

## MMA Electrodes Chromium-Molybdenum steels

Basic-coated all-positional MMA electrode (max. 0.05%C) for welding creep resisting steels containing 4-6% Cr and 0.45-0.65% Mo, such as 12 Cr Mo 19 5. Applications in the oil industry, include parts for high pressure hydrogenation vessels which must have good resistance against corrosion. Preheat and interpass temperatures 250° to 300°C are recommended. Efficiency 100%.

Classification	
AWS	A5.5: E 8015-B6L
EN	1599: E CrMo5 B 22 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
0.04	0.70	0.40	≤ 0.015	≤ 0.015	5.70	-	0.50	-	-	-	-

### All-weld metal Mechanical Properties

Heat Treatment	Yield Strength N/mm <sup>2</sup>	Tensile Strength N/mm <sup>2</sup>	Elongation A5 (%)	Impact Energy ISO - V (J) 0°C	Hardness
PWHT 740°C x 2h	≥ 460	540-640	≥ 19	≥ 27	-

### Materials

12CrMo19-5, X12CrMo5; A182 Gr. F5, A199 Gr. T5, A213 Gr.T5, A335 Gr.P5  
A 336 Cl. F5, A 369 Gr. FP5, A 387 Gr.5, Cl 1 and 2

### 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	65-95	20,1	12,1
3,2	350	90-130	35,8	22,3
4,0	350	125-165	53,2	31,8
5,0	450	170-220	98,8	59,3