

SVENSK STANDARD

SS-EN 1993-1-9:2005/AC:2009

Fastställt/Approved: 2009-04-14

Publicerad/Published: 2009-06-09

Utgåva/Edition: 1

Språk/Language: engelska/English

ICS: 91.010.30; 91.070.03; 91.070.50; 91.070.60; 91.080.10

Eurokod 3: Dimensionering av stålkonstruktioner – Del 1-9: Utmattning

Eurocode 3: Design of steel structures – Part 1-9: Fatigue

This preview is downloaded from www.sis.se. Buy the entire standard via <https://www.sis.se/std-69455>

Hitta rätt produkt och ett leveranssätt som passar dig

Standarder

Genom att följa gällande standard både effektiviserar och säkrar du ditt arbete. Många standarder ingår dessutom ofta i paket.

Tjänster

Abonnemang är tjänsten där vi uppdaterar dig med aktuella standarder när förändringar sker på dem du valt att abonnera på.

På så sätt är du säker på att du alltid arbetar efter rätt utgåva.

e-nav är vår online-tjänst som ger dig och dina kollegor tillgång till standarder ni valt att abonnera på dygnet runt. Med e-nav kan samma standard användas av flera personer samtidigt.

Leveranssätt

Du väljer hur du vill ha dina standarder levererade. Vi kan erbjuda dig dem på papper och som pdf.

Andra produkter

Vi har böcker som underlättar arbetet att följa en standard. Med våra böcker får du ökad förståelse för hur standarder ska följas och vilka fördelar den ger dig i ditt arbete. Vi tar fram många egna publikationer och fungerar även som återförsäljare. Det gör att du hos oss kan hitta över 500 unika titlar. Vi har även tekniska rapporter, specifikationer och "workshop agreement".

Matriser är en översikt på standarder och handböcker som bör läsas tillsammans. De finns på sis.se och ger dig en bra bild över hur olika produkter hör ihop.

Standardiseringsprojekt

Du kan påverka innehållet i framtida standarder genom att delta i någon av SIS ca 400 Tekniska Kommittéer.

Find the right product and the type of delivery that suits you

Standards

By complying with current standards, you can make your work more efficient and ensure reliability. Also, several of the standards are often supplied in packages.

Services

Subscription is the service that keeps you up to date with current standards when changes occur in the ones you have chosen to subscribe to. This ensures that you are always working with the right edition.

e-nav is our online service that gives you and your colleagues access to the standards you subscribe to 24 hours a day. With e-nav, the same standards can be used by several people at once.

Type of delivery

You choose how you want your standards delivered. We can supply them both on paper and as PDF files.

Other products

We have books that facilitate standards compliance. They make it easier to understand how compliance works and how this benefits you in your operation. We produce many publications of our own, and also act as retailers. This means that we have more than 500 unique titles for you to choose from. We also have technical reports, specifications and workshop agreements.

Matrices, listed at sis.se, provide an overview of which publications belong together.

Standardisation project

You can influence the content of future standards by taking part in one or other of SIS's 400 or so Technical Committees.

Europastandarden EN EN 1993-1-9:2005/AC:2009 gäller som svensk standard. Detta dokument innehåller den engelska versionen av EN 1993-1-9:2005/AC:2009.

The European Standard EN EN 1993-1-9:2005/AC:2009 has the status of a Swedish Standard. This document contains the official English version of EN 1993-1-9:2005/AC:2009.

! © Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

! © Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Upplýsingar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplýsingar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), tel +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

SIS Förlag AB, SE 118 80 Stockholm, Sweden. Tel: +46 8 555 523 10. Fax: +46 8 555 523 11.
E-mail: sis.sales@sis.se Internet: www.sis.se

EUROPEAN STANDARD

EN 1993-1-9:2005/AC

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2009

ICS 91.010.30

English version

Eurocode 3: Design of steel structures - Part 1-9: Fatigue

Eurocode 3: Calcul des structures en acier
- Partie 1-9: Fatigue

Eurocode 3: Bemessung und Konstruktion
von Stahlbauten - Teil 1-9: Ermüdung

This corrigendum becomes effective on 1 April 2009 for incorporation in the three official language versions of the EN.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

SS-EN 1993-1-9:2005/AC:2009 (E)

Modifications due to EN 1993-1-9:2005/AC:2005

1) Modification to Clause 2

The corrections are to add a "P" after the clause number and replace "should" with "shall" where appropriate. The corrections are underlined as shown.

"

(1)P Structural members shall be designed for fatigue such that there is an acceptable level of probability that their performance will be satisfactory throughout their design life.

"

Modifications due to EN 1993-1-9:2005/AC:2009

2) Modification to Clause 3

Paragraph '(7)', list entry 'b)', change "the β – values equal to those for ultimate limit state verifications" into: "the β -values to be at least equal to those required for ultimate limit state verifications".

3) Modifications to Clause 4

Paragraph '(2)', change the text in the last sentence between the brackets "(see Table 4.1 for circular sections, Table 4.2 for rectangular sections)" into: "(see Table 4.1 for circular hollow sections, Table 4.2 for rectangular hollow sections; these sections are subject to the geometrical restrictions according to Table 8.7)".

Paragraph '(2)', 'Table 4.1' and 'Table 4.2', in the columns 'Verticals' for 'K-type joints', change "1,0" into: "-".

Paragraph '(2)', 'NOTE', change "NOTE" into: "NOTE 1".

