Avesta Welding

FCW-2D 347/MVNb

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
4541	1.4541	321	321S31	Z6 CNT 18-10	2337
–	1.4550	347	347S31	Z6 CNNb 18-10	2338

Standard designations

EN ISO 17633 T 19 9 Nb R M/C 3
AWS A5.22 E347T0-4/-1

Characteristics and welding directions

AVESTA FCW-2D 347/MVNb is used for welding titanium and niobium stabilised steel of type 19 Cr 10 Ni or similar.

A stabilised weldment posses improved high temperature properties, e.g. creep resistance, compared to low-carbon non-stabilised materials. FCW 347 is therefore primarily used for applications where service temperatures exceed 400°C.

AVESTA FCW-2D 347/MVNb is primarily designed for flat welding, but can also be used in the horizontal-vertical position with good result.

Welding data

Diameter mm	Welding position	Current A	Voltage V
1.20	Flat, horizontal	125 – 280	20 – 34

Shielding gas

Ar + 15 – 25% CO_2 offers the best weldability, but 100% CO_2 can also be used (voltage should be increased by 2V).
Gas flow rate 20 – 25 l/min.

Chemical composition, all weld metal (typical values, %)

C	Si	Mn	Cr	Ni	Nb
0.03	0.7	1.4	19.0	10.4	>8xC

Ferrite	7 FN	DeLong
	7 FN	WRC-92

Mechanical properties	Typical values (IIW)	Min. values EN ISO 17633
Yield strength $R_{p0,2}$	420 N/mm^2	350 N/mm^2
Tensile strength R_m	600 N/mm^2	550 N/mm^2
Elongation A_5	35 %	30 %
Impact strength KV		
+20°C	75 J	
Hardness	220 Brinell	

Interpass temperature: Max. 150°C.

Heat input: Max. 2.0 kJ/mm.

Heat treatment: Generally none. 347 type FCW can be used for cladding, which normally requires stress relieving at around 590°C. Such a heat treatment will reduce the ductility of the weld at room temperature. Always consult expertise before performing post-weld heat treatment.

Structure: Austenite with 5 – 10% ferrite.

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

Corrosion resistance: FCW 347 is primarily intended for high temperature service or applications that should be heat treated. However, the corrosion resistance corresponds to that of 308H, i.e. good resistance to general corrosion.

Approvals

• CE • TÜV