Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9	EN ISO 14174
S 19 9 L	ER308L	S A FB 2 DC

Characteristics and typical fields of application

Thermanit JE-308L - Marathon 431 is a wire/flux combination for submerged arc welding of stainless steel grades such as 1.4306 / 304L. Solid SAW wire of S 19 9 L / ER308L type for joining and surfacing applications with matching and similar stabilized and unstabilized austenitic CrNi(N) and CrNiMo(N)-steels and cast steel grades. Max. service temperature 350ºC. Corrosion resistance similar to matching low-carbon and stabilized austenitic 18Cr-8Ni(N)-steels and cast steel grades. Good toughness at subzero temperatures as low as −196ºC.

Marathon 431 is an agglomerated basic flux that ensures good welding properties with nice bead appearance and good slag detachability. For more information regarding this sub-arc welding flux, see the separate datasheet.

Base materials

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
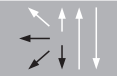AISI 304, 304L, 304LN, 302, 321, 347

Typical analysis

wt.-%	C	Si	Mn	Cr	Ni
wire	0.015	0.45	1.6	20.0	10.0
all-weld metal	0.015	0.60	1.3	19.5	9.8

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	
	MPa	MPa	%	20°C	−196°C
u	(≥ 320)	(≥ 550)	(≥ 30)	(≥ 65)	40

u   untreated, as-welded

Operating data

Dimension mm	Current A	Voltage V
1.6	200 – 300	26 – 30
2.4	300 – 400	29 – 33
3.2	350 – 500	29 – 33
4.0	425 – 575	30 – 34

Suggested heat input is max. 2.0 kJ/mm and interpass temperature max. 150ºC. Polarity: DC+
Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1050ºC followed by water quenching.

Approvals

TÜV (06114), CE