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› Lincoln Electric Stick Electrode 6010, 3/32 inch, 12 inch Length, 5 lb. (Model ED033509) Instruction Manual

Lincoln Electric ED033509

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1. INTRODUCTION

This instruction manual provides essential information for the safe and effective use of the Lincoln Electric Stick Electrode 6010, 3/32 inch, 12 inch length, 5 lb. (Model ED033509). Please read this manual thoroughly before attempting any welding operations. Understanding and following these instructions will help ensure proper performance and user safety.

2. SAFETY INFORMATION

WARNING: Welding fumes and gases can be hazardous to your health. Arc rays can injure eyes and burn skin. Electric shock can kill. Always follow proper safety procedures.

- **Fumes and Gases:** Keep your head out of the fumes. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone.
- **Arc Rays:** Wear a welding helmet with a proper shade of filter to protect your face and eyes from arc rays when welding or watching. Wear safety glasses with side shields under your helmet. Use protective screens or barriers to protect others from flash and glare. Wear appropriate protective clothing made from durable, flame-resistant material to protect your skin.
- **Electric Shock:** Insulate yourself from the work and ground. Do not touch live electrical parts. Wear dry, insulating gloves and clothing.
- **Fire and Explosion:** Remove all flammables within 35 feet (10 meters) of the welding arc. Have a fire extinguisher nearby.
- **California Proposition 65 Warning:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

3. PRODUCT OVERVIEW

The Lincoln Electric E6010 electrode is a high-cellulose, all-position electrode designed for direct current electrode positive (DCEP) welding. It provides a deep penetrating arc, excellent puddle control, and produces a flat, convex bead

with a thin, easily removable slag. It is commonly used for general-purpose fabrication, pipe welding, and repair work on mild steel.



Figure 1: Lincoln Electric Fleetweld 5P E6010 Stick Electrode 5 lb package. This image shows the black and red packaging for the 5 lb container of E6010 electrodes, clearly displaying the Lincoln Electric brand and product specifications.



Figure 2: Close-up of Lincoln Electric Fleetweld 5P E6010 electrode label and rod. This image provides a detailed view of the product label, showing the E6010 classification, 3/32" (2.4 mm) diameter, model number ED033509, and the 5 lb (2.3 kg) net weight. A single electrode rod is visible below the packaging.

Key Features:

- AWS Classification: E6010
- Diameter: 3/32 inch (2.4 mm)
- Length: 12 inches
- Container Size: 5 lb. package
- Material: Mild Steel
- Tensile Strength: 60,000 psi (minimum)
- Manufacturer: Lincoln Electric

4. SETUP

Proper setup is crucial for safe and effective welding. Ensure all equipment is in good working order before beginning.

1. **Prepare Welding Area:** Clear the work area of any flammable materials. Ensure adequate ventilation.
2. **Personal Protective Equipment (PPE):** Don appropriate PPE, including a welding helmet, safety glasses, welding gloves, flame-resistant clothing, and safety shoes.
3. **Welder Connection:** Connect the electrode holder cable to the positive (+) terminal of your DC welding machine (DCEP - Direct Current Electrode Positive). Connect the work clamp cable to the negative (-) terminal and securely attach it to the workpiece.
4. **Electrode Insertion:** Insert the E6010 electrode into the electrode holder, ensuring a firm grip.
5. **Amperage Setting:** Set your welding machine to the appropriate amperage for a 3/32 inch E6010 electrode. A typical range for this electrode is 75-130 Amps. Always refer to your welding machine's manual and perform test

welds to fine-tune settings for your specific application and material thickness.

5. OPERATING INSTRUCTIONS

The E6010 electrode is known for its deep penetration and strong arc force, making it suitable for root passes and dirty or rusty material.

