

MMA Electrodes Chromium-Molybdenum steels

Basic coated MMA electrode for welding high-temperature creep resistant steels of type 9 Cr-1Mo-V-Nb-N with operating temperatures of up to +620 °C. Cromocord 91 is suited for thick-walled cast pieces, which are subjected to tempering 740 °C x 8 h as well as for thin-walled components, e.g. piping which is subjected to a tempering treatment at higher temperatures and shorter times (e.g. 760 °C x 2 h). Weld metal is tested for in-service embrittlement. Vacuum packaging.

Classification	
AWS	A5.5: E9018-B9-H4
EN	1599: E CrMo 9 1 B 42 H5

Approvals	Grades
TÜV	

see Appendix, Classification Society Approvals, for details pag. 521

Analysis of all-weld metal (Typical values in %)

C	Mn	Si	P	S	Cr	Ni	Mo	Nb	V	N	Cu
0.10	0.70	0.30	≤ 0.010	≤ 0.010	9	0.40	1	0.05	0.20	0.04	-

All-weld metal Mechanical Properties

Heat Treatment	Yield Strength N/mm ²	Tensile Strength N/mm ²	Elongation A5 (%)	Impact Energy ISO - V (J) + 20 °C	Hardness
PWHT 760 °C x 2 h/furnace	≥ 530	620-850	≥ 17	≥ 75	-

Materials

T 91 (ASTM A 213), F 91 (ASTM A 182)

X10CrMoVNb9-1, grade 91 (ASTM A 387), P 91 (ASTM A 335)

Storage and redrying

Keep dry and avoid condensation.

HD ≤ 5: Re-dry at 400-420 °C for 1 hour, 5 times max.

Current condition and welding position

DC+



Packaging data

Diameter (mm)	Length (mm)	Current (A)	Electrode average weight (g)	Weld metal weight per electrode (g)
2,5	300	60-90	20,9	12,5
3,2	350	85-130	35,6	21,4
4,0	350	130-160	53,0	31,8