

# LINCOLN® S6

Mild Steel, Copper Coated

## KEY FEATURES

- ER70S-6 MIG wire for general fabrication applications
- Mild steel, copper coated wire offers low spatter and a smooth arc
- Available on spools and drum in both 0.035 in. (0.9 mm) or 0.045 in. (1.1 mm) diameters

## WELDING POSITIONS

All

## CONFORMANCES

AWS A5.18, ASME ER70S-6  
SFA-A5.18:

## TYPICAL APPLICATIONS

- General Fabrication

## SHIELDING GAS

100% CO<sub>2</sub>  
75-95% Argon / balance CO<sub>2</sub>  
Flow Rate: 30 - 50 CFH

## DIAMETERS / PACKAGING

Diameter in (mm)	2,376 lb (1078 kg) Pallet of 33 lb (15 kg) Spools	1,000 lb (454 kg) Pallet of 500 lb (227 kg) Accu-Trak® Drum
0.035 (0.9)	ED037837	ED038010
0.045 (1.1)	ED037838	ED038011

## MECHANICAL PROPERTIES<sup>(1)</sup>

	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft-lbf) @ -29°C (-20°F)
<b>Requirements</b> AWS A5.18: ER70S-6	400 (58) min	480 (70) min.	22 min	27 (20) min
<b>Typical Results<sup>(3)</sup></b> As-Welded with 100%CO <sub>2</sub> As-Welded with 90%Ar/10%CO <sub>2</sub>	460 (67) 480 (70)	550 (80) 560 (81)	26 26	70 (50) 90 (65)

## WIRE COMPOSITION

	%C	%Mn	%Si	%S	%P	%Ni	%Cr	%Mo	%V	%Cu (Total) <sup>(4)</sup>
<b>Requirements</b> AWS A5.18: ER70S-6	0.06 - 0.15	1.40 - 1.85	0.80 - 1.15	0.035 max.	0.025 max.	0.15 max.	0.15 max.	0.15 max.	0.03 max.	0.50 max.
<b>Typical Results<sup>(3)</sup></b>	0.08	1.50	0.85	0.010	0.008	0.04	0.04	0.01	<0.01	0.15

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>Measured with 0.2% offset. <sup>(3)</sup>See test results disclaimer <sup>(4)</sup>Copper due to any coating on the electrode plus the copper content of the filler metal itself, shall not exceed the stated 0.50% max. <sup>(5)</sup>CTWD (Contact Tip to Work Distance). Subtract 1/4 in (6.4 mm) to calculate Electrical Stickout. <sup>(6)</sup>Procedures in these areas are procedures for short circuiting mode using 100% CO<sub>2</sub>. When using 75% Argon, 25% CO<sub>2</sub>, for short circuit transfer, reduce voltage by 1 to 2 volts.

**TYPICAL OPERATING PROCEDURES**

Diameter, Polarity in (mm)	CTWD <sup>(5)</sup> in (mm)	Wire Feed Speed m/min (in/min)	Approx. Voltage (Volts)	Approx. Current (Amps)	Melt-Off Rate kg/hr (lb/hr)
<b>0.035 (0.9), DC+</b>					
Short Circuit Transfer 100% CO <sub>2</sub> <sup>(6)</sup>	9 - 12 (3/8 - 1/2)	2.5 - 7.5 (100 - 300)	18 - 23	80 - 175	
Spray Transfer 90% Ar / 10% CO <sub>2</sub>	12 - 19 (1/2 - 3/4)	8.0 - 15.0 (315 - 590)	23 - 30	190 - 270	
<b>0.045 (1.1), DC+</b>					
Short Circuit Transfer 100% CO <sub>2</sub> <sup>(6)</sup>	12 - 19 (1/2 - 3/4)	3.5 - 7.0 (135 - 275)	18-25	150 - 210	
Spray Transfer 90% Ar / 10% CO <sub>2</sub>	12 - 19 (1/2 - 3/4)	9.0 - 13.0 (350 - 510)	26-35	280 - 350	

<sup>(7)</sup>Typical all weld metal. <sup>(8)</sup>Measured with 0.2% offset. <sup>(9)</sup>See test results disclaimer <sup>(10)</sup>Copper due to any coating on the electrode plus the copper content of the filler metal itself, shall not exceed the stated 0.50% max. <sup>(11)</sup>CTWD (Contact Tip to Work Distance). Subtract 1/4 in (6.4 mm) to calculate Electrical Stickout. <sup>(12)</sup>Procedures in these areas are procedures for short circuiting mode using 100% CO<sub>2</sub>. When using 75% Argon, 25% CO<sub>2</sub> for short circuit transfer, reduce voltage by 1 to 2 volts.

*Safety Data Sheets (SDS) and Certificates of Conformance are available on our website at [www.lincolnelectric.com](http://www.lincolnelectric.com)*

FUMES AND GASES can be hazardous to your health.

- Fumes from the normal use of this product contain significant quantities of potentially hazardous compounds. See consumable product label/insert.
- Keep your head out of the fumes.
- Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area.
- An approved respirator should be used unless exposure assessments are below applicable exposure limits.

**TEST RESULTS**

Test results for mechanical properties, deposit or electrode composition and diffusible hydrogen levels were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual results will vary depending on many factors, including, but not limited to, weld procedure, plate chemistry and temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended application.

**CUSTOMER ASSISTANCE POLICY**

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](http://www.lincolnelectric.com) for any updated information.

