AVESTA P54

www.avestawelding.com

Welding wire MIG

For welding steel such as:

Outokumpu	EN	ASTM	SS*	BS*	NF*
4565	1.4565	S34565	–	–	–
254SMO®	1.4547	S31254	2378	–	–
Also for welding nickel base alloys to stainless steel and mild steel.					

* Obsolete national standards, replaced by EN 10088.

CHARACTERISTICS

AVESTA P54 is an iron-based fully austenitic consumable designed for welding Outokumpu 254 SMO and other similar 6Mo- and 7Mo-steels.

AVESTA P54 was specially developed for applications exposed to highly oxidising chlorine-containing environments, such as D-stage bleachers in pulp mills where a nickel-based filler would suffer from transpassive corrosion. P54 also offers very high resistance to localised corrosion.

WELDING DIRECTIONS

The parameter box when welding P54 is rather narrow and welding is best performed using a synergic pulsed machine.

AVESTA P54 produces a fully austenitic high alloy weld metal, which makes it somewhat more sensitive to hot cracking than, for example, 304-type, steels.

To ensure optimum corrosion resistance and mechanical properties, the heat input should be kept at a very low level. Welding should be performed using a short arc and with sufficient root gap to minimise the dilution with parent metal. High amperages should be avoided.

To obtain best corrosion properties a proper post weld cleaning is required, e.g. brushing followed by pickling

WELDING DATA

	∅ (inch)	∅ (mm)	Current (A)	Voltage (V)
Pulsed arc	0.047″	1.20	I_{peak} = 350–450 A I_{bkg} = 50–150 A Freq = 80–120 Hz	

For further recommendations, please contact Avesta Welding.

Shielding gas recommendations

Ar or Ar + 30% He

A 30% helium addition will improve the fluidity and also arc stability slightly. Helium increases the energy in the arc and the heat should therefore be kept at a lower level than welding without helium to compensate for the higher temperature in the arc. Addition of helium will increase the blackening slightly.

Gas flow rate: 25-34 ft³/hour (12–16 l/min)

Standard designations

–

Chemical composition – Typical values, %

C	0.02	Ni	22.0
Si	0.2	Mo	5.5
Mn	5.1	N	0.35
Cr	26.0	Cu	0.9

Ferrite: 0 FN

Mechanical properties – Typical values, IIW

		Typ values	Typ. values
Yield strength, $R_{p0.2}$		450 N/mm²	65 ksi
Tensile strength, R_m		750 N/mm²	109 ksi
Elongation, A5		30 %	30 %
Impact strength, KV	+20°C	90 J	66

Interpass temperature: Max. 212°F (100°C)

Heat input: Max. 25.4 kJ/in (1.0 kJ/mm)

Heat treatment: Generally none.

Structure: Fully austenitic.

Scaling temperature: Approx. 2012°F (1100°C) (air).

Corrosion resistance: Superior resistance in near neutral chloride dioxide containing environments, e.g. D-stage bleachers.

Approvals: –