



## Unibraze E309L-16

### DESCRIPTION:

The UNIBRAZE E309L-16 is an all-position low carbon content electrode that makes it excellent for applications where reduced susceptibility to sensitization during high temperature service is necessary. Outstanding for dissimilar metal welding wherever maximum ductility is required when joining dissimilar steels to themselves or to stainless steels. It has a smooth running arc that results in a uniform weld bead that is flat to slightly convex. The moisture resistant coating provides sound porosity free deposits and the slag is self removing.

### APPLICATIONS:

UNIBRAZE E309L-16 electrode is highly recommended for joining hard to weld steels and for dissimilar metal welding wherever maximum ductility is required when joining dissimilar steels to themselves or to stainless steels.

### TYPICAL ALL WELD METAL PROPERTIES:

Microstructure: Austenite with a ferrite number of 8

#### Weld Metal Analysis

Carbon (C)	0.04	Manganese (Mn)	1.8
Silicon (Si)	0.6	Chrome (C)	23.3
Nickel (N)	12.5	Iron (Fe)	Balance

### TYPICAL MECHANICAL PROPERTIES:

#### Undiluted Weld Metal

Tensile Strength	Maximum Value Up to: 110,000 PSI (750 MPa)
Yield Strength	76,000 PSI (530 MPa)
Elongation	32%
Impact Energy	50J: 68°F (20°C)
Hardness	Brinell 219, Rockwell C 14

### CONFORMANCES AND APPROVALS:

AWS/ASME II SFA 5.4E 309L – 16  
ISO 3581: E23 12 LR 32

EN: E23 12 LR 32

Notice: The results reported are based upon testing of the product under controlled laboratory conditions in accordance with American Welding Society Standards. Actual use of the product may produce different results due to varying conditions. An example of such conditions would be electrode size, plate chemistry, environment, weldment design, fabrication methods, welding procedure and service requirements. Thus the results are not guarantees for use in the field. The manufacturer disclaims any warranty of merchantability or fitness for any particular purpose with respect to its product.



## WELDING CURRENT & INSTRUCTIONS

**Recommended Current: DC Reverse (+) or AC**

Diameter (mm)	1/16 (1.6)	5/64 (2.0)	3/32 (2.5)	1/8 (3.25)	5/32 (4.0)
Minimum Amperage	25	30	55	75	90
Maximum Amperage	35	50	70	110	140

**Welding Techniques:** Material to be welded should be clean of all contaminants. Maintain a short arc and use stringer beads rather than a weave technique.

**Welding Positions:** Flat, Horizontal, Vertical up, Overhead

**Deposition Rates:**

Diameter (mm)	Length (mm)	Weldmetal/ Electrode	Electrodes per lb (kg) of Weldmetal	Arc Time of Deposition min/lb (kg)	Amperage Settings	Recovery Rate
1/16 (1.6)	10" (250)	.13oz (3.6g)	125 (275)	55 (121)	30	100%
5/64 (2.0)	12" (300)	.14oz (4g)	114 (251)	47 (103)	40	100%
3/32 (2.5)	12" (300)	.3 oz. (9g)	50 (109)	35 (76)	65	100%
1/8 (3.25)	14" (350)	.7oz (20g)	22 (49)	21 (46)	95	100%
5/32 (4.0)	14" (350)	1 oz (29g)	15 (33)	18 (40)	120	100%

**APPROXIMATE ELECTRODE PACKAGING & DIMENSIONS**

Diameter (mm)	1/16 (1.6)	5/64 (2.0)	3/32 (2.5)	1/8 (3.25)	5/32 (4.0)
Length (mm)	10" (250)	12" (300)	12" (300)	14" (350)	14" (350)
Electrodes / lb	67	42	28	13	9
Electrodes / kg	147	92	62	29	20

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