

Classifications

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22 / SFA-5.22
T 19 9 L P M21 (C1) 1	TS 308L-F M21 (C1) 1	E308LT1-4(1)

Characteristics and typical fields of application

Rutile flux-cored wire of T 19 9 L P / E308LT1 type designed for welding 1.4307 / 304L type stainless steels with good corrosion resistance under moderately severe conditions, e.g. in oxidizing acids and cold or dilute reducing acids. Also suitable for welding steels that are stabilized with titanium or niobium, such as 1.4541 / 321, 1.4878 / 321H and 1.4550 / 347, but for service temperatures above 350°C, a niobium-stabilized wire such as FOXcore 347-T1 would be required. The scaling temperature is approximately 850°C in air. Designed for all-round welding and can be used in all positions without changing the parameter settings. Very good slag detachability and almost no spatter formation. Due to the fast freezing rutile slag, the weldability is excellent also in the vertical-up and overhead positions. The wide arc ensures even penetration and side-wall fusion to prevent lack of fusion. Suitable for service temperatures from -196°C to 350°C. For flat and horizontal welding positions, FOXcore 308L-T0 or FOXcore 308L-T0 DG may be preferred.

Base materials

1.4301 X5CrNi18-10, 1.4306 X2CrNi19-11, 1.4307 X2CrNi18-9, 1.4311 X2CrNiN18-9,
1.4312 GX10CrNi18-8, 1.4541 X6CrNiTi18-10, 1.4546 X5CrNiNb18-10, 1.4550 X6CrNiNb18-10
UNS S30400, S30403, S30453, S32100, S34700
AISI 304, 304L, 304LN, 302, 321, 347

Typical analysis

	C	Si	Mn	Cr	Ni	FN
wt.-%	0.03	0.7	1.5	19.8	10.5	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		Hardness
	MPa	MPa	%	20°C	-196°C	HB
u	380 (≥ 320)	535 (≥ 520)	40 (≥ 30)	70	36 (≥ 32)	200

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

Operating data

	Polarity	DC +	Dimension mm
	Shielding gas (EN ISO 14175)	M21, (C1)	0.9
			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 offers the best weldability. 100% CO₂ can be also used, but the voltage should be increased by 2 V. Suitable gas flow rate for welding is 16 – 25 l/min. Suggested heat input is max. 2.0 kJ/mm, interpass temperature max. 150°C and 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 (09117), DB (43.014.23), ABS, CWB, DNV GL, CE