order K387.

Tandem Arc Wire Reels
For mounting two wire reels on TC-3 Travel Carriage. Order K390.

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