Thermanit 13/04 Si - Marathon 203

SAW wire/flux combination, high-alloyed, soft-martensitic stainless

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9	EN ISO 14174
S 13 4	ER410NiMo (mod.)	S A FB 2 DC

Characteristics and typical fields of application

Thermanit 13/04 Si - Marathon 203 is a wire/flux combination for submerged arc welding of soft-martensitic steels such as 1.4313 / UNS S41500. Solid wire of S 13 4 / ER410NiMo (mod.) type. Corrosion resistance similar to matching 13Cr(Ni)-steels and cast steel grades. High resistance to corrosion fatigue cracking. The weld deposit shows a relative high ductility and CVN toughness with high crack resistance. Especially suitable for applications in hydro and steam turbines.
Marathon 203 is a fluoride-basic, agglomerated flux providing good operating characteristics, smooth beads and a low hydrogen weld metal (HD < 5 ml/100 g). For more information regarding this sub-arc welding flux, see the separate datasheet. The former product name of the SAW flux was "BÖHLER BB 203".

Base materials

1.4313 X3CrNiMo13-4, 1.4317 GX4CrNi13-4, 1.4407 GX5CrNiMo13-4, 1.4414 GX4CrNiMo13-4
ACI Grade CA 6 NM UNS S41500

Typical analysis

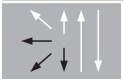
wt.-%	C	Si	Mn	Cr	Ni	Mo
wire	0.01	0.7	0.7	12.3	4.8	0.5
all-weld metal	0.01	0.8	0.7	12.0	4.7	0.5

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
a1	730 (≥ 650)	850 (≥ 750)	19 (≥15)	50 (≥27)
a2	785	845	22	80 (≥27)
u	880	1000	<10	27

a1 600°C for 8 h ; a2 960°C for 1 h + 580°C for 8 h ; u untreated, as-welded

Operating data



Dimension mm	Current A	Voltage V
2.0	250 – 350	28 – 32
2.4	300 – 400	29 – 33
3.0	320 – 450	29 – 33

Preheating and interpass temperatures of heavy-wall components 100 – 160ºC.
Maximum heat input 1.5 kJ/mm. Post-weld heat treatment (tempering) at 580 – 620ºC.
Polarity: DC+

Approvals

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