



Handläggande organ

Byggstandardiseringen, BST

Fastställt

1997-04-11

Utgåva

1

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Stålkonstruktioner – Dimensionering – Eurocode 3, del 1-4: Konstruktioner av rostfritt stål

Eurocode 3: Design of steel structures – Part 1-4: General rules – Supplementary rules for stainless steels



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1 (1+55)

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Eurocode 3: Design of steel structures – Part 1-4: General rules – Supplementary rules for stainless steels

Den europeiska förstandarden ENV 1993-1-4:1996 gäller som svensk standard och publiceras i form av en svensk försöksstandard, som innehåller den engelska versionen av ENV 1993-1-4

Försöksstandarden förutsätter att den tillämpas i kombination med reglerna i ett svenskt anpassningsdokument, NAD, till standarden. Boverket i samråd med Banverket och Vägverket ger ut NAD-dokumentet.

ENV 1993-1-4 kommer att revideras och delvis omarbetas i samband med att den publiceras som europastandard, EN. Det finns för närvarande inga planer på att översätta försöksstandarden till svenska.

Del 1-4 är en del av sammanlagt 10 delar för olika typer av stålkonstruktioner.

Enligt 1:5 i Boverkets Konstruktionsregler BKR 94 (BFS 1993:58) godtages metoder och konstruktionslösningar enligt denna försöksstandard som alternativ till sådana som anges i BKR 94, med tillägg och ändringar angivna i tillhörande NAD.

ICS 91.040.01; 91.080.10

Standarder kan beställas hos SIS som även lämnar allmänna upplysningar om svensk och utländsk standard.
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Prisgrupp R

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EUROPEAN PRESTANDARD
PRÉNORME EUROPÉENNE
EUROPÄISCHE VORNORM

ENV 1993-1-4

September 1996

ICS 91.040.01; 91.080.10

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English version

**Eurocode 3: Design of steel structures – Part 1-4:
General rules – Supplementary rules for
stainless steels**

Eurocode 3: Calcul des structures en acier –
Partie 1-4: Règles générales – Règles
supplémentaires pour les aciers inoxydables

Eurocode 3: Bemessung und Konstruktion von
Stahlbauten – Teil 1-4: Allgemeine
Bemessungsregeln – Ergänzende Regeln zur
Anwendung von nichtrostenden Stählen

This European Prestandard (ENV) was approved by CEN on 1994-09-30 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into an European Standard (EN).

CEN members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 BRUSSELS

Contents		Page
Foreword		4
1 General		6
1.1 Scope		6
1.2 Distinction between principles and application rules		6
1.3 Normative references		7
1.4 Definitions		7
2 Materials		8
2.1 Structural stainless steels		8
2.2 Bolts		10
2.3 Welding consumables		10
3 Durability		11
4 Serviceability limit states		11
4.1 General		11
4.2 Determination of deflections		11
5 Ultimate limit states		13
5.1 General		13
5.2 Classification of cross-sections		13
5.3 Resistance of cross-sections		18
5.4 Buckling resistance of members		20
5.5 Shear resistance		21
5.6 Resistance of web to transverse forces		22
5.7 Transverse web stiffeners		23
6 Connection design		24
6.1 General		24
6.2 Bolted connections		24
6.3 Welded connections		24
7 Fabrication		25
8 Design assisted by testing		25
9 Fatigue		25
10 Fire resistance		25
Annex A [informative] Materials data		26
A.1 Types of stainless steel		26
A.2 Vocabulary of treatment terms		28
A.3 Assignment of stainless steels to nominal strength classes		28
A.4 Designation of stainless steels		29
A.5 Cold worked stainless steels		30
A.6 Physical properties of stainless steels		33
A.7 Special conditions		33

