

# Metalshield® MC-1100

Low Alloy • AWS E110C-G H4

## Key Features

- ▶ Capable of producing 760 MPa (110 ksi) tensile strength
- ▶ Can be used to weld HSLA and quenched and tempered steels
- ▶ Tolerates moderate amounts of surface contaminants
- ▶ High column strength for excellent feedability

## Typical Applications

- ▶ HSLA steels (i.e. HY-100 and ASTM 514)
- ▶ Quenched and tempered steels
- ▶ Cranes
- ▶ Pressure vessels

## Conformances

AWS A5.28/A5.28M: 2005 E110C-G H4  
 ASME SFA-A5.28: E110C-G H4  
 CWB/CSA W48-06: E76C-G-H4 (E110C-G-H4)

## Welding Positions

All

## Shielding Gas

75-90% Argon / Balance CO<sub>2</sub>  
 Flow Rate: 40-60 CFH

## DIAMETERS / PACKAGING

Diameter in (mm)	33 lb (15 kg) Steel Spool
0.045 (1.1)	ED032841

## MECHANICAL PROPERTIES<sup>(1)</sup> – As Required per AWS A5.28/A5.28M: 2005

	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft•lbf)	
				@ -40°C (-40°F)	@ -51°C (-60°F)
<b>Requirements - AWS E110C-G H4</b>	Not Specified	760 (110) min.	Not Specified	Not Specified	Not Specified
<b>Typical Results<sup>(3)</sup></b>					
As-Welded with 75% Argon / 25% CO <sub>2</sub>	720-760 (105-110)	760-790 (110-115)	20-23	47-65 (35-48)	43-57 (32-42)
As-Welded with 90% Argon / 10% CO <sub>2</sub>	720-820 (105-120)	790-860 (115-125)	20-23	43-57 (32-42)	41-54 (30-40)

# Metalshield® MC® -1100

(AWS E110C-G H4)

## DEPOSIT COMPOSITION<sup>(1)</sup> – As Required per AWS A5.28/A5.28M: 2005

	%C	%Mn	%Si	%S	%P	%Cu
<b>Requirements - AWS E110C-G H4</b>	Not Specified <sup>(4)</sup>					
<b>Typical Results<sup>(3)</sup></b>						
As-Welded with 75% Argon / 25% CO <sub>2</sub>	0.04-0.06	1.75-1.85	0.55-0.65	0.01-0.02	0.01-0.02	0.01-0.05
As-Welded with 90% Argon / 10% CO <sub>2</sub>	0.04-0.06	1.85-1.95	0.60-0.68	0.01-0.02	0.01-0.02	0.01-0.05
	%Ni <sup>(4)</sup>	%Cr <sup>(4)</sup>	%Mo <sup>(4)</sup>	%V	Diffusible Hydrogen (mL/100g weld deposit)	
<b>Requirements - AWS E110C-G H4</b>	Not Specified <sup>(4)</sup>				≤ 4	
<b>Typical Results<sup>(3)</sup></b>						
As-Welded with 75% Argon / 25% CO <sub>2</sub>	1.70-1.90	0.01-0.10	0.35-0.40	0.01-0.02		
As-Welded with 90% Argon / 10% CO <sub>2</sub>	1.70-1.90	0.01-0.10	0.35-0.40	0.01-0.02	3-4	

## 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 (%)
<b>0.045 in (1.1 mm), DC+</b> 90% Argon / 10% CO <sub>2</sub>	19-25 (3/4-1)	6.4 (250)	24-26	180	2.9 (6.4)	2.8 (6.1)	95
		8.9 (350)	25-28	225	4.1 (9.0)	3.9 (8.6)	96
		11.4 (450)	26-29	270	5.2 (11.5)	5.1 (11.2)	97
		14.0 (550)	27-30	310	6.4 (14.1)	6.2 (13.7)	97
		16.5 (650)	28-31	345	7.5 (16.6)	7.4 (16.2)	98

## PREHEAT / INTERPASS

	Up to 19 mm (3/4 in)	19 - 38 mm (3/4 in to 1-1/2 in)	38 - 64 mm (1-1/2 to 2-1/2 in)	Over 64 mm (2-2/2 in)
<b>Recommended Minimum Preheat Temperature</b>	66°C (150°F)	66°C (150°F)	79°C (175°F)	107°C (225°F)
<b>Recommended Minimum Interpass Temperature</b>	66°C (150°F)	66°C (150°F)	107°C (225°F)	149°C (300°F)

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>Measured with 0.2% offset. <sup>(3)</sup>See test results disclaimer below. <sup>(4)</sup>Must have a minimum of one or more of the following: 0.50% Nickel, 0.30% Chromium or 0.20% Molybdenum. <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: Consult steel manufacturer's recommendations regarding minimum and maximum pre-heat temperature, interpass temperature, and heat input.

*Material Safety Data Sheets (MSDS) 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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