SUPERARC® LA-90™

Low Alloy, Copper Coated · AWS ER80S-D2, ER90S-D2 & EA3K

KEY FEATURES

- Capable of producing weld deposits with 550 - 620 MPa (80 - 90 ksi) tensile strength
- Contains 0.50% molybdenum for strength after stress-relief
- MicroGuard® Ultra provides superior feeding and arc stability
- Supports short-circuiting, globular, axial spray and pulsed spray transfer
- Copper coating provides superior arc-starting characteristics for long contact tip life

WELDING POSITIONS

All

SHIELDING GAS

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

CONFORMANCES

AWS A5.28: ER80S-D2, ER90S-D2

CWB AWS A5.28: ER55S-D2 (ER80S-D2), ER62S-D2 (ER90S-D2)

ISO 16834-B G59A 3 C1 4M31, G62A 3 M13 4M31

TYPICAL APPLICATIONS

- Requirements for strength after stress relieving
- ASTM A182, A217, A234 and A335 high temperature service pipe, fittings, flanges and valves
- ASTM A336 pressure vessel forgings

DIAMETERS / PACKAGING

Diameter in (mm)	33 lb (15 kg) Steel Spool	44 lb (20 kg) Steel Spool	44 lb (20 kg) Fiber Spool	
0.035 (0.9) 0.045 (1.1) 0.052 (1.3) 1/16 (1.6)	ED031413 ED031414	EDS30775 EDS30776 EDS30777	ED029546	
Diameter in (mm)		**60 lb (27.2 kg) Fiber Spool**	**500 lb (227 kg) Accu-Trak® Drum**	
0.035 (0.9) 0.045 (1.1) 0.052 (1.3) 1/16 (1.6)		EDS01380	EDS01372 ED001378 ED026627	
Diameter in (mm)	**500 lb (227 kg) Accu-Pak® Box**	**1000 lb (454 kg) Accu-Trak® Drum**	**1000 lb (454 kg) Accu-Pak® Box**	**1000 lb (454 kg) Infinity-Pak®**
0.035 (0.9) 0.045 (1.1) 0.052 (1.3) 1/16 (1.6)	ED032919 ED032920	EDS29590 ED029591 EDS29592	ED034436	ED034955

MECHANICAL PROPERTIES[1] – *As Required per AWS A5.28*

	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 ER80S-D2 As-Welded with 100% CO_2	470 (68) min	550 (80) min	17 min	27 (20) min	Not Specified
AWS ER90S-D2 As-Welded with 95-99% Ar/Balance O_2	540 (78) min	620 (90) min	17 min	27 (20) min	Not Specified
Typical Results[3] As-Welded with 100% CO_2 As-Welded with 95% Ar/5% O_2 As-Welded with 75% Ar/25% CO_2	 560 (81) 650 (94) 620 (90)	 655 (95) 730 (106) 705 (102)	 23 25 26	 36 (26) 125 (92) 124 (91)	 - - - - 122 (90)

WIRE COMPOSITION – *As Required per AWS A5.28*

	%C	%Mn	%Si	%Ni
Requirements - AWS ER80S-D2, ER90S-D2	0.07-0.12	1.60-2.10	0.50-0.80	0.15 max
Typical Results[3]	0.09-0.11	1.63-1.74	0.56-0.64	≤ 0.04
	%Mo	**%S**	**%P**	**%Cu (Total)[4]**
Requirements - AWS ER80S-D2, ER90S-D2	0.40-0.60	0.025 max	0.025 max	0.50 max
Typical Results[3]	0.43-0.46	≤ 0.010	0.007-0.016	0.16-0.22

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)
0.035 in (0.9 mm), DC+					
Short Circuit Transfer 75% Ar/25% 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 75% Ar/25% 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 75% Argon, 25% CO_2. NOTE: For 100% CO_2 procedures, add 1 to 2 volts for short circuit transfer and 2 to 3 volts for globular transfer.

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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