

# METALSHIELD® MC®-706 BUY AMERICA



Mild Steel ■ AWS E70C-6M H4

## KEY FEATURES

- High deposition rates and travel speed
- Enhanced silicon island management
- H4 diffusible hydrogen level
- Tolerates high amounts of surface contaminants
- Superior arc wetting and bead appearance
- Made in the U.S.A. using steel melted and manufactured in the U.S.A.
- Meets the Buy America requirements of the American Recovery and Reinvestment Act (ARRA)

## WELDING POSITIONS

Flat & Horizontal

## DIAMETERS / PACKAGING

Diameter in (mm)	33 lb (15 kg) Steel Spool	500 lb (227 kg) Accu-Trak® Drum
0.045 (1.1)	ED036357	ED036582
0.052 (1.3)	ED036358	ED036583
1/16 (1.6)	ED036359	ED036584

## CONFORMANCES

**AWS A5.18, ASME SFA-5.18:** E70C-6M-H4  
**AWS A5.36, ASME SFA-5.36:** E70T15-M20A4-CS1-H4,  
 E70T15-M21A4-CS1-H4

## TYPICAL APPLICATIONS

- Robotics/Hard automation
- Structural fabrication
- Process piping and pressure vessels
- Shipbuilding
- Heavy fabrication

## SHIELDING GAS

75-95% Argon / Balance CO<sub>2</sub>  
 Flow Rate: 40-60 CFH

## MECHANICAL PROPERTIES<sup>(1)</sup> – As Required per AWS A5.18/A5.36

	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft-lbf)	
				@ -29 °C (-20 °F)	@ -40 °C (-40 °F)
<b>Requirements</b> – AWS A5.28: E120C-K4-H4 AWS A5.36: E120T15-M20A6-K4-H4	750 (108) min 740 (108) min	480 (70) min 490-660 (70-95)	22 min	27 (20) min Not Specified	Not Specified 27 (20) min
<b>Typical Results<sup>(3)</sup></b> As-Welded with 75% Argon / 25% CO <sub>2</sub> <sup>(4)</sup> As-Welded with 90% Argon / 10% CO <sub>2</sub>	450-510 (65-75) 480-550 (70-80)	510-590 (75-85) 550-620 (80-90)	24-28 24-28	96-137 (71-101) 57-108 (42-80)	81-111 (60-82) 41-94 (30-69)

## DEPOSIT COMPOSITION<sup>(1)</sup> – As Required per AWS A5.18/A5.36

	%C	%Mn	%Si	%S	%P	%Cu	%Ni
<b>Requirements</b> – AWS A5.18: E70C-6M-H4 AWS A5.36: E70T15-M20A4-CS1-H4	0.12 max	1.75 max	0.90 max	0.03 max 0.030 max	0.03 max 0.030 max	0.50 max 0.035 max	0.50 max
<b>Typical Results<sup>(3)</sup></b> As-Welded with 75% Argon / 25% CO <sub>2</sub> <sup>(4)</sup> As-Welded with 90% Argon / 10% CO <sub>2</sub>	0.03-0.05 0.03-0.05	1.25-1.60 1.25-1.70	0.50-0.80 0.60-0.85	0.02-0.03 0.02-0.03	0.01-0.02 0.01-0.02	0.01-0.05 0.01-0.05	0.01-0.03 0.01-0.03
	%Cr	%Mo	%V	%B	%Ni + %Cr + %Mo + %V	Diffusible Hydrogen (mL/100g weld deposit)	
<b>Requirements</b> – AWS A5.18: E70C-6M-H4 AWS A5.36: E70T15-M20A4-CS1-H4	0.20 max	0.30 max	0.08 max	Not Specified	0.50 max	4.0 max 4 max	
<b>Typical Results<sup>(3)</sup></b> As-Welded with 75% Argon / 25% CO <sub>2</sub> <sup>(4)</sup> As-Welded with 90% Argon / 10% CO <sub>2</sub>	0.01-0.04 0.01-0.05	0.01-0.02 0.01-0.02	0.01-0.02 0.01-0.02	0.005-0.006 0.005-0.006	0.05-0.10 0.05-0.10	2-4	

<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>Required gas mixture 75-80% Argon/Balance CO<sub>2</sub> for AWS testing. NOTE: This product contains micro-alloying elements. Additional information available upon request.

