

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

WELDING POSITIONS

All

SHIELDING GAS

100% CO₂
 75-95% Argon / Balance CO₂
 95-98% Argon / Balance O₂
 Flow Rate: 30 - 50 CFH

CONFORMANCES

AWS A5.28/A5.28M:	ER80S-D2 (100% CO ₂), ER90S-D2 (Mixed)
ASME SFA-A5.28:	ER80S-D2 (100% CO ₂), ER90S-D2 (Mixed)
AWS A5.23/A5.23M:	EA3K
CWB/CSA W48-06:	ER55S-D2 (ER80S-D2), ER62S-D2 (ER90S-D2)
EN ISO 16484-B:	G 59A 3 C 4M31
EN ISO 16834-B:	G 62A 3 A 4M31
MIL-E-23765/2:	MIL-80S-3

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)	ED031413	EDS30775	ED029546	
0.045 (1.1)	ED031414	EDS30776		
0.052 (1.3)		EDS30777		
1/16 (1.6)				
Diameter in (mm)	60 lb (27.2 kg) Coil	60 lb (27.2 kg) Fiber Spool	500 lb (227 kg) Accu-Trak® Drum	
0.035 (0.9)			EDS01372	
0.045 (1.1)		EDS01380	ED001378	
0.052 (1.3)			ED026627	
1/16 (1.6)	ED013999			
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)		EDS29590		
0.045 (1.1)	ED032919	ED029591	ED034436	
0.052 (1.3)	ED032920	EDS29592		ED034955
1/16 (1.6)				

MECHANICAL PROPERTIES⁽¹⁾ – As Required per AWS A5.28/A5.28M

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft·lbf)	
				@ -29° C (-20° F)	@ -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	560 (81)	655 (95)	23	36 (26)	- -
As-Welded with 95% Ar/5% O ₂	650 (94)	730 (106)	25	125 (92)	- -
As-Welded with 75% Ar/25% CO ₂	620 (90)	705 (102)	26	124 (91)	122 (90)

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

WIRE COMPOSITION – As Required per AWS A5.28/A5.28M

	%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)	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 75% Ar/25% 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 (10.6)
		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)	25	325	4.8 (10.7)
		6.0 (235)	27	350	5.4 (12.0)
		7.4 (290)	28	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 75% Argon, 25% CO₂. NOTE: For 100% CO₂, procedures, add 1 to 2 volts for short circuit transfer and 2 to 3 volts for globular transfer.

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.

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