

# 309 AC/DC

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
Over-alloyed electrode primarily used for welding high temperature steels such as ASTM 309S, but it may also be used for surfacing unalloyed steel, joint welding stainless steel to unalloyed steel and welding clad material.					

## Standard designations

AWS A5.4 E309-17

## Characteristics

AVESTA 309 AC/DC is a high carbon electrode designed for welding some high temperature steels such as ASTM 309S but it can also be used for dissimilar welding between stainless and mild or low-alloy steels.

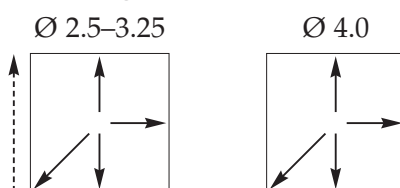
## Welding data

DC+ or AC	Diam. mm	Current, A
	2.5	50 – 80
	3.25	80 – 120
	4.0	100 – 160

## Weld deposit data at maximum welding current

Electrode diam. length mm mm					Metal recov. ~ %
	N	B	H	T	
2.5 300	0.60	82	1.02	43	119
3.25 350	0.61	43	1.58	52	114
4.0 350	0.63	29	2.07	61	112

## Welding positions



## Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni
0.05	0.8	1.0	24.0	13.5

Ferrite 15 FN DeLong

## Mechanical properties

	Typical values (IIW)	Min. values AWS A5.4
Yield strength $R_{p0.2}$	435 N/mm <sup>2</sup>	–
Tensile strength $R_m$	580 N/mm <sup>2</sup>	550 N/mm <sup>2</sup>
Elongation $A_5$	30 %	30 %
Impact strength KV +20°C	45 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 stage may be advisable. However, this type of alloy may be susceptible to embrittlement-inducing precipitation in the temperature range 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. 1000°C (air).

**Corrosion resistance:** Primarily designed for high temperature applications with service temperatures up to 1000°C. The resistance to intercrystalline corrosion is somewhat limited due to the high carbon content.

## Approvals

- CWB