

For welding steel such as:

Outokumpu	EN	ASTM	SS*	BS*	NF*
4401	1.4401	316	2347	316S16	Z7 CND 17-11-02
4571	1.4571	316Ti	2350	320S17	Z6 CNDT 17-12
-	1.4919	316H	2347	S316S51	Z6 CND 17-13

* Obsolete national standards, replaced by EN 10088.

Characteristics

AVESTA 316L AC/DC has a rutile-acid type coating, which ensures very good weldability when working with both positive pole DC and AC.

AVESTA 316L conforms to all requirements of ASME SAF 5.4 and AWS A5.4. The difference between the electrodes 316L and 316L/SKR is that 316L/SKR does not meet the length specified in AWS A5.4.

AVESTA 316L/ AC/DC is used for welding austenitic chromium-nickel-molybdenum steels of the ASTM 316 and 316L types. It can also be used for welding niobium and titanium stabilised steels such as ASTM 316Ti and 316Nb. However, if the welded component is intended for use at temperatures exceeding 400°C stabilised welding electrodes (AVESTA 318/SKNb) should be used.

Welding directions

AVESTA 316L should be welded using a short arc or with its coating sliding on the workpiece. Positive pole DC is preferable. The best result is achieved by using an amperage in the upper region of the amperage range stated.

Weld deposit data at maximum welding current

Diam. mm	Length mm	N	B	H	T	Metal recovery, approx. %
1.6	250					
2.0	250	0.58	181	0.75	26	107
2.5	300	0.56	92	0.99	40	107
3.25	350	0.58	45	1.58	51	109
4.0	350	0.58	30	2.07	57	107
5.0	350	0.63	19	3.10	60	106

Packaging data

Diam. mm	Length mm	Weight/ capsule, kg	Approx. No. of electrodes/ capsule	Weight/ carton, kg
1.6	250	1.36	189	8.16
2.0	250	1.36	137	8.16
2.5	300	3.63	182	10.89
3.25	350	4.10	107	12.30
4.0	350	4.54	72	12.30
5.0	350	4.54	55	13.62

Approvals: CWB, TÜV

Standard designations

EN 1600 E 19 12 3 L R
AWS A5.4 E316L-17

Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni	Mo
0.02	0.8	1.0	18.5	12.0	2.8
Ferrite		10 FN DeLong			

Mechanical properties

	Typical values (IIW)	Min. values EN 1600
Yield strength, R _{p0.2}	445 N/mm ²	320 N/mm ²
Tensile strength, R _m	590 N/mm ²	510 N/mm ²
Elongation, A ₅	36 %	25 %
Impact strength, KV		
+20°C	55 J	
-40°C	35 J	
Hardness approx.	210 Brinell	

Welding data

DC+ or AC	Diam., mm	Current, A
	1.6	25– 45
	2.0	35– 60
	2.5	50– 80
	3.25	80–120
	4.0	100–160
	5.0	160–220

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 chlorine containing environments. Intended for severe service conditions, e.g. in dilute hot acids.

Welding positions

