

## Classifications

<b>EN ISO 14343-A</b>	<b>AWS A5.9 / SFA-5.9</b>	<b>EN ISO 14174</b>
S 23 12 2 L	ER309LMo (mod.)	S A AF 2 DC

## Characteristics and typical fields of application

**Thermanit 309L Mo - Marathon 805** is a wire/flux combination for submerged arc welding. Solid wire of S 23 12 2 L / ER309LMo (mod.) type for surfacing low-alloyed steels and welding dissimilar joints between duplex and stainless steels with unalloyed and low-alloyed steels. The all-weld metal is austenitic - ferrite. When used for surfacing the composition is more or less equal to that of the base material 1.4401/316 from the first run. Designed for very good welding and wetting characteristics and ensuring a high resistance against cracking. Suitable for service temperatures between -40°C and 300°C. The corrosion resistance is superior to that of 1.4404/316L even in the first layer of cladding. Scaling temperature approximately 950°C in air. The former product name of the SAW wire was "Avesta P5".

**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

Suitable for dissimilar joints of unalloyed or low-alloyed steels with stainless steels as well as for cladding on low-alloyed steels.

## Typical analysis


wt.-%	C	Si	Mn	Cr	Ni	Mo	FN
wire	0.02	0.35	1.5	21.5	15.0	2.7	8
all-weld metal	0.01	0.50	1.1	22.0	14.8	2.6	10

## 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
u	420 (≥ 380)	600 (≥ 550)	30 (≥ 24)	≥ 70

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

Preheating and interpass temperature as required by the base metal and should not exceed 150°C. Suggested heat input is max. 2.0 kJ/mm. Polarity: DC+.

For constructions that include low-alloyed steels in mixed joints, a stress-relieving annealing stage may be advisable. However, this type of alloy may be susceptible to embrittlement-inducing precipitation in the temperature range 550 – 950°C. Always consult the supplier of the parent metal or seek other expert advice to ensure that the correct heat treatment process is carried out.

## Approvals

DNV GL