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Product
Data Sheet

FLUX CORED STAINLESS STEEL ELECTRODE DM309

Classification: **ER309 AWS A5.9 / ASME SFA 5.9**

Description, Characteristics & Applications:

ER309 is used for the welding of similar alloys in wrought or cast form. It is mostly used for welding dissimilar materials such as mild steel to stainless steel, as well as for a barrier layer in stainless overlays. For some applications, welding of straight chromium steels can be accomplished with this consumable.

Typical Chemical Composition (%)

C	Cr	Ni	Mo	Mn	Si	P	S	Cu
0.12 max	23.0 - 25.0	12.0 - 14.0	0.75 max	1.0 - 2.5	0.30 - 0.65	0.03 max	0.03 max	0.75 max

Deposited Chemical Composition (%)

C	Cr	Ni	Mo	Mn	Si	P	S	Cu
0.06	23.5	13.00	0.25	1.8	0.4	0.018	0.015	0.20

Typical Mechanical Properties as Welded

Tensile Strength	Yield Strength	Elongation (%)	Hardness	Ferrite WRC (FN)	CVN Impacts (J)	
					@	°C
86,000psi	57,000psi	47%	-------	-------	-------	

Notes
Data is typical for ER309 weld metal deposited by MIG using Argon + 2% oxygen and TIG using 100% Argon as the shielding gas. Data on submerged arc is dependent on the type of flux

Short Arc Welding / Spray Arc Welding

Process	Diameter	Wire Feed	Amps	Volts	Shielding Gas	CFH
SHORT ARC	.030	13-26	40-120	16-20	Argon + 2% O2	25
	.035	13-26	60-140	16-22	Argon + 2% O2	25
SPRAY ARC	.035	20-39	140-220	24-29	Argon + 2% O2	38
	.045	16-30	160-260	25-30	Argon + 2% O2	38
	1/16	10-16	230-350	27-31	Argon + 2% O2	38

TIG Welding Parameters

Diameter	Amps DCEN	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; gases are selected by considering quality, cost, and operability into consideration

Submerged Arc Welding Parameters

Wire Diameter	Amps	Voltage
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. The chemical composition of the flux affects the chemistry of the weld metal and, consequently, its corrosion resistance and mechanical properties.

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