

P12-R basic

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
254 SMO®	1.4547	S31254	–	–	2378

Also for welding nickel base alloys to stainless or unalloyed steels and for surfacing.

Standard designations

EN ISO 14172 E Ni Cr 21 Mo Fe Nb
AWS A5.11 ENiCrMo-12

Characteristics

AVESTA P12-R basic is a nickel base electrode intended for 6Mo steels such as 254 SMO. It can also be used for welding nickel base alloys such as Inconel 625 and Incoloy 825. In chloride containing environments, the electrode offers particularly high resistance to pitting, crevice corrosion and stress corrosion cracking. As it has a fully austenitic structure, P12-R is slightly more sensitive to hot cracking than, for example, 316L. Consequently, low heat input and careful control of the interpass temperature are essential.

Welding data

DC+	Diam. mm	Current, A
	2.0	25 – 45
	2.5	40 – 70
	3.25	60 – 95
	4.0	90 – 135

Weld deposit data at maximum welding current

Electrode diam. mm	length mm					Metal recov. ~ %
		N	B	H	T	
2.0	250	0.61	170	0.59	36	107
2.5	300	0.64	90	0.90	44	104
3.25	350	0.66	44	1.39	59	106
4.0	350	0.70	28	2.14	60	108

Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0.02	0.4	0.4	21.5	bal.	9.5	2.2	3.0

Ferrite 0 FN

Mechanical properties

	Typical values (IIW)	Min. values EN ISO 14172
Yield strength $R_{p0.2}$	480 N/mm ²	400 N/mm ²
Tensile strength R_m	730 N/mm ²	650 N/mm ²
Elongation A_5	37 %	32 %
Impact strength KV		
+20°C	90 J	
-40°C	80 J	
-196°C	70 J	
Hardness approx.	220 Brinell	

Interpass temperature: Max. 100°C.

Heat input: Max. 1.5 kJ/mm.

Heat treatment: Generally none (in special cases quench annealing at 1150 – 1200°C).

Structure: Fully austenitic.

Scaling temperature: Approx. 1100°C (air).

Corrosion resistance: Maximum resistance to pitting and crevice corrosion in chloride containing environments. Good resistance in sulphuric and phosphoric acids contaminated by chlorides.

Approvals

- CE
- CWB
- TÜV

Welding positions

