



FCW-2D 309L

For welding steels such as
Outokumpu EN ASTM BS NF SS

AVESTA 309L is primarily used for surfacing unalloyed or low-alloy steels and when joining non-molybdenum-alloyed stainless and carbon steels.

Standard designations

EN ISO 17633 T 23 12 L R M/C 3
AWS A5.22 E309LT0-4/-1

Characteristics and welding directions

AVESTA FCW-2D 309L is a high-alloy 23 Cr 13 Ni wire, primarily intended for surfacing low-alloy steels and for dissimilar welding between mild steel and stainless steels.

AVESTA FCW-2D 309L is primarily designed for welding in the flat and horizontal-vertical positions. Welding in vertical-up and overhead positions is preferably done using FCW-3D 309L.

Welding data

Diameter mm	Welding position	Current A	Voltage V
1.20	Flat, horizontal	125 – 280	20 – 34
1.60	Flat, horizontal	200 – 350	25 – 35

Shielding gas

Ar + 15 – 25% CO₂ offers the best weldability, but 100% CO₂ can also be used (voltage should be increased by 2V).
Gas flow rate 20 – 25 l/min.

Chemical composition, all weld metal (typical values, %)

C	Si	Mn	Cr	Ni
0.03	0.7	1.4	22.8	12.5
Ferrite		18 FN	WRC-92	

Mechanical properties

	Typical values (IIW)	Min. values EN ISO 17633
Yield strength R _{p0,2}	400 N/mm ²	320 N/mm ²
Tensile strength R _m	540 N/mm ²	520 N/mm ²
Elongation A ₅	35 %	30 %
Impact strength KV		
+20°C	60 J	
-60°C	45 J	
Hardness	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 500 – 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 5 – 10% ferrite.

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

Corrosion resistance: Superior to type 308L fillers. When surfacing on mild steel, a corrosion resistance equivalent to that of ASTM 304 is obtained from the first bead.

Approvals

- CE
- DB
- GL
- TÜV
- CWB
- DNV
- RINA