



309/309L Sterling® AP

AWS E-309-16 & E309L-16

Replaces 020520

160-D, INDEX: 060127

DESCRIPTION:

309/309L Sterling® AP is a lower carbon version of the 309(H) Sterling® AP. Low carbon content makes it excellent for applications where reduced susceptibility to sensitization during high temperature service is necessary. Outstanding for dissimilar metal welding such as weld overlay or for welding type 309 stainless steel to mild or low alloy steels. It has a smooth running arc that results in a uniform weld bead that is flat to slightly convex.

Note: Actual certs are included in every master carton of stainless stick electrodes at no charge.

Features	Benefits
<ul style="list-style-type: none"> • Easy strike and re-strike • Spray-like arc transfer • Self-detaching slag • Extremely high moisture resistance • Directional arc • All-position 	<ul style="list-style-type: none"> • Easy to use, less chance of starting defects • Low spatter and less clean-up • Less chance of slag inclusions • Extends shelf life of product in open environments • Metal goes where directed • Welds extremely well in flat, horizontal, vertical (up) and overhead positions

TYPICAL WELD METAL PROPERTIES* (CHEM PAD):

Weld Metal Analysis		E309-16	AWS	E309L-16
Carbon (C)	0.03	0.15 max		0.04 max
Manganese (Mn)	1.05	0.5 to 2.5		0.5 to 2.5
Phosphorus (P)	0.020	0.04 max		0.04 max
Sulphur (S)	0.016	0.03 max		0.03 max
Silicon (Si)	0.45	0.90 max		0.90 max
Copper (Cu)	0.10	0.75 max		0.75 max
Chromium (Cr)	23.00	22.0 to 25.0		22.0 to 25.0
Nickel (Ni)	13.50	12.0 to 14.0		12.0 to 14.0
Molybdenum (Mo)	0.10	0.75 max		0.75 max

TYPICAL MECHANICAL PROPERTIES* (AS WELDED):

		E309-16	AWS	E309L-16
Tensile Strength	79,000 psi (545 MPa)	80,000 psi		75,000 psi
Yield Strength	64,000 psi (442 MPa)	not required		not required
Elongation % in 2"	38%	30%		30%
DeLong Ferrite Number Range	6-15	not required		not required
Schaeffler Number Range	6-15	not required		not required
WRC Number Range (1992)	6-15	not required		not required

CONFORMANCES AND APPROVALS:

- AWS Spec A5.4, Class E309-16 & E309L-16 • ASME SFA5.4

*The information contained or otherwise referenced herein is presented only as "typical" without guarantee or warranty, and McKay expressly disclaims any liability incurred from any reliance thereon. Typical data are obtained when welded and tested in accordance with AWS A5.4 specification. Other tests and procedures may produce different results. No data is to be construed as a recommendation for any welding condition or technique not controlled by McKay.



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RECOMMENDED WELDING PROCEDURES:

- GENERAL:** DCEP (electrode positive, work negative) or AC
- ARC LENGTH:** Short (less than half the diameter of the electrode)
- FLAT & HORIZONTAL:** Angle electrode 10-15° from 90°
- VERTICAL-UP:** Use weaving techniques or inverted V. Reduced amperage compared to flat position setting
- OVERHEAD:** Use slight weaving motion within the puddle
- STORAGE:** Sterling AP[®] electrodes have a high degree of moisture resistance; however, for critical applications, the electrodes should be held at 225° F after opening.
- RECONDITIONING:** If exposed to atmosphere for extended periods, recondition at 500° F for 1 hour

RECOMMENDED OPERATING PARAMETERS:

FLAT & HORIZONTAL

Diameter		Type of Power	Minimum Amps	Optimum Amps	Maximum Amps
Inches	mm				
3/32	2.4	DCEP or AC	45	65	80
1/8	3.2	DCEP or AC	55	105	120
5/32	4.0	DCEP or AC	65	140	170
3/16	4.8	DCEP or AC	160	170	205
1/4	6.4	DCEP or AC	180	200	225

AVAILABLE DIAMETERS AND PACKAGES:

Diameter		Length		6-lb. Can	10-lb. Can
Inches	mm	Inches	mm		
3/32	2.4	10	254	S483930-032	—
1/8	3.2	14	355	—	S483944-033
5/32	4.0	14	355	—	S483951-033
3/16	4.8	14	355	—	S483958-033
1/4	6.4	14	355	—	S483980-033

Material Safety Data Sheets on any McKay product may be obtained from McKay Customer Service.

Because McKay is constantly improving products, McKay reserves the right to change design and/or specifications without notice.

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