

Nederlandse norm

NEN-EN 1999-1-1/A1 (en)

Eurocode 9: Ontwerp en berekening van
aluminiumconstructies - Deel 1-1: Algemene
regels

Eurocode 9: Design of aluminium structures -
Part 1-1: General structural rules

Vervangt NEN-EN 1999-1-1:2007/Ontw. A1:2008

ICS 91.010.30; 91.080.10

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VOORBEELD
Preview

Normcommissie 351001 "Technische Grondslagen voor Bouwconstructies"

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English Version

Eurocode 9: Design of aluminium structures - Part 1-1: General structural rules

Eurocode 9: Calcul des structures en aluminium - Partie 1-1: Règles générales

Eurocode 9: Bemessung und Konstruktion von Aluminiumtragwerken - Teil 1-1: Allgemeine Bemessungsregeln

This amendment A1 modifies the European Standard EN 1999-1-1:2007; it was approved by CEN on 12 March 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 1999-1-1:2007/A1:2009 (E)

1) Modifications in the entire document

Replace 14 times "center" with "centre".

Replace all occurrences of the symbol " M_c " with " M_o ".

Replace all occurrences of the symbol " $M_{c,Rd}$ " with " $M_{o,Rd}$ ".

Replace in the entire document "prEN 1090-2" with "EN 1090-2" and "prEN 1090-3" with "EN 1090-3".

2) Modification to 1.1.1

Paragraph "(3)", delete footnote "5".

3) Modification to 1.1.2

Paragraph "(1)", replace "(see section 3)." with "(see section 3 and Annex C).".

4) Modification to 1.2.1

Delete footnote "6".

5) Modification to 1.2.2

Delete reference to "EN 1993-1-1".

6) Modifications to 1.2.3

Delete the following references:

"

EN 573-1	EN 12020-1	EN 139	ISO 18273
EN 573-2	EN 12020-2	EN 970	ISO 1000
EN 573-3	ISO 8062	EN 1011-1	ISO 31-0
EN 573-4	EN 287-2	EN 1418	ISO 3898
EN 515	EN288-4	EN-ISO 10042	

"

Delete the heading of Subclause "1.2.3.1".

Replace heading numbers "1.2.3.2" to "1.2.3.4" with "1.2.3.1" to "1.2.3.3".

Replace all dated reference numbers with undated reference numbers (e.g. replace "EN 485-1:1993" with "EN 485-1"), except for "EN 755-2:1997" and "EN 1011-4:2000", as well as for "EN 755-2:1997" which is to be replaced with "EN 755-2:2008".

Replace "EN ISO 1302" with "prEN ISO 1302".

Move the following references to the Bibliography (undated): "EN 1592-1", "EN 1592-2", "EN 1592-3" and "EN 1592-4".

Title of "EN 12681", replace "inspection" with "examination".

Replace title of "EN 1011-4" with "Welding – Recommendations for welding of metallic materials – Part 4: Arc welding of aluminium and aluminium alloys."

7) Modifications to 1.6

Section "6.2 Resistance of cross sections", move the symbols "b_o" and "L_e" to Subclause "1.6" – section "Annex K".

Section "8 Design of connections", delete the symbol "χ_{Mc}" and its definition.

8) Modifications to 3.2.2

"Table 3.2b", add two rows to the table with characteristics for "Alloy EN-AW 5454" and "EN-AW 5754", as shown below (some figures shall be **bold** as shown):

"

Alloy EN-AW	Product form	Temper	Thick-ness t mm ¹⁾	f _o ¹⁾	f _u ¹⁾	A ^{5) 2)}	f _{o,haz} ⁴⁾	f _{u,haz} ⁴⁾	HAZ-factor ⁴⁾		BC ⁶⁾	n _p ⁷⁾
				N/mm ²		%	N/mm ²		ρ _{o,haz}	ρ _{u,haz}		
5454	ET, EP,ER/B	O/H111 R/H112	t ≤ 25	85	200	16	85	200	1	1	B	5
5754	ET, EP,ER/B	O/H111 F/H112	t ≤ 25	80	180	14	80	180	1	1	B	6
	DT	H14/ H24/H34	t ≤ 10	180	240	4	100	180	0,56	0,75	B	16

“, and delete note 8.

