

For welding steel such as:

Outokumpu	EN	ASTM	SS*	BS*	NF*
Overalloyed electrode for surfacing unalloyed steel, joint welding molybdenum alloyed stainless steel to unalloyed steel and for welding clad material.					

* Obsolete national standards, replaced by EN 10088.

Characteristics

AVESTA P5-PW AC/DC is a rutile-acid type electrode, which is easy to use and offers good weldability using both positive pole DC and AC.

AVESTA P5-PW is a molybdenum-alloyed electrode of the 309LMO type, which is primarily designed for surfacing low-alloyed steels and for joining stainless and low-alloyed steels (dissimilar joints). When used for surfacing, the composition obtained is more or less equal to that of ASTM 316 from the very first run.

AVESTA P5-PW has a composition, which, under normal welding conditions, ensures a crack resistant weld metal with a ferrite content of min. 3%.

Welding directions

When welding stainless steel to unalloyed or low-alloyed steels, it is advisable/necessary to reduce the dilution of the weld as much as possible. Welding should therefore be performed with a limited heat input and appropriate bevel angle.

Welding to primer-coated sheet should be avoided, as there is a significant risk of pore formation. The paint should therefore be removed from all surfaces that are likely to be exposed to temperatures above 500°C.

Weld deposit data

Metal recovery approx. 105%.

Packaging data

Diam. mm	Length mm	Weight/ capsule, kg	Approx. No. of electrodes/ capsule	Weight/ carton, kg
2.0	250	1.60	180	9.60
2.5	300	1.90	116	11.40
3.25	350	4.10	114	12.30
4.0	350	4.54	89	13.62

Approvals: -

Standard designations

EN 1600 E 23 12 2 L R
AWS A5.4 E309MoL-17

Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni	Mo
0.02	0.8	1.0	22.5	13.5	2.7
Ferrite 20 FN WRC-92					

Mechanical properties

	Typical values (IIW)	Min. values EN 1600
Yield strength, R _{p0.2}	525 N/mm ²	350 N/mm ²
Tensile strength, R _m	660 N/mm ²	550 N/mm ²
Elongation, A ₅	31 %	25 %
Impact strength, KV +20°C	25 J	
Hardness approx.	225 Brinell	

Welding data

DC+ or AC	Diam., mm	Current, A
	2.0	25– 60
	2.5	35– 80
	3.25	80–120
	4.0	100–160

Open circuit voltage

Interpass temperature: Max. 150°C.

Heat input: Max. 2.0 kJ/mm.

Heat treatment: Generally none. For constructions that include low-alloy steels in mixed joints, a stress-relieving annealing stage may be advisable. However, this type of alloy may be susceptible to embrittlement-inducing precipitation in the temperature range 550–950°C. Always consult the supplier of the parent metal or seek other expert advice to ensure that the correct heat treatment process is carried out.

Structure: Austenite with 15–20 % ferrite.

Scaling temperature: Approx. 950°C (air)

Corrosion resistance: Superior to 316L. The corrosion resistance obtained in the first layer when surface welding corresponds to that of 316.

Welding positions

