Thermanit A-318 - Marathon 431

SAW wire/flux combination, high-alloyed, austenitic stainless, stabilized

(Thermanit A - Marathon 431)

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9	EN ISO 14174
S 19 12 3 Nb	ER318	S A FB 2 DC

Characteristics and typical fields of application

Thermanit A-318 - Marathon 431 is a wire-flux-combination for submerged arc welding of stainless steel grades such as 1.4571 / 316Ti. Solid SAW wire of S 19 12 3 Nb Si / ER318 (mod.) type for joining and surfacing application with matching and similar stabilized and unstabilized austenitic CrNi(N) and CrNiMo(N)-steels and cast steel grades. Corrosion resistance similar to matching stabilized CrNiMo-steels. Max. service temperature 400ºC. Applicable for service temperatures down to –120ºC. The former product name of the SAW wire was "Thermanit A".

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

1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4409 GX2CrNiMo19-11-2, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-13-3, 1.4437 GX6CrNiMo18-12, 1.4571 X6CrNiMoTi17-12-2, 1.4580 X6CrNiMoNb17-12-2, 1.4581 GX5CrNiMoNb19-11-2, 1.4583 X10CrNiMoNb18-12
UNS S31600, S31603, S31635, S31640, S31653
AISI 316, 316L, 316Ti, 316Cb

Typical analysis

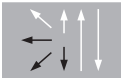
wt.-%	C	Si	Mn	Cr	Ni	Mo	Nb
wire	0.04	0.40	1.8	19.5	11.5	2.6	0.6
all-weld metal	0.04	0.50	1.3	19.0	11.5	2.6	0.5

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	–120°C
u	(≥ 380)	(≥ 550)	(≥ 30)	(≥ 70)	(≥ 40)

u untreated, as-welded

Operating data



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

Suggested heat input max. 1.5 kJ/mm and interpass temperature max. 100ºC. 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 (06985), CE