

For welding steel 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

* Obsolete national standards, replaced by EN 10088.

Characteristics

AVESTA FCW-3D 316L/SKR is a new type of flux cored wire with very good weldability in all welding positions. The flux composition ensures excellent arc stability, very little spatter, a smooth weld surface and self-releasing slag.

AVESTA FCW-3D 316L/SKR is designed for welding austenitic stainless steel type 17 Cr 12 Ni 2.5 Mo, but can also be used for welding titanium and niobium stabilised steels such as ASTM 316Ti, in cases where the construction will be used at temperatures below 752°F (400°C).

The chemical composition and mechanical properties of the weld metal meet the requirements of both EN 12073:1999 and AWS A5.22-95.

Welding directions

AVESTA FCW-3D 316L/SKR should be welded using direct current, positive polarity (DC+) with a recommended wire stick-out of 15–20 mm. Compared to the MIG-method, the range of welding current and voltage is considerably wider.

Welding data

Ø inch	Horizontal		Vertical up		Overhead	
	A	V	A	V	A	V
0.045	200-280	29-31	140-180	23-26	150-200	24-29

For further recommendations, please contact Avesta Welding.

Shielding gas recommendations

Welding is preferably done using an Ar-based shielding gas with addition of 15–25%CO₂, which will give the best result with respect to arc stability, melt pool control and spatter. However, 100%CO₂ can also be used., but then the welding voltage should be increased by 2–3 V to ensure the right arc length.

Gas flow rate is typically 20–25 l/min.

Standard designations

EN 12073 T 19 12 3 L P M 2/C 1
AWS A5.22 E316LT1-1/4

Chemical composition - Typical values, %

C	0.03	Cr	18.3
Si	0.7	Ni	12.7
Mn	1.2	Mo	2.7
		N	0.02
Ferrite	10 FN DeLong 7 FN WRC-92		

Mechanical properties – Typical values, IIW

	Typ. values				
Yield strength, R _{p0.2}	410	N/mm ²	59	Ksi	
Tensile strength, R _m	560	N/mm ²	81	ksi	
Elongation, A ₅	33	%	33	%	
Impact strength, KV	+20°C	55	J	41	ft-lb
	-60°C	46	J	34	ft-lb

Interpass temperature: Max. 300°F (150°C)

Heat input: Max. 50.8kJ/in (2.0 kJ/mm)

Heat treatment: Generally none. In special cases quench annealing at 1922°F (1050°C).

Structure: Austenite with 5–10% ferrite.

Scaling temperature: Approx. 1562°F (850°C) (air).

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

Approvals: