

Stainless Steel Bare Wire

Alloy: WW308L  
Class: ER308L

Conforms to Certification: AWS A5.9  
ASME SFA A5.9

Alloy ER308L Welding Data

Weld Process: Used for Mig, Tig, & Submerged Arc

AWS Chemical Composition Requirements

C = 0.03 max	P = 0.03 max
Cr = 19.5 – 22.0	S = 0.03 max
Ni = 9.0 – 11.0	Mo = 0.75 max
Mn = 1.0 – 2.5	Cu = 0.75 max
Si = 0.30 – 0.65	

Deposited Chemical Composition % (Typical)

C = 0.02	Si = 0.32	Mn = 1.7
P = 0.011	S = 0.009	Cr = 20.0
Ni = 10.0		

Deposited All Weld Metal Properties

Data is typical for ER308L weld metal deposited by Mig using Argon + 2% oxygen and Tig using 100% Argon as the shielding gas. Data on Sub-arc is not presented, as sub-arc is dependent on the type of flux used.

Mechanical Properties (R.T.)

Yield Strength	57,000psi
Tensile Strength	87,000psi
Elongation	34%
Reduction of Area	56%

Application

ER308L has the same analysis as type 308 except the carbon content has been held to a maximum of .03% to reduce the possibility of inter-granular carbide precipitation. Ideal for welding Types 304L, 321, and 347 stainless steels. This is a suitable wire for applications at cryogenic temperatures.

Recommended Welding Parameters

GMAW “Mig Process”

Reversed Polarity

Wire Diameter	Wire Feed	Amps	Volts	Shielding Gas	Gas CFH
<u>Short Arc Welding</u>					
.030	13-26	40-120	16-20	Argon+2% O <sub>2</sub>	25
.035	13-26	60-140	16-22	Argon+2% O <sub>2</sub>	25

Spray Arc Welding

.035	20-39	140-220	24-29	Argon+2% O <sub>2</sub>	38
.045	16-30	160-260	25-30	Argon+2% O <sub>2</sub>	38
1/16	10-16	230-350	27-31	Argon+2% O <sub>2</sub>	38

GTAW “Tig Process”

Wire Diameter	Amps DCRP	Voltage	Gases
.035	60-90	12-15	Argon 100%
.045	80-110	13-16	Argon 100%
1/16	90-130	14-16	Argon 100%
3/32	120-175	15-20	Argon 100%

Note: Parameters for tig welding are dependent upon plate thickness and welding position.

Other shielding Gases may be used for Mig and Tig welding. Shielding gases are chosen taking Quality, Cost, and Operability into consideration

Submerged Arc Welding

Reverse Polarity is suggested

Wire Diameter	Amps	Volts
3/32	250-450	28-32
1/8	300-500	29-34
5/32	400-600	30-35
3/16	500-700	30-35

Both Agglomerated and fused fluxes can be used for submerged arc welding. Note: The chemical composition of the flux mainly affects the chemistry of the weld metal and consequently its corrosion resistance and Mechanical properties.

