Avesta Welding

253 MA

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
153 MA™	1.4818	S30415	–	–	2372
253 MA®	1.4835	S30815	–	–	2368

Standard designations

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Characteristics and welding directions

AVESTA 253 MA is designed for welding the high temperature steel Outokumpu 253 MA, used for example in furnaces, combustion chambers, burners etc. Both the steel and the consumable provide excellent properties at temperatures 850 – 1100°C.

MIG welding of 253 MA is best performed using spray arc or pulsed arc. 253 MA has a tendency to give a thick oxide layer during welding and hot rolling. Black plates and previous weld beads should be carefully brushed or ground prior to welding.

Chemical composition, wire (typical values, %)

C	Si	Mn	Cr	Ni	N	Others
0.07	1.60	0.6	21.0	10.0	0.15	REM

Ferrite	9 FN	DeLong
	2 FN	WRC-92

Mechanical properties	Typical values (IIW)	Min. values EN ISO 14343
Yield strength $R_{p0,2}$	440 N/mm^2	–
Tensile strength R_m	680 N/mm^2	–
Elongation A_5	38 %	–
Impact strength KV		
+20°C	130 J	
Hardness	210 Brinell	

Welding data

	Diameter mm	Current A	Voltage V
Short arc	0.80	60 – 100	20 – 22
Spray arc	1.00	190 – 240	25 – 29
	1.20	210 – 250	26 – 30
Pulsed arc	1.20	I_{peak} = 340 – 380 A I_{bkg} = 100 – 160 A Freq = 100 – 120 Hz	

Shielding gas

1. Ar + 30% He + 2.5% CO_2.
2. Ar + 2% O_2 / Ar + 2% CO_2.

MIG welding is best performed using pulsed arc with a shielding gas of pure argon or Ar + 30% He + 2.5% CO_2. The addition of helium (He), will increase the energy of the arc.
Gas flow rate 12 – 16 l/min.

Interpass temperature: Max. 150°C.

Heat input: Max. 1.5 kJ/mm.

Heat treatment: Generally none.

Structure: Austenite with 3 – 10% ferrite.

Scaling temperature: Approx. 1150°C (air).

Corrosion resistance: Excellent resistance to high temperature corrosion. Not intended for applications exposed to wet corrosion.

Approvals

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