

Outershield® 70

Mild Steel, Flat & Horizontal • AWS E70T-1C-H16, E70T-9C-H16

Key Features

- ▶ High deposition in the flat and horizontal positions
- ▶ Designed for welding with 100% CO₂ shielding gas
- ▶ Excellent bead wetting and low spatter
- ▶ Tolerates mild levels of surface contaminants
- ▶ Stiff wire for easy breaking

Typical Applications

- ▶ Structural fabrication
- ▶ Barge fabrication
- ▶ Heavy fabrication
- ▶ Construction equipment

Conformances

AWS A5.20/A5.20M: 2005	E70T-1C-H16, E70T-9C-H16
ASME SFA-A5.20:	E70T-1C-H16, E70T-9C-H16
ABS:	2YSA
DNV Grade:	II YMS H15
CWB/CSA W48-06:	E492T-9 H16
TUV:	EN 758 T 46 0 R C3 / M3 H10
MIL-E-24403/1:	MIL-70T-1C

Welding Positions

Flat & Horizontal

Shielding Gas

100% CO₂
Flow Rate: 40-50 CFH

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(AWS E70T-1C-H16, E70T-9C-H16)

DIAMETERS / PACKAGING

Diameter in (mm)	50 lb (22.7 kg) Coil	600 lb (272 kg) Speed-Feed® Reel	600 lb (272 kg) Speed-Feed® Drum
1/16 (1.6)	ED012782	ED014588	
5/64 (2.0)	ED012785		
3/32 (2.4)	ED012784	ED014120	ED030262

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					
AWS E70T-1C-H16	400 (58)	485-655	22	27 (20) min.	–
AWS E70T-9C-H16	min.	(70-95)	min.	–	27 (20) min.
Typical Results⁽³⁾					
As-Welded with 100% CO ₂	525-575 (76-83)	620-635 (90-92)	27-28	39-42 (29-31)	31-34 (21-25)
Stress Relieved with 100% CO ₂ for 1 hr @ 621°C (1150°F)	525 (76)	555 (80)	27-28	27 (20)	24 (18)

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

	%C	%Mn	%Si	%S	%P
Requirements - AWS E70T-1C, E70T-9C	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Typical Results⁽³⁾					
As-Welded with 100% CO ₂	0.08	1.41-1.43	0.64-0.73	0.01	0.01

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 (%)
1/16 in (1.6 mm), DC+ 100% CO₂	25 (1)	3.2 (125)	23-25	170	2.4 (5.3)	2.1 (4.6)	87
		5.1 (200)	25-27	235	3.8 (8.5)	3.4 (7.6)	87
		6.4 (250)	25-28	275	4.8 (10.6)	4.2 (9.2)	87
		7.6 (300)	27-29	310	5.8 (2.7)	5.0 (11.1)	87
		9.5 (375)	29-31	365	7.2 (15.9)	6.4 (14.0)	88
5/64 in (2.0 mm), DC+ 100% CO₂	28 (1-1/8)	3.2 (125)	23-26	250	3.8 (8.4)	3.2 (7.0)	83
		4.4 (175)	26-28	350	5.4 (11.8)	4.5 (10.0)	85
		5.7 (225)	27-29	375	6.9 (15.2)	5.9 (13.0)	86
		6.4 (250)	29-31	400	7.7 (16.9)	6.5 (14.4)	86
		7.6 (300)	30-32	450	9.2 (20.2)	7.9 (17.4)	86
		8.3 (325)	31-33	470	9.9 (21.9)	8.5 (18.8)	86
3/32 in (2.4 mm), DC+ 100% CO₂	32 (1-1/4)	3.2 (125)	24-27	335	5.3 (11.7)	4.4 (9.8)	84
		5.1 (200)	28-31	455	8.5 (18.6)	7.3 (16.0)	86
		6.4 (250)	30-32	530	10.6 (23.3)	9.2 (20.2)	87
		7.6 (300)	31-34	590	12.7 (28.0)	11.0 (24.3)	87
		8.3 (325)	33-35	615	13.7 (30.3)	12.0 (26.4)	87

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer below. ⁽⁴⁾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.

CUSTOMER ASSISTANCE POLICY

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