

# TS-309/309L

AWS A5.4 E309/E309L-16  
EN ISO 3581-B-ES309-16/  
EN ISO 3581-B-ES309L-16  
JIS Z 3221 ES309L-16

## Characteristics and Applications:

The weld metal of TS-309/309L contains more Cr, Ni than TS-308/308L. Suitable quantity of ferrite in microstructure allows it to have excellent resistance to hot cracking. It is designed for dissimilar metal welding of joining mild steel to stainless steel, hardening alloy steel and steel with poor weldability. Proper base metals include stainless steel plate, steel strip, steel tube, heat transfer tube, pressure vessel, steel bar, casting and forging.

## Notes on usage:

1. Clean up the contaminations on the base metal, groove and pass to pass with stainless steel brush.
2. Maintain short arc length. Moving range should be controlled within 2.5 times of the wire's dia when you are welding with weave method.
3. Dry the electrodes at 250~300°C for 60 minutes before using. Take out consumables for half day consumption and keep in the environment at 100~150°C during welding process.
4. Use lower current to prevent from cracking and minimize base metal dilution.

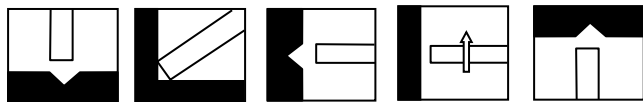
## Typical chemical composition of weld metal (wt%):

	C	Mn	Si	P	S	Cr	Ni	Mo	Cu
AWS	≤0.04	0.5-2.5	≤1.00	≤0.04	≤0.03	22.0-25.0	12.0-14.0	≤0.75	≤0.75
EN ISO	≤0.04	0.5-2.5	≤1.00	≤0.04	≤0.03	22.0-25.0	12.0-14.0	≤0.75	≤0.75
Typical value	0.03	0.98	0.70	0.030	0.010	23.0	13.2	0.03	0.02

## Typical mechanical properties of weld metal:

	Tensile strength MPa(ksi)	Elongation %
AWS	≥520(75)	≥30
EN ISO	≥520(75)	≥25
Typical value	600(87)	41

## Welding position:



## Sizes and recommended current range (AC or DC <+>):

Diameter (mm)		2.0	2.6	3.2	4.0	4.8
Length (mm)		250	300	350	350	350
Amps	F	40-60	60-90	80-130	130-170	160-210
	V&OH	30-50	50-80	70-110	100-130	-

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