

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9	EN ISO 14174
S 23 7 N L	ER2307	S AAF 2 DC

Characteristics and typical fields of application

Thermanit 23/07 - Marathon 805 is a wire/flux combination for submerged arc welding the duplex steel 1.4362 / UNS S32304 and the lean duplex stainless steel LDX 2101® (1.4162 / UNS S32101) and similar grades. SAW solid wire of S 23 7 N L / ER2307 type with low molybdenum content, which makes it well-suited for nitric acid environments. Over-alloyed with nickel to promote weld metal austenite formation and designed to result in weld metal ferrite levels of 35 – 55%.

The combination of excellent strength and better resistance to pitting corrosion, crevice corrosion and stress corrosion cracking than the base material 1.4307 / 304L makes this alloy suitable for construction of i.e. storage tanks, containers, heat exchangers and pressure vessels. Typical applications are within civil engineering, transportation, desalination, water treatment, pulp & paper, etc. Very good resistance to pitting corrosion and stress corrosion cracking in nitric acid environments. Former product names of the SAW wire were "Avesta 2304" and "Avesta LDX 2101".

Marathon 805 is an agglomerated basic flux that ensures good welding properties with nice bead appearance and good slag detachability. The flux avoids excessive Cr-burn-out (Cr-support). For more information regarding this sub-arc welding flux see the separate datasheet. The former product name of the SAW flux was "Avesta Flux 805".

Base materials

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

Typical analysis

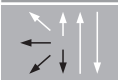
wt.-%	C	Si	Mn	Cr	Ni	Mo	N	FN
wire	0.015	0.50	0.75	23.5	7.5	0.25	0.15	40
all-weld metal	0.015	0.70	0.60	24.0	7.4	0.25	0.13	40

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	
	MPa	MPa	%	20°C	-40°C
u	(≥ 570)	(≥ 750)	(≥ 25)	140	60

u untreated, as-welded

Operating data

	Dimension mm	Current A	Voltage V
	2.4	300 – 500	28 – 33
	3.2	400 – 600	29 – 34

Suggested heat input is 0.5 – 2.0 kJ/mm and interpass temperature max. 150°C. Polarity: DC+

Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1020 – 1080°C followed by water quenching.

Approvals

TÜV (10011), CE