

Classifications

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22 / SFA-5.22
T 23 7 N L P M21 (C1) 1	TS 2307-F M21 (C1) 1	E2307T1-4(1)

Characteristics and typical fields of application

Rutile flux-cored wire of T 23 7 N L P / E2307T1 type for welding the lean duplex stainless steels LDX 2101® 1.4162 / UNS S32101, 2304 (1.4362 / UNS S32304) and similar alloys. The combination of excellent strength and better resistance to pitting corrosion, crevice corrosion and stress corrosion cracking than 1.4301 / 304 and 1.4307 / 304L makes this alloy suitable for construction for instance storage tanks, containers, heat exchangers and pressure vessels. Thanks to the low molybdenum content, the resistance to pitting corrosion and stress corrosion cracking in nitric acid containing environments is very good. Typical applications are within civil engineering, transportation, desalination, water treatment, pulp & paper, etc.

FOXcore 2307-T1 has a stronger arc and a faster freezing slag compared to FOXcore 2307-T0. It is designed for all-round welding and can be used in all positions without changing the parameter settings. Weldability is excellent in the vertical-up and overhead welding positions. The wire is over-alloyed with nickel to promote weld metal austenite formation. Ferrite measured with FeritScope MP30: ≥ 30 FN. Suitable for service temperatures from -50°C to 250°C .

Base materials

1.4162 X2CrMnNiN21-5-1, 1.4362 X2CrNiN23-4, 1.4482 X2CrMnNiMoN21-5-3
 UNS S32101, S32001, S32304
 LDX 2101®, SAF 2304, 2001
 ASME SA 240, ASME SA 790, ASME Code Case 2418 and similar alloys.

Typical analysis

	C	Si	Mn	Cr	Ni	Mo	N	PRE _N	FN
wt.-%	0.025	0.6	1.1	24.9	9.1	0.4	0.14	≥ 27	> 30

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

Condition	Yield strength	Tensile strength	Elongation A	Impact energy ISO-V KV J		Hardness
	R _{p0.2}	R _m	(L ₀ =5d ₀)	20°C	-40°C	
	MPa	MPa	%	70	50 (≥ 32)	HB
u	580 (≥ 450)	750 (≥ 690)	31 (≥ 20)			240

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

Operating data

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

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 and the weld metal austenite content increases somewhat. Suitable gas flow rate is 16 – 20 l/min. Suggested heat input is 0.5 – 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 $1020 - 1080^{\circ}\text{C}$ followed by water quenching.

Approvals

ABS (C1), CE