

METALSHIELD® MC®-120

Low Alloy ▪ AWS E120C-K4-H4, E120T15-M20A6-K4-H4

KEY FEATURES

- H4 diffusible hydrogen levels
- Low spatter and excellent arc stability
- Deoxidizing agents minimize pre- and post-weld clean up
- Enhanced silicon island management
- Low temperature impact properties – Charpy V-Notch test results capable of exceeding 27 J (20 ft•lbf) @ -51°C (-60°F)
- Excellent bead shape and profile

WELDING POSITIONS

All

SHIELDING GAS

75-90% Argon / Balance CO₂
Flow Rate: 40-60 CFH

CONFORMANCES

AWS A5.28:	E120C-K4-H4
ASME SFA-5.28:	E120C-K4-H4
AWS A5.36:	E120T15-M20A6-K4-H4
ASME SFA-5.36:	E120T15-M20A6-K4-H4
CWB/CSA W48-06:	E83C-K4-H4 (E120C-K4-H4)

TYPICAL APPLICATIONS

- Robotics/hard automation
- HSLA and quenched and tempered steels (i.e. HY-100 and ASTM A514)
- Crane fabrication
- Heavy Equipment
- Pressure vessels

Diameter in (mm)	33 lb (15 kg) Plastic Spool
0.052 (1.3)	ED036480

MECHANICAL PROPERTIES⁽¹⁾

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft•lbf)	
				@ -40°C (-40°F)	@ -51°C (-60°F)
Requirements – AWS A5.28: E120C-K4-H4 AWS A5.36: E120T15-M20A6-K4-H4	750 (108) min 740 (108) min	830 (120) min 830-970 (120-140)	15 min 14 min	Not Specified	27 (20) min
Typical Results⁽³⁾ As-Welded with 75% Argon / 25% CO ₂ As-Welded with 90% Argon / 10% CO ₂	790-800 (115-116) 820-860 (119-125)	855-860 (124-125) 880-915 (128-133)	22 21	60-70 (45-52) 50-70 (39-55)	40-45 (31-34) 45-46 (32-34)

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

DEPOSIT COMPOSITION⁽¹⁾

	%C	%Mn	%Si	%S	%P	%Cu
Requirements - AWS A5.28: E120C-K4-H4 AWS A5.36: E120T15-M20A6-K4-H4	0.15 max	0.75-2.25 1.20 - 2.25	0.80 max	0.025 max 0.030 max	0.025 max 0.030 max	0.35 max Not Specified
Typical Results⁽³⁾ As-Welded with 75% Argon / 25% CO ₂ As-Welded with 90% Argon / 10% CO ₂	0.06 - 0.07 0.06 - 0.08	1.70 - 1.80 1.80 - 1.90	0.58 - 0.62 0.60 - 0.66	0.010 0.020	0.010	0.02 0.02 - 0.03
	%Ni	%Cr	%Mo	%V	Diffusible Hydrogen (mL/100g weld deposit)	
Requirements - AWS A5.28: E120C-K4-H4 AWS A5.36: E120T15-M20A6-K4-H4	0.50-2.50 1.75 - 2.60	0.15-0.65 0.20 - 0.60	0.25-0.65 0.20 - 0.65	0.03 max	4.0 max 4 max	
Typical Results⁽³⁾ As-Welded with 75% Argon / 25% CO ₂ As-Welded with 90% Argon / 10% CO ₂	1.90 - 2.10	0.31 - 0.33	0.55 - 0.58 0.56 - 0.63	0.01	1.0 - 3.0	

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas ⁽⁴⁾	CTWD ⁽⁵⁾ mm (in)	Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)	Melt-Off Rate kg/hr (lb/hr)	Deposition Rate kg/hr (lb/hr)	Efficiency (%)
0.052 in (1.3 mm), DC+ 90% Argon / 10% CO ₂	19-25 (3/4-1)	5.1 (200)	23-25	200	3.1 (6.8)	2.9 (6.5)	96
		6.4 (250)	25-27	230	3.9 (8.5)	3.7 (8.1)	95
		8.9 (350)	27-29	320	5.8 (12.7)	5.4 (11.8)	93
		11.4 (450)	29-31	370	7.3 (16.1)	7.2 (15.8)	98
		14.0 (550)	31-33	420	9.0 (19.8)	8.7 (19.2)	97

⁽¹⁾ Typical all weld metal. ⁽²⁾ Measured with 0.2% offset. ⁽³⁾ See test results disclaimer ⁽⁴⁾ For greater percentage of CO₂ shielding gas, increase voltage by 1-2 volts. ⁽⁵⁾ To estimate ESO, subtract 3/16 in. (4.8 mm) from CTWD.

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

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