

Classifications

EN ISO 24598-A	AWS A5.23 / SFA-5.23
S S ZCrMoWVNb9 1 1 FB	F9PZ-EG-G-H4

Characteristics and typical fields of application

Thermanit MTS 911 - Marathon 543 is a wire - flux combination for submerged arc welding of creep resistant 9% Cr steels, especially for E911. Approved in long-term condition up to +650°C service temperature. The wire and flux are precisely balanced to consistently meet the highest technical requirements. Creep rupture properties: According to the parent metal E911.

Marathon 543 is an agglomerated welding flux of the fluoride basic type with high basicity. For more information regarding this welding flux see our detailed data sheet.

Base materials

Similar alloyed creep resistant steels; 1.4905 - X11CrMoWVNb9-1-1, E911

Typical analysis

wt.-%	C	Si	Mn	Cr	Ni	Mo	W	V	Nb	N
wire	0.11	0.25	0.45	9.0	0.45	1.0	1.0	0.20	0.06	0.04
all-weld metal	0.09	0.22	0.60	8.9	0.45	0.98	1.0	0.18	0.05	0.035

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, DC+	≥ 560	≥ 700	≥ 18	≥ 41

a1 = 4 hours 760 °C + furnace down to 300 °C + air.

Operating data

	Polarity	DC +	Dimension mm
			3.0

Preheating and interpass temperature 200 – 280°C. Heat Input < 1,8 kJ/mm.

After welding the joint should be allowed to cool down below 80°C to finish the martensitic transformation. In case of complex components or big wall thickness the possibility of residual stresses must be considered.

Recommended PWHT: Annealing at 760°C/min. 4 hrs, max. 10 hrs, heating and cooling rates below 550°C max. 150°C/hr, above 550°C max. 80°C/hr.

Approvals

TÜV (09228), CE