309L basic

www.avestawelding.com

Covered electrodes

For welding steel such as:

Outokumpu	EN	ASTM	SS*	BS*	NF*
Overalloyed electrode for surfacing unalloyed steel, joint welding non-molybdenum alloyed stainless steel to unalloyed steel and for welding clad material.					

* Obsolete national standards, replaced by EN 10088.

Characteristics

AVESTA 309L basic is an overalloyed electrode intended for welding stainless steel to unalloyed or low-alloy steels.

AVESTA 309L basic has a composition that, under normal welding conditions, ensures a crack resistant weld metal with a ferrite content of min. 3%.

AVESTA 309L basic can also be used for welding some high temperature steels. Always consult expertise.

Welding directions

When welding stainless steel to unalloyed or low-alloyed steels, it is advisable/necessary to reduce the dilution of the weld as much as possible. Welding should therefore be performed with a limited heat input and appropriate bevel angle.

Welding to primer-coated sheet should be avoided, as there is a significant risk of pore formation. The paint should therefore be removed from all surfaces that are likely to be exposed to temperatures above 932°F (500°C).

Weld deposit data

Metal recovery approx. 105%.

Packaging data

Ø. inch	Ø. mm	Length mm	Weight/ capsule, kg	Approx. No. of electrodes/ capsule	Weight/ carton, kg
3/32	2.5	300	3.63	206	10.89
1/8	3.25	350	4.10	126	12.30
5/32	4.0	350	4.54	93	13.62

Approvals: –

Standard designations

EN 1600	E 23 12 L B
AWS A5.4	E309L-15

Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni
0.03	0.2	1.9	24.0	13.0

Ferrite 15 FN DeLong

Mechanical properties	Typical values (IIW)			
Yield strength, $Rp_{0,2}$	440	N/mm²	64	ksi
Tensile strength, R_m	570	N/mm²	83	ksi
Elongation, A_5	30	%	30	%
Impact strength, KV				
+20°C	50	J	37	ft·lb
Hardness approx.	210	Brinell		

Welding data

DC+	Diam., inch	Current, A
	3/32	50– 75
	1/8	70–100
	5/32	100–140
	3/16	140–190

Interpass temperature: Max. 300°F (150°C).

Heat input: Max. 50.8kj/in (2.0 kJ/mm).

Heat treatment: Generally none. For constructions, which include low-alloyed 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 1022-1742°F (550–950°C). Always consult the supplier of the parent metal or seek other expert advice to ensure that the correct heat treatment process is carried out.

Structure: Austenite with 10–15% ferrite.

Scaling temperature: Approx. 1832°F (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.

Welding positions