

Guide to the EN coding, EN 499. For covered electrodes for manual arc welding of non-alloyed and fine grain steels

E 46 3 1Ni B 5 4 H5

Symbol for strength and elongation

Symbol	min- yield strength ¹⁾ (MPa)	Tensile strength (MPa)	min. elongation ²⁾ (%)
35	355	440-570	22
38	380	470-600	20
42	420	500-640	20
46	460	530-680	20
50	500	560-720	18

For the yield strength the lower yield (R_{e1}) shall be used when yielding occurs otherwise the 0.2% proof stress ($R_{p0.2}$) shall be used
 $L_0 = 5d$

Symbol for impact properties

Symbol	Minimum av. impact energy 47J C
Z	no requirements
A	+20
0	0
2	-20
3	-30
4	-40
5	-50
6	-60

Symbol for chemical composition of all weld metal

Alloy Symbol	Chemical Composition ¹⁾²⁾³⁾ %		
	Mn	Mo	Ni
no symbol	2.0	-	-
Mo	1.4	0.3 - 0.6	-
MnMo	>1.4 - 2.0	0.3 - 0.6	-
1Ni	1.4	-	0.6 - 1.2
2Ni	1.4	-	1.8 - 2.6
3Ni	1.4	-	>2.6 - 3.8
Mn1Ni	>1.4 - 2.0	-	0.6 - 1.2
1NiMo	1.4	0.3 - 0.6	0.6 - 1.2

Z Any other agreed composition

1) If not specified: Mo < 0.2, Ni < 0.3, Cr < 0.2
V < 0.05, Nb < 0.05, Cu < 0.3
(electrodes without gas shield only)

2) Single values shown in the table mean maximum values

3) The results shall be rounded to the same number of significant figures as in the specified value using the rules according to ISO 31-0 annex B Rule A

Symbol for diffusible hydrogen (optional)

Symbol	Max. hydrogen content. ml/100g deposited weld metal
H 5	5
H 10	10
H 15	15

Symbol for the welding position

The welding positions are symbolised by a digit designating the positions for which the electrode is tested according to prEN-3 (00121205)

- all positions
- all positions
- flat butt weld flat fillet weld horizontal vertical weld
- flat butt weld flat fillet weld
- as 3 and recommended vertical down welding

Symbol for the welding position

Symbol	Weld metal recovery %	Type of current ¹⁾²⁾
1	≤105	ac + dc
2	≤105	dc
3	>105	≤125 ac + dc
4	>105	≤125 dc
5	>125	≤160 ac + dc
6	>125	≤160 dc
7	>160	ac + dc
8	>160	dc

1) In order to demonstrate operability on ac. tests shall be carried out with no load voltage not higher than 65V

2) ac = alternation current
dc = direct current

Symbol for the type of electrode covering

A	Acid
C	Cellulosic
R	Rutile
RC	Rutile-cellulosic
RA	Rutile-acid
RB	Rutile-basic
B	Basic