SUPERARC® L-50®

Mild Steel, Copper Coated · AWS ER70S-3

BUY AMERICA

KEY FEATURES

- Moderate levels of manganese and silicon deoxidizers tolerate clean to light mill scale surfaces
- Excellent toe-wetting produces a flatter, smooth weld bead for optimal bead appearance
- Supports short-circuiting, globular, axial spray, and pulsed spray transfer
- MicroGuard® Ultra provides superior feeding and arc stability
- Copper coating provides superior arc-starting characteristics for long contact tip life

CONFORMANCES

AWS A5.18:	ER70S-3
ABS - Part 2:	3YSA H5
CWB/CSA W48:	B-G 49A 3 C1 S3 (B-G 49A 3 C1 G3)
DNV - 2.9:	III YMS H5
Lloyd's Register - Chapter 11:	3YS H5
ISO 14341-B:	G 49A 2 C1 S3

WELDING POSITIONS

All

SHIELDING GAS

100% CO_2
75-95% Argon / Balance CO_2
95-98% Argon / Balance O_2
Flow Rate: 30-50 CFH

TYPICAL APPLICATIONS

- Clean to light mill scale base material
- Heavy Fabrication
- Pipeline and processing pipe
- Pressure vessels
- Structural steel

DIAMETERS / PACKAGING

Diameter in (mm)	33 lb (15 kg) Plastic Spool	33 lb (15 kg) Steel Spool	44 lb (20 kg) Steel Spool	44 lb (20 kg) Fiber Spool	60 lb (27.2 kg) Fiber Spool
0.030 (0.8)	ED032923	ED031407			
0.035 (0.9)	ED032924	ED031408	ED031914	ED021268, ED036624*	ED021269
0.040 (1.0)	ED032925	ED031409, ED036879*	ED031915	ED021270, ED034428*	
0.045 (1.1)			ED031916		ED021271
0.052 (1.3)					ED021273
1/16 (1.6)					ED027274

Diameter in (mm)	500 lb (227 kg) Accu-Trak® Drum	500 lb (227 kg) Accu-Pak® Box	500 lb (227 kg) Infinity-Pak®	600 lb (272 kg) Speed-Feed® Drum	900 lb (408 kg) Accu-Pak® Box
0.030 (0.8)	ED029223				
0.035 (0.9)	ED021052	ED032899			ED032842
0.040 (1.0)					
0.045 (1.1)	ED020526	ED032901	ED034535		
0.052 (1.3)	ED020527	ED032902			
1/16 (1.6)		ED032903		ED011316	

Diameter in (mm)	1000 lb (454 kg) Accu-Trak® Drum	1000 lb (454 kg) Accu-Pak® Box	1000 lb (454 kg) Precise-Trak® Reel
0.030 (0.8)			
0.035 (0.9)	ED028825		ED032379
0.040 (1.0)		ED033292	
0.045 (1.1)	ED028826	ED032844	ED031614
0.052 (1.3)	ED029082	ED032845	ED031615
1/16 (1.6)	ED029083	ED032846	ED033270

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MECHANICAL PROPERTIES[1] – *As Required per AWS A5.18*

	Yield Strength[2] MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch - J (ft·lbf) @ -18°C (0°F)	Charpy V-Notch - J (ft·lbf) @ -29°C (-20°F)
Requirements - AWS ER70S-3 As-Welded with 100% CO_2	400 (58) min	485 (70) min	22 min	27 (20) min	Not Specified
MIL-70S-3 per MIL-E-23765/1 As-Welded with CO_2 and 98% Ar/2% O_2	380-485 (55-70)	485 (70) min	22 min	Not Specified	Not Specified
Typical Results[3] As-Welded with 100% CO_2 Stress Relieved 1 hr. @ 621°C (1150°F)	415 (60) 365 (53)	515 (75) 475 (69)	26 34	95 (70) 118 (87)	88 (65) 100 (74)
As-Welded with 75% Ar/25% CO_2 Stress Relieved 1 hr. @ 621°C (1150°F)	420 (61) 365 (53)	525 (76) 490 (71)	28 33	106 (78) 165 (122)	102 (75) 163 (120)
As-Welded with 90% Ar/10% CO_2 Stress Relieved 1 hr. @ 621°C (1150°F)	450 (65) 365 (53)	545 (79) 485 (70)	30 35	142 (105) – –	122 (90) 214 (158)
As-Welded with 98% Ar/2% O_2 Stress Relieved 1 hr. @ 621°C (1150°F)	425 (62) 350 (51)	540 (78) 475 (69)	27 33	108 (80) – –	95 (70) 339 (250)

