

Classifications

AWS A5.5M	EN ISO 3580-B	AWS A5.5 / SFA-5.5	EN ISO 3580-A
E5518-B8 H4	E6218-9C1M H5	E8018-B8 H4	E CrMo9 B 4 2 H5

Characteristics and typical fields of application

BÖHLER FOX CM 9 Kb is a core wire alloyed covered electrode with basic coating for shielded metal arc welding. The 9Cr-1Mo type weld metal exhibits a fully tempered martensitic microstructure with favorable mechanical properties in post weld heat treated condition. The range of application covers joint welding of similar alloyed creep resisting steels tube, pipe, plate and forgings used in the thermal power and petrochemical industry. BÖHLER FOX CM 9 Kb is approved for long-term service up to 600 °C. Its basic coating guarantees low level of diffusible hydrogen in the weld metal and metal recovery of approximately 115 %.

Base materials

Similar alloyed creep resistant steels and castings like

1.7386 X11CrMo9-1, 1.7388 X7CrMo9-1, 1.7398 GX12CrMo10-1

ASTM A 182 Gr. F9; A 213 Gr. T9; A 217 Gr. C12; A 234 Gr. WP9; A 335 Gr. P9; A 336 Gr. F9; A 369 Gr. FB9; A 387 Gr. 9 u. 9CR; A 426 Gr. CP9; A 989 Gr. K90941

Typical analysis

	C	Si	Mn	Cr	Mo
wt.-%	0.08	0.25	0.65	9.0	1.0


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
T	580 (≥ 530)	715 (≥ 620)	25 (≥ 18)	80 (≥ 34)
NT	600	730	25	100

T: tempered (760 °C / 1 h)

NT: normalized and tempered (930 °C / 10 min / air + 740 °C / 2 h / air)

Operating data

	Polarity	DC +	Dimension mm	Current A
	Electrode identification	FOX CM 9 Kb 8018-B8 E CrMo9 B	2.5 × 250	70 – 90
	Redrying	300 - 350 °C / 2 h	3.2 × 350	100 – 130
			4.0 × 350	130 – 160
		5.0 × 450	180 – 210	

Preheat and interpassttemperature should be controlled between 150 and 350 °C. In order to optimize impact energy a welding technique that ensures small layer thickness and low heat input is recommended. After welding the weld seam must be cooled below 100 °C in order to complete the martensitic transformation prior to PWHT commonly carried out between 730 and 760 °C for at least 2 h. The un-tempered martensitic microstructure is very sensitive to cold and stress corrosion cracking. Residual welding and external stresses must be reduced to a minimum. Any exposure to moisture must be avoided in the as welded condition. Keeping a temperature above the dew point or storage in humidity controlled atmosphere is highly recommended bridging the gap between welding and final post weld heat treatment. For heavy wall components conducting a dehydrogenating heat treatment between 260 and 400 °C before cooling down to room temperature can be recommended.

Approvals

TÜV (02183), CE