

2304

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
2304	1.4362	S32304	–	Z3 CN 23-04	2327

Standard designations

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Characteristics and welding directions

AVESTA 2304 is primarily designed for welding the duplex steel Outokumpu 2304 (UNS S32304) and similar grades.

AVESTA 2304 has a low content of molybdenum, which makes it well suited for nitric acid environments.

The weldability of 2304 is excellent and welding can be performed using short, spray or pulsed arc. Welding using pulsed arc provides good results in both horizontal and vertical-up positions. The best flexibility is achieved by using pulsed arc and Ø 1.20 mm wire.

Welding data

	Diameter mm	Current A	Voltage V
Spray arc	1.00	160 – 220	25 – 29
	1.20	200 – 240	28 – 31
Pulsed arc	1.20	$I_{peak} = 450 - 550 \text{ A}$ $I_{bkg} = 150 - 200 \text{ A}$ Freq = 120 – 150 Hz	

For further recommendations, please contact Avesta Welding.

Shielding gas

1. Ar + 30% He + 2.5% CO₂.
2. Ar + 2% CO₂ / Ar + 2% CO₂.

MIG welding is best performed using argon with an addition of approx. 30 % He and 2 – 3% CO₂. The addition of helium (He), will increase the energy of the arc.
Gas flow rate 12 – 16 l/min.

Chemical composition, wire (typical values, %)

C	Si	Mn	Cr	Ni	Mo	N
0.02	0.40	0.5	23.5	7.0	<0.5	0.14

Ferrite 40 FN WRC-92

Mechanical properties

	Typical values (IIW)	Min. values EN ISO 14343
Yield strength R _{p0,2}	520 N/mm ²	–
Tensile strength R _m	710 N/mm ²	–
Elongation A ₅	30 %	–
Impact strength KV		
+20°C	150 J	
–40°C	110 J	

Interpass temperature: Max. 150°C.

Heat input: Max. 0.5 – 2.5 kJ/mm.

Heat treatment: Generally none. In special cases quench annealing at 1100 – 1150°C.

Structure: Austenite with 35 – 65% ferrite.

Scaling temperature: Approx. 850°C (air).

Corrosion resistance: Very good resistance to pitting and stress corrosion cracking in nitric acid environments.

Approvals

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