SUPERARC® L-56®

Mild Steel, Copper Coated · AWS ER70S-6

BUY AMERICA

KEY FEATURES

- High levels of manganese and silicon deoxidizers tolerate medium to heavy 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

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

CONFORMANCES

AWS A5.18:	ER70S-6
ABS - Part 2:	3YSA H5
CWB/CSA W48:	B-G 49A 3 C1 S6 (B-G 49A 3 C G6)
DNV - 2.9:	III YMS, III YMS H5
Llyod's Register - Chapter 11:	3YSA, 3YSA H5
ISO 14341-A:	G 42 3 C1 3Si1 G 46 4 M21 3Si1 G 42 4 M20 3Si1
ISO 14341-B:	G 49A 3 C1 S6
ASME Section IX:	A-No. 1

TYPICAL APPLICATIONS

- Robotic or hard automation
- Medium to heavy mill scale base material
- Automotive repair
- Structural steel
- Pressure vessels

DIAMETERS / PACKAGING

Diameter in (mm)	2 lb (1 kg) Plastic Spool 10 lb (4.5 kg) Master Carton	12.5 lb (5.7 kg) Plastic Spool	33 lb (15 kg) Plastic Spool	33 lb (15 kg) Steel Spool	44 lb (20 kg) Steel Spool
0.025 (0.6)	ED030583	ED015790			
0.030 (0.8)	ED030631	ED023334	ED032926		
0.035 (0.9)	ED030632	ED028676	ED032927	ED031411	ED025945
0.045 (1.1)		ED029042	ED032928, ED037893*	ED031412	ED025946

Diameter in (mm)	44 lb (20 kg) Fiber Spool	60 lb (27.2 kg) Fiber Spool	250 lb (113.4 kg) Accu-Trak® Drum	500 lb (227 kg) Accu-Trak® Drum
0.030 (0.8)				ED030771
0.035 (0.9)	ED021274, ED033704*	ED021275	ED029914	ED021056
0.040 (1.0)	ED027384			ED031937
0.045 (1.1)	ED021276, ED033703*, ED033328**	ED021277, ED036730*	ED029915	ED020532
0.052 (1.3)	ED021278, ED033705*	ED021279	ED029916	ED020533
1/16 (1.6)		ED037356, ED037357*		ED029225, ED033707*

Diameter in (mm)	500 lb (227 kg) Accu-Pak® Box	500 lb (227 kg) Infinity-Pak	900 lb (408 kg) Accu-Pak® Box	1000 lb (454 kg) Accu-Trak® Drum
0.030 (0.8)			ED034429*	ED028827
0.035 (0.9)	ED032904	ED034394		ED031032
0.040 (1.0)				ED028828
0.045 (1.1)	ED032906			ED029084
0.052 (1.3)	ED032907			ED029085
1/16 (1.6)	ED033707*			

Diameter in (mm)	1000 lb (454 kg) Accu-Pak® Box	1000 lb (454 kg) Precise-Trak® Reel
0.035 (0.9)		ED033271
0.040 (1.0)		
0.045 (1.1)	ED032849, ED033706*	ED031616
0.052 (1.3)	ED032850, ED033702*	ED031617
1/16 (1.6)	ED032851	

**Buy America Product **Tested Material*

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) @ -29°C (-20°F)	Charpy V-Notch J (ft·lbf) @ -40°C (-40°F)
Requirements - AWS ER70S-6 As-Welded with 100% CO_2	400 (58) min	485 (70) min	22 min.	27 (20) min.	Not Specified
MIL-70S-6 per MIL-E-23765/1 As-Welded with CO_2 and 98% Ar/2% O_2	380-550 (55-80)	485 (70) min	22 min	Not Specified	Not Specified
MIL-70S-6 per MIL-E-23765/1 Stress Relieved 1 hr. @ 621°C (1150° F) with CO_2 and 98% Ar/2% O_2	360 (52) min	485 (70) min	26 min	27 (20) min	Not Specified
Typical Results[3]					
As-Welded with 100% CO_2	440 (64)	560 (81)	29	71 (52)	61 (45)
Stress Relieved 1 hr. @ 621°C (1150°F)	395 (57)	510 (74)	29	95 (70)	68 (50)
As-Welded with 75% Ar/25% CO_2	460 (67)	565 (82)	27	82 (60)	72 (53)
Stress Relieved 1 hr. @ 621°C (1150°F)	415 (60)	540 (78)	31	140 (103)	122 (90)
As-Welded with 90% Ar/10% CO_2	470 (68)	580 (84)	28	119 (88)	78 (57)
Stress Relieved 1 hr. @ 621°C (1150°F)	440 (64)	550 (80)	32	183 (135)	156 (115)
As-Welded with 98% Ar/2% O_2	455 (66)	565 (82)	27	122 (90)	108 (80)
Stress Relieved 1 hr. @ 621°C (1150°F)	415 (60)	545 (79)	34	190 (140)	176 (130)

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

	%C	%Mn	%Si	%S	%P
Requirements - AWS ER70S-6	0.06-0.15	1.40-1.85	0.80-1.15	0.035 max	0.025 max
Typical Results[3]	0.08-0.09	1.42-1.60	0.81-0.87	0.006-0.010	0.004-0.010
	%Cr	**%Ni**	**%Mo**	**%V**	**%Cu (Total)[4]**
Requirements - AWS ER70S-6	0.15 max	0.15 max	0.15 max	0.03 max	0.50 max
Typical Results[3]	0.01-0.05	≤ 0.04	≤ 0.01	< 0.01	0.17-0.22

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)
0.025 in (0.6 mm), DC+					
Short Circuit Transfer 100% CO_2[6]	9-12 (3/8-1/2)	2.5 (100)	17	35	0.4 (0.9)
		6.4 (250)	19	80	0.9 (2.0)
0.030 in (0.8 mm), DC+					
Short Circuit Transfer 100% CO_2	9-12 (3/8-1/2)	1.9 (75)	17	35	0.4 (0.9)
		3.8 (150)	18	70	0.8 (1.8)
		7.6 (300)	22	130	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)	18	80	0.7 (1.6)
		3.8 (150)	19	120	1.1 (2.4)
		6.4 (250)	22	175	1.8 (4.0)
Spray Transfer 90% Ar/10% CO_2	12-19 (1/2-3/4)	9.5 (375)	23	195	2.7 (6.0)
		12.7 (500)	29	230	3.6 (8.0)
		15.2 (600)	30	275	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)	19	145	1.5 (3.4)
		3.8 (150)	20	165	1.8 (4.0)
		5.1 (200)	21	200	2.5 (5.4)
Spray Transfer 90% Ar/10% CO_2	12-19 (1/2-3/4)	8.9 (350)	27	285	4.2 (9.2)
		12.1 (475)	30	335	5.7 (12.5)
		12.7 (500)	30	340	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)	30	300	4.8 (10.7)
		8.1 (320)	30	320	5.2 (11.5)
		12.3 (485)	32	430	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)	27	325	4.8 (10.7)
		6.0 (235)	28	350	5.4 (12.0)
		7.4 (290)	29	430	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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