

Excalibur ®309/309L-15, -16, -17

309/309L-15: AWS E309-15/E309L-15; 309/309L-16: AWS E309-16/E309L-16; 309/309L-17: AWS E309-17/E309L-17

**KEY FEATURES**

- Q2 Lot® - Certificate showing actual deposit chemistry and calculated ferrite number (FN) available online
- Designed with low carbon levels to help eliminate carbide precipitation in high temperature service
- Designed for joining stainless steel to mild or low alloy steel

309/309L-15

- Flux coating is fast freezing for vertical down welding and slag is self-peeling for easy removal
- Smooth bead appearance with evenly spaced ripples and flat face

309/309L-16

- Flux coating provides smooth arc transfer and slag is self-peeling for easy removal

309/309L-17

- Flux coating provides smooth arc transfer in the flat and horizontal positions and slag is self-peeling for easy removal

CONFORMANCES

AWS A5.4/A5.4M: 2006:

309/309L-15	E309-15, E309L-15
309/309L-16	E309-16, E309L-16
309/309L-17	E309-17, E309L-17

ASME SFA-A5.4:

Same as Above

ABS:

309/309L-15	E309-15, E309L-15
309/309L-16	E309-16, E309L-16
309/309L-17	E309-17, E309L-17

CWB/CSA W48-06:

309/309L-16	E309-16, E309L-16
309/309L-17	E309-17, E309L-17

MIL-E-22200/2:

309/309L-16	MIL-309-16, MIL-309L-16
-------------	-------------------------

APPLICATIONS

- Joining stainless steel to mild or low alloy steel

WELDING POSITIONS

309/309L-15	All
309/309L-16	All, except vertical down
309/309L-17	Flat & Horizontal

DIAMETERS / PACKAGING

Diameter		Length		8 lb (3.6 kg) Easy Open Can		
in	(mm)	in	(mm)	309/309L-15	309/309L-16	309/309L-17
3/32	(2.4)	12	(300)	ED033098	ED033097	ED033100
1/8	(3.2)	14	(350)	ED033099		

Diameter		Length		10 lb (4.5 kg) Easy Open Can		
in	(mm)	in	(mm)	309/309L-15	309/309L-16	309/309L-17
1/8	(3.2)	14	350)		ED033094	ED033101
5/32	(4.0)	14	(350)		ED033095	ED033102
3/16	(4.8)	14	(350)		ED033096	ED033103

MECHANICAL PROPERTIES(1) – As Required per AWS A5.4/A5.4M: 2006

	Yield Strength(2)	Tensile Strength	Elongation	Ferrite
	MPa (ksi)	MPa (ksi)	%	Number
Requirements	Not Specified	550 (80) min. 520 (75) min	30 min.	Not Specified
AWS E309-15, -16, -17 AWS E309L-15, -16, -17				
Typical Performance(3)				
As-Welded				
309/309L-15	490 (71)	640 (93)	38	6 - 8
309/309L-16	455 - 470 (66 - 68)	580 - 585 (84 - 85)	38 - 47	10 - 18
309/309L-17	455 - 490 (66 - 71)	585 - 620 (85 - 90) □	37 - 45	7 - 11

DEPOSIT COMPOSITION(1) – As Required per AWS A5.4/A5.4M: 2006

	%C(4)	%Cr	%Ni	%Mo	%Mn
Requirements AWS E309L-15, -16, -17	0.04 max.	22.0 - 25.0	12.0 - 14.0	0.75 max	0.5 - 2.5
Typical Performance(3)					
309/309L-15	0.03	23.6 - 23.9	13.6 - 13.8	0.03 - 0.05	0.7 - 1.0
309/309L-16	0.02 - 0.04	23.9 - 24.5	12.6 - 13.2	0.05 - 0.09	1.0 - 1.5
309/309L-17	0.02 - 0.04	23.5 - 24.0	13.0 - 13.5	0.05 - 0.09	0.7 - 0.9
	%Si	%P	%S	%Cu	
Requirements AWS E309L-15, -16, -17	1.00 max	0.04 max.			
Typical Performance(3)					
309/309L-15	0.74 - 0.82	0.02	0.01		0.06
309/309L-16	0.33 - 0.38	0.03	0.02		0.09
309/309L-17	0.72 - 0.77	0.03	0.01		0.17

TYPICAL OPERATING PROCEDURES

Polarity	Current (Amps)			
	3/32 in (2.4 mm)	1/8 in (3.2 mm)	5/32 in (4.0 mm)	3/16 in (4.8 mm)
309/309L-15				
DC+/AC	60 - 70	90 - 100	–	–
309/309L-16				
DC+/AC	40 - 70	60 - 100	90 - 140	120 - 185
309/309L-17				
DC+/AC	40 - 80	75 - 110	95 - 150	130 - 200