

Classifications

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22 / SFA-5.22
T 19 12 3 LR M21 (C1) 3	TS 316L-F M21 (C1) 0	E316LT0-4(1)

Characteristics and typical fields of application

Rutile flux-cored wire of T 19 12 3 LR / E316LT0 type for welding of stainless steels such as 1.4435 / 316L. Easy handling and high deposition rate result in high productivity with excellent welding performance and very low spatter formation. Increased travel speeds as well as self-releasing slag with little demand for cleaning and pickling provide considerable savings in time and money. The wire shows good wetting behavior and results in a finely rippled surface pattern. The wide arc ensures even penetration and side-wall fusion to prevent lack of fusion. Suitable for service temperatures from -120°C to 400°C . The scaling temperature is approx. 850°C in air. For welding in vertical-up and overhead positions, FOXcore 316L-T1 should be preferred.

Base materials

1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4409 GX2CrNiMo19-11-2, 1.4432 X2CrNiMo17-12-3, 1.4429 X2CrNiMoN17-12-3, 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	FN
wt.-%	0.03	0.7	1.5	19.0	12.0	2.7	3 – 12

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

Condition	Yield strength $R_{p0.2}$	Tensile strength R_m	Elongation A ($L_0=5d_0$)	Impact energy ISO-V KV J	
	MPa	MPa	%	20°C	-120°C
u	410 (≥ 320)	550 (≥ 510)	34 (≥ 30)	50	35 (≥ 32)

u untreated, as-welded – shielding gas M21 (Ar + 18% CO₂)

Operating data

Polarity	DC +	Dimension mm
Shielding gas (EN ISO 14175)	M21, (C1)	1.2
		1.6

Welding with standard GMAW power source with DC+ polarity. No pulsing needed. Backhand (drag) technique preferred with a work angle of approximately 80° . Ar + 15 – 25% CO₂ as shielding gas offers the best weldability. 100% CO₂ can be also used, but the voltage should be increased by 2 V. Suitable gas flow rate is 16 – 25 l/min. The heat input should not exceed 2.0 kJ/mm, the interpass temperature be limited to max. 150°C and the wire stick-out 15 – 20 mm. Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1050°C followed by water quenching.

Approvals

TÜV (05349), DB (43.014.15), DNV GL, LR (M21), CE