

Classifications

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

Characteristics and typical fields of application

Rutile strip-alloyed flux-cored wire of T 19 9 L P / E308LT1 type for welding of stainless steels such as EN 1.4306 / AISI 304L. The fast freezing slag offers excellent weldability and slag control in all positions. 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 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 (1G, 1F and 2F) BÖHLER EAS 2-FD may be preferred.

Base materials

EN 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; ASTM A157 Gr. C9, A320 Gr. B8C or D

Typical analysis of all-weld metal

	C	Si	Mn	Cr	Ni	Ferrite WRC-92
wt.-%	0.03	0.7	1.5	19.8	10.5	FN
						3 – 10

Mechanical properties of all-weld metal – typical values (minimum values)

Condition	Yield strength $R_{p0.2}$	Tensile strength R_m	Elongation A ($L_0=5d_0$)	Impact work ISO-V KV J	
	MPa	MPa	%	20°C	-196°C
u	380 (≥ 320)	535 (≥ 520)	39 (≥ 30)	70	38 (≥ 32)

u untreated, as welded – shielding gas Ar + 18 % CO_2

Operating data

	\varnothing (mm)	Wire feed m/min	Arc length mm	Current A	Voltage V
	0.9	8.0 – 15.0	~ 3	100 – 160	22 – 27
	1.2	6.0 – 15.0	~ 3	150 – 280	22 – 30
	1.6	4.5 – 9.5	~ 3	200 – 360	23 – 28

Welding with standard GMAW power source with DC+ polarity. No pulsing needed. Backhand (drag) technique preferred with a work angle of appr. 80° . Ar + 15 – 25 % CO_2 as shielding gas offers the best weldability. 100 % CO_2 can be also used, but the voltage should be increased by 2 V. The gas flow should be 15 – 18 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. The scaling temperature is approx. 950°C in air. 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), DNV GL, CE