

## Classification

EN ISO 3580-A	AWS A5.5	AWS A5.5M
E ZCrMoWVNb 9 0,5 2 B 4 2 H5	E9015-B9 (mod.)	E6215-B9 (mod.)
	E9015-G	E6215-G

## Characteristics and typical fields of application

Basic Cr-Mo-Ni-V-W-Nb alloyed electrode suited for welding of high temperature steel 9%Cr-1.5% W-Mo-Nb-N (NF 616, P 92). Approved in long-term condition up to +650 °C service temperature. The electrode features a stable arc, good striking and re-striking properties, low spatter loss and an easy removable slag.

## Base materials

Similar alloyed creep resistant steels  
1.4901 X10CrWMoVNb9-2, NF 616  
ASTM A 213 Gr. T92 ; A 335 Gr. P92

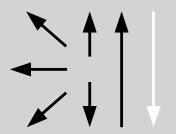
## Typical analysis of all-weld metal (wt.-%)

	C	Si	Mn	Cr	Mo	Ni	W	V	N	Nb
wt.-%	0.1	0.3	0.7	8.6	0.55	0.7	1.6	0.2	0.04	0.04

## Mechanical properties of all-weld metal

Condition	Yield strength R <sub>p0,2</sub>	Tensile strength R <sub>m</sub>	Elongation A (L <sub>0</sub> =5d <sub>0</sub> )	Impact work ISO-V KV J	
	MPa	MPa	%	+20 °C	±0 °C
a	<b>600</b> (≥ 530)	<b>740</b> (≥ 620)	<b>20</b> (≥ 17)	<b>55</b> (≥ 41)	
a1	<b>630</b>	<b>760</b>	<b>20</b>	<b>80</b>	<b>50</b>
a1 (650°C test temp.)	<b>230</b>	<b>330</b>	<b>22</b>		
a	annealed, 760 °C/2 h / furnace down to 300 °C / air				
a1	annealed, 760 °C/6 h / furnace down to 300 °C / air				

## Operating data

	Polarity:	Redrying if necessary:	Electrode identification:	∅ (mm)	L mm	Amps A
		DC (+)	300 – 350°C, min. 2 h	FOX P 92 E Z CrMoWVNb9 0.5 2 B	3.2 4.0	350 350

Preheating and interpass temperature 200 – 300 °C. After welding the 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 postweld heat treatment is recommended: Annealing 760°C/min. 2 hours, max. 10 hours, heating/cooling rate up to 550 °C max. 150 °C/h, above 550 °C max. 80 °C/h. In case of heat treatments less than 2 hours the requirements have to be proved by a procedure test. For optimised toughness values a welding technology should be applied which produces thin welding layers (approx. 2 mm).

## Approvals

TÜV (9291.), SEPROZ, CE