

Stainless Steel Bare Wire

Alloy: WW310H
Class: ER310H

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

Alloy ER310H Welding Data

Weld Process: Used for Mig, Tig welding and Submerged Arc

AWS Chemical Composition Requirements

C = 0.35 – 0.45 P = 0.03 max
Cr = 25.0 – 28.0 S = 0.03 max
Ni = 20.0 – 22.0 Mo = 0.75 max
Mn = 1.0 – 2.5 Cu = 0.75 max
Si = 0.75 max

Deposited Chemical Composition % (Typical)

C = 0.42 Ni = 21.00 P = 0.009
Cr = 24.5 Mn = 1.20 S = 0.010
Si = 0.10

Deposited All Weld Metal Properties

The following data are typical for mig welding with Argon + 2% oxygen and tig welding with Argon as shielding gas. Data on sub-arc is dependent on the type of flux used.

Mechanical Properties R.T.

Yield Strength 65,000psi
Tensile Strength 101,000psi
Elongation 27%
Reduction of Area 39%

Application

This material is used primarily for welding or repairing high alloy heat and corrosion resistant castings of the same general composition.

ER310H is the same as ER310 except that the carbon content is slightly higher.

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 ₂	25
.035	13-26	60-140	16-22	Argon+2% O ₂	25

Spray Arc Welding

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

