



## Unibraze 309LMo

**CLASSIFICATIONS:** AWS A5.9 (G 23 12 2 L)

**DESCRIPTION:** Unibraze 309LMo is the same as ER309Mo, except for the lower carbon content. Low-carbon contents in stainless steels reduce the possibility of chromium carbide precipitation and thereby increase weld metal resistance to intergranular corrosion. Unibraze 309LMo is used in the same type of applications as 309Mo, but where excessive pickup of carbon from dilution by the base metal, where intergranular corrosion from carbide precipitation, or both are factors to be considered in the selection of the filler metal. In multilayer overlays, lower carbon is needed in the first layer in order to achieve low-carbon content in successive layers with filler metals such as ER316L or ER317L. Refer to AWS A5.9 2017 page 3 (Table 1) and 20 (para. A8.20).

### CHEMICAL COMPOSITION REQUIREMENTS\*

C	Cr	Ni	Mo	Mn	Si	P	S	Cu
.03 max	21.0- 25.0	11.0- 15.5	2.0- 3.5	1.0- 2.5	1.0 Max	.03 Max	.02 Max	.50 Max

\*Composition designation for new classification imported from ISO 14343:2009  
<not found in AWS A 5.9 2012>

### TYPICAL MECHANICAL PROPERTIES:

Tensile Strength	85,000 psi (585MPa)
Yield Strength	45,000 psi (310 MPa)
Elongation	40%
Charpy Impacts@ -40°C	44 ft lbs. (60 J)

### TYPICAL WELDING PARAMETERS:

	Shielding Gas	Gas Flow	Diameter	Voltage	Amperage
GMAW	98/99% Ar +2/1% O 97%Ar + 3% CO <sub>2</sub>	30 - 50 cfh	.035" (.9mm)	26-29	160 /210
			.045" (1.14mm)	28-32	180/2500
			.062" (1.6mm)	29-33	200/280
GTAW	100% Ar		1/16" (1.6mm)	14-18	90/130
			3/32" (2.4mm)	15-20	120/175
			1/8" (3.2mm)	15-20	150/220
SAW	Suitable Flux		3/32" (2.4mm)	28-33	275/350
			1/8" (3.2mm)	29-32	350/450

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 products.