

For welding steel such as:

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

* Obsolete national standards, replaced by EN 10088.

Characteristics

AVESTA 316L/SKR-HX AC/DC is a high recovery electrode offering good welding properties with both positive pole DC and AC. The slag and weld pool produced are easily controlled and slag removal is excellent.

AVESTA 316L/SKR-HX is an economical electrode particularly suitable for welding heavy constructions, e.g. in cases where automatic welding is uneconomical due to long set-up times.

AVESTA 316L/SKR-HX produces weld beads with very good geometry. Due to its special high recovery properties, this electrode produces a large amount of weld metal in short space of time, with the result that the heat effect on the parent metal is relatively low.

AVESTA 316L/SKR-HX 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/SKR-HX is mainly designed for flat position welding, but other welding positions may also be used, provided that the parent metal thickness is sufficient.

AVESTA 316L/SKR-HX should be welded using a short arc or with its coating sliding along the workpiece.

Weld deposit data at maximum welding current

Diam. mm	Length mm	N	B	H	T	Metal recovery, approx. %
2.5	350	0.60	54	1.47	45	151
3.25	400	0.58	31	2.11	56	136
4.0	450	0.64	17	3.10	69	146
5.0	450	0.63	11	4.18	78	140

Packaging data

Diam. mm	Length mm	Weight/ capsule, kg	Approx. No. of electrodes/ capsule	Weight/ carton, kg
2.5	350	4.00	129	12.00
3.25	400	4.54	81	13.62
4.0	450	5.60	60	16.80
5.0	450	4.80	33	14.40

Approvals: CWB, DNV, TÜV.

Standard designations

EN 1600 E 19 12 3 L R
AWS A5.4 E 316L-17

Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni	Mo
0.03	0.8	0.8	18.0	12.0	2.8

Ferrite 10 FN DeLong

Mechanical properties

	Typical values (IIW)	Min. values EN 1600
Yield strength, R _{p0.2}	420 N/mm ²	320 N/mm ²
Tensile strength, R _m	575 N/mm ²	510 N/mm ²
Elongation, A ₅	37 %	25 %
Impact strength, KV		
+20°C	55 J	-
-40°C	55 J	-
Hardness approx.	210 Brinell	

Welding data

DC+ or AC	Diam. mm	Current A
	2.5	60– 90
	3.25	80–130
	4.0	110–170
	5.0	170–230

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

