

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

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
EN ISO 17632-B: T49T15-OMA-H5

TYPICAL APPLICATIONS

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

SHIELDING GAS

75-95% Argon / Balance CO₂
 Flow Rate: 40-60 CFH

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

MECHANICAL PROPERTIES⁽¹⁾ – As Required per AWS A5.18/A5.36

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft-lbf)	
				@ -29 °C (-20 °F)	@ -40 °C (-40 °F)
Requirements – AWS A5.18: E70C-6M-H4 AWS A5.36: E70T15-M20A4-CS1-H4	400 (58) min	480 (70) min 490-660 (70-95)	22 min	27 (20) min Not Specified	Not Specified 27 (20) min
Typical Results⁽³⁾ As-Welded with 75% Argon / 25% CO ₂ ⁽⁴⁾ As-Welded with 90% Argon / 10% CO ₂	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)

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer ⁽⁴⁾Required gas mixture 75-80% Argon/Balance CO₂ for AWS testing.

DEPOSIT COMPOSITION⁽¹⁾ – As Required per AWS A5.18/A5.36

	%C	%Mn	%Si	%S	%P	%Cu
Requirements – 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
Typical Results⁽³⁾ As-Welded with 75% Argon / 25% CO ₂ ⁽⁴⁾ As-Welded with 90% Argon / 10% CO ₂	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
	%Ni	%Cr	%Mo	%V	%Ni + %Cr + %Mo + %V	Diffusible Hydrogen (mL/100g weld deposit)
Requirements – AWS A5.18: E70C-6M-H4 AWS A5.36: E70T15-M20A4-CS1-H4	0.50 max	0.20 max	0.30 max	0.08 max	0.50 max	4.0 max 4 max
Typical Results⁽³⁾ As-Welded with 75% Argon / 25% CO ₂ ⁽⁴⁾ As-Welded with 90% Argon / 10% CO ₂	0.01-0.03 0.01-0.03	0.01-0.04 0.01-0.05	0.01-0.02 0.01-0.02	0.01-0.02 0.01-0.02	0.05-0.10 0.05-0.10	2-4

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD ⁽⁵⁾ mm (in)	Wire Feed Speed m/min (in/min)	Voltage ⁽⁶⁾ (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 ₂	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 ₂	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 ₂	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		

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer ⁽⁴⁾Required gas mixture 75-80% Argon/Balance CO₂ for AWS testing. ⁽⁵⁾To estimate ESO, subtract 3/16 in (4.8 mm) from CTWD. ⁽⁶⁾For greater percentage of CO₂ shielding gas, increase voltage by 1-2 volts. NOTE: This product contains micro-alloying elements. Additional information available upon request.

Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our website at 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

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 for any updated information.

