

For welding steel such as:

Outokumpu	EN	ASTM	SS*	BS*	NF*
904L	1.4539	904L	2562	904S13	Z2 NCDU 25-20

Also for welding similar steels of the 20-25 CrNiMoCu-type.

* Obsolete national standards, replaced by EN 10088.

Characteristics

AVESTA 904L AC/DC is a rutile-acid type electrode which is easy to use. It offers good weldability using both positive pole DC and AC, but welding with DC is to be preferred.

AVESTA 904L AC/DC is used for welding copper alloyed stainless steel of the ASTM N08904 type (AvestaPolarit 904L, Sandvik 20.25.5 LCu) or Cu-Nb alloyed steels such as EN 1.4505, 1-4506 and 1.4585.

Welding directions

AVESTA 904L electrodes produce a fully austenitic high-alloy weld deposit with relatively little risk of hot cracking, i.e. cracks occurring immediately after the solidification of the weld deposit, provided that welding is performed carefully. However, the risk of hot cracking is somewhat greater than for electrodes such as AVESTA 316L/SKR.

Therefore, to ensure optimum resistance to corrosion and cracking the heat input should be kept to a low level. High amperages and unnecessarily thick electrodes should be avoided and welding should be carried out without appreciable weaving. Finally, the material should be allowed to cool to below 100°C before the next run is welded.

When welding AvestaPolarit 904L steel to unalloyed steel, AVESTA P5 or 904L electrodes may be used.

Weld deposit data at maximum welding current

Diam. mm	Length mm	N	B	H	T	Metal recovery, approx. %
2.5	350	0.69	59	1.09	56	139
3.25	350	0.65	35	1.53	67	139
4.0	400	0.69	20	2.29	80	143
5.0	400	0.69	13	3.37	83	138

Packaging data

Diam. mm	Length mm	Weight/ capsule, kg	Approx. No. of electrodes/ capsule	Weight/ carton, kg
2.5	350	4.40	181	13.20
3.25	350	4.10	104	12.30
4.0	400	4.90	69	14.70
5.0	400	4.90	48	14.70

Standard designations

EN 1600 E 20 25 5 Cu N L R
AWS A5.4 E 385-17

Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni	Mo	Cu
0.02	0.7	1.2	20.5	25.0	4.5	1.5
Ferrite		0 FN				

Mechanical properties

	Typical values (IIW)	Min. values EN 1600
Yield strength, R _{p0.2}	400 N/mm ²	320 N/mm ²
Tensile strength, R _m	565 N/mm ²	510 N/mm ²
Elongation, A ₅	34 %	25 %
Impact strength, KV +20°C	60 J	
Hardness approx.	200 Brinell	

Welding data

DC+ or AC	Diam., mm	Current, A
	2.5	50–75
	3.25	80–110
	4.0	100–150
	5.0	140–190

Interpass temperature: Max. 100°C.

Heat input: Max. 1.5 kJ/mm.

Heat treatment: Generally none. In special cases quench annealing at 1070–1100°C.

Structure: Fully austenitic.

Scaling temperature: Approx 1000°C (air)

Corrosion resistance: Very good resistance in non-oxidising environments such as sulphuric acid (up to 90% conc.), phosphoric acid and organic acids. Good resistance to pitting and crevice corrosion in chloride-containing solutions.

Approvals: DB, TÜV

Welding positions