"Table 3.2b", replace (some figures shall be **bold** as shown):

"

6061	EP,ET,ER/B,DT	T4	t ≤ 25	110	180	15	95	150	0,86	0,83	B	8
	EP,ET,ER/B,DT	T6	t ≤ 20	240	260	8	115	175	0,48	0,67	A	55

with:

"

6061	EP,ET,ER/B	T4	t < 25	110	180	15	95	150	0,86	0,83	B	8
	DT		t < 20	110	205	16						
	EP,ET,ER/B	T6	t ≤ 25	240	260	8	115	175	0,48	0,67	A	55
	DT		t < 20	240	290	10						

"Table 3.2b", for "alloy 6063", column 2, line 5, replace "." with "," to write:

"EP,ET,ER/B".

"Table 3.2b", footnote "3", replace "EN 755-2" with "EN 755-2:2008".

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"Table 3.2b", in footnote "4", second row, replace:

"(3xxx, 5xxx and 8011A)"

with:

"(3xxx and 5xxx)".

"Table 3.2b", for "alloy 6082", replace twice "EP/O,EP/H" with "EP".

9) Modification to 3.2.3.2

Paragraph "(1)", in text and note, replace three times "EN 1706" with "EN 1706:1998"; and replace "see 6.3.3(2) EN ..." with "see 6.3.3.2 of EN ..."; and replace "see 6.3.3(3) EN ..." with "see 6.3.3.2 of EN ...".

10) Modifications to 3.3.2.1

"Table 3.4", footnote "1" of the table, delete "and (5)".

"Table 3.4", footnote "2" of the table, delete "and (4)".

11) Modifications to 5.3.1

Paragraph "(1)P", note, replace "equal or less than the fundamental geometrical tolerances" with "in accordance with the essential tolerances".

Paragraph "(1)P", note, replace "-valued" with "-values".

12) Modifications to 5.3.2

Paragraph "(7)", "Figure 5.3", replace 4 times " $e_{0,d}$ " with " e_0 ".

Paragraph "(11)", equation "(5.6)", replace:

$$\eta_{init}(x) = e_{0,d} \frac{N_{cr,m}}{EI_m |\eta''_{cr}|_{max}} \eta_{cr}(x)$$

with:

$$\eta_{init}(x) = e_0 \frac{N_{cr,m}}{EI_m |\eta''_{cr,m}|} \eta_{cr}(x)$$

Paragraph "(11)", formula "(5.7)", replace " $e_{0,d}$ " with " e_0 ".

Paragraph "(11)", replace:

"and m denotes the cross-section where $|\eta''_{cr}|$ reaches its maximum."

with:

"and m denotes the cross-section where $|\eta''_{cr}|$ reaches its maximum in the case of uniform normal force and uniform cross-section."

Paragraph "(11)", replace:

" $EI_m |\eta_{cr}''|_{\max}$ is the bending moment"

with:

" $EI_m |\eta_{cr,m}''|$ is the bending moment".

Paragraph "(11)", "Note 2", replace "The ratio $\frac{1}{EI_m |\eta_{cr}''|_{\max}}$ " with "The ratio $\frac{1}{EI_m |\eta_{cr,m}''|}$ ".

Paragraph "(11)", "Note 2", replace "may be replaced by $\frac{|\eta''|_{\max}}{|M_{\eta_{cr,m}}''| |\eta_{cr}|_{\max}}$ " with "may be replaced by $\frac{|\eta''|_{\max}}{|M_{\eta_{cr,m}}''| |\eta_{cr}|_{\max}}$ ", i.e. replace "I" with "II".

Paragraph "(11)", "Note 2", replace:

" $|\eta_{cr}|_{\max}$ is the maximum amplitude of..."

with:

" $|\eta_{cr}|_{\max}$ is the maximum value of the amplitude of..."

Paragraph "(11)", "Note 2", replace:

" $|\eta''|_{\max}$ is the maximum deflection of the structure calculated using second order analysis for..."

with:

" $|\eta''|_{\max}$ is the maximum deflection of the structure calculated using second order analysis (symbolised by II) for..."

