

# 904L

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
904L	1.4539	904L	904S13	Z2 NCDU 25-20	2562

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

## Standard designations

EN ISO 14343 S 20 25 5 Cu L  
AWS A5.9 ER385

## Characteristics and welding directions

AVESTA 904L is intended for welding Outokumpu 904L and similar steels but may also be used for ASTM 316 constructions, when a ferrite-free weld metal is required, e.g. in cryogenic or non-magnetic applications. The impact strength at low temperatures is excellent.

A fully austenitic structure is somewhat more prone to hot or solidification cracking than type ASTM 316 welds. Welding should therefore be performed in a way that minimises the heat input, interpass temperature and dilution with the parent metal.

## Welding data

Diameter, mm	Current, A	Voltage, V
2.40	300 – 400	29 – 33
3.20	350 – 500	29 – 33

**Welding flux:** AVESTA Flux 805.

**Corrosion resistance:** Very good in non-oxidising 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.

## Approvals

In combination with flux  
805 • CE • TÜV

## Chemical composition, wire (typical values, %)

C	Si	Mn	Cr	Ni	Mo	Cu
0.01	0.35	1.7	20.0	25.5	4.5	1.5

Ferrite 0 FN

## Chemical composition, all weld metal (typical values in combination with flux, %)

Flux	C	Si	Mn	Cr	Ni	Mo	FN
805	0.01	0.6	1.2	21.0	25.0	4.5	–

## Mechanical properties

Typical values (IIW) in combination  
with flux 805

Yield strength $R_{p0,2}$	350 N/mm <sup>2</sup>
Tensile strength $R_m$	560 N/mm <sup>2</sup>
Elongation $A_5$	36 %
Impact strength KV	
+20°C	100 J
–40°C	90 J

**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 with extra low content of impurities.

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