

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 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 has a composition, which under normal welding conditions ensures a crack resistant weld metal.

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.

Packaging data

Diam. mm	Length mm	Weight/capsule, kg	Approx. No. of electrodes/capsule	Weight/carton, kg
2.0	300	1.60	123	9.60
2.5	300	3.63	187	10.89
3.25	350	4.10	115	12.30
4.0	450	5.40	76	16.20
5.0	450	5.40	50	16.20

Approvals

CWB, DB, DNV, TÜV.

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	0.8	22.5	13.5	2.5
Ferrite 20 FN WRC-92					

Mechanical properties

	Typical values (IIW)	Min. values EN 1600
Yield strength, R _{p0.2}	490 N/mm ²	350 N/mm ²
Tensile strength, R _m	640 N/mm ²	550 N/mm ²
Elongation, A ₅	30 %	25 %
Impact strength, KV +20°C	30 J	
Hardness approx.	220 Brinell	

Welding data

DC+ or AC	Diam., mm	Current, A
	2.0	30– 60
	2.5	45– 80
	3.25	70–120
	4.0	90–160
	5.0	150–220

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

