

Avesta 2507/P100

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
2507	1.4410	S32750	–	Z3 CND 25-06 Az	2328

Standard designations

EN ISO 14343 W 25 9 4 N L

AWS A5.9 ER2594

Characteristics

Avesta 2507/P100 is intended for welding super duplex alloys such as 2507, ASTM S32760, S32550 and S31260. It can also be used for welding duplex type 2205 if extra high corrosion resistance is required, e.g. in root runs in tubes.

Welding without filler metal (TIG dressing) is not allowed since the ferrite content will increase drastically which will have a negative effect on both mechanical and corrosion properties.

The weldability of duplex and super duplex steels is excellent but the welding should be adapted to the base material, considering fluidity, joint design, heat input etc. For detailed welding recommendations, please see "How to weld duplex stainless steels" or contact voestalpine Böhler Welding.

Welding data

Diam. mm	Current A	Voltage V
1.20	60 – 80	9 – 11
1.60	80 – 110	10 – 12
2.00	100 – 130	14 – 16
2.40	130 – 160	16 – 18
3.20	160 – 200	17 – 19

Shielding gas

Ar (99.95%). An addition of up to 2% nitrogen (N₂) and 20 – 30% helium (He) is advantageous and will have a positive effect on both mechanical and corrosion properties.

The addition of helium (He) will increase the energy of the arc.

Gas flow rate 4 – 8 l/min.

Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni	Mo	N
0.015	0.35	0.4	25.0	9.5	3.9	0.25

Ferrite 50 FN WRC-92

Mechanical properties	Typical values (IIW)	Min. values EN ISO 14343
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Yield strength R _{p0.2}	680 N/mm ²	550 N/mm ²
Tensile strength R _m	860 N/mm ²	620 N/mm ²
Elongation A ₅	28 %	18 %
Impact toughness KV		
+20°C	170 J	
-50°C	160 J	
Hardness approx.	280 Brinell	

Interpass temperature: Max. 100°C.

Heat input: 0.5 – 1.5 kJ/mm.

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

Structure: Duplex (austenite with 45 – 55% ferrite).

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

Corrosion resistance: Very good resistance to pitting and stress corrosion cracking in chloride containing environments. PREN>41.5. Meets the corrosion test requirements per ASTM G48 Methods A, B and E (40°C).