



UltraCore® 71C

Mild Steel, All Position • AWS E71T-1C-H8, E71T-9C-H8

Key Features

- ▶ Fast freezing slag for out-of-position welding
- ▶ Designed for welding with 100% CO₂ shielding gas
- ▶ Premium arc performance and bead appearance
- ▶ Meets AWS D1.8 seismic lot waiver requirements

Conformances

AWS A5.20/A5.20M: 2005 E71T-1C-H8, E71T-9C-H8
 ASME SFA-A5.20: E71T-1C-H8, E71T-9C-H8
 ABS: E71T-1C-H8, E71T-9C-H8
 Lloyd's Register: 3YS H10
 DNV Grade: III YMS H10
 CWB/CSA W48-06: E491T-9 H8
 EN ISO 17632-B: T493T1-1CA- H10
 FEMA 353
 AWS D1.8

Typical Applications

- ▶ Shipbuilding
- ▶ General fabrication
- ▶ Seismic structural fabrication
- ▶ Barge and railcar fabrication

Welding Positions

All

Shielding Gas

100% CO₂
 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*	50 lb (22.7 kg) Fiber Spool	500 lb (227 kg) Accu-Trak® Drum
0.045 (1.1)	ED031818	ED031666	ED031822	ED031876
0.052 (1.3)	ED031819	ED031667	ED031823	ED031877
1/16 (1.6)	ED031820	ED031668	ED031824	ED031878

*Spool may be plastic or fiber.

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

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft•lbf)	
				@ -18°C (0°F)	@ -29°C (-20°F)
Requirements⁽⁴⁾					
AWS E71T-1C-H8	400 (58)	480-655	22	27 (20) min.	Not Specified
AWS E71T-9C-H8	min.	(70-95)	min.	Not Specified	27 (20) min.
Typical Results⁽³⁾					
As-Welded with 100% CO ₂	515-560 (74-81)	570-605 (82-87)	25-27	56-115 (41-85)	34-72 (25-53)

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

	%C	%Mn	%Si	%S	%P	Diffusible Hydrogen (mL/100g weld deposit)
Requirements⁽⁴⁾						
AWS E71T-1C-H8	0.12	1.75	0.90	0.03	0.03	8.0
AWS E71T-9C-H8	max.	max.	max.	max.	max.	max.
Typical Results⁽³⁾						
As-Welded with 100% CO ₂	0.03-0.04	1.31-1.41	0.43-0.49	0.01	0.01	4-7

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+ 100% CO₂	25 (1)	All Position						86-88
		4.4 (175)	21-26	125	1.8 (4.0)	1.6 (3.5)		
		6.4 (250)	22-27	155	2.6 (5.7)	2.3 (5.0)		
		7.6 (300)	23-28	165	3.1 (6.8)	2.7 (6.0)		
		8.9 (350)	24-29	190	3.6 (8.0)	3.2 (7.0)		
		10.2 (400)	25-30	205	4.1 (9.1)	3.6 (8.0)		
		Flat & Horizontal						
		11.4 (450)	26-31	230	4.7 (10.3)	4.1 (9.0)		
		12.7 (500)	27-32	245	5.2 (11.4)	4.5 (10.0)		
		14.0 (550)	28-33	265	5.7 (12.5)	5.0 (10.9)		
15.2 (600)	29-34	275	6.2 (13.7)	5.4 (11.9)				
0.052 in (1.3 mm), DC+ 100% CO₂	25 (1)	All Position						86-88
		3.8 (150)	21-26	150	2.0 (4.5)	1.8 (3.9)		
		5.1 (200)	22-27	165	2.7 (6.0)	2.4 (5.2)		
		6.4 (250)	23-28	190	3.4 (7.5)	2.9 (6.5)		
		7.6 (300)	24-29	215	4.1 (9.0)	3.5 (7.8)		
		8.9 (350)	25-30	235	4.7 (10.5)	4.1 (9.1)		
		Flat & Horizontal						
		9.5 (375)	26-31	255	5.1 (11.2)	4.4 (9.8)		
		10.8 (425)	28-33	275	5.8 (12.7)	5.0 (11.1)		
		12.1 (475)	29-34	295	6.4 (14.2)	5.6 (12.4)		
12.7 (500)	30-36	315	6.8 (15.0)	5.9 (13.0)				
1/16 in (1.6 mm), DC+ 100% CO₂	25 (1)	All Position						86-88
		3.2 (125)	21-26	185	2.4 (5.3)	2.1 (4.6)		
		4.4 (175)	22-27	215	3.3 (7.4)	2.9 (6.4)		
		5.1 (200)	23-28	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)		
		Flat & Horizontal						
		7.6 (300)	27-31	315	5.7 (12.6)	5.0 (11.0)		
		8.3 (325)	26-33	335	6.2 (13.7)	5.4 (11.9)		
		8.9 (350)	29-34	365	6.7 (14.7)	5.8 (12.8)		
10.2 (400)	30-36	395	7.6 (16.8)	6.6 (14.6)				

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer below. ⁽⁴⁾As-Welded with 100% CO₂. ⁽⁵⁾To estimate ESO, subtract 1/4 in (6.0 mm) from CTWD.
NOTE: FEMA and AWS D1.8 structural steel seismic supplement test data can be found on this product at www.lincolnelectric.com.

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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