

ULTRACORE® 712C

Mild Steel, All Position ■ AWS E71T-12C-JH8, E71T1-C1A4-CS2-H8



KEY FEATURES

- Capable of producing weld deposits with impact toughness exceeding 27 J (20 ft•lbf) at -40°C (-40°F)
- Designed for welding with 100% CO₂ shielding gas
- Premium arc performance and bead appearance
- ProTech® foil bag packaging

WELDING POSITIONS

All

SHIELDING GAS

100% CO₂
Flow Rate: 40-50 CFH

CONFORMANCES

AWS A5.20/A5.20M:	E71T-1C-JH8, E71T-9C-JH8, E71T-12C-JH8
AWS A5.36:	E71T1-C1A4-CS2-H8
ASME SFA-A5.20:	E71T-1C-JH8, E71T-9C-JH8, E71T-12C-JH8
ABS:	3YSA H10
Lloyd's Register:	3YS H10
DNV Grade:	III YMS H10
CWB/CSA W48-06:	E491T-12J H8, E491T-9J H8
EN ISO 17632-B:	T494T12-1CA-K-H10

TYPICAL APPLICATIONS

- Bridge fabrication
- Pressure vessels
- Shipbuilding
- Offshore
- ASME related applications

DIAMETERS / PACKAGING

Diameter in (mm)	15 lb (6.8 kg) Plastic Spool 60 lb (27.2 kg) Master Carton	33 lb (15 kg) Spool**	50 lb (22.7 kg) Fiber Spool	500 lb (227 kg) Accu-Trak® Drum
0.045 (1.1)	ED031894	ED031672, ED032754*		ED031681
0.052 (1.3)	ED031895	ED031673, ED034418*	ED031839, ED034420*	ED031879
1/16 (1.6)	ED031896	ED031674, ED034419*	ED031840, ED034421*	ED031799

*Buy America Product **Spool may be plastic or fiber.

MECHANICAL PROPERTIES⁽¹⁾

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft•lbf)		
				@ -18°C (0°F)	@ -29°C (-20°F)	@ -40°C (-40°F)
Requirements⁽⁴⁾ AWS E71T-1C-JH8 AWS E71T-9C-JH8 AWS E71T-12C-JH8	400 (58) min	480-655 (70-95) 480-620 (70-90)	22 min	27 (20) min Not Specified Not Specified	Not Specified 27 (20) min 27 (20) min	27 (20) min
Typical Results⁽³⁾ As-Welded with 100% CO ₂	485-535 (70-77)	540-585 (78-84)	25-28	135-193 (100-143)	91-164 (67-121)	57-133 (42-98)

DEPOSIT COMPOSITION⁽¹⁾

	%C	%Mn	%Si	%S	%P	%Ni	Diffusible Hydrogen (mL/100g weld deposit)
Requirements⁽⁴⁾ AWS E71T-1C-JH8, E71T-9C-JH8 AWS E71T-12C-JH8	0.12 max	1.75 max 1.60 max	0.90 max	0.03 max	0.03 max	0.50 max	8.0 max
Typical Results⁽³⁾ As-Welded with 100% CO ₂	0.03	1.34-1.49	0.26-0.32	0.01	0.01-0.02	0.33-0.41	3-8

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer ⁽⁴⁾As-Welded with 100% CO₂
NOTE: This product contains micro-alloying elements. Additional information available upon request.

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD ⁽¹⁾ 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 (%)
0.045 in (1.1 mm), DC+ As-Welded with 100% CO ₂	25 (1)	4.4 (175)	24-29	115	1.8 (3.9)	1.5 (3.4)	85-88
		6.4 (250)	25-30	140	2.5 (5.6)	2.2 (4.8)	
		7.6 (300)	26-31	155	3.1 (6.8)	2.6 (5.8)	
		8.9 (350)	26-31	170	3.6 (7.9)	3.1 (6.8)	
		10.2 (400)	26-31	185	4.1 (9.0)	3.5 (7.8)	
		11.4 (450)	27-32	200	4.6 (10.1)	4.0 (8.8)	
		12.7 (500)	27-32	215	5.1 (11.3)	4.4 (9.8)	
		14.0 (550)	28-33	230	5.6 (12.4)	4.9 (10.8)	
		15.2 (600)	28-33	245	6.1 (13.5)	5.3 (11.7)	
0.052 in (1.3 mm), DC+ As-Welded with 100% CO ₂	25 (1)	3.8 (150)	24-29	140	2.1 (4.7)	1.7 (3.8)	85-88
		5.1 (200)	25-30	160	2.9 (6.3)	2.4 (5.2)	
		6.4 (250)	26-31	180	3.5 (7.8)	3.0 (6.5)	
		7.6 (300)	26-31	205	4.3 (9.4)	3.6 (7.9)	
		8.9 (350)	27-32	225	5.0 (11.0)	4.2 (9.2)	
		9.5 (375)	27-32	235	5.3 (11.7)	4.5 (9.9)	
		10.8 (425)	27-32	255	6.0 (13.3)	5.1 (11.2)	
		12.1 (475)	28-33	275	6.8 (14.9)	5.7 (12.6)	
		12.7 (500)	28-33	290	7.1 (15.6)	6.0 (13.3)	
1/16 in (1.6 mm), DC+ As-Welded with 100% CO ₂	25 (1)	3.8 (150)	23-28	200	2.9 (6.4)	2.4 (5.3)	85-88
		4.4 (175)	24-29	215	3.4 (7.5)	2.9 (6.3)	
		5.1 (200)	24-29	230	3.9 (8.5)	3.3 (7.2)	
		5.7 (225)	24-29	245	4.4 (9.6)	3.7 (8.1)	
		6.4 (250)	25-30	255	4.8 (10.6)	4.1 (9.1)	
		7.6 (300)	25-30	285	5.8 (12.7)	4.9 (10.9)	
		8.3 (325)	26-31	300	6.3 (13.8)	5.4 (11.9)	
		8.9 (350)	26-31	310	6.7 (14.8)	5.8 (12.8)	
		10.2 (400)	27-32	340	7.7 (16.9)	6.7 (14.7)	

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer ⁽⁴⁾As-Welded with 100% CO₂ ⁽⁵⁾To estimate ESO, subtract 1/4 in (6.0 mm) from CTWD.
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.

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