

Classification

EN ISO 14343-A	AWS A5.9
W 19 12 3 Nb Si	-

Characteristics and typical fields of application

Avesta 318/SKNb is used for welding titanium and niobium stabilized steel type 17 Cr 11 Ni 2.5 Ti or similar. A stabilized weld metal possesses improved high temperature properties, e.g. creep resistance, compared to low-carbon non-stabilized materials. 318/SKNb shows somewhat better properties than 316L/SKR at elevated temperatures and is therefore recommended for applications where service temperatures exceed 400 °C.

Structure: Austenite with 5 – 10 % ferrite.

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

Corrosion resistance:

The corrosion resistance corresponds to that of ASTM 316Ti, i.e. good resistance to general, pitting and intercrystalline corrosion.

Base materials

Outokumpu 4571, ASTM 316Ti, EN 1.4571

Typical analysis of the solid wire (wt.-%)

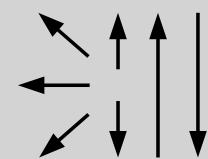
	C	Si	Mn	Cr	Ni	Mo	Nb	Ferrite
wt.-%	0.04	0.85	1.3	19.0	12.0	2.6	> 12xC	10 FN (DeLong)

Mechanical properties of all-weld-metal

Heat treatment	Yield strength R _{p0.2}	Tensile strength R _m	Elongation (L ₀ =5d ₀)	Impact work ISO-V KV J	Hardness
	MPa	MPa	%	+20 °C	Brinell
u	520	690	31	110	220

u untreated, as welded – Shielding gas Ar 99.5 %

Operating data

	Polarity DC (+)	Shielding gas Ar (99.5 %) Ar + 20 – 30 % He Ar + 1 – 5 % H ₂ Gas flow rate 4 – 8 l/min	ø (mm) 1.0 1.6 2.0
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Heat treatment: Generally none (in special cases quench annealing at 1050 °C). Interpass temperature: Max. 150 °C. Heat input: Max. 2.0 kJ/mm.

Approvals

TÜV, CE