Avesta Welding

P12

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

AWS A5.34 ENiCrMo3T1-4

Characteristics and welding directions

AVESTA P12 is a nickel base type flux cored wire with a chemical composition corresponding to that of AWS A5.34 ENiCrMo3. The weldability is good in all welding positions. The flux composition ensures excellent arc stability, very little spatter, a smooth weld surface and self-releasing slag.

AVESTA FCW-3D P12 is primarily intended for welding the nickel base alloys 625 and 825 and 6 Mo steels such as Outokumpu 254 SMO but it is also suitable for welding other grades, e.g. high-temperature, creep resisting and heat resisting steels as well as steels for cryogenic applications. It can be also be used for welding dissimilar joints and difficult-to-weld steels.

Welding data

Diameter mm	Welding position	Current A	Voltage V
1.20	Flat, horizontal	170 – 250	26 – 31
	Vertical-up	130 – 180	23 – 26
	Overhead	150 – 200	24 – 29

Shielding gas

Ar + 15 – 25% CO_2.
Gas flow rate 20 – 25 l/min.

Chemical composition, all weld metal (typical values, %)

C	Si	Mn	Cr	Ni	Mo	Nb	Fe
0.02	0.5	0.2	21.5	bal.	9.0	3.3	<1.0

Ferrite 0 FN

Mechanical properties	Typical values (IIW)	Min. values AWS A5.34
Yield strength $R_{p0,2}$	460 N/mm^2	–
Tensile strength R_m	750 N/mm^2	690 N/mm^2
Elongation A_5	40 %	25 %
Impact strength KV		
+20°C	75 J	
–40°C	60 J	
–196°C	45 J	
Hardness	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 acid contaminated by chlorides.

Approvals

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