Thermanit MTS 3 - Marathon 543

SAW wire/flux combination, low-alloyed, creep resistant

Classifications

EN ISO 24598-A	AWS A5.23 / SFA-5.23
S S CrMo91 FB	F9PZ-EB91-B91

Characteristics and typical fields of application

Thermanit MTS 3 – Marathon 543 is a wire flux combination for Submerged Arc Welding for welding high temperature and creep resistance 9% chromium steel like P91.
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.
1.4903 – X10CrMoVNb9-1, GX12CrMoVNbN9-1
Grade 91, P91, T91, F91, WB91, C12A

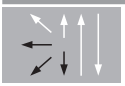
Typical analysis

wt.-%	C	Si	Mn	Cr	Ni	Mo	V	Nb	N
wire	0.11	0.25	0.50	9.0	0.45	0.95	0.20	0.06	0.04
all-weld metal	0.09	0.22	0.70	8.9	0.45	0.95	0.18	0.05	0.04

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+	565 (≥ 540)	705 (≥ 620)	19 (≥ 17)	75 (≥ 47)
a1 = 4 hours 760 °C				

Operating data



Polarity	DC +

Dimension mm
1.2
1.6
2.0
2.4
2.5
3.0
3.2

Preheating and interpass temperature 200 – 280ºC. Heat Input < 1,8kJ/mm.
After welding the joint should cool down to below 80ºC to finish the martensite transformation. Pipe welds with wall thickness up to 45 mm can be cooled down to room temperature. For heavier wall thicknesses or stressed components, unfavourable possible stress condition must be considered.
The recommended PWHT weld heat treatment is annealing at 760ºC/ 4 hrs, (min. 2 / max. 10 hrs); heating/cooling rates below 550ºC max. 150ºC/hr, above 550ºC max 80ºC/hr.

Approvals

TÜV (06527), CE