

Classifications

EN ISO 3580-A	AWS A5.5	AWS A5.5M
E ZCrMoWVNb 9 1 1 B 4 2 H5	E9015-B9 (mod.)	E6215-B9 (mod.)
	E9015-G	

Characteristics and typical fields of application

Basic core wire alloyed Cr-Mo-Ni-V-W-Nb-electrode for the welding of high temperature martensitic steels like e.g. X11CrMoWVNb9-1-1 (E 911, P911). Approved in long-term condition up to +650 °C service temperature. Good welding properties in all positions except vertical down.

Base materials

Similar alloyed creep resistant steels

1.4905 X11CrMoWVNb9-1-1, E 911

ASTM A 182 Gr. F911; A 213 Gr. T911; A 234 Gr. WP 911; A 335 Gr. P911; A 336 Gr. F911

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

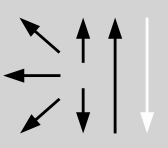
	C	Si	Mn	Cr	Mo	Ni	W	V	N	Nb
wt-%	0.1	0.25	0.6	8.8	1.0	0.6	1.0	0.22	0.05	0.06

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	≥ 530	≥ 620	≥ 15	≥ 41

a annealed, 760 °C/2h / furnace down to 300 °C/air

Operating data

	Polarity: DC (+)	Redrying if necessary: 300 – 350 °C / min. 2 h	Electrode identification: FOX C 9 MVW E Z CrMoWVNb 9 1 1 B	ø (mm)	L mm	Amps A
				3.2	350	90 – 120
				4.0	350	130 – 180
				5.0	450	160 – 210

Preheating and interpass temperature 200 – 300 °C. After welding the joint should be cooled 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. 2h, max. 10 h, heating and cooling rates up to 550 °C max. 150 °C/h, above 550 °C max. 80 °C/h.

For optimised toughness values a welding technology should be applied which produces thin welding layers (app. 2 mm).

Approvals

TÜV (9176.), SEPROZ, CE