Alloy: COREWELD 310 | Class: ER310

Weld Processes: GMAW • GTAW • SAW (Mig, Tig & Submerged Arc)

CERTIFIED TO
AWS A5.9
ASME SFA A5.9

AWS CHEMICAL COMPOSITION REQUIREMENTS | DEPOSITED CHEMICAL COMPOSITION % (TYPICAL)

AWS REQUIREMENT (%)		TYPICAL DEPOSIT (%)	
C	0.08 – 0.15	C	0.10
P	0.03 max	P	0.012
Cr	25.0 – 28.0	Cr	26.00
S	0.03 max	S	0.010
Ni	20.0 – 22.5	Si	0.5
Mo	0.75 max	Ni	21.00
Mn	1.0 – 2.5	Mn	1.7
Cu	0.75 max		
Si	0.30 – 0.65		

DEPOSITED ALL WELD METAL PROPERTIES (R.T.)

MECHANICAL PROPERTY	
Yield Strength	57,000 psi
Tensile Strength	86,000 psi
Elongation	43%
Reduction of Area	68%

Data is typical for ER310 weld metal deposited by MIG using Argon + 2% oxygen as the shielding gas. Data on sub-arc is not presented, as sub-arc is dependent on the type of flux used.

APPLICATION

COREWELD 310 ER310 is used for the welding of stainless steels of similar composition in wrought or cast form. The weld deposit is fully austenitic and calls for low heat during welding. This filler metal can also be used for dissimilar welding.

RECOMMENDED WELDING PARAMETERS FOR MIG, TIG & SAW WELDING OF ER310 STAINLESS STEEL

PROCESS	WIRE DIAMETER	WIRE DIAMETER (MM)	WIRE FEED	AMPS	VOLTS	SHIELDING GAS	GAS CFH
GMAW — Short Arc Welding (Reversed Polarity)							
	.030 in	0.80	13–26	40–120	16–20	Argon + 2% O_2	25
	.035 in	0.90	13–26	60–140	16–22	Argon + 2% O_2	25
GMAW — Spray Arc Welding (Reversed Polarity)							
	.035 in	0.90	20–39	140–220	24–29	Argon + 2% O_2	38
	.045 in	1.20	16–30	160–260	25–30	Argon + 2% O_2	38
	1/16 in	1.60	10–16	230–350	27–31	Argon + 2% O_2	38
GTAW — Tig Process (DCRP)							
	.035 in	0.90	—	60–90	12–15	Argon 100%	—
	.045 in	1.20	—	80–110	13–16	Argon 100%	—
	1/16 in	1.60	—	90–130	14–16	Argon 100%	—
	3/32 in	2.40	—	120–175	15–20	Argon 100%	—
Submerged Arc Welding (Reverse Polarity Suggested)							
	3/32 in	2.40	—	250–450	28–32	Suitable flux may be used	—
	1/8 in	3.20	—	300–500	29–34	Suitable flux may be used	—
	5/32 in	4.00	—	400–600	30–35	Suitable flux may be used	—
	3/16 in	4.80	—	500–700	30–35	Suitable flux may be used	—

Note: Parameters for TIG welding are dependent upon plate thickness and welding position. Other shielding gases may be used for MIG and TIG welding; gases are chosen taking quality, cost, and operability into consideration.
Note: Both agglomerated and fused fluxes can be used for submerged arc welding. The chemical composition of the flux mainly affects the chemistry of the weld metal and consequently its corrosion resistance and mechanical properties.

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