WIRE COMPOSITION – *As Required per AWS A5.18*

	%C	%Mn	%Si	%S	%P
Requirements - AWS ER70S-3	0.006-0.15	0.90-1.40	0.45-0.75	0.035 max	0.025 max
Typical Results[3]	0.08-0.11	1.14-1.23	0.53-0.59	0.003-0.009	0.003-0.013
	%Cr	**%Mo**	**%Ni**	**%V**	**%Cu (Total)[4]**
Requirements - AWS ER70S-3	0.15 max	0.15 max	0.15 max	0.03 max	0.50 max
Typical Results[3]	≤ 0.04	≤ 0.02	≤ 0.03	0.00	0.12-0.27

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)
0.030 in (0.8 mm), DC+					
Short Circuit Transfer 100% CO_2	9-12 (3/8-1/2)	1.9 (75) 3.8 (150) 7.6 (300)	17 18 22	35 70 130	0.4 (0.9) 0.8 (1.8) 1.6 (3.6)
0.035 in (0.9 mm), DC+					
Short Circuit Transfer 100% CO_2[6]	9-12 (3/8-1/2)	2.5 (100) 3.8 (150) 6.4 (250)	18 19 22	80 120 175	0.7 (1.6) 1.1 (2.4) 1.8 (4.0)
Spray Transfer 90% Ar/10% CO_2	12-19 (1/2-3/4)	9.5 (375) 12.7 (500) 15.2 (600)	23 29 30	195 230 275	2.7 (6.0) 3.6 (8.0) 4.4 (9.6)
0.045 in (1.1 mm), DC+					
Short Circuit Transfer 100% CO_2[6]	12-19 (1/2-3/4)	3.2 (125) 3.8 (150) 5.1 (200)	19 20 21	145 165 200	1.5 (3.4) 1.8 (4.0) 2.5 (5.4)
Spray Transfer 90% Ar/10% CO_2	12-19 (1/2-3/4)	8.9 (350) 12.1 (475) 12.7 (500)	27 30 30	285 335 340	4.2 (9.2) 5.7 (12.5) 6.0 (13.2)
0.052 in (1.3 mm), DC+					
Spray Transfer 90% Ar/10% CO_2	12-19 (1/2-3/4)	7.6 (300) 8.1 (320) 12.3 (485)	30 30 32	300 320 430	4.8 (10.6) 5.2 (11.5) 7.8 (17.1)
1/16 in (1.6 mm), DC+					
Spray Transfer 90% Ar/10% CO_2	12-25 (1/2-1)	5.3 (210) 6.0 (235) 7.4 (290)	25 27 28	325 350 430	4.8 (10.7) 5.4 (12.0) 6.7 (14.8)

[1]Typical all weld metal. [2]Measured with 0.2% offset. [3]See test results disclaimer [4]Copper due to any coating on the electrode plus the copper content of the filler metal itself, shall not exceed the stated 0.50% max. [5]CTWD (Contact Tip to Work Distance). Subtract 1/4 in (6.4 mm) to calculate Electrical Stickout. [6]Procedures in these areas are procedures for short circuiting mode using 100% CO_2. When using 75% Argon, 25% CO_2 for short circuit transfer, reduce voltage by 1 to 2 volts.

Safety Data Sheets (SDS) and Certificates of Conformance are available on our website at www.lincolnelectric.com

FUMES AND GASES can be hazardous to your health.

- Fumes from the normal use of this product contain significant quantities of potentially hazardous compounds. See consumable product label/insert.
- Keep your head out of the fumes.
- Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area.
- An approved respirator should be used unless exposure assessments are below applicable exposure limits.

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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