



SLOVENSKI STANDARD
SIST EN 1999-1-1:2007/A2:2014
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Evrokod 9: Projektiranje konstrukcij iz aluminijevih zlitin - 1-1. del: Splošna pravila za konstrukcije

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

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

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

Ta slovenski standard je istoveten z: EN 1999-1-1:2007/A2:2013

ICS:

91.010.30	Tehnični vidiki	Technical aspects
91.080.10	Kovinske konstrukcije	Metal structures

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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 A2 modifies the European Standard EN 1999-1-1:2007; it was approved by CEN on 8 August 2013.

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EN 1999-1-1:2007/A2:2013 (E)**Foreword**

This document (EN 1999-1-1:2007/A2:2013) has been prepared by Technical Committee CEN/TC 250 "Structural Eurocodes", the secretariat of which is held by BSI.

This Amendment to the European Standard EN 1999-1-1:2007 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2014, and conflicting national standards shall be withdrawn at the latest by December 2014.

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1 Modifications to 1.2.3.1

Replace the title of 1.2.3.1 with “Chemical composition and temper definition of wrought products and technical delivery conditions”.

Add:

“EN 573-3 Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3: Chemical composition and form of products”.

Add:

“EN 515 Aluminium and aluminium alloys - Wrought products - Temper designations”.

2 Modification to 1.2.4

Add:

“EN ISO 18273 Welding consumables - Wire electrodes, wires and rods for welding of aluminium and aluminium alloys - Classification (ISO 18273)”.

3 Modification to 1.2.5

At the beginning of the list, add:

“EN ISO 6892 Metallic materials - Tensile testing (ISO 6892) (all parts)”.

4 Modification to 1.3

In Paragraph (1), add the following new hyphen:

“

— The aluminium products should comply with EN 573 and the product standards listed in 1.2.3. The mechanical properties should comply with the tabulated values in Parts 2 of the product standards listed in 1.2.3.”.

5 Modifications to 1.6

In Section 3, in the explanation for Symbol A_{50} , replace “EN 10 002” with “EN ISO 6892”.

In Section 3, in the explanation for Symbol A , replace “EN 10 002” with “EN ISO 6892”.

In Section 6, add “ f_{of} is characteristic value of 0,2 % proof strength of the flange material”.

In Section 6, in Sub-section 6.2, after symbol A_{eff} , add:

“

$A_{u,eff}$ effective cross section area allowing for local buckling and HAZ softening of transverse welds

“

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In Section 6, in Sub-section 6.2, after symbol W_{net} , add:

“

$W_{u,eff}$ section modulus allowing for local buckling and reduced thickness $\rho_{u,haz} t$ in HAZ softening of transverse welds

“

In Section 6, in Sub-section 6.3, delete the row defining “ ω_0 ”.

In Section 6, in Sub-section 6.3, in the explanation for Symbol “ κ ”, replace “welding” with “longitudinal welding”.

In Section 6, in Sub-section 6.3, replace “ ξ_c ” with “ ξ_{yc}, ξ_{zc} ”.

In Section 6, in Sub-section 6.3, in the explanation for Symbols “ $\omega_x, \omega_{x,LT}$ ”, replace “factors for section with localized weld” with “factors for second order bending moments”.

In Section 6, in Sub-section 6.3, after Symbols “ $\omega_x, \omega_{x,LT}$ ”, add:

“

$\omega_{x,haz}, \omega_{x,LT,haz}$ factors for section with localized transverse weld

“

In Annex B, replace “ I_{eff} ” with “ I_{eff} ”.

In Annex I, replace “ $C_1, C_2, C_3, C_{1,1}, C_{12}$ ” with “ $C_1, C_2, C_3, C_{1,0}, C_{1,1}$ ”.

In Annex J, in the NOTE, replace “given in J.4” with “given in J.4 and J.6”.

6 Modification to 3.2.1

In Paragraph (1), replace “the ENs listed in 1.2.3.1” with “EN 573-3 and tempers listed in Tables 3.2a, 3.2b and 3.2c conforming to EN 515”.

7 Modification to 3.2.2

In Table 3.2b, footnote 1), replace “1.2.1.3” with “1.2.3.2”.

8 Modification to 3.3.4

In Paragraph (1), replace “1.2.2” with “1.2.4” and delete the NOTE.

9 Modification to 5.3.2

In Paragraph (11), before NOTE 1, add the following new NOTE:

"NOTE 1 In the general case the location of the cross section m is necessary to be obtained by an iterative procedure, because m is in the cross section where the function $N_{Ed}(x)/N_{Rd}(x) + M_{\eta_{mit}}^{\text{II}}(x)/M_{Rd}(x)$ achieves its maximum."

and renumber NOTES 1 to 3 as NOTES 2 to 4.

10 Modification to 5.4.1

In Paragraph (3), in NOTE 2, replace "6.4.3(2)" with "L.3(2)".

11 Modification to 6.1.6.2

In Paragraph (1) replace " $f_{a,haz}$ " with " $f_{u,haz}$ ".

12 Modifications to 6.2.3

In Paragraph (2), regarding Formula (6.19b), replace "HAZ" with "transverse weld" and replace " $N_{u,Rd} = A_{\text{eff}} f_u / \gamma_{M2}$ " with " $N_{u,Rd} = A_{u,\text{eff}} f_u / \gamma_{M2}$ ".

In Paragraph (2), on the last line, replace " A_{eff} " with " $A_{u,\text{eff}}$ " and replace "area" with "cross-section area".

13 Modifications to 6.2.4 (standards.iteh.ai)

In Paragraph (2), on the 1st line, replace the 2nd occurrence of " $N_{c,Rd}$ " with " $N_{o,Rd}$ ".

