Avesta Welding

P10

For welding steels such as					
Outokumpu	EN	ASTM	BS	NF	SS

AVESTA P10 is an all-round wire suitable for many difficult-to-weld combinations.

Standard designations

EN ISO 18274 G Ni Cr 20 Mn 3 Nb
AWS A5.14 ERNiCr-3

Characteristics and welding directions

AVESTA P10 is a nickel base alloy designed for dissimilar welding of stainless steels, nickel base alloys type Inconel 600 and low-alloy steels as well as some copper alloys. P10 can also be used for welding many high temperature steels and nickel base alloys. The austenitic structure is very stable and the risk of hot or solidification cracking is relatively low.

Welding data

	Diameter mm	Current A	Voltage V
Spray arc	1.00	180 – 220	24 – 28
	1.20	200 – 240	25 – 29
	1.60	250 – 330	29 – 32
Pulsed arc	1.20	I_{peak} = 450 – 550 A I_{bkg} = 150 – 200 A Freq = 120 – 150 Hz	

Shielding gas

Welding is preferably done using pulsed arc and with a shielding gas of pure argon or a three-component mixture with Ar + 30% He + 2.5% CO_2.
Gas flow rate 12 – 16 l/min.

Chemical composition, wire (typical values, %)

C	Si	Mn	Cr	Ni	Nb	Fe
0.03	0.10	2.9	20.0	73.0	2.5	<2.0

Ferrite 0 FN

Mechanical properties	Typical values (IIW)	Min. values EN ISO 18274
Yield strength $R_{p0,2}$	410 N/mm^2	360 N/mm^2
Tensile strength R_m	660 N/mm^2	600 N/mm^2
Elongation A_5	33 %	30 %
Impact strength KV +20°C	–	
Hardness	200 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).

Corrosion resistance: High resistance to stress corrosion cracking but also excellent resistance to intercrystalline corrosion due to the low carbon content and the absence of secondary phases.

Approvals

• CE • TÜV