

# UltraCore® 712A80-H

Mild Steel, All Position • AWS E71T-1M-JH4, E71T-9M-JH4, E71T-12M-JH4

## Key Features

- ▶ Capable of producing low hydrogen weld deposits with impact toughness exceeding 27 J (20 ft•lbf) at -40°C (-40°F)
- ▶ Designed for welding with 75-80% Argon/balance CO<sub>2</sub> gas
- ▶ Premium arc performance and bead appearance
- ▶ ProTech® foil bag packaging

## Typical Applications

- ▶ Offshore
- ▶ Heavy equipment
- ▶ Shipbuilding
- ▶ Pressure vessels

## Conformances

AWS A5.20/A5.20M: 2005	E71T-1M-JH4, E71T-9M-JH4, E71T-12M-JH4
ASME SFA-A5.20:	E71T-1M-JH4, E71T-9M-JH4, E71T-12M-JH4
ABS:	4YSA H5
Lloyd's Register:	4YS H5
DNV Grade:	IV YMS H5
CWB/CSA W48-06:	E491T-12MJ H4, E491T-9MJ H4
EN ISO 17632-B:	T494T12-1MA-K-H5

## Welding Positions

All

## Shielding Gas

75% - 80% Argon / Balance CO<sub>2</sub>  
Flow Rate: 40 - 50 CFH

## DIAMETERS / PACKAGING

Diameter in (mm)	15 lb (6.8 kg) Plastic Spool 60 lb (27.2 kg) Master Carton	33 lb (15 kg) Spool*
0.045 (1.1)	ED031891	ED031678
0.052 (1.3)		ED031679
1/16 (1.6)	ED031893	ED031680

\*Spool may be plastic or fiber.

## MECHANICAL PROPERTIES<sup>(1)</sup> – As Required per AWS A5.20/A5.20M: 2005

	Yield Strength <sup>(2)</sup> 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)
<b>Requirements<sup>(4)</sup></b>						
AWS E71T-1M-JH4	400 (58) min.	480-655 (70-95)	22 min.	27 (20) min.	Not Specified	
AWS E71T-9M-JH4				Not Specified	27 (20) min.	27 (20) min.
AWS E71T-12M-JH4				Not Specified	27 (20) min.	
<b>Typical Results<sup>(3)</sup></b>						
As-Welded with 75%-80% Ar/balance CO <sub>2</sub>	490-570 (71-83)	550-615 (80-89)	27-28	149-180 (111-133)	56-164 (41-121)	27-98 (20-72)

# UltraCore® 712A80-H

(AWS E71T-1M-JH4, E71T-9M-JH4, E71T-12M-JH4)

## DEPOSIT COMPOSITION<sup>(1)</sup> – As Required per AWS A5.20/A5.20M: 2005

	%C	%Mn	%Si	%S	%P	%Ni	Diffusible Hydrogen (mL/100g weld deposit)
<b>Requirements<sup>(4)</sup></b>							
AWS E71T-1M-JH4, E71T-9M-JH4	0.12	1.75 max.	0.90	0.03	0.03	0.50	4.0
AWS E71T-12M-JH4	max.	1.60 max.	max.	max.	max.	max.	max.
<b>Typical Results<sup>(3)</sup></b>							
As-Welded with 75%-80% Ar/balance CO <sub>2</sub>	0.03-0.04	1.25-1.37	0.28-0.33	0.01	0.01	0.35-0.41	2-4

## TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD <sup>(5)</sup> 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 (%)	
<b>0.045 in (1.1 mm), DC+</b> 75%-80% Ar/ balance CO <sub>2</sub>	25 (1)	<b>All Position</b>						86-88
		4.4 (175)	21-25	140	1.8 (4.0)	1.6 (3.5)		
		5.1 (200)	22-26	150	2.1 (4.6)	1.8 (4.0)		
		6.4 (250)	23-27	165	2.6 (5.7)	2.3 (5.0)		
		7.6 (300)	23-28	190	3.1 (6.8)	2.7 (6.0)		
		8.9 (350)	24-29	205	3.6 (8.0)	3.2 (7.0)		
		9.5 (375)	25-30	230	3.9 (8.6)	3.4 (7.5)		
		<b>Flat &amp; Horizontal</b>						
		10.8 (425)	26-31	245	4.4 (9.7)	3.8 (8.5)		
		12.1 (475)	27-32	265	4.9 (10.8)	4.3 (9.5)		
12.7 (500)	28-33	275	5.2 (11.4)	4.5 (10.0)				
<b>0.052 in (1.3 mm), DC+</b> 75%-80% Ar/ balance CO <sub>2</sub>	25 (1)	<b>All Position</b>						86-88
		3.8 (150)	21-25	150	2.0 (4.5)	1.8 (3.9)		
		4.7 (185)	22-26	165	2.5 (5.5)	2.2 (4.8)		
		5.7 (225)	23-27	190	3.1 (6.7)	2.7 (5.9)		
		6.4 (250)	24-28	215	3.4 (7.5)	2.9 (6.5)		
		6.9 (275)	24-29	235	3.7 (8.2)	3.2 (7.2)		
		7.6 (300)	24-30	255	4.1 (9.0)	3.5 (7.8)		
		<b>Flat &amp; Horizontal</b>						
		8.5 (335)	25-31	275	4.5 (10.0)	4.0 (8.7)		
		9.5 (375)	26-32	295	5.1 (11.2)	4.4 (9.8)		
10.2 (400)	26-33	310	5.4 (12.0)	4.7 (10.4)				
<b>1/16 in (1.6 mm), DC+</b> 75%-80% Ar/ balance CO <sub>2</sub>	25 (1)	<b>All Position</b>						86-88
		3.8 (150)	22-26	200	2.9 (6.3)	2.5 (5.5)		
		4.4 (175)	23-27	210	3.3 (7.4)	2.9 (6.4)		
		5.1 (200)	24-29	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)	24-30	285	4.8 (10.5)	4.2 (9.2)		
		6.9 (275)	26-31	315	5.3 (11.6)	4.6 (10.1)		
		<b>Flat &amp; Horizontal</b>						
		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)		

<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>As-Welded 75%-80% Argon/Balance CO<sub>2</sub>. <sup>(5)</sup>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](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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