Avesta 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
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 toughness at low temperature is excellent.

To minimise the risk of hot cracking when welding fully austenitic steels, heat input and interpass temperature must be low and there must be as little dilution as possible from the parent metal.

Welding data

Diam. 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 resistance to general corrosion in non-oxidising environments such as sulphuric acid and phosphoric acid. Very good resistance to pitting and crevice corrosion in chloride containing solutions. Meets the corrosion test requirements per ASTM G48 Methods A, B and E (40°C).

Chemical composition, wire (typical values, %)

C	Si	Mn	Cr	Ni	Mo	Cu
0.015	0.35	1.7	20.2	24.8	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/mm²
Tensile strength R_m	560 N/mm²
Elongation A_5	36 %
Impact toughness KV	
+20°C	110 J
–40°C	100 J
–196°C	80 J
Lateral exp. (–196°C)	0.75 mm
Hardness approx.	200 Brinell

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).