Annex B	[informative]	Durability	36
B.1		Introduction	36
B.2		Types of corrosion	37
B.3		Levels of risk	39
B.4		Selection of materials	39
B.5		Design for corrosion control	42
B.6		Connections	43
Annex C	[informative]	Fabrication aspects	45
C.1		General	45
C.2		Storage and handling	46
C.3		Cold forming	47
C.4		Marking	47
C.5		Cutting	48
C.6		Holing	48
C.7		Welding	49
Annex D	[informative]	Guidance on design using ferritic stainless steels	55

Foreword

Objectives of the Eurocodes

- (1) The “Structural Eurocodes” comprise a group of standards for the structural and geotechnical design of buildings and civil engineering works.
- (2) They cover execution and control only to the extent that is necessary to indicate the quality of the construction products, and the standard of the workmanship, needed to comply with the assumptions of the design rules.
- (3) Until the necessary set of harmonized technical specifications for products and for methods of testing their performance is available, some of the Structural Eurocodes cover some of these aspects in informative annexes.

Background to the Eurocode programme

(4) The Commission of the European Communities (CEC) initiated the work of establishing a set of harmonized technical rules for the design of building and civil engineering works which would initially serve as an alternative to the different rules in force in the various member states and would ultimately replace them. These technical rules became known as the “Structural Eurocodes”.

(5) In 1990, after consulting their respective member states, the CEC transferred the work of further development, issue and updating of the Structural Eurocodes to CEN, and the EFTA Secretariat agreed to support the CEN work.

(6) CEN Technical Committee CEN/TC 250 is responsible for all Structural Eurocodes.

Eurocode programme

(7) Work is in hand on the following Structural Eurocodes, each generally consisting of a number of parts:

- EN 1991 Eurocode 1 Basis of design and actions on structures;
- EN 1992 Eurocode 2 Design of concrete structures;
- EN 1993 Eurocode 3 Design of steel structures;
- EN 1994 Eurocode 4 Design of composite steel and concrete structures;
- EN 1995 Eurocode 5 Design of timber structures;
- EN 1996 Eurocode 6 Design of masonry structures;
- EN 1997 Eurocode 7 Geotechnical design;
- EN 1998 Eurocode 8 Design provisions for earthquake resistance of structures;
- EN 1999 Eurocode 9 Design of aluminium alloy structures.

(8) Separate sub-committees have been formed by CEN/TC 250 for the various Eurocodes listed above.

(9) This Part 1.4 of Eurocode 3 is published by CEN as a European Prestandard (ENV) with an initial life of three years.

(10) This Prestandard is intended for experimental application and for the submission of comments.

(11) After approximately two years CEN members will be invited to submit formal comments to be taken into account in determining future actions.

(12) Meanwhile feedback and comments on this Prestandard should be sent to the secretariat of CEN/TC 250/SC 3 at the following address:

BSI Standards
British Standards House
389 Chiswick High Road
London W4 4AL
England

or to your national standards organization.

National Application Documents (NAD's)

(13) In view of the responsibilities of the authorities in member countries for safety, health and other matters covered by the essential requirements of the Construction Products Directive (CPD), certain safety elements in this ENV have been assigned indicative values which are identified by ("boxed values"). The authorities in each member country are expected to review the "boxed values" and may substitute alternative definitive values for these safety elements for use in national application.

(14) Some of the supporting European or International Standards might not be available by the time this Prestandard is issued. It is therefore anticipated that a National Application Document (NAD) giving any substitute definitive values for safety elements, referencing compatible supporting standards and providing guidance on the national application of this Prestandard, will be issued by each member country or its Standards Organization.

(15) It is intended that this Prestandard is used in conjunction with the NAD valid in the country where the building or civil engineering works is located.