In Paragraph (2), in List Entry a), replace "(6.21)" with "(6.21a)".

In Paragraph (2), after List Entry a), add the following new line:

"b) in sections with transverse weld $N_{u,Rd} = A_{\text{eff}} f_u / \gamma_{M2}$ (6.21b)".

In Paragraph (2), regarding Formula (6.22), replace "b)" with "c)" and replace " $N_{c,Rd} = A_{\text{eff}} f_o / \gamma_{M1}$ " with " $N_{o,Rd} = A_{\text{eff}} f_o / \gamma_{M1}$ ".

In Paragraph (2), on the last line, after "softening", add "due to longitudinal welds".

At the end of Paragraph (2), add to the list of definitions:

" $A_{u,\text{eff}}$ is the effective section area, obtained using a reduced thickness $\rho_{c,t}$ for class 4 parts and reduced thickness $\rho_{u,haz} t$ for the HAZ material, whichever is smaller."

14 Modifications to 6.2.5.1

In Paragraph (2), replace "(6.24)" with "(6.24a)".

Just before Formula (6.25), add the following new formula:

"

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$$M_{u,Rd} = W_{u,eff} f_u / \gamma_{M2} \quad \text{in section with transverse weld} \quad (6.24b)$$

“

At the end of Paragraph (2), just above Table 6.4, add to the list of definitions:

“

$W_{u,eff}$ is the effective section modulus, obtained using a reduced thickness ρ_{ct} for class 4 parts and reduced thickness $\rho_{u,haz}t$ for the HAZ material, whichever is smaller.

“

In Paragraph (2), in the last sentence, replace “value of β_2/β ” with “value of $\frac{\beta_3 - \beta}{\beta_3 - \beta_2}$ ”.

15 Modification to 6.2.5.2

In Paragraph (2), in List Entry c), at the end of the paragraph, add the following sentence: “At a section with transverse weld $\rho_{o,haz}t$ is replaced by $\rho_{u,haz}t$.”

16 Modifications to 6.2.9.1

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In Paragraph (1), replace Formula (6.40) itself with “ $\left(\frac{N_{Ed}}{N_{Rd}}\right)^{\xi_0} + \frac{M_{y,Ed}}{M_{y,Rd}} \leq 1,00$ ”.

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In Paragraph (1), replace Formula (6.41) itself with “ $\left(\frac{N_{Ed}}{N_{Rd}}\right)^{\eta_0} + \left(\frac{M_{y,Ed}}{M_{y,Rd}}\right)^{\gamma_0} + \left(\frac{M_{z,Ed}}{M_{z,Rd}}\right)^{\xi_0} \leq 1,00$ ” and replace

the subsequent definition of N_{Rd} with the following one:

“

N_{Rd} is axial force resistance according to 6.2.3 or 6.2.4 respectively”.

In Paragraph (1), replace the two lines with definitions of $M_{y,Rd}$ and $M_{z,Rd}$ with the following definition:

“

$M_{y,Rd}$ and $M_{z,Rd}$ are the bending moment resistances with respect to the y-y and z-z axes according to 6.2.5.

“

In Paragraph (1), in the definition of α_y, α_z , delete “with allowance for local buckling and HAZ softening from longitudinal welds.”

1) This modification takes into account the following instruction regarding 6.2.5.1(2) from the stand-alone amendment EN 1999-1-1:2007/A1:2009: 'Paragraph "(2)", last line, replace " β_2/β_3 " with " β_2/β ".'

In Paragraph (1), delete the definition of “ ω_0 ”.

17 Modifications to 6.2.9.2

In Paragraph (1), replace Formula (6.43) itself with “ $\left(\frac{N_{Ed}}{N_{Rd}}\right)^\psi + \left[\left(\frac{M_{y,Ed}}{M_{y,Rd}}\right)^{1,7} + \left(\frac{M_{z,Ed}}{M_{z,Rd}}\right)^{1,7}\right]^{0,6} \leq 1,00$ ”.

In Paragraph (1), replace:

“where $\psi = 1,3$ for hollow sections and $\psi = 2$ for solid cross-sections. Alternatively ψ may be taken as $\alpha_y \alpha_z$ but $1 \leq \psi \leq 1,3$ for hollow sections and $1 \leq \psi \leq 2$ for solid cross-sections

with:

“where for hollow sections $\psi = 1,3$ for class 1 and class 2 cross sections and $\psi = 1,0$ for class 3 and class 4 cross sections, or alternatively, for all classes of cross sections, ψ may be taken as $\alpha_y \alpha_z$ but $1 \leq \psi \leq 1,3$. For solid sections $\psi = 2$.”

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18 Modification to 6.2.9.3 SIST EN 1999-1-1:2007/A2:2014

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Replace Formula (6.44) itself with “ $t_{\text{eff}} = \rho_{u,\text{haz}} t$ ” and replace Formula (6.45) itself with “ $t_{\text{eff}} = \rho_{o,\text{haz}} t$ ”.

19 Modifications to 6.3.1.1

In Paragraph (2), at the end of the 1st line, replace “as”: with “as the lesser of”: and replace Formula (6.49) with the following one:

“

$$N_{b,Rd} = k\chi\omega_x A_{\text{eff}} f_o / \gamma_{M1} \quad (6.49a)''$$

and add the new Formula (6.49b):

“

$$N_{b,Rd} = \chi_{\text{haz}} \omega_{x,\text{haz}} A_{u,\text{eff}} f_u / \gamma_{M2} \text{ in section with transverse weld} \quad (6.49b)''$$

In Paragraph (2), after the definition of χ , add the following new definition:

“

χ_{haz} is the reduction factor based on $\bar{\lambda}_{\text{haz}}$ according to 6.3.3.3(3).”