

CERTIFICATE OF CONFORMANCE
(APPLIES ONLY TO U.S. PRODUCTS)



Product: SuperArc® L-56 Electrode
Classification: ER70S-6
Specification: AWS A5.18-2005, ASME SFA-5.18
Test Completed: December 1, 2008

[1 Year]

This is to certify that the product named above and supplied on the referenced order number is of the same classification, manufacturing process, and material requirements as the material which was used for the test that was concluded on the date shown, the results of which are shown below. All tests required by the specifications shown for classification were performed at that time and the material tested met all requirements. It was manufactured and supplied according to the Quality System Program of the Lincoln Electric Company, Cleveland, Ohio, U.S.A., which meets the requirements of ISO9001, NCA3800, ANSI/AWS A5.01, and other specification and Military requirements, as applicable. The Quality System Program has been approved by ASME, ABS, and VdTUV.

Operating Settings	AWS/ASME Requirements	Results
Electrode Size (inches)		0.045
Polarity	DC+	DC+
Shielding Gas (per AWS A5.32)	100% CO ₂ (SG-C)	100% CO ₂ (SG-C)
Voltage (volts)		30
Wire Feed Speed, cm/min (in/min)		1143 (450)
Current (amps)		265
Travel Speed, cm/min (in/min)	(12 - 14)	33.0 (13)
Contact Tip to Work Distance, mm (in.)	(5/8 - 7/8)	19 (3/4)
Passes/Layers		13/5
Preheat Temp, °C (°F)	(60 min.)	20 (70)
Interpass Temp, °C (°F)	(275 - 325)	150 (300)

Mechanical properties of the weld deposits (in the as-welded condition)

Tensile Strength, MPa (ksi)	(70 min.)	560 (81)
Yield Strength 0.2% offset, MPa (ksi)	(58 min.)	440 (64)
Elongation, %	22 min.	28
Average Hardness Rockwell B	Not Required	88
Charpy V-notch Impact Properties Avg.	(20 min.)	45 (33)
Joules @ -29 °C (ft-lbf @ -20 °F)		43,45,46 (32,33,34)

Chemical composition of the weld deposit (weight %)

C		0.09
Mn		1.13
Si		0.60
S	Not Required	0.013
P		0.017
Cr		0.02
Ni		0.01
Mo		0.00
V		0.00
Cu		0.11

Chemical composition of the electrode

(weight %)	Requirements	Results
C	0.06 - 0.15	0.07
Mn	1.40 - 1.85	1.41
Si	0.80 - 1.15	0.82
S	0.035 max.	0.013
P	0.025 max.	0.019
Cr	0.15 max.	0.03
Ni	0.15 max.	0.01
Mo	0.15 max.	0.00
V	0.03 max.	0.00
Cu (Total)	0.50 max.	0.13

The electrode diameter required to be tested for this classification is either 0.045 inch or 1/16 inch. The 0.025, 0.030, 0.035, 0.052, and 1/16 inch sizes will also meet these requirements.


This certificate complies to the requirements of EN 10204, Type 2.2.


Radiographic Test: Met requirements.

Test assembly constructed of ASTM A36.

Results below the detection limits of the instrument or lower than the precision required by specification are reported as zero.

Strength values in SI units are reported to the nearest 10 MPa converted from actual data. Preheat and interpass temperature values in SI units are reported to the nearest 5 degrees.

 Jan 27, 2009
James R. Fogle, Certification Supervisor Date

 28 Jan. 2009
David A. Fink, Manager, Compliance Engineering, Consumable R&D Department Date

Cert. No. 10560