FOXcore 309L-T1

Flux-cored wire, high-alloyed, austenitic stainless, special applications

Classifications

AWS A5.22 / SFA-5.22	EN ISO 17633-A	EN ISO 17633-B
E309LT1-4(1)	T 23 12 L P M21 (C1) 1	TS 309L-F M21 (C1) 1

Characteristics and typical fields of application

Rutile flux-cored wire of type E309LT1 / T 23 12 L P is primarily intended for surfacing low-alloyed steels and for dissimilar welds between mild steel and CrNi stainless steels. Ferrite measured with FeritScope MP30 14-22 FN. Corrosion resistance is superior to E308L / T 19 9 L fillers. When used for overlay welding on mild steel a corrosion resistance equivalent to that of 1.4301 / 304 is obtained in the first layer. The wide arc ensures even root and side-wall penetration to prevent lack of fusion. It is designed for all purpose welding and can be used in all positions without changing the parameters, when set up correctly. Due to the fast freezing rutile slag, the weldability is excellent particularly in the vertical-up and overhead positions. Very good slag detachability and almost no spatter. Suitable for service temperatures from –75ºF to 570ºF. The scaling temperature is approximately 1830ºF in air. For flat and horizontal welding positions, FOXcore 309L-T0 DG may be preferred.

Base materials

Primarily used for surfacing (buffer layer) unalloyed or low-alloyed steels and when joining non-molybdenum-alloyed stainless steels to carbon steels. Joints between austenitic steels, austenitic and ferritic heat resistant steels with ferritic steels, pressure boiler steels, fine grained structural steels and ship building steels, etc.

Typical analysis

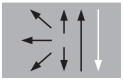
	C	Si	Mn	Cr	Ni	FN
wt.-%	0.03	0.7	1.4	23.0	12.5	12 – 23

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 (ft.lbf)			Hardness
	ksi	ksi	%	68°F	0°F	-70°F	HB
u	61 (46)	78 (75)	36 (30)	44	41	37 (24)	210

u untreated, as-welded – shielding gas M21 (Ar + 18% CO_2)

Operating data



Dimension
0.035
0.045"
1/16"

Welding with standard GMAW power source with DC+ polarity. No pulsing needed. Backhand (drag) technique preferred with a work angle of approximately 80º. Ar + 15 – 25% CO_2 offers the best weldability. 100% CO_2 can be also used, but the voltage should be increased by 2 V. Suitable gas flow rate for welding outdoors is 30-50scfh. Suggested heat input is max. 50 kJ/in and wire stick-out 5/8"-3/4" For dissimilar welding, slight weaving is recommended for all welding positions. Post-weld heat treatment generally not needed. For constructions that include dissimilar welding of low-alloyed steels, a stress-relieving annealing stage may be advisable. Always consult the supplier of the parent material or seek other expert advice to ensure that the correct heat treatment process is carried out. Preheat and interpass temperatures as required by the base metal.

Approvals

TÜV (09115), DB (43.014.22), DNV GL, LR, RINA (M21), BV (Ø 0.045

All information provided is based upon careful investigation and intensive research.
However, we do not assume any liability for correctness and information is subject to change without notice.