

# ULTRACORE® 309L

Stainless ▪ AWS E309T0-1, E309T0-4, E309LT0-1, E309LT0-4

## KEY FEATURES

- Precision layer wound winding delivers steady spool payoff and more consistent feeding
- Smooth arc action with minimal spatter reduces post-weld cleaning
- Polished weld bead appearance reduces post-weld brushing

## WELDING POSITIONS

Flat & Horizontal

## RECOMMENDED FLUX

N/A

## CONFORMANCES

AWS A5.22/A5.22M:2012

AWS E309T0-1, E309T0-4,  
E309LT0-1, E309LT0-4

## TYPICAL APPLICATIONS

- Buffer layers and clad steels – overlays on CMn, mild steel or low alloy steels
- Dissimilar joints – stainless types 410, 304L, 321, and 316L to mild and low alloy steels

## SHIELDING GAS

FCAW-G: 75% Ar/25% CO<sub>2</sub>  
100% CO<sub>2</sub>

## DIAMETERS / PACKAGING

Diameter in (mm)	10 lb (4.5 kg) Plastic Spool (Vacuum Sealed Foil Bag)	33 lb (15 kg) Plastic Spool (Vacuum Sealed Foil Bag)
0.045 (1.1)	ED037218	ED037120
1/16 (1.6)	—	ED037121

## MECHANICAL PROPERTIES<sup>(1)</sup>

	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Ferrite Number
<b>Requirements</b>				
AWS E309LT0-1, E309LT0-4	Not Specified	520 (75) min	35 min	Not Specified
AWS E309T0-1, E309T0-4	Not Specified	550 (80) min	35 min	Not Specified
<b>Typical Results<sup>(3)</sup></b>				
As-Welded with 100% CO <sub>2</sub>	434 (63)	565 (82)	33	—
As-Welded with 75% Ar/25% CO <sub>2</sub>	450 (65)	593 (86)	33	—

<sup>(1)</sup>Typical all weld metal, DC+ <sup>(2)</sup>Measured with 0.2% offset <sup>(3)</sup>See test results disclaimer

## DEPOSIT COMPOSITION<sup>(1)</sup>

	%C <sup>(4)</sup>	%Mn	%Si	%S	%P
<b>Requirements</b>					
AWS E309LT0-1 & E309LT0-4	0.04 max	0.5-2.5	1.0 max	0.03 max	0.04 max
<b>Typical Results<sup>(3)</sup></b>					
As-Welded with 100% CO <sub>2</sub>	≤0.03	1.0	0.8	≤0.01	≤0.02
As-Welded with 75% Ar/25% CO <sub>2</sub>	≤0.03	1.0	0.9	≤0.01	≤0.02
	%Ni	%Cr	%Mo	%Cu	%Bi
<b>Requirements</b>					
AWS E309LT0-1 & E309LT0-4	12.0-14.0	22.0-25.0	0.75 max	0.75 max	—
<b>Typical Results<sup>(3)</sup></b>					
As-Welded with 100% CO <sub>2</sub>	12.8-13.2	23.6-23.9	≤0.20	≤0.25	0.02
As-Welded with 75% Ar/25% CO <sub>2</sub>	12.9-13.3	23.9-24.1	≤0.20	≤0.25	0.02

<sup>(1)</sup>Typical all weld metal, DC+ <sup>(3)</sup>See test results disclaimer <sup>(4)</sup>Requirement for E316T1-1 and E316T1-4 is 0.08% max. carbon

## TYPICAL OPERATING PROCEDURES

Diameter, Polarity, Shielding Gas in (mm)	CTWD <sup>(5)</sup> mm (in)	Wire Feed Speed/Voltage m/min (in/min)	Voltage (Volts)	Approx. Current (Amps)	Melt-Off Rate kg/hr (lb/hr)	Deposition Rate kg/hr (lb/hr)	Efficiency (%)
0.045 in (1.1 mm), DC+ 75% Ar/25% CO <sub>2</sub>	19 (3/4)	5.3 (210)	22-24	140	2.1 (4.6)	1.9 (4.2)	91.3
	19 (3/4)	8.9 (350)	24-26	185	3.9 (8.7)	3.4 (7.5)	86.2
	19 (3/4)	11.4 (450)	26-28	225	4.7 (10.3)	4.4 (9.6)	93.2
1/16 in (1.6 mm), DC+ 75% Ar/25% CO <sub>2</sub>	25 (1)	3.6 (140)	23-25	165	2.7 (5.9)	2.3 (5.0)	84.7
	25 (1)	6.4 (250)	25-27	235	4.8 (10.6)	4.2 (9.3)	87.7
	25 (1)	8.1 (320)	26-28	290	6.1 (13.5)	5.4 (12)	88.8

<sup>(5)</sup>To estimate ESO, subtract 1/4 in (6.0 mm) from CTWD. NOTE: Increase Voltage by 2V when using 100% CO<sub>2</sub>

*Safety Data Sheets (SDS) and Certificates of Conformance are available on our website at [www.lincolnelectric.com](http://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.

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