



XTR 309L

AWS A5.9 ER309L

Description:

ER309L is very similar to type ER309 but has a carbon content held to a max of .03% to avoid carbide precipitation and preserve intergranular corrosion resistant properties. 308L has mild corrosion resistance properties.

Typical Applications:

XTR 309L is low carbon 25 Cr/ 12 Ni stainless steel solid wire similar in composition to ER 309L. Suitable for welding of austenitic stainless such as AISI 309, some martensitic grades like 410, 420 and 431, and ferritic grades like 430, 442, and 446; all with the ability to be welded to mild steels, carbon steels and each other. It is also used to weld dissimilar steels and for buffer layers and buttering 18 Cr/ 8 Ni steels.

Chemistry:

	Typical	AWS Spec.
Carbon (C)	0.018	0.030
Chromium (Cr)	23.342	23.0-25.0
Nickel (Ni)	12.340	12.0-14.0
Molybdenum (Mo)	0.085	0.750
Manganese (Mn)	1.730	1.0-2.5
Silicon (Si)	0.333	0.30-0.65
Phosphorus (P)	0.026	0.030
Sulfur (S)	0.007	0.030
Copper (Cu)	0.120	0.750
Nitrogen (N)	0.062	ns



Mechanical Properties:

	Typical	AWS Spec.
Tensile Strength	87,000	75,000 psi
Yield Strength	58,000 psi	ns
Elongation in 2" (%)	37	30
Charpy V-Notch	47(J) @ -20°C	ns
Ferrite Delong (WRC)	11 (10)	-
Finish	Bright Finish	-

Welding Positions:

All

Operating Parameters: MIG/MAG (GMAW), DCEP DC+

Short ARC using Mix 90 He, 7.5 Ar, 2.5% CO2 Shielding Gas					
To weld in Spray ARC, use a 98/99% Argon mix with balance O2 Oxygen, then increase amperage, voltage & gas CFH by 70%					
Diameter	Amperage	Voltage	Speed (IPM)	Stickout (In.)	Flow Rate (CFH)
0.023 (.6mm)	55-100	14-19	120-380	1/4-3/8	15-20
0.030 (.8mm)	60-125	15-20	160-380	3/8-1/2	20-25
0.035 (.9mm)	70-145	16-22	150-330	1/2	25-30
0.045 (1.14mm)	85-175	17-22	100-230	1/2	25-30

Operating Parameters: TIG (GTAW), DCEN DC-

Shielding gas use 100% Argon Shielding Gas					
Argon, Helium mixtures preferred for greater penetration on thicker sections					
Diameter	Amperage	Voltage	Tungsten Size	Flow Rate (CFH)	2% Thoriated 2% Ceriated 2% Lanthanum or Rare Earth Tungsten Electrodes are preferred
0.045 (1.14mm)	65-120	13-16	0.045 (1.14mm)	15-20	
1/16 (1.6mm)	90-130	14-16	1/16 (1.6mm)	20-25	
3/32 (2.4mm)	120-175	15-19	3/32 (2.4mm)	25-30	
1/8 (3.2mm)	155-225	16-20	1/8 (3.2mm)	25-30	
5/32 (4.0mm)	160-230	17-21	5/32 (4.0mm)	25-30	



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