

Classifications

EN ISO 3581-A	AWS A5.4 / SFA-5.4
E 19 12 3 L R 3 2	E316L-17

Characteristics and typical fields of application

Rutile thin-coated, core wire alloyed electrode of E 19 12 3 L R / E316L-17 type. Specially developed for welding thin-walled pipes and sheets, mainly in the chemical process and papermaking industries. Highly suitable for welding restrained positions and under difficult site conditions, where it offers considerably higher productivity than manual TIG welding. It is also recommended for root runs and multi-pass welds in general fabrication of 1.4404 and 1.4436 / 316L type stainless steels. The weld metal offers a good resistance to general corrosion, pitting and intercrystalline corrosion in chloride-containing environments e.g. for applications in dilute hot acids. Scaling temperature approximately 850°C in air. Max. service temperature 400°C.

Base materials

1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4409 GX2CrNiMo19-11-2, 1.4429 X2CrNiMoN17-12-3, 1.4432 X2CrNiMo17-12-3, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-12-3, 1.4571 X6CrNiMoTi17-12-2, 1.4580 X6CrNiMoNb17-12-2, 1.4583 X10CrNiMoNb18-12
UNS S31600, S31603, S31635, S31640, S31653
AISI 316L, 316Ti, 316Cb

Typical analysis

	C	Si	Mn	Cr	Ni	Mo
wt.-%	0.02	0.8	0.7	18.2	12.2	2.6

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %	Impact energy ISO-V KV J		Hardness HB
				20°C	-20°C	
u	450 (≥ 320)	580 (≥ 510)	34 (≥ 25)	55	50 (≥ 32)	210

u untreated, as-welded

Operating data

	Polarity	DC+ / AC	Dimension mm	Current A
	Electrode identification	316L-17/SKR-4D	2.5 x 300	30 – 85
			3.2 x 350	45 – 110

Suggested heat input is max. 2.0 kJ/mm, interpass temperature max. 150°C.

Preheating and post-weld heat treatment not necessary. In special cases, solution annealing can be performed at 1050°C followed by water quenching.

Metal recovery approximately 105%.

Pipe welding can be performed in several different ways. One possibility is to start welding in overhead position, followed by vertical-down welding on both sides from the 12 o'clock position. 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.

Polarity: DC+ / AC. To bridge root gaps, DC- is often preferred.

Approvals

TÜV (10710), CE