

# P16

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
4565	1.4565	S34565	–	–	–
254 SMO®	1.4547	S31254	–	–	2378
4529	1.4529	N08926	–	–	–

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

## Standard designations

EN ISO 18274 G Ni Cr 25 Mo 16

AWS A5.14 ERNiCrMo-13

## Characteristics and welding directions

AVESTA P16 is a nickel base alloy designed for welding 7Mo-steels such as 1.4565 and similar, offering superior resistance to pitting and crevice corrosion. The consumable is also suitable for the welding of nickel base alloys such as Inconel 625 and Incoloy 825 but also for dissimilar welds between stainless and nickel base alloys to mild steel.

The chemical composition corresponds to that of Alloy 59 (ERNiCrMo-13).

Welding of fully austenitic and nickel base steels should be performed taking great care to minimise the risk of hot or solidification cracking. The heat input and dilution with parent metals should be minimised.

## Welding data

	Diameter mm	Current A	Voltage V
Spray arc	1.00	170 – 210	24 – 28
	1.20	180 – 220	25 – 29
Pulsed arc	1.20	$I_{peak} = 300 - 380$ A $I_{bkg} = 90 - 120$ A Freq = 90 – 110 Hz	

## Shielding gas

Welding is best performed using pulsed arc with a shielding gas of pure argon or Ar + 30% He + 2.5% CO<sub>2</sub>.  
Gas flow rate 12 – 16 l/min.

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

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0.01	0.10	0.2	25.0	60.0	15.0	<0.1	<1.0

Ferrite 0 FN

## Mechanical properties

	Typical values (IIW)	Min. values EN ISO 18274
Yield strength $R_{p0,2}$	470 N/mm <sup>2</sup>	370 N/mm <sup>2</sup>
Tensile strength $R_m$	700 N/mm <sup>2</sup>	690 N/mm <sup>2</sup>
Elongation $A_5$	33 %	30 %
Impact strength KV +20°C	120 J	
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).

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

## Approvals

- CE
- TÜV