



# Unibraze® 309L-T1

**Classification:** AWS A5.22/ASME SFA 5.22 E309LT1-1, E309LT1-4

UNS W30935

**Description:** Unibraze® 309L-T1 is a gas-shielded, flux cored, stainless steel designed to weld in all positions. It has a nominal chemistry of 24% Cr and 13% Ni. The low carbon minimizes carbide precipitation and makes the weld metal more resistance to intergranular corrosion without the use of stabilizers such as Nb and Ti. However, the lower carbon in this alloy is not as strong at elevated temperatures. Applications includes 309 stainless, first layer cladding of carbon steel if no Nb additions are required, as well as dissimilar welds between carbon and low alloy steels to austenitic stainless steels.

## Chemical Composition: (100% CO<sub>2</sub>)

	C	Cr	Ni	Mo	Mn	Si	P	S	Cu
<b>Requirement</b>	.04 max	22.0 – 25.0	12.0- 14.0	.75 max	.50- 2.5	1.0 max	.04 max	.03 max	.75 max
<b>Typical Results</b>	.02	22.5	12.55	.09	.97	.60	.02	.01	.09

## Mechanical Properties: (100% CO<sub>2</sub>)

	<b>Requirement</b>	<b>Typical Results</b>
<b>Tensile Strength</b>	75,000 psi min. (520 MPa)	81,200 psi (560 MPa)
<b>Elongation</b>	30% min.	37%

**NOTE:** Strength will be slightly higher with Ar + 20~25% CO<sub>2</sub>

## Optimum Welding Parameters: DC+ (100% CO<sub>2</sub>)

Diameter	Amps	Volts	WFS (IPM)	ESO	Deposition Rate (lbs/hr)
.035"	150	26	500	5/8" –3/4"	5.4
.035"	165	27	600	5/8" –3/4"	6.3
.045"	160	26	300	5/8" –3/4"	6.3
.045"	200	28	425	5/8" –3/4"	9.2
1/16"	215	27	195	3/4" – 1"	7.0
1/16"	250	28	240	3/4" – 1"	8.6

**NOTE:** Lower by ~2 volts when using Ar + 20~25% CO<sub>2</sub>

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 purpose with respect to its products.