

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-4D is a thin-coated, rutile-acid type electrode specially developed for the welding of thin walled pipelines and sheets, mainly in the chemical process and papermaking industries.

AVESTA 316L/SKR-4D is characterised by its exceptionally good arc stability, weld pool control, slag removal and restriking properties. This makes it highly suitable for welding in restrained positions and under difficult site conditions, where it offers considerably higher productivity than manual TIG-welding.

AVESTA 316L/SKR-4D is also recommended for root runs and multipass welds in general fabrication of ASTM 316-type stainless steels in all material thicknesses.

#### Welding directions

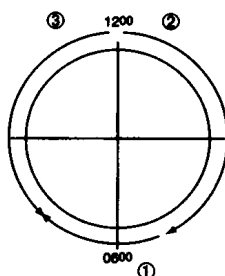
AVESTA 316L/SKR-4D is designed for the continuous welding of pipes.

The combination of low welding currents and good fluidity means that pipes with a wall thickness of 2 mm can be welded using an electrode with a diameter of 2 mm.

Pipe welding can be performed in several different ways. One possibility is to start in the overhead position (1), followed by vertical down on both (2 and 3).

Another possibility is to start at the 7 o'clock position and weld vertical up to the 11 o'clock position on both sides. This requires an inverter power source with a remote control.

To bridge large root gaps DC- is often preferred.



#### Packaging data

Diam. mm	Length mm	Weight/capsule, kg	Approx. No. of electrodes/capsule	Weight/ carton, kg
1.6	250	1.36	252	8.16
2.0	250	1.60	186	9.60
2.0	300	1.70	163	10.20
2.5	300	1.81	112	10.86
3.25	350	4.10	128	12.30

Approvals: –

#### 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	0.7	18.2	12.0	2.6

Ferrite 8 FN DeLong

#### Mechanical properties

	Typical values (IIW)	Min. values EN 1600
Yield strength, R <sub>p0.2</sub>	480 N/mm <sup>2</sup>	320 N/mm <sup>2</sup>
Tensile strength, R <sub>m</sub>	590 N/mm <sup>2</sup>	510 N/mm <sup>2</sup>
Elongation, A <sub>5</sub>	34 %	25 %
Impact strength, KV		
+20°C	60 J	
-20°C	55 J	
Hardness approx.	210 Brinell	

#### Welding data

DC+/- or AC	Diam., mm	Current, A
	1.6	15– 40
	2.0	25– 55
	2.5	30– 85
	3.25	45–110

**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 6–12 % 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

