

 **309L-4D**

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
Over-alloyed electrode for surfacing unalloyed steel, joint welding non-molybdenum-alloyed stainless steel to unalloyed steel and welding clad material.					

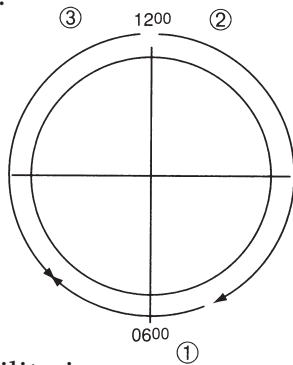
Standard designations

EN 1600	E 23 12 L R
AWS A5.4	E309L-17

Characteristics

AVESTA 309L-4D is an over-alloyed electrode intended for welding stainless steel to unalloyed or low-alloy steels. It has a thin, rutile-acid type coating and is designed for welding with either AC or positive polarity DC. It has a composition that, under normal welding conditions, ensures a crack resistant weld metal. This electrode can also be used for welding some high temperature steels. Always consult expertise.

Pipe welding can be performed in several different ways. One possibility is to start welding in the overhead position (1), followed by vertical-down on both sides from the 12 o'clock position (2 and 3). Another possibility is to start at the 7 o'clock position and weld vertical-up to the 11 o'clock position on both sides. This requires an inverter power source with a remote control.



DC- is often preferred to bridge large root gaps and when welding stainless to unalloyed thin plates and pipes.

Welding data

DC+ or AC	Diam. mm	Current, A
	2.0	25 – 55
	2.5	30 – 85
	3.25	45 – 110

Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni
0.02	0.8	1.0	23.5	13.0

Ferrite 15 FN Delong

Mechanical properties

	Typical values (IIW)	Min. values EN 1600
Yield strength $R_{p0.2}$	460 N/mm ²	320 N/mm ²
Tensile strength R_m	590 N/mm ²	510 N/mm ²
Elongation A_5	29 %	25 %
Impact strength KV +20°C	50 J	
Hardness approx.	210 Brinell	

Interpass temperature: Max. 150°C.

Heat input: Max. 2.0 kJ/mm.

Heat treatment: Generally none.

For constructions that include low-alloy steels in mixed joints, a stress-relieving annealing stage may be advisable. However, this type of alloy may be susceptible to embrittlement-inducing precipitation in the temperature range 550 – 950°C).

Structure: Austenite with 10 – 15% ferrite.

Scaling temperature: Approx. 1000°C (air).

Corrosion resistance: Superior to 308L.

When surfacing mild steel a corrosion resistance equivalent to that of ASTM 304 is obtained already in the first bead.

Approvals

- CE
- TÜV

Welding positions

