FOXcore 307-T0

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

Classifications

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22 / SFA-5.22
T 18 8 Mn R M21 (C1) 3	TS Z307-F M21 (C1) 0	E307T0-G

Characteristics and typical fields of application

Rutile flux-cored wire of T 18 8 Mn R / E307LT0 type for welding and cladding in flat and horizontal position. One of the most universal alloys and for some applications a cost-efficient alternative to E312 or E309L. For tough buffer and intermediate layers for cladding of rails and switches, valve seats and in hydropower plants. Good resistance to embrittlement when operating at service temperatures from –60ºC up to 650ºC. 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. Used for fabrication, repair and maintenance. The weld deposit offers high ductility and elongation, also after high dilution of "hard-to-weld" steels. The weld metal work hardens and offers good resistance to cavitation. The weld metal is resistant to scaling up to 850ºC, but at temperatures above 500ºC there is not sufficient resistance to sulfurous combustion gases. Ferrite measured with Fischer Feritescope 2 – 8 FN. For welding in vertical-up and overhead positions, FOXcore 307-T1 should be preferred.

Base materials

Dissimilar joints, tough buffer and intermediate layers prior to hardfacing, 14Mn steels, 13 – 17% Cr and heat resistant Cr and austenitic steels up to 850ºC, armor plates, high carbon and quenched and tempered steels, surfacing of gears, valves, turbine blades, etc. For joint welding of unalloyed / low alloyed or Cr steels with high-alloyed Cr and CrNi steels. Welding of austenitic high manganese steels and with other steels.

Typical analysis

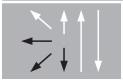
	C	Si	Mn	Cr	Ni	FN
wt.-%	0.10	0.8	6.8	18.8	9.5	2 – 8

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	Stress hardened
	MPa	MPa	%	20°C	–60°C	HB	HV
u	395 (≥ 350)	595 (≥ 590)	40 (≥ 30)	55	36 (≥ 32)	~ 200	≤400

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

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% 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. Suitable gas flow rate is 16 – 25 l/min. The wire stick-out should be 15 – 20 mm and the heat input not exceed 2.0 kJ/mm. Preheating and interpass temperature as required by the base metal.

Approvals

TÜV (11101), CETÜV (11101), CE