

P5

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
AVESTA P5 is primarily used when surfacing unalloyed or low-alloy steels and when joining molybdenum-alloyed stainless and carbon steels.					

Standard designations

EN ISO 14343 G 23 12 2 L
AWS A5.9 (ER309LMo)*

* Cr lower and Ni higher than standard.

Characteristics and welding directions

AVESTA P5 is a molybdenum-alloyed wire of the 309MoL type, which is primarily designed for surfacing low-alloy steels and for dissimilar welding between stainless steels and low-alloy steels, ensuring a high resistance to cracking. It can also be used for welding high strength steels such as Hardox® and Armox®. When used for surfacing, the composition is more or less equal to that of ASTM 316 from the first run.

Welding data

	Diameter mm	Current A	Voltage V
Short arc	0.80	60 – 120	18 – 22
	1.00	110 – 140	20 – 22
Spray arc	1.00	160 – 220	25 – 29
	1.20	200 – 260	26 – 30
	1.60	250 – 320	29 – 32
Pulsed arc	1.20	$I_{peak} = 350 - 450$ A $I_{bkg} = 50 - 150$ A Freq = 100 – 150 Hz	

Shielding gas

Ar + 2% O₂ or 2 – 3% CO₂.
Gas flow rate 12 – 16 l/min.

Chemical composition, wire (typical values, %)

	C	Si	Mn	Cr	Ni	Mo
	0.02	0.35	1.5	21.5	15.0	2.7
Ferrite		9 FN 8 FN	DeLong WRC-92			

Mechanical properties

	Typical values (IIW)	Min. values EN ISO 14343
Yield strength R _{p0,2}	390 N/mm ²	350 N/mm ²
Tensile strength R _m	610 N/mm ²	550 N/mm ²
Elongation A ₅	31 %	25 %
Impact strength KV		
+20°C	75 J	
-40°C	60 J	
Hardness	210 Brinell	

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.

Structure: Austenite with 5 – 10% ferrite.

Scaling temperature: Approx. 950°C (air).

Corrosion resistance: Superior to type 316L. The corrosion resistance obtained on the first layer when surfacing corresponds to that of ASTM 316.

Approvals

- CE
- DB
- DNV
- TÜV