

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 932°F (500°C).

Packaging data

Diam. inch	Diam. mm	Length mm	Weight/capsule, lbs	Electrodes/capsule, approx,	ht/carton, lbs
5/64	2.0	300 / 12	5.6	123	21
3/32	2.5	300 / 12	8.0	187	24
1/8	3.25	350 / 14	9.1	115	27
5/32	4.0	450 / 18	11.9	76	36
3/16	5.0	450 / 18	11.9	50	36

Approvals: CWB, DNV, ABS

Standard designations

AWS A5.4 E309MoL-17

Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni	Mo
0.02	0.8	0.8	22.5	13.0	2.5

Ferrite 20 FN WRC-92

Mechanical properties

	Typical values (IIW)	
Yield strength, R _{p0.2}	490 N/mm ²	71 ksi
Tensile strength, R _m	640 N/mm ²	93 ksi
Elongation, A ₅	30 %	30 %
Impact strength, KV +20°C	30 J	22 ft-lb
Hardness approx.	220 Brinell	

Welding data

DC+ or AC	Diam., inch	Current, A
	5/64	30– 60
	3/32	45– 80
	1/8	70–120
	5/32	90–160
	3/16	150–220

Interpass temperature: Max. 300°F (150°C).

Heat input: Max. 50.8 kJ/in 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 1022–1742°F (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. 1742° (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

