

Victory 309L

AWS/SFA 5.9 ER309L

Certificate as per EN 10204-3.1

Conforms to ASME Sec II Part C (F-6, A-8)

VICTORY
WELDING ALLOYS

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DATA SHEET – Certificate of Compliance



Description and Application

- ★ For welding heat resistant 22-25% chromium – 12-13% nickel stainless steels such as 309/309L to itself, to other austenitic Cr – Ni grades such as 304L, 308L, 310, 316L, 321 or 347 as well as martensitic grades such as 410, 420, 431, and ferritic stainless grades such as 430, 442, and 446; all of these stainless steel grades can be welded to each other or to mild and carbon steels
- ★ The maximum carbon content of less than 0.03% preserves the intergranular corrosion resistant properties of the weld deposit and weld zone, yielding x-ray quality welds
- ★ Common applications of 309L stainless include welding of dissimilar steels or overlaying unalloyed structural steels found in furnace parts, kiln linings, heat treatment containers, forgings and castings in chemical, petrochemical, power generation and pharmaceutical industries

Wire Chemistry

	AWS Requirement ¹	Average Victory 309L ²		AWS Requirement ¹	Average Victory 309L ²
Carbon (C)	0.03	0.019	Phosphorus (P)	0.03	0.026
Chromium (Cr)	23.0 – 25.0	23.34	Sulfur (S)	0.03	0.007
Nickel (Ni)	12.0 – 14.0	12.34	Copper (Cu)	0.75	0.12
Molybdenum (Mo)	0.75	0.08	Iron (Fe)	Balance	Balance
Manganese (Mn)	1.0 – 2.5	1.73	Nitrogen (N)	--	0.06
Silicon (Si)	0.30 – 0.65	0.33			

¹Single values under AWS Requirement are maximum values, except where specified otherwise

²Material is free from mercury and radioactive contamination

Mechanical Properties of the Weld Metal

	Minimum AWS Requirements	Average Victory 309L
Tensile Strength	75,000 psi	87,000 psi
Yield Strength	--	58,000 psi
Elongation in 2"	30%	40%

Recommended GMAW Welding Parameters – DCEP (DC+)

Short Arc (with Tri-mix 90% He/7.5% Ar/2.5% O₂)

Wire Diameter	Amperage	Volts	Stickout (in)	Flow Rate (CFH)
0.023" (0.6mm)	50 – 110	14 – 18	1/4 – 3/8	20 – 30
0.030" (0.8mm)	60 – 125	15 – 20	3/8 – 1/2	
0.035" (0.9mm)	70 – 150	16 – 22		
0.045" (1.143mm)	80 – 175	17 – 23		
1/16" (1.6mm)	90 – 200	18 – 24		

Spray Arc (with 99% Ar/1.0% O₂ or 98% Ar/2.0% O₂)

Wire Diameter	Amperage	Volts	Stickout (in)	Flow Rate (CFH)
0.030" (0.8mm)	150 – 190	24 – 28	1/2 – 3/4	30 – 40
0.035" (0.9mm)	160 – 210	26 – 29		
0.045" (1.143mm)	180 – 250	28 – 32		
1/16" (1.6mm)	200 – 280	29 – 33		

Recommended GTAW Welding Parameters – DCEN (DC-)

*Shielding gas use 100% Argon or Argon/Helium for greater penetration and higher speeds

*Tungsten use 2% Thoriated, 2% Ceriated, 2% Lanthanum or Rare Earth

Wire Diameter	Tungsten Size	Amperage	Voltage	Flow Rate (CFH)
0.035" (0.9mm)	0.40 – 1/16	60 – 100	12 – 15	20 – 30
0.045" (1.143mm)		70 – 120	13 – 16	
1/16" (1.6mm)		90 – 130	14 – 16	
3/32" (2.4mm)	1/16 – 3/32	120 – 175	15 – 20	
1/8" (3.2mm)		150 – 220	16 – 20	
5/32" (4.0mm)		160 – 230	17 – 22	
	3/32 – 1/8			

Recommended parameters will be affected by changes in position, base metal, equipment and shielding gas

There is no substitute for Victory!



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