

Classifications

EN ISO 17634-A	EN ISO 17634-B	AWS A5.36	AWS A5.36M
T ZCrMo9VNb P M 1	T 69 T1-1M-9C1MV	E91T1-M21PY-B91	E621T1-M21PY-B91

Characteristics and typical fields of application

BÖHLER C 9 MV Ti-FD is a rutile- basic flux cored wire for welding creep resistant, tempered 9 – 12% chromium steels in turbine-, boiler- and pipeline construction as well as in the foundry technology. The wire is especially designed for the ASTM steels T91 / P91. This flux cored wire is developed for welding with conventional power sources on DC+ under mixture gas (Ar + 15 – 25% CO₂). It is also suitable for positional welding.

Base materials

Similar alloyed creep resistant steels
1.4903 X10CrMoVNb9-1, G-X12CrMoVNbN9-1
ASTM A199 Gr. T91, A335 Gr. P91, A213/213M Gr. T91

Typical analysis of all-weld metal (wt.-%)

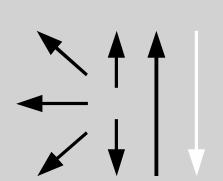
	C	Si	Mn	Cr	Ni	Mo	V	Nb	N
wt.-%	0.10	0.2	0.7	9.0	0.2	1.0	0.2	0.04	0.04

Mechanical properties of all-weld metal

Condition	Yield strength R _{p0,2}	Tensile strength R _m	Elongation A (L ₀ =5d ₀)	Impact work ISO-V KV J
	MPa	MPa	%	+20°C
a	580 (≥ 565)	720 (690 – 830)	17 (≥ 14)	35 (≥ 32)

a annealed 760°C / 3 h / furnace down to 300°C / air – shielding gas Ar + 18% CO₂

Operating data

	Polarity DC (+)	shielding gases: Argon + 15 – 25% CO ₂	Redrying: possible, 150°C/24 h	∅ (mm) 1.2	amps A 160 – 300	voltage V 25 – 35
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Preheating and interpass temperature 150 – 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, heating and cooling rates below 550°C max. 150°C / hr, above 550°C max. 80°C / hr.