

ULTRACORE® 712A80

Mild Steel, All Position ■ AWS E71T-1M-JH8, E71T-9M-JH8, E71T-12M-JH8



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 75-80% Argon/balance CO₂ shielding gas
- Premium arc performance and bead appearance
- ProTech® foil bag packaging

WELDING POSITIONS

All

SHIELDING GAS

75% - 80% Argon / Balance CO₂
Flow Rate: 40 - 50 CFH

CONFORMANCES

AWS A5.20/A5.20M:	E71T-1M-JH8, E71T-9M-JH8, E71T-12M-JH8
ASME SFA-A5.20:	E71T-1M-JH8, E71T-9M-JH8, E71T-12M-JH8
ABS:	4YSA H10
Lloyd's Register:	4YS H10
DNV Grade:	IV YMS H10
CWB/CSA W48-06:	E491T-12MJ-H8, E491T-9MJ-H8
EN ISO 17632-B:	T494T12-1MA-K-H10

TYPICAL APPLICATIONS

- Offshore
- Pressure vessels
- Shipbuilding
- Heavy equipment
- 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)		ED031675	ED031850	ED032050
0.052 (1.3)	ED035405	ED031676	ED031851	ED032051
1/16 (1.6)	ED031890	ED031677, ED036415*	ED031852	ED032052

*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-1M-JH8 AWS E71T-9M-JH8 AWS E71T-12M-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 75%-80% Ar/balance CO ₂	505-555 (73-80)	565-610 (82-88)	25-27	166-186 (123-137)	100-160 (74-118)	72-142 (53-105)

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer ⁽⁴⁾As-Welded 75%-80% Argon/Balance CO₂

DEPOSIT COMPOSITION⁽¹⁾

	%C	%Mn	%Si	%S	%P	%Ni	Diffusible Hydrogen (mL/100g weld deposit)
Requirements⁽⁴⁾ AWS E71T-1M-JH8, E71T-9M-JH8 AWS E71T-12M-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 75%-80% Ar/balance CO ₂	0.03-0.04	1.40-1.53	0.31-0.36	0.01	0.01	0.32-0.38	4 - 8

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	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 (%)
0.045 in (1.1 mm), DC+ 75%-80% Ar/ balance CO ₂	25 (1)	4.4 (175)	20-25	140	1.8 (4.0)	1.6 (3.5)	86-88
		5.7 (225)	21-26	150	2.3 (5.1)	2.0 (4.5)	
		7.0 (275)	22-27	165	2.8 (6.3)	2.5 (5.5)	
		8.3 (325)	22-27	190	3.4 (7.4)	2.9 (6.5)	
		8.9 (350)	23-28	205	3.6 (8.0)	3.2 (7.0)	
		10.2 (400)	24-29	230	4.1 (9.1)	3.6 (8.0)	
		11.4 (450)	25-31	245	4.7 (10.3)	4.1 (9.0)	
		12.1 (475)	26-32	265	4.9 (10.8)	4.3 (9.5)	
0.052 in (1.3 mm), DC+ 75%-80% Ar/ balance CO ₂	25 (1)	3.8 (150)	20-25	150	2.0 (4.5)	1.8 (3.9)	86-88
		4.4 (175)	21-26	165	2.4 (5.2)	2.1 (4.6)	
		5.1 (200)	22-27	190	2.7 (6.0)	2.4 (5.2)	
		5.7 (225)	23-28	215	3.1 (6.7)	2.7 (5.9)	
		6.4 (250)	24-29	235	3.4 (7.5)	2.9 (6.5)	
		7.6 (300)	25-30	255	4.1 (9.0)	3.5 (7.8)	
		8.3 (325)	27-31	275	4.4 (9.7)	3.8 (8.5)	
		8.9 (350)	28-32	295	4.7 (10.5)	4.1 (9.1)	
1/16 in (1.6 mm), DC+ 75%-80% Ar/ balance CO ₂	25 (1)	3.8 (150)	21-26	200	2.9 (6.3)	2.5 (5.5)	86-88
		4.4 (175)	22-27	215	3.3 (7.4)	2.9 (6.4)	
		5.1 (200)	22-28	235	3.8 (8.4)	3.3 (7.3)	
		5.7 (225)	24-29	265	4.3 (9.5)	3.7 (8.2)	
		6.4 (250)	25-30	285	4.8 (10.5)	4.2 (9.2)	
		7.6 (300)	26-31	315	5.7 (12.6)	5.0 (11.0)	
		8.3 (325)	27-32	335	6.2 (13.7)	5.4 (11.9)	
		8.9 (350)	28-33	365	6.7 (14.7)	5.8 (12.8)	
10.2 (400)	29-34	415	7.6 (16.8)	6.6 (14.6)			

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer ⁽⁴⁾As-Welded 75%-80% Argon/Balance CO₂ ⁽⁵⁾To estimate ESO, subtract 1/4 in (6.0 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.

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