

For welding steel such as:

Outokumpu	EN	ASTM	SS*	BS*	NF*
All-round electrode suitable for many difficult-to-weld combinations.					

* Obsolete national standards, replaced by EN 10088.

Characteristics

AVESTA P10 basic is a nickel base electrode suitable for many different combinations of stainless steels, nickel base alloys type Inconel 600, low-alloy steels as well as some copper alloys.

AVESTA P10 has a relatively high Nb-content and low diffusion of carbon, which makes it excellent in many high temperature applications. The thermal expansion is much lower than for many austenitic stainless steels, which gives less shrinkage stresses than for example P5.

AVESTA P10 produces a fully austenitic weld metal with good properties at low temperatures and can be used for welding 9% Ni-steels for cryogenic applications. The austenitic structure is very stable and the risk of hot or solidification cracking is relatively little.

Welding directions

AVESTA P10 is used for positive pole DC welding. When welding, the material should be allowed to cool to below 100°C before the next run is deposited. Excessive broadening of the weld by weaving should be avoided.

It is very important to clean the workpieces carefully prior to welding as oil, grease and paint can give rise to pore formation and brittleness.

Weld deposit data at maximum welding current

Diam. mm	Length mm	N	B	H	T	Metal recovery, approx. %
3.25	350	0.67	43	1.38	61	110
4.0	350	0.73	28	2.11	62	114

Packaging data

Diam. mm	Length mm	Weight/capsule, kg	Approx. No. of electrodes/capsule	Weight/carton, kg
2.5	300	1.80	90	10.80
3.25	350	4.10	108	12.30
4.0	350	4.54	87	13.62

Standard designations

AWS A5.11 ENiCrFe-3

Typical analysis % (All weld metal)

C	Si	Mn	Cr	Nb	Fe	Ni
0.02	0.4	6.5	16.0	1.8	5.0	bal.

Ferrite 0 FN

Mechanical properties

	Typical values (IIW)	Min. values AWS A5.11
Yield strength, R _{p0.2}	380 N/mm ²	– N/mm ²
Tensile strength, R _m	630 N/mm ²	550 N/mm ²
Elongation, A ₅	39 %	30 %
Impact strength, KV		
+20°C	115 J	
-40°C	80 J	
Hardness approx.	180 Brinell	

Welding data

DC+	Diam., mm	Current, A
	2.5	45–70
	3.25	70–110
	4.0	100–140

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: Very good resistance to stress corrosion cracking. Also very good resistance to intergranular corrosion due to the low carbon content and absence of sigma phase.

Approvals: UDT

Welding positions

