

Classification

EN ISO 3580-A

E CrMoWV12 B 4 2 H5

Characteristics and typical fields of application

Basic core wire alloyed electrode for high temperature, heat treatable 12 % chromium steels in turbine and boiler construction as well as in the chemical industry. Preferably used for X20CrMoV12-1. Approved in long-term condition up to +650 °C service temperature.

High creep rupture strength and excellent toughness under long term stresses. Optimum chemical composition ensures a high quality weld metal. Low hydrogen content (HD < 5 ml/100 g). Good weldability in all positions except vertical down. The weld metal deposit is heat treatable. Metal recovery approx. 115 %.

Base materials

Similar alloyed creep resistant steels

1.4922 X20CrMoV11-1 (T550 Extra), 1.4935 X20CrMoWV12-1, 1.4923 X22CrMoV12-1, 1.4926 X21CrMoV12-1, 1.4913 X19CrMoNbVN 11-1 (T560 Extra), 1.4931 GX23CrMoV12-1

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

	C	Si	Mn	Cr	Ni	Mo	V	W
wt-%	0.18	0.3	0.7	11.0	0.55	0.9	0.25	0.5

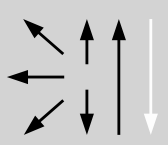
Mechanical properties of all-weld metal

Condition	Yield strength R _e	Tensile strength R _m	Elongation A (L ₀ =5d ₀)	Impact work ISO-V KV J
	MPa	MPa	%	+20 °C
a	580 (≥ 550)	780 (≥ 690)	18 (≥ 15)	45 (≥ 34)
v	590	790	18	45

a annealed 760 °C/4 h / furnace down to 300°C/air

v quenched/tempered 1050 °C/0.5 h / oil + 760 °C/2 h / furnace down to 300°C/air

Operating data

	Polarity: DC (+)	Redrying if necessary: 300 – 350 °C / min. 2 h	Electrode identification: FOX 20 MVW E CrMoWV12 B	ø (mm)	L mm	Amps A	
					2.5	250	60 – 80
					3.2	350	90 – 120
					4.0	350	110 – 140
					5.0	450	150 – 180

Preheating and interpass temperatures 400 – 450 °C (austenitic welding) or 250 – 300 °C (martensitic welding). Root passes should principally be welded in the martensitic range. Lower preheat and interpass temperatures are possible, yet must be approved by practical welding tests and process qualification tests.

After welding cooling down to 90±10 °C, followed by tempering at 720 – 760 °C for three minutes / mm wall thickness (at least for 2 hours). Quenching and tempering, if specified, at 1050 °C for ½ hour/oil and annealing at 760 °C for 2 hours.

Approvals

TÜV (01082.), KTA 1408.1 (8088.), DB (10.014.31), LTSS, SEPROZ, CE