

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9	EN ISO 14174
S 18 8 Mn	ER307 (mod.)	S A FB 2 DC

Characteristics and typical fields of application

Thermanit X - Marathon 203 is as wire/flux combination for submerged arc welding for multiple applications.

Solid wire of S 18 8 Mn / ER307 (mod.) type for joining and surfacing applications with heat resistant Cr-steels and heat resistant austenitic steels. Well-suited for fabricating dissimilar austenitic-ferritic joints at a max. application temperature of 300°C. For joining unalloyed / low-alloyed or Cr-steels to austenitic steels. The weld deposit offers exceptionally high ductility and elongation together with outstanding crack resistance. There is low risk for embrittlement when operating temperatures cool down to -100°C or rise till 500°C. The deposit work hardens and offers good resistance against cavitation. Ductility remains good even after high dilution or when subjected to thermal shock or scaling. Resistant to scaling up to 850°C. Inadequate resistance against sulfurous combustion gases at temperatures above 500°C. The former product name of the SAW wire was "BÖHLER A 7 CN-UP".

Marathon 203 is an agglomerated fluoride-basic flux providing good operating characteristics and smooth beads. For more information regarding the sub-arc welding flux, see the separate datasheet. The former product name of the SAW flux was "BÖHLER BB 203".

Base materials

14Mn-steels, 13 – 17% Cr and heat resistant Cr and austenitic steels up to 850°C, armor plates, high carbon and quenched and tempered steels, surfacing of gears, valves, turbine blades, etc.

Typical analysis

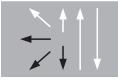
wt.-%	C	Si	Mn	Cr	Ni
wire	0.08	0.90	7.0	19.0	9.0
all-weld metal	0.06	0.80	6.0	18.7	9.0

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

Condition	Yield strength R_e	Tensile strength R_m	Elongation A ($L_0=5d_0$)	Impact energy ISO-V KV J
	MPa	MPa	%	-100°C
u	(≥ 350)	(≥ 500)	(≥ 25)	(≥ 40)

u untreated, as-welded

Operating data

	Dimension mm	Current A	Voltage V
	2.4	300 – 400	29 – 33
	3.0	320 – 450	29 – 33

Preheat, interpass temperature and post-weld heat treatment as required by the base metal. Polarity: DC+. Thicker heat resistant Cr-steels can be preheated to 150 – 300°C. 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-alloy steels, no postweld heat treatment should be performed above 300°C due to the risk of carbide precipitation in the weld fusion zone causing loss of toughness.

Approvals

-