

# METALSHIELD® MC-70 XLS™

Mild Steel ■ AWS E70C-6M-H4, E70T15-M21A4-CS1-H4

## KEY FEATURES

- Minimal silicon islands for an exceptionally clean weld surface
- Minimal post weld clean up
- Best-in-class edge wetting for excellent bead appearance
- Smooth, stable arc characteristics with low spatter levels
- Tolerates welding over mill scale and rust
- Low H4 diffusible hydrogen levels
- High deposition rates and fast travel speeds

## WELDING POSITIONS

Flat & Horizontal (CV processes)  
Out of Position (Pulse waveforms)

## CONFORMANCES

**AWS A5.18, ASME SFA-A5.18:** E70C-6M-H4  
**AWS A5.36, ASME SFA-A5.36:** E70T15-M21A4-CS1-H4,  
 E70T15-M20A4-CS1-H4  
**CWB/CSA W48-06:** E491T15-M20A4-CS1-H4  
 (E491C-6MJ-H4)  
 E491T15-M21A4-CS1-H4  
 (E491C-6MJ-H4)

## TYPICAL APPLICATIONS

- Robotics/Hard Automation
- Structural Fabrication
- Heavy Fabrication
- Pressure Vessels
- Agriculture

## SHIELDING GAS

75-92% Argon / Balance CO<sub>2</sub>  
Flow rate: 40-60 CFH

## DIAMETERS / PACKAGING

Diameter in (mm)	33 lb (15 kg) Steel Spool	50 lb (22.7 kg) Fiber Spool	750 lb (340 kg) Accu-Trak® Drum
0.045 (1.1)	ED037105	ED037416	ED037281
0.052 (1.3)	ED037106	ED037417	ED037282
1/16 (1.6)	ED037107	ED037418	ED037283

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

	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft·lbf) @ -40°C (-40°F)
<b>Requirements</b>				
<b>AWS A5.18:</b> E70C-6M-H4	400 (58) min	480 (70) min	22 min	27 (20) min
<b>AWS A5.36:</b> E70T15-M20A4-CS1-H4, E70T15-M21A4-CS1-H4		490-660 (70-95)		
<b>Typical Results<sup>(3)</sup></b>				
As-Welded with 75% Argon / 25% CO <sub>2</sub>	450-510 (65-75)	510-590 (75-85)	26-30	40-75 (30-55)
As-Welded with 90% Argon / 10% CO <sub>2</sub>	450-550 (65-80)	550-620 (80-90)	26-30	60-105 (45-75)

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>Measured with 0.2% offset. <sup>(3)</sup>See test results disclaimer.

## DEPOSIT COMPOSITION<sup>(1)</sup>

	%C	%Mn	%Si	%S	%P	%Cu
<b>Requirements</b> AWS A5.18: E70C-6M-H4	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.
AWS A5.36: E70T15-M20A4-S1-H4, E70T15-M21A4-CS1-H4				0.030 max.	0.030 max.	
<b>Typical Performance<sup>(3)</sup></b> As-Welded with 75% Ar / 25% CO <sub>2</sub> As-Welded with 90% Ar / 10% CO <sub>2</sub>	0.04-0.07	1.25-1.55 1.25-1.60	0.55-0.80 0.60-0.85	0.010-0.020	0.005-0.010	0.01-0.05
	%Ni	%Cr	%Mo	%V	Diffusible Hydrogen (mL/100g weld deposit)	
<b>Requirements</b> AWS A5.18: E70C-6M-H4	0.50 max.	0.20 max.	0.30 max.	0.08 max.	4.0 max.	
AWS A5.36: E70T15-M20A4-S1-H4, E70T15-M21A4-CS1-H4					4 max.	
<b>Typical Performance<sup>(3)</sup></b> As-Welded with 75% Ar / 25% CO <sub>2</sub> As-Welded with 90% Ar / 10% CO <sub>2</sub>	0.30-0.40	0.01-0.03	0.01-0.02	0.01-0.02	2-4	

## TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD <sup>(4)</sup> mm (in)	Wire Feed Speed m/min (in/min)	Voltage <sup>(5)</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	3.1 (6.8)	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)	23-28	315	5.4 (11.9)	5.2 (11.4)	97
		10.2 (400)	24-28	350	6.2 (13.6)	6.1 (13.4)	97
		11.4 (450)	25-28	370	6.9 (15.3)	6.8 (15.1)	99
		12.7 (500)	27-29	390	7.7 (17.0)	7.6 (16.8)	99
		14.0 (550)	27-30	420	8.4 (18.6)	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)	23-27	310	5.3 (11.6)	5.0 (11.0)	94
		7.6 (300)	24-28	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)	26-30	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>(4)</sup>To estimate ESO, subtract 3/16 in (4.8 mm) from CTWD. <sup>(5)</sup>For greater percentage of CO<sub>2</sub> shielding gas, increase voltage by 1-2 volts.

*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.

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