EN ISO 21952-A:	W CrMo91
AWS A5.28:	ER90S-B9
AWS A5.28M:	ER62S-B9
W. No.:	1.4903

BÖHLER C 9 MV-IG

GTAW rod, high-alloyed, creep resistant

Description

GTAW rod for high temperature, creep resistant martensitic 9-12% chromium steels in turbine and boiler fabrication and in the chemical industry. Especially designed for the ASTM steels T91/P91. Approved in long-term condition up to +650°C service temperature.

Typical Composition of Welding Rod

	C	Si	Mn	Cr	Ni	Mo	V	Nb
wt-%	**0.12**	**0.3**	**0.5**	**9.0**	**0.5**	**0.9**	**0.2**	**0.055**

Mechanical Properties of All-weld Metal

		a	
yield strength R_e N/mm^2 (MPa):		**660**	(≥530)
tensile strength R_m N/mm^2 (MPa):		**760**	(≥620)
elongation A (L_0=5d_0) %:		**18**	(≥17)
impact work ISO-V KV J	+20°C:	**90**	(≥50)

a annealed 760°C/2 h/furnace down to 300°C/air – shielding gas Argon

Operating Data

shielding gas: **100% Argon**

rod marking:

front: **WCrMo91**

back: **ER 90S-B9**

ø mm
2.0
2.4
3.0

Preheating and interpass temperature 200-300°C. After welding, the weld joint should cool down below 80°C to finish the martensite transformation. In case of greater wall thickness or complex components the possibility of residual stresses must be considered.
The following post weld heat treatment is recommended: annealing 760°C/min. 2 hrs, max. 10 hrs, heating and cooling rates below 550°C max. 150°C/hr, above 550°C max. 80°C/hr.
For optimised toughness values a welding technology should be applied which produces thin welding layers (approx. 2 mm).

Base Materials

similar alloyed creep resistant steels

1.4903 X10CrMoVNb9-1

ASTM A199 Gr. T91, A335 Gr. P91, A213/213M Gr. T91

Approvals and Certificates

TÜV-D (07106.), CE, NAKS (Ø2,4 mm; Ø3,0 mm)

Same Alloy Filler Metals

SMAW electrode:	FOX C 9 MV
SAW combination:	C 9 MV-UP/BB 910
GMAW solid wire:	C 9 MV-IG
GMAW metal cored wire:	C 9 MV-MC