**TYPICAL OPERATING PROCEDURES**

Diameter, Polarity Shielding Gas	CTWD <sup>(5)</sup> mm (in)	Wire Feed Speed m/min (in/min)	Voltage <sup>(6)</sup> (volts)	Approx. Current (amps)	Melt-Off Rate kg/hr (lb/hr)	Deposition Rate kg/hr (lb/hr)	Efficiency (%)
0.045 in (1.1 mm), DC+ 90% Argon / 10% CO <sub>2</sub>	19-25 (3/4-1)	5.1 (200)	21-23	155	2.3 (5.0)	2.1 ((4.6)	92
		6.4 (250)	22-24	185	2.8 (6.2)	2.6 (5.8)	94
		7.6 (300)	22-26	220	3.5 (7.7)	3.2 (7.0)	91
		8.9 (350)	22-27	245	4.0 (8.9)	3.7 (8.2)	93
		10.2 (400)	23-27	260	4.6 (10.1)	4.3 (9.4)	93
		11.4 (450)	23-28	280	5.2 (11.4)	4.9 (10.7)	94
		12.7 (500)	23-29	305	5.7 (12.6)	5.5 (12.2)	97
		14.0 (550)	24-29	315	6.3 (13.9)	6.2 (13.6)	98
		15.2 (600)	25-30	325	6.8 (15.1)	6.7 (14.8)	98
		16.5 (650)	26-30	355	7.5 (16.5)	7.4 (16.3)	98
17.8 (700)	26-30	360	8.0 (17.7)	7.9 (17.5)	99		
0.052 in (1.3 mm), DC+ 90% Argon / 10% CO <sub>2</sub>	19-25 (3/4-1)	5.1 (200)	22-24	210	3.0 (6.7)	2.9 (6.3)	94
		6.4 (250)	22-26	260	3.9 (8.5)	3.5 (7.8)	92
		7.6 (300)	22-27	290	4.6 (10.2)	4.3 (9.5)	94
		8.9 (350)	23-27	315	5.4 (11.8)	5.2 (11.4)	97
		10.2 (400)	24-28	350	6.3 (13.8)	6.1 (13.4)	97
		11.4 (450)	25-28	370	6.9 (15.2)	6.8 (15.1)	99
		12.7 (500)	27-29	390	7.7 (16.9)	7.6 (16.8)	99
		14.0 (550)	27-30	420	8.4 (18.5)	8.3 (18.3)	99
1/16 in (1.6 mm), DC+ 90% Argon / 10% CO <sub>2</sub>	25-32 (1-1 1/4)	3.8 (150)	22-24	230	3.2 (7.0)	2.8 (6.2)	89
		5.1 (200)	22-25	280	4.3 (9.4)	3.9 (8.7)	93
		6.4 (250)	23-28	310	5.3 (11.6)	5.0 (11.0)	94
		7.6 (300)	24-29	370	6.3 (13.9)	6.3 (13.8)	99
		8.9 (350)	26-30	400	7.4 (16.3)	7.2 (15.9)	98
		10.2 (400)	26-31	450	8.3 (18.4)	8.3 (18.4)	99
		11.4 (450)	27-31	480	9.5 (21.0)	9.3 (20.6)	98

<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>Required gas mixture 75-80% Argon/Balance CO<sub>2</sub> for AWS testing. <sup>(5)</sup>To estimate ESO, subtract 3/16 in (4.8 mm) from CTWD. <sup>(6)</sup>For greater percentage of CO<sub>2</sub> shielding gas, increase voltage by 1-2 volts. NOTE: This product contains micro-alloying elements. Additional information available upon request.

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

**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**

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