Paragraph '(2)', add:

"

NOTE 2 Ranges of geometric validity:

For CHS planar joints (K-, N-, KT-joints):

$$0,30 \leq \beta \leq 0,60$$

$$12,0 \leq \gamma \leq 30,0$$

$$0,25 \leq \tau \leq 1,00$$

$$30^\circ \leq \theta \leq 60^\circ$$

For SHS joints (K-, N-, KT-joints):

$$0,40 \leq \beta \leq 0,60$$

$$6,25 \leq \gamma \leq 12,5$$

$$0,25 \leq \tau \leq 1,00$$

$$30^\circ \leq \theta \leq 60^\circ$$

".

4) Modification to Clause 5

Paragraph '(5)', 'NOTE', change reference to "8(2)" into: "8(3)".

5) Modification to 7.1

Paragraph '(2)', change "For constant amplitude nominal stresses fatigue strengths can" into: "For constant amplitude nominal stress ranges the fatigue strength can".

6) Modifications to Clause 8

Paragraph '(4)', 'NOTE 1', change "adopted for shear stress ranges" into: "adopted also for shear stress ranges".

'Table 8.1', second row '[Detail category] 160', third column, change in this cell:

- the description "Rolled and extruded products:" into: "Rolled or extruded products:";

- the description "Plates and flats" into: "Plates and flats with as rolled edges";

- the description: "Rolled sections" into: "Rolled sections with as rolled edges".

'Table 8.1', fifth row '[Detail category] 100 (m=5)', third column, change in this cell "Rolled and extruded products" into: "Rolled or extruded products".

'Table 8.2', third column 'Description', 2nd, 3rd, 4th, 5th, 11th and 12th rows '[Detail categories] 125, 112, 100 and 140', change in the cells the description "Automatic" into: "Automatic or fully mechanized".

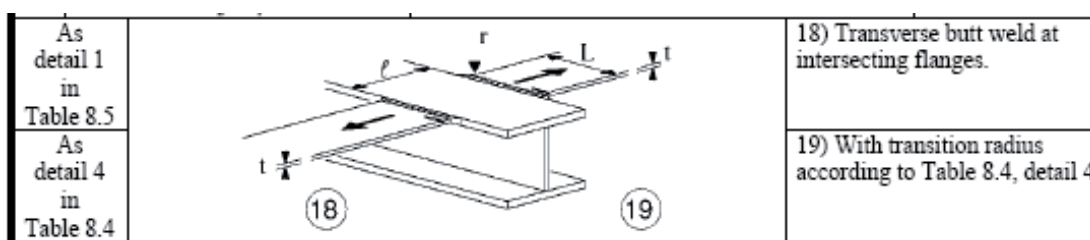
'Table 8.2', fourth column 'Requirements', 9th row, delete from the cell: "Free from defects outside the tolerances of EN 1090".

'Table 8.3', 2nd row, right-hand column, change in the cell "rewelded" into: "welded".

'Table 8.3 (continued)', last row, 1st column, change the text "As detail 1 in Table 8.5" into: "40".

'Table 8.3 (continued)', last row, 2nd column, delete the indication of the plate thickness: "t" from the following figure:

"



"

'Table 8.4', 8th, 9th and 10th rows, 3rd column in these rows, delete:

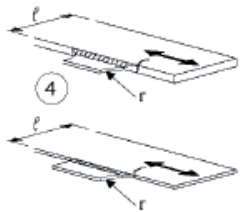
"

L: attachment length as in detail 1, 2 or 3

"

from the following figure:

SS-EN 1993-1-9:2005/AC:2009 (E)

90	$\frac{r}{L} \geq \frac{1}{3}$ or $r > 150\text{mm}$	 <p>L: attachment length as in detail 1, 2 or 3</p>
71	$\frac{1}{6} \leq \frac{r}{L} \leq \frac{1}{3}$	
50	$\frac{r}{L} < \frac{1}{6}$	

'Table 8.4', 8th, 9th and 10th rows, 2nd column in these rows (see just above), change in the second column " $\frac{r}{L}$ " into: " $\frac{r}{\ell}$ ".

'Table 8.5', 11th row '36*', 3rd column, change:

3) Root failure in partial penetration Tee-butts joints or fillet welded joint and effective full penetration in Tee-butts joint.

into:

3) Root failure in partial penetration Tee-butts joints or fillet welded joint and in Tee-butts weld, according to Figure 4.6 in EN 1993-1-8:2005.

'Table 8.5', 2nd column, 2nd and 3rd rows:

Table 8.5: Load carrying welded joints

Detail category	Constructional detail		Description	Requirements
80	$\ell < 50\text{ mm}$	all t [mm]	Cruciform and Tee joints: 1) Toe failure in full penetration butt welds and all partial penetration joints. 2) Toe failure from edge of attachment to plate, with stress peaks at weld ends due to local plate deformations.	1) Inspected and found free from discontinuities and misalignments outside the tolerances of EN 1090. 2) For computing $\Delta\sigma$, use modified nominal stress. 3) In partial penetration joints two fatigue assessments are required. Firstly, root cracking evaluated according to stresses defined in section 5, using category 36* for $\Delta\sigma_w$ and category 80 for $\Delta\tau_w$. Secondly, toe cracking is evaluated by determining $\Delta\sigma$ in the load-carrying plate. Details 1) to 3): The misalignment of the load-
71	$50 < \ell \leq 80$	all t		
63	$80 < \ell \leq 100$	all t		
56	$100 < \ell \leq 120$	all t		
56	$\ell \geq 120$	$t \leq 20$		
50	$120 < \ell \leq 200$ $\ell \geq 200$	$t \geq 20$ $20 < t \leq 30$		
45	$200 < \ell \leq 300$ $\ell \geq 300$	$t \geq 30$ $30 < t \leq 50$		
40	$\ell \geq 300$	$t \geq 50$		
As detail 1 in Table 8.5	flexible panel	