

## Classifications

<b>EN ISO 14343-A</b>	<b>AWS A5.9 / SFA-5.9</b>	<b>EN ISO 14174</b>
S 20 25 5 Cu L	ER385	S AAF 2 DC

## Characteristics and typical fields of application

**Thermanit 20/25 Cu - Marathon 805** is a wire/flux combination for submerged arc welding of corrosion resistant 4 – 5% Mo-alloyed CrNi-steels such as 1.4539 / 904L. Solid SAW wire of S 20 25 5 Cu L / ER385 type for joining and surfacing work on matching austenitic CrNiMoCu-steels and cast steel grades. For joining these steels with unalloyed and low-alloyed steels. Especially applicable in sulfur and phosphorus production, pulp and paper industry, flue gas desulfurization plants, further on for fertilizer production, petrochemical industry, fatty, acetic and formic acid production, seawater sludge fittings and pickling plants which are proceeded with sea or brackish water. Good corrosion resistance similar to matching steels, above all in reducing environment. The fully austenitic weld metal possesses a marked resistance towards pitting and crevice corrosion in chloride containing media. Highly resistant against sulfuric, phosphoric, acetic and formic acid, as well as seawater and brackish water. The high Ni-content in comparison to standard CrNi-weld metals also leads to high resistance against stress corrosion cracking. Max. service temperature 350°C. The former product name of the SAW wire "Avesta 904L".

**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

1.4465 X1CrNiMoN25-2-2, 1.4505 X4NiCrMoCuNb20-18-2, 1.4506 X5NiCrMoCuTi20-18, 1.4537 X1CrNiMoCuN25-25-5, 1.4538 X2NiCrMoCuN20-18, 1.4539 X2NiCrMoCuN25-20-5, 1.4586 X5NiCrMoCuNb22-18  
UNS N08904 AISI 904L

## Typical analysis

wt.-%	C	Si	Mn	Cr	Ni	Mo	Cu
wire	0.01	0.35	1.6	20.0	25.0	4.5	1.5
all-weld metal	0.015	0.50	1.2	20.5	25.0	4.5	1.5

## Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_p$	Tensile strength $R_m$	Elongation A ( $L_0=5d_0$ )	Impact energy ISO-V KV J
	MPa	MPa	%	20°C
u	410 ( $\geq 320$ )	650 ( $\geq 550$ )	34 ( $\geq 30$ )	( $\geq 90$ )

u untreated, as-welded

## Operating data

### Dimension mm

2.4

3.2

The weld metal has a fully austenitic microstructure and therefore sensitive to hot cracking. No preheating unless required by the parent material. Single wire technique with wire diameter of max. 3.2 mm recommended. Suggested heat input is max. 1.5 kJ/mm, interpass temperature max. 100°C. Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1120°C. Polarity: DC+

## Approvals

TÜV (06666), CE