

#### Classification DIN EN ISO

21952-A W CrMo91

#### Material No.

1.4903

#### Classification AWS

A5.28 ER90S-B91

#### Approvals

TÜV 11950, CE

#### Characteristics and application

TIG/GTAW rod for high temperature, creep resistant, modified 9%Cr-1%Mo martensitic steel (T91/P91). T91/P91 steel is commonly used at service temperatures up to 600°C. V, Nb and N additions provide this 'creep strength enhanced ferritic' (CSEF) alloy with improved high temperature creep resistance compared to standard CrMo creep resistant alloys. Alloy T91/P91 is widely used in the power generating industry for fossil fuel ultra-super-critical (USC) power plant boilers and turbines; the alloy is also finding applications in the chemical and oil and gas industries.

#### Base materials

For matching P91, 9%Cr-1%Mo modified, creep resisting martensitic steels.

X10CrMoVNB 9 1

ASTM: A182/A336 F91, A213 T91, A217 C12A, A234 WP91, A335 P91, A387 91

#### Typical analysis in %

C: 0,10

Si: 0,32

Mn: 0,50

Cr: 9,20

Ni: 0,45

Mo: 0,95

V: 0,20

Nb: 0,05

#### Yield strength in Mpa

≥ 520

#### Tensile strength in Mpa

≥ 620

#### Elongation in %

4d/5d: ≥16

#### Charpy-V-Value (ISO-V) in J

RT ≥ 47

#### Typical heat treatment

Preheat temperature: 200°C

Interpass temperature: max. 300°C

PWHT: 760°C

#### Other products

SAW: UP-P91 (S1CrMo91)

MIG/GMAW: ED-SG P91