

Avesta P16

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
4565	1.4565	S34565	–	–	–
654 SMO®	1.4652	S31654	–	–	–
254 SMO®	1.4547	S31254	–	–	2378
20-25-6	1.4529	N08926	–	–	–

Also for welding nickel base alloys to stainless steel and mild steel.

Standard designations

EN ISO 18274 S Ni 6059 (NiCr23Mo16)

AWS A5.14 ERNiCrMo-13

Characteristics

Avesta P16 is a nickel base alloy designed for welding 7Mo-steels such as 1.4565/ASTM S34565 and similar, offering superior resistance to pitting and crevice corrosion. It is also suitable for the welding of nickel base alloys type 625 and 825 and for dissimilar welds between stainless and nickel base alloys to mild steel.

The chemical composition corresponds to type 59 nickel base alloys (ERNiCrMo-13).

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: Superior resistance to pitting and crevice corrosion (CPT >80°C, ASTM G48-A).

Chemical composition, wire (typical values, %)

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0.01	0.5	0.2	22.2	bal.	15.9	<0.1	<0.5

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	0.3	0.1	26.0	Bal.	15.0	–

Mechanical properties

Typical values* (IIW) in combination
with flux **805**

Yield strength $R_{p0.2}$	480 N/mm ²
Tensile strength R_m	720 N/mm ²
Elongation A_5	40 %
Impact toughness KV	
+20°C	75 J
–40°C	60 J
–196°C	50 J
Lateral exp. (–196°C)	0.65 mm
Hardness	220 Brinell

Interpass temperature: Max. 100°C.

Heat input: Max. 1.5 kJ/mm.

Heat treatment: Generally none (in special cases quench annealing at 1150 – 1200°C).

Structure: Fully austenitic.

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