

GA-308/308L (TIG)

CONFORMANCES:

AWS A5.9/A5.9M : ER308/308L

ASME SFA-A5.9 : ER308/308L

Characteristics and Applications:

The nominal composition (wt.%) of GA-308/308L is 21% Cr and 10% Ni, which is an austenitic structure. The weld metal is a low-carbon type. Because the carbon content is low, it prevents carbide precipitation at the grain boundaries, resulting in superior corrosion resistance. The arc is soft, spatter is low, the weld bead appearance is beautiful, and it performs excellently in all welding positions. It can be used for materials such as 18Cr-8Ni (AISI 304), AISI 301, 302, and SUS 304. It is mainly used for welding equipment in the fiber, fertilizer, and petroleum industries.

Precautions:

- Shielding Gas:** Use Argon gas with a purity above 99.997%. Properly control the gas flow rate, typically adjusting it based on the welding current.
- Wind Protection:** Proper wind protection is required during welding; otherwise, the shielding gas can be easily affected by wind, leading to poor shielding, weld degradation, and porosity.
- Tungsten Electrode:** Properly select the ceramic gas nozzle (cup) and control the appropriate stick-out length of the tungsten electrode.
- Clean Surface:** Rust, oil, and dust on the surface of the base material must be thoroughly removed.

AWS CHEMICAL COMPOSITION (TYPICAL)

	%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Cu
AWS A5.9 ER308/ 308L	≤0.03 max.	1.0-2.5	0.30-0.65	≤0.03 max.	≤0.03 max.	9.0-11.0	19.5-22.0	≤0.75 max	≤0.75 max
	0.02	1.80	0.45	0.018	0.014	10.10	20.15	0.10	0.14

WELD METAL MECHANICAL PROPERTIES (TYPICAL)

	Yield Strength MPa(Psi)	Tensile Strength MPa(Psi)	Elongation %	Impact value J (ft-lbf) -196°C(-320°F)
100%Ar	430 (62,000)	590 (86,000)	45	80 (59)
AWS	-	-	-	-

WELDING PARAMETERS (TYPICAL) : DCEN (DC-)

Wire Diameter Inch(mm)	Patent Thickness Inch(mm)	Number of Passes	Steel Rod Inch(mm)	Amperage	Welding Transfer Speed (mm/s)
1/16" (1.6 mm)	1/16" (1.6 mm)	1	1/16" (1.6 mm)	140-160	5.1
3/32" (2.4 mm)	3/32" (2.4 mm)	1	1/16" (1.6 mm)	180-200	5.1
3/32" (2.4 mm)	1/8" (3.2 mm)	1	1/16" (1.6 mm)	180-200	5.1
1/8" (3.2 mm)	3/16" (4.8 mm)	1	3/32" (2.4 mm)	210-230	4.2

DIAMETER :

TIG Rod (Inch)	1/16" / .079" / 3/32" / 1/8"	TIG Rod (mm)	1.6 / 2.0 / 2.4 / 3.2
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