

Classifications

AWS A5.5 / SFA-5.5	AWS A5.5M	EN ISO 3580-A	EN ISO 3580-B
E9015-B91 H4	E6215-B91 H4	E Z CrMo91 B 4 2 H5	E6215-9C1MV H5

Characteristics and typical fields of application

Thermanit Chromo 9 V mod is a covered electrode with basic coating for shielded metal arc welding. The 9Cr-1Mo-VNb 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 strength enhanced ferritic steels like ASTM grade 91 tube, pipe, plate, forgings and castings, used in the thermal power and petrochemical industry. The chemical composition is optimized in order to provide a highly creep resistant and ductile weld metal after post weld heat treatment along with low level of trace elements. Thanks to the restricted Mn-Ni content of less than 1.0 wt. % the A_{C1} temperature is certainly above 1436°F. The covering concept of Thermanit Chromo 9 V mod ensures easy handling, designed for welding under difficult conditions in combination with low level of diffusible hydrogen.

Base materials

Similar alloyed creep resistant steels and castings like
1.4903 X10CrMoVNb9-1, 1.4955 GX12CrMoVNbN9-1
ASTM Grade 91, T91, P91, F91, FP91, WP91, C12A
10Cr9Mo1VNbN
STPA28, STBA28

Typical analysis

	C	Si	Mn	Cr	Ni	Mo	V	Nb	N
wt.-%	0.1	0.2	0.8	9.0	0.1	1.1	0.2	0.05	0.04

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	
	ksi	ksi	ksi	ksi	%	%	68°F	32°F
	68°F	1022°F	68°F	1022°F	68°F	1022°F	68°F	32°F
T	86 (≥ 77)	60 (≥ 41)	106 (≥ 90)	69 (≥ 48)	19 (≥ 17)	17 (≥ 15)	59 (≥ 35)	45 (≥ 27)

T: tempered (1400°F / 2 h)

Operating data

Polarity	DC +	Dimension	A
Electrode identification	Chromo 9V Mod EZ CrMo91 B 4 2	3/32" × 14"	70 – 100
		1/8" × 14"	100 – 145
		5/32" × 14"	140 – 190
		3/16" × 18"	160 – 240

Approvals

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