

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9	EN ISO 14174
S 25 22 2 N L	ER310 (mod.)	S A F 2 A C

Characteristics and typical fields of application

Thermanit 25/22 H - Marathon 104 is a wire/flux combination for submerged arc welding of high-alloyed corrosion resistant steel grades such as 1.4465 / UNS S31050. Solid SAW wire of S 25 22 2 N L / ER310 (mod.) type for joining and surfacing applications with matching/similar steels. Max. service temperature 350°C. Good resistance to nitric acid and pitting corrosion in chloride-bearing environment. Especially for joining and surfacing applications in the equipment manufacturing for urea synthesis plants.

Marathon 104 is an agglomerated fluoride-basic flux for submerged arc welding of stainless and heat resistant steel grades. The weld metal is characterized by high resistance to hot cracking and is recommended for the highest demanding applications. For more information regarding this sub-arc welding flux, see the separate datasheet.

Base materials

Joining: 1.4465, X1CrNiMoN25-25-2, 725LN / UNS S31050

Overlay welding: On unalloyed and low-alloyed steel grades.

Typical analysis

wt.-%	C	Si	Mn	Cr	Ni	Mo	N
wire	0.01	0.10	6.0	25	22.5	2.2	0.12
all-weld metal	0.02	0.25	5.2	24.7	22.5	2.2	0.12

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	(≥ 350)	(≥ 580)	(≥ 35)	(≥ 80)

u untreated, as-welded

Operating data



Dimension mm	Current A	Voltage V
3.0	320 – 450	30 – 34
3.2		

Suggested heat input is max. 1.0 kJ/mm and interpass temperature max. 100°C. Polarity: DC+

Post-weld heat treatment generally not needed when welding similar austenitic base metals.

When cladding and joining creep resistant steels and cast steel grades, preheating is determined by the parent metal, usually 150°C. In case post-weld heat treatment is needed to soften the HAZ of the base metal, stress relieving should be limited to max 530°C (recommended is 510°C for max. 20 h). If it is necessary to apply a post-weld heat treatment above 530°C, the last (cladding) layer should be performed after this post-weld heat treatment.

Approvals

-