

# P13 basic

For welding steels such as Outokumpu					
EN	ASTM	BS	NF	SS	
For welding Inconel 600 and similar nickel base alloys, steels for low temperature applications and for welding nickel base alloys to stainless or unalloyed steels.					

### Standard designations

EN ISO 14172	E Ni Cr 16 Fe 12 Nb Mo
AWS A5.11	ENiCrFe-2

### Characteristics

Avesta P13 is used for welding Inconel 600 and similar nickel base alloys. The weld metal has excellent strength and oxidation resistance at high temperatures, up to 800°C. Impact resistance is excellent down to -200°C, which makes P13 suitable also for cryogenic grades such as 5Ni and 9Ni steels. P13 is also an excellent electrode for welding dissimilar joints, examples are combinations of, carbon to stainless steels and joining of different combinations of Ni-alloys.

### Welding data

DC+	Diameter, mm	Current, A
	2.50	50 – 80
	3.25	70 – 120
	4.00	100 – 160

### Weld deposit data

Metal recovery approx. 100 %

### Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni	Mo	Fe	Nb
0.03	0.2	2.7	16.5	Bal.	1.4	7.5	1.9

### Mechanical Properties

	Typical values (IIW)
Yield strength $R_{p0.2}$	420 N/mm <sup>2</sup>
Tensile strength $R_m$	660 N/mm <sup>2</sup>
Elongation $A_5$	40 %
Impact strength KV	
+20°C	125 J
-196°C	105 J
Lateral expansion	1.6 mm

**Interpass temperature:** Max. 150°C.

**Heat input:** Max. 1.5 kJ/mm.

**Heat treatment:** Generally none.

**Structure:** Austenite 100 %.

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

**Corrosion resistance:** Very good resistance to stress corrosion.

**Approvals:** –

### Welding positions

