Avesta Welding

FCW-2D 316L/SKR

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
4436	1.4436	316	316S33	Z7 CND 18-12-03	2343
4432	1.4432	316L	316S13	Z3 CND 17-12-03	2353
4429	1.4429	S31653	316S63	Z3 CND 17-12 Az	2375
4571	1.4571	316Ti	320S31	Z6 CNDT 17-12	2350

Standard designations

EN ISO 17633 T 19 12 3 L R M/C 3
AWS A5.22 E316LT0-4/-1

Characteristics and welding directions

AVESTA FCW 316L is designed for welding austenitic stainless steel type 17 Cr 12 Ni 2.5 Mo. It is also suitable for welding titanium and niobium stabilised steels such as ASTM 316Ti in cases where the construction will be operating at temperatures below 400°C.

AVESTA FCW-2D 316L/SKR is designed for welding in flat and horizontal-vertical position. Diam. 0.9 mm can be welded in all positions.

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

C	Si	Mn	Cr	Ni	Mo
0.03	0.7	1.5	19.0	12.0	2.7

Ferrite 11 FN DeLong
8 FN WRC-92

Mechanical properties	Typical values (IIW)	Min. values EN ISO 17633
Yield strength $R_{p0,2}$	400 N/mm²	320 N/mm²
Tensile strength R_m	560 N/mm²	510 N/mm²
Elongation A_5	38 %	25 %
Impact strength KV		
+20°C	55 J	
–120°C	35 J	
Hardness	210 Brinell	

Welding data

Diameter mm	Welding position	Current A	Voltage V
0.90	Flat, horizontal, vertical-up	100 – 160	21 – 30
1.20	Flat, horizontal	125 – 280	20 – 34
1.60	Flat, horizontal	200 – 300	25 – 35

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.

Interpass temperature: Max. 150°C.

Heat input: Max. 2.0 kJ/mm.

Heat treatment: Generally none (in special cases quench annealing at 1050°C).

Structure: Austenite with 5 – 10% ferrite.

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

Corrosion resistance: Excellent resistance to general, pitting and intercrystalline corrosion in chloride containing environments. Intended for severe service conditions, i.e. in dilute hot acids.

Approvals

- CE
- CWB
- DB
- DNV
- GL
- TÜV

Annexe 3
WP056/001
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