Paragraph "(11)", "Note 2", equation "(5.8)", replace:

$$M_{\eta_{\text{init}}}''(x) = \frac{e_{0,d} N_{cr,m} |\eta''|_{\max}}{M_{\eta_{cr,m}}'' |\eta_{cr}|_{\max}} M_{\eta_{cr}}''(x)$$

with:

$$M_{\eta_{\text{init}}}''(x) = \frac{e_{0,d} N_{cr,m} |\eta''|_{\max}}{M_{\eta_{cr,m}}'' |\eta_{cr}|_{\max}} M_{\eta_{cr}}''(x)$$

13) Modifications to 5.3.4

Paragraph "(2)", replace " $e_{0,d}$ " with " e_0 ".

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Paragraph "(3)", replace twice " $e_{0,d}$ " with " e_0 ".

14) Modification to 6.1.4.3

Paragraph "(3)", entry "e", replace "6.1.4.3(1)a)" with "6.1.4.3(1)".

15) Modification to 6.1.6.2

Paragraph "(2)", replace " $f_{a,haz}$ " with " $f_{u,haz}$ ".

16) Modifications to 6.1.6.3

Paragraph "(5)", replace:

"6xxx or 7xxx series alloys, or 5xxx series..."

with:

"6xxx and 7xxx series alloys, and in 3xxx and 5xxx series..."

Paragraph "(6)", replace:

"or work-hardened 5xxx series..."

with:

"and work-hardened 3xxx and 5xxx series..."

Paragraph "(8)", replace:

"or work-hardened 5xxx series"

with:

"and work-hardened 3xxx and 5xxx series...";

and replace:

"and work-hardened 5xxx series..."

with:

"and work-hardened 3xxx and 5xxx series..."

Paragraph "(8)", entry "a)", replace:

"If the interpass temperature T_1 (°C), which should be somewhere between 60 °C and 120 °C, it is conservative to assume that for 6xxx, 7xxx or workhardened 5xxx series alloys b_{haz} will be multiplied by a factor α_2 , as follows:"

with:

"If the interpass temperature T_1 (°C) is between 60 °C and 120 °C, it is conservative for 6xxx, 7xxx and work-hardened 3xxx and 5xxx alloys to multiply b_{haz} by a factor α_2 as follows:"

17) Modifications to 6.2.2.2

Replace the last subclause number "(0)" with "(5)".

Paragraph "(2)", delete "gross".

18) Modifications to 6.2.3

Move the last sentence of subclause "6.2.3" to the left (for alignment) and give it the number "(4)".

Paragraph "(3)", replace "see 6.3.1.5" with "see 8.5.2.3".

Paragraph "(1)", add the following "Note":

"Note Eccentricity due to the shift of centroidal axis of asymmetric welded sections may be neglected."

19) Modification to 6.2.4

Paragraph "(1)", add the following "Note":

"Note Eccentricity due to the shift of centroidal axis of asymmetric welded sections may be neglected."

20) Modification to 6.2.5

Paragraph "(1)", add the following "Note":

"Note Eccentricity due to the shift of centroidal axis of asymmetric welded sections may be neglected."

21) Modification to 6.2.5.1

Paragraph "(2)", last line, replace " β_2/β_3 " with " β_2/β ".

22) Modifications to 6.2.8

In clauses between "(5)" and "(8)", replace "(2)" with "(6)"; then replace "(3)" with "(7)"; finally move clause "(6)" to the left (for alignment).

Paragraph "(6)", replace "see 6.7.6." with "see 6.2.5."

Paragraph "(8)", replace "see 6.7.8." with "see 6.7.6."

23) Modification to 6.2.9.3

Paragraph "(2)", replace "extend" with "extends".

24) Modification to 6.3.1.1

Paragraph "(2)", in the explanation for " κ ", replace "according to 6.3.3.3." with "according to 6.3.3.3. $\kappa = 1$ if there are no welds."

25) Modification to 6.3.1.2

Paragraph "(1)", in "(6.50)", replace " $\chi < 1,0$ " with " $\chi \leq 1,0$ ".

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