SelectAlloy 309LMo-AP

Description:

SelectAlloy 309LMo-AP is a gas-shielded, flux cored, stainless steel electrode designed to weld in all positions. It has a nominal weld metal composition of 23% chromium, 13% nickel, 2.5% molybdenum and a maximum carbon content of 0.04%. The molybdenum provides increased resistance to pitting corrosion. The low carbon minimizes carbide precipitation and makes the weld metal more resistant to intergranular corrosion. **SelectAlloy 309LMo-AP** can be used with 100% carbon dioxide shielding or a blend of 75-80% argon/balance carbon dioxide. Shielding gas mixtures with more than 75-80% argon are not recommended.

Classifications & Approvals:

- E309LMoT1-1, E309LMoT1-4 per AWS A5.22

Characteristics:

SelectAlloy 309LMo-AP provides superb performance characteristics in all positions, using either CO_2 or argon + 20-25% CO_2 shielding gas. Flat, well washed beads can be achieved with minimal weaving. Spatter is very low and slag peeling is excellent, minimizing cleanup.

Applications:

SelectAlloy 309LMo-AP finds application in the pulp and paper industry, chemical processing equipment, as well as food and beverage equipment. It is used to join carbon and low alloy steels to molybdenum-containing austenitic stainless steels, for root passes in cladding applications and to join difficult-to-weld or dissimilar steels.

Typical Mechanical Properties (CO_2)*:

Ultimate Tensile Strength (psi)	95,100
Yield Strength (psi)	72,000
Percent Elongation	34

***Strength levels will be slightly higher w/Ar+20-25% CO_2

Typical Weld Deposit Chemistry (CO_2)*:

Shielding Gas	C	Cr	Ni	Mo	Mn	Si	N
100CO_2	0.03	22.50	13.00	2.40	0.95	0.70	0.05

Ferrite Number (WRC, 1992) -18

Typical Welding Parameters (CO_2)*:

Diameter	WFS (ipm)	Amperage	Voltage	ESO (in.)	Dep. Rate (lbs/hr)
.035”	300	110	25	5/8-3/4	3.3
.035”	**500**	**150**	**26**	**5/8-3/4**	**5.4**
.035”	**600**	**165**	**27**	**5/8-3/4**	**6.3**
.035”	700	175	28	5/8-3/4	7.7
.045”	250	130	24	5/8-3/4	5.4
.045”	**300**	**160**	**26**	**5/8-3/4**	**6.3**
.045”	**425**	**200**	**28**	**5/8-3/4**	**9.2**
.045”	780	270	34	5/8-3/4	16.2
1/16”	150	170	25	3/4-1	5.4
1/16”	**195**	**215**	**27**	**3/4-1**	**7.0**
1/16”	**240**	**250**	**28**	**3/4-1**	**8.6**
1/16”	320	305	29	3/4-1	11.5

* Optimum conditions are in **boldface type**. Lower by 2 volts when using Ar+20-25% CO_2.

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