Thermanit 309L - Marathon 805

SAW wire/flux combination, high-alloyed, austenitic stainless, special applications
(Avesta 309L - Avesta Flux 805)

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9	EN ISO 14174
S 23 12 L	ER309L	S A AF 2 DC

Characteristics and typical fields of application

Thermanit 309L - Marathon 805 is a wire/flux combination for submerged arc welding. This is a standard combination for welding dissimilar joints, and the first layer in weld overlay (wire cladding). Solid wire of S 23 12 L / ER309L type for joining unalloyed/low-alloyed steels or stainless heat resistant Cr-steels to austenitic steels. For depositing intermediate layers when welding the side of plates clad with low-carbon unstabilised and stabilised austenitic CrNi(MoN)-alloys. Favorably high chromium and nickel contents, low carbon content. Max. service temperature 350ºC. Well-suited for depositing intermediate layers when welding cladded materials. The former product name of the SAW wire was "Avesta 309L".
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

Dissimilar joint welds: Of and between high-strength, mild steels and low-alloyed QT-steels, stainless, ferritic Cr and austenitic CrNi-steels, manganese steels.
Surfacing: For the first layer of corrosion resistant weld surfacing on ferritic-pearlitic steels in boiler and pressure vessel parts up to fine-grained steel S500N, as well as of high temperature steels such as 1.6310 20MnMoNi5-5, 1.6755 22NiMoCr4-7 and 1.6759 GS-18NiMoCr3-7.

Typical analysis

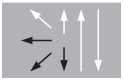
wt.-%	C	Si	Mn	Cr	Ni
wire	0.01	0.50	1.8	24.0	13.5
all-weld metal	0.01	0.60	1.4	24.5	13.5

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
u	400	550	36 (≥ 30)	100

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. Polarity: DC+.
In case of post-weld heat treatment of dissimilar joints, attention must be paid to resistance to intercrystalline corrosion and to susceptibility of the austenitic metal side to embrittlement. For dissimilar joining with unalloyed or low-alloyed steels, no post-weld heat treatment should be performed above 300ºC due to the risk of carbide precipitation in the weld fusion zone causing loss of toughness.

Approvals

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