

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 P5-4D is a molybdenum-alloyed electrode of the 309LMO type, which is primarily designed for surfacing low-alloy steels and for joining stainless and low-alloy 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 P5-4D is primarily intended for pipe and position welding, but can also be used as a general purpose electrode, especially for thin material.

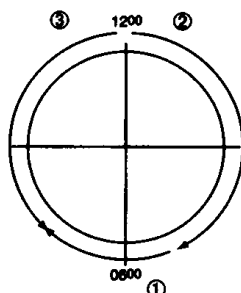
Welding directions

AVESTA P5-4D is designed for the continuous welding of pipes.

The combination of low welding currents and good fluidity means that pipes with a wall thickness of 2 mm can be welded using an electrode with a diameter of 2 mm.

Pipe welding can be performed in several different ways. One possibility is to start welding in overhead position (1), followed by vertical-down on both sides from 12 o'clock position (2 and 3). Another possibility is to start at the 7 o'clock position and weld vertical up to the 11 o'clock position on both sides.

This requires an inverter power source with a remote control.



When welding stainless to unalloyed thin plates and pipes, DC- is often preferred.

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	1.81	168	10.86
2.5	300	1.60	97	9.60
3.25	350	4.10	125	12.30

Approvals

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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	0.7	1.0	23.0	13.0	2.5
Ferrite 20 FN WRC-92					

Mechanical properties

	Typical values (IIW)	Min. values EN 1600
Yield strength, R _{p0.2}	530 N/mm ²	350 N/mm ²
Tensile strength, R _m	660 N/mm ²	550 N/mm ²
Elongation, A ₅	28 %	25 %
Impact strength, KV +20°C	40 J	
Hardness approx.	220 Brinell	

Welding data

DC+/- or AC	Diam., mm	Current, A
	2.0	25– 55
	2.5	30– 85
	3.25	45–110

Interpass temperature: Max. 150°C.

Heat input: Max. 2.0 kJ/mm.

Heat treatment: Generally none. For constructions, which include low-alloyed steels in mixed joints, a stress relieving 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

