

1NiMo.B

Product description

MMA electrode with low hydrogen basic flux coating on high purity mild steel core wire. Moisture resistant coating ensures very low weld metal hydrogen levels.

Recovery is about 120% with respect to the core wire, 65% with respect to whole electrode.

Specifications

AWS A5.5	E9018-G
BS EN 757	E 55 4 1NiMo B 32
Approvals	TÜV, DNV

ASME IX Qualification

QW432 F-No 4, QW442 A-No 10.

Materials to be welded

ASTM	A302 grades C & D. A508 class 1, 1A, 2 & 3. A533 grades A-D, class 1 & 2.
AISI	4130 and similar alloys.
BS	1501 grades 271 & 281. 3604 grades HFS 591 & CFS 591.
DIN	15NiCuMoNb5 (1.6368).

Applications

Designed for welding low alloy steels used for **pressure vessels** (often thick wall) and other applications where high strength must be maintained after extended, or multiple, PWHT cycles. These steels may also be used at modest elevated temperature and tests have shown typically 15% reduction in tensile strength at +300°C compared to the room temperature values for 1NiMo.B weld metal.

It is also used for welding type 4130, and other high strength steels, requiring good sub-zero toughness for **oilfield** and **well-head equipment**. In comparison with the MnMo types (data sheet A-50) 1NiMo.B has improved resistance to softening at high tempering parameters.

Microstructure

In the PWHT condition the microstructure consists of tempered high strength ferrite.

Welding guidelines

Preheat and PWHT requirements dependent on base material.

Composition (weld metal wt %)

	C	Mn	Si	S	P	Cr	Ni	Mo	Cu
min	0.04	1.0	--	--	--	--	0.8	0.20	--
max	0.07	1.4	0.5	0.020	0.025	0.3	1.2	0.50	0.10
typ	0.06	1.2	0.3	0.01	0.01	0.1	1.0	0.4	0.05

All-weld mechanical properties

PWHT 610-650°C/1-6h		min	typical
Tensile strength	MPa	620-780*	640-700
0.2% Proof stress	MPa	530 **	540-630
Elongation on 4d	%	17	24-30
Elongation on 5d	%	--	21-26
Reduction of area	%	--	70
Impact energy	- 20°C	J	75-110
	- 40°C	J	60
	- 60°C	J	45
Hardness	HV	--	220

* Maximum according to DIN 8529 is optional.

** Meets 550MPa minimum (DIN) according to yield point.

Parameters

DC +ve or
AC (OCV: 70V min)



ø mm	2.5	3.2	4.0	5.0
min A	70	80	100	140
max A	110	140	180	240

Packaging data

ø mm	2.5	3.2	4.0	5.0
length mm	350	350	450	450
kg/carton	12.9	13.5	16.8	18.0
pieces/carton	546	369	240	171

Storage

3 hermetically sealed ring-pull metal tins per carton, with unlimited shelf life. Direct use from tin will give **hydrogen** <5ml/100g weld metal during 8h working shift.

For electrodes that have been exposed:

Redry 250-300°C/1-2h to ensure H₂ <10ml/100g, 300-350°C/1-2h to ensure H₂ <5ml/100g. Maximum 420°C, 3 cycles, 10h total.

Storage of redried electrodes at 100-200°C in holding oven or 50-150°C in heated quiver: no limit, but maximum 6 weeks recommended. Recommended ambient storage conditions for opened tins (using plastic lid): < 60% RH, >18°C.

Fume data

Fume composition, wt % typical:

Fe	Mn	Ni	Cr	Cu	Pb	F	OES (mg/m ³)
14	5	0.5	<0.1	<0.2	<0.1	18	5