

OUTERSHIELD® 71 ELITE

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

KEY FEATURES

- Smooth arc transfer and low spatter
- Designed for welding with either 100% CO₂ or 75-82% Argon/balance CO₂ shielding gases
- Good bead appearance
- Fast freezing slag for out-of-position welding
- Meets AWS D1.8 seismic lot waiver requirements

WELDING POSITIONS

All

SHIELDING GAS

100% CO₂
75 - 82% Argon / Balance CO₂
Flow Rate: 40 - 50 CFH

CONFORMANCES

AWS A5.20/A5.20M:	E71T-1C-H8, E71T-9C-H8, E71T-1M-H8, E71T-9M-H8
ASME SFA-A5.20:	E71T-1C-H8, E71T-9C-H8, E71T-1M-H8, E71T-9M-H8
ABS:	3SA, 3YSA H10
DNV Grade:	III YMS H10
GL:	3YH10S
LR:	3YS H10
CWB/CSA W48-06:	E491T-9-H8, E491T-9M-H8

TYPICAL APPLICATIONS

- Shipbuilding, barges and offshore platforms
- Heavy equipment
- Structural fabrication
- General fabrication

DIAMETERS / PACKAGING

Diameter in (mm)	15 lb (6.8 kg) Plastic Spool 60 lb (27.2 kg) Master Carton	33 lb (15 kg) Steel Spool	60 lb (27.2 kg) Coil	600 lb (272 kg) Accu-Trak® Drum
0.045 (1.1)	ED029418	ED029201	ED029202	
0.052 (1.3)	ED029419	ED029204	ED029205	
1/16 (1.6)		ED029206	ED029207	ED029387

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

	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 AWS E71T-1C-H8, E71T-9C-H8 AWS E71T-1M-H8, E71T-9M-H8	400 (58) min.	485-655 (70-95)	22 min.	27 (20) min.	–
				–	27 (20) min.
Typical Results⁽³⁾ As-Welded with 100% CO ₂	545-565 (79-82)	585-615 (85-90)	28	74-83 (55-61)	58-64 (43-47)
As-Welded with 75% Ar/25% CO ₂	585-595 (85-87)	625-630 (91-92)	25-28	92-99 (68-73)	70-83 (52-61)

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

	%C	%Mn	%Si	%S	%P
Requirements AWS E71T-1C-H8, E71T-9C-H8 AWS E71T-1M-H8, E71T-9M-H8	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Typical Results⁽³⁾ As-Welded with 100% CO ₂	0.01-0.04	1.41-1.50	0.44-0.60	≤0.01	≤0.01
As-Welded with 75% Ar/25% CO ₂	0.02-0.04	1.55-1.65	0.56-0.75	≤0.01	≤0.01

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 (%)
0.045 in (1.1 mm), DC+ 75% Ar / 25% CO ₂	19 (3/4)	4.5 (175)	21-24	130	1.7 (3.8)	1.5 (3.3)	87
		6.4 (250)	23-26	155	2.4 (5.4)	2.1 (4.7)	87
		7.6 (300)	24-27	180	2.9 (6.4)	2.5 (5.6)	87
		8.9 (350)	25-28	205	3.4 (7.6)	3.0 (6.6)	87
		10.2 (400)	26-29	230	4.0 (8.7)	3.5 (7.6)	87
		12.8 (500)	27-30	260	5.0 (10.9)	4.3 (9.5)	87
		15.3 (600)	28-31	290	6.0 (13.1)	5.2 (11.4)	87
0.052 in (1.3 mm), DC+ 75% Ar / 25% CO ₂	19 (3/4)	3.8 (150)	21-24	150	2.1 (4.6)	1.8 (3.9)	86
		5.1 (200)	22-25	180	2.8 (6.1)	2.4 (5.2)	86
		6.4 (250)	23-26	210	3.4 (7.6)	3.0 (6.5)	86
		7.6 (300)	24-27	240	4.8 (10.6)	4.1 (9.1)	86
		10.2 (400)	26-28	315	6.2 (13.7)	5.4 (11.8)	86
		12.8 (500)	28-31	335	6.9 (15.2)	6.0 (13.1)	86
1/16 (1.6 mm), DC+ 75% Ar / 25% CO ₂	19 (3/4)	3.2 (125)	21-24	190	2.4 (5.2)	2.0 (4.4)	85
		3.8 (150)	22-25	205	2.8 (6.2)	2.4 (5.3)	85
		5.1 (200)	22-26	240	3.8 (8.3)	3.2 (7.0)	85
		6.4 (250)	23-27	290	4.7 (10.3)	4.0 (8.8)	85
		7.6 (300)	24-28	325	5.6 (12.4)	4.8 (10.5)	85
		10.2 (400)	27-31	400	7.5 (16.5)	6.4 (14.0)	85

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer on pg. 18. ⁽⁴⁾When welding under CO₂, increase voltage by 1 Volt. ⁽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.

CUSTOMER ASSISTANCE POLICY

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Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.

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