1. **Striking an Arc:** Gently scratch or tap the electrode against the workpiece to initiate the arc. Once the arc is established, quickly lift the electrode slightly to maintain the correct arc length.
2. **Arc Length:** Maintain a short arc length, typically equal to or slightly less than the electrode's diameter. A longer arc can lead to instability, porosity, and reduced penetration.
3. **Electrode Angle:** Hold the electrode at a slight drag angle (10-15 degrees from vertical in the direction of travel) for most applications.
4. **Travel Speed:** Maintain a consistent travel speed. Too fast, and the bead will be narrow and ropy with insufficient penetration. Too slow, and the weld puddle will become too large, leading to excessive buildup and potential slag inclusions.
5. **Manipulation:** E6010 is often used with a whipping or keyhole technique, especially for root passes. This involves moving the electrode forward into the puddle, then quickly back out to allow the puddle to cool slightly, then forward again. This helps control penetration and bead profile.
6. **Slag Removal:** After completing a weld, allow the weld to cool slightly before chipping away the slag. E6010 slag is typically thin and easily removed.

Typical Applications:

- Pipe welding (root passes)
- General fabrication
- Repair welding on mild steel
- Welding on galvanized or dirty surfaces

6. MAINTENANCE

Proper handling and storage of electrodes are essential for maintaining their quality and performance.

- **Storage:** Store electrodes in a dry environment, preferably in their original sealed packaging, to prevent moisture absorption. While E6010 is less susceptible to moisture issues than low-hydrogen electrodes, proper storage extends shelf life and ensures consistent performance.
- **Handling:** Handle electrodes carefully to avoid damaging the flux coating. Damaged flux can lead to arc instability and weld defects.
- **Inspection:** Before use, visually inspect electrodes for any signs of damage, excessive moisture, or rust. Discard any compromised electrodes.

7. TROUBLESHOOTING

Below are common issues encountered when welding with E6010 electrodes and their potential solutions.

Problem	Possible Cause	Solution
Arc Sticking	Low amperage, incorrect arc striking technique, cold workpiece.	Increase amperage, use a quick scratch or tap motion, preheat thick material.
Excessive Spatter	Amperage too high, arc length too long, incorrect electrode angle.	Reduce amperage, shorten arc length, adjust electrode angle.
Porosity (holes in weld)	Contaminated base metal, excessive arc length, insufficient shielding from flux, moisture in electrode.	Clean base metal thoroughly, shorten arc length, ensure proper electrode storage, use fresh electrodes.
Undercut (groove at weld toe)	Amperage too high, travel speed too fast, incorrect electrode angle.	Reduce amperage, slow down travel speed, adjust electrode angle to direct arc more into the puddle.
Poor Penetration	Amperage too low, travel speed too fast, arc length too long.	Increase amperage, slow down travel speed, shorten arc length.

8. SPECIFICATIONS

Attribute	Detail
Product Name	Stick Electrode, 6010
Brand	Lincoln Electric
Model Number	ED033509
AWS Classification	E6010
Diameter	3/32 inch (2.4 mm)
Length	12 inches
Container Size	5 lb. (2.3 kg)
Material	Mild Steel
Tensile Strength	60,000 psi (minimum)
Polarity	DC Electrode Positive (DCEP)
Typical Amperage Range	75-130 Amps (for 3/32" electrode)
Product Dimensions	12 x 2.18 x 14.45 inches (package)
Item Weight	5 Pounds
Country of Manufacturer	Mexico

9. STORAGE

To maintain the quality and performance of your Lincoln Electric E6010 electrodes, adhere to the following storage guidelines:

- Store electrodes in a cool, dry place, away from direct sunlight and sources of moisture.
- Keep electrodes in their original sealed packaging until ready for use.
- Avoid storing electrodes on concrete floors or in areas with high humidity.
- While E6010 is less sensitive to moisture than low-hydrogen electrodes, prolonged exposure to humidity can still degrade performance.

10. SUPPORT & CONTACT

For further assistance, technical support, or information regarding Lincoln Electric products, please visit the official Lincoln Electric website or contact their customer service department.

Manufacturer: Lincoln Electric

Website: www.lincolnelectric.com

Please have your product model number (ED033509) and any relevant details ready when contacting support.