

Classification

EN ISO 14343-A	AWS A5.9
G 20 25 5 Cu L	ER385

Characteristics and typical fields of application

Avesta 904L is intended for welding Outokumpu 904L and similar but can also be used for constructions in type ASTM 316 where a ferrite-free weld metal is required, such as cryogenic or non-magnetic applications. The impact strength at low temperature is excellent. A fully austenitic structure is more prone to hot or solidification cracking than type ASTM 316 welds, so welding should be performed minimizing the heat input, interpass temperature and penetration with parent metal. Welding is best performed using a pulsed arc power source.

Structure: Fully austenitic with extra low content of impurities.

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

Corrosion resistance:

Very good in non-oxidizing environments such as sulphuric or phosphoric acids. Very good resistance to pitting and crevice corrosion in chloride containing environments. Excellent resistance to general corrosion and stress corrosion cracking.

Base materials

Outokumpu 904L, ASTM 904L, EN 1.4539 or similar steels like 20-25 Cr-Ni-Mo-Cu

Typical analysis of the solid wire (wt.-%)

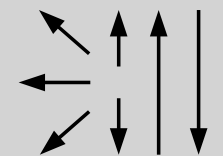
	C	Si	Mn	Cr	Ni	Mo	Cu	Ferrite
wt.-%	0.01	0.35	1.7	20.0	25.5	4.5	1.5	0 FN

Mechanical properties of all-weld-metal

Heat treatment	Yield strength R _{p0.2}	Tensile strength R _m	Elongation (L ₀ =5d ₀)	Impact work ISO-V KV J		Hardness
	MPa	MPa	%	+20 °C	-196 °C	Brinell
u	340	570	38	130	100	170

u untreated, as welded – Shielding gas Ar (99.95 %)

Operating data

	Polarity DC (+)	Shielding gas:	ø (mm)
		Ar (99.95 %)	1.0
		Ar + 30 % He + 2.5 % CO ₂	1.2
		Gas flow rate: 12 – 16 l/min	1.6

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

Interpass temperature: max. 100 °C.

Heat input: max. 1.5 kJ/mm.

Approvals

TÜV, CE