

Avesta P12

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
254 SMO®	1.4547	S31254	–	–	2378
20-25-6	1.4529	N08926	–	–	–

Also for welding stainless steels and nickel base alloys to low-alloy and mild steel.

Standard designations

EN ISO 18274 S Ni 6625 (NiCr22Mo9Nb)

AWS A5.14 ERNiCrMo-3

Characteristics

Avesta P12 is a nickel base alloy designed for welding 6Mo-steels such as Outokumpu 254 SMO. It is also suitable for welding nickel base alloys type 625 and 825 and for dissimilar welds between stainless or nickel base alloys and mild steel.

To minimise the risk of hot cracking when welding fully austenitic steels and nickel base alloys, 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 – 450	29 – 33

Welding flux: Avesta Flux 805.

Corrosion resistance: Excellent resistance to general corrosion in various types of acids and to pitting, crevice corrosion and stress corrosion cracking in chloride containing environments. Meets the corrosion test requirements per ASTM G48 Methods A, B and E (50°C).

Chemical composition, wire (typical values, %)

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0.01	0.2	0.1	22.0	bal.	9.0	3.5	<1.0

Ferrite 0 FN

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

Flux	C	Si	Mn	Cr	Ni	Mo	Nb	FN
805	0.01	0.3	0.1	22.0	Bal.	9.0	3.6	–

Mechanical properties

Typical values* (IIW) in combination

with flux **805**

Yield strength $R_{p0.2}$	470 N/mm ²
Tensile strength R_m	730 N/mm ²
Elongation A_5	41 %
Impact toughness KV	
+20°C	90 J
–40°C	80 J
Hardness approx.	220 Brinell

Interpass temperature: Max. 100°C.

Heat input: Max. 1.5 kJ/mm.

Heat treatment: Generally none (in special cases quench annealing at 1050°C).

Structure: Fully austenitic.

Scaling temperature: Approx. 1100°C (air).