Matters specific to this Prestandard

(16) The Parts of ENV 1993 that are currently envisaged are:

- ENV 1993-1-1 General rules: General rules and rules for buildings;
- ENV 1993-1-2 General rules: Structural fire design;
- ENV 1993-1-3 General rules: Supplementary rules for cold formed thin gauge members and sheeting;
- ENV 1993-1-4 General rules: Supplementary rules for stainless steels;
- ENV 1993-2 Steel bridges;
- ENV 1993-3 Towers, masts and chimneys;
- ENV 1993-4 Silos, tanks and pipelines;
- ENV 1993-5 Piling;
- ENV 1993-6 Crane supporting structures;
- ENV 1993-7 Marine and maritime structures;
- ENV 1993-8 Agricultural structures.

(17) Design provisions for ferritic stainless steels are not yet included in this Prestandard, but interim guidance on a conservative design approach for ferritic stainless steels is given in annex D.

(18) It is expected that in the future EN 1090 "Execution of steel structures" will contain provisions for stainless steels that will supersede the information on fabrication given in annex C of this Prestandard.

1 General

1.1 Scope

(1)P This Part 1.4 of ENV 1993 gives supplementary provisions for the design of buildings and civil engineering works that extend the application of ENV 1993-1-1 and ENV 1993-1-3 to austenitic and austenitic-ferritic stainless steels.

(2)P The relevant provisions of ENV 1993-1-1 and ENV 1993-1-3 also apply unless otherwise specified in this Part 1.4.

NOTE 1: Information on stainless steels and their durability is given in annexes A and B.

NOTE 2: Guidance on special aspects of fabrication using stainless steels is given in annex C. It is expected that in the future EN 1090 will contain provisions for the fabrication of stainless steels that will supersede the guidance given in annex C.

NOTE 3: Guidelines for further treatment, including heat treatment, are given in EN 10088.

(3) Design provisions for ferritic stainless steels are not yet included in this Part 1.4.

NOTE: Interim guidance on a design approach for ferritic stainless steels is given in annex D.

(4) For seismic applications, reference should be made to ENV 1998.

1.2 Distinction between principles and application rules

(1)P Depending on the character of the individual paragraphs, a distinction is made in this Part between principles and application rules.

(2)P The principles comprise:

- general or definitive statements for which there is no alternative;
- requirements and analytical models for which no alternative is permitted unless specifically stated.

(3) The principles are identified by the letter P following the paragraph number.

(4)P The application rules are generally recognized rules that follow the principles and satisfy their requirements. Alternative design rules different from the application rules given in the Eurocode may be used, provided that it is shown that the alternative rule accords with the relevant principles and has at least the same reliability.

(5) In this Part the application rules are identified by a number in brackets, as in this paragraph.

1.3 Normative references

This European Prestandard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Prestandard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- EN 10052 *Vocabulary of heat treatment terms for ferrous products;*
- EN 10088 *Stainless steels:*
- Part 1: *List of stainless steels;*
- Part 2: *Technical delivery conditions for sheet/plate and strip for general purposes;*
- Part 3: *Technical delivery conditions for semi-finished products, bars, rods and sections for general purposes;*
- ENV 1090 *Execution of steel structures:*
- Part 1: *General rules and rules for buildings;*
- Part 2: *Rules for cold formed thin gauge members and sheeting;*
- Part 6: *Supplementary rules for stainless steels;*
- ENV 1993 *Eurocode 3: Design of steel structures:*
- Part 1.1: *General rules: General rules and rules for buildings;*
- Part 1.2: *General rules: Structural fire design;*
- Part 1.3: *General rules: Supplementary rules for cold formed thin gauge members and sheeting;*
- ENV 1998 *Eurocode 8: Design provisions for earthquake resistance of structures;*
- ECISS-IC 10 *Designation systems for steel - Additional symbols for steel names;*
- ISO 3506 *Corrosion-resistant stainless steel fasteners - Specifications;*
- ISO 7089 *Plain washers - Normal series - Product grade A;*
- ISO 7090 *Plain washers, chamfered - Normal series - Product grade A.*

1.4 Definitions

Unless otherwise stated, the vocabulary of treatment terms for ferrous products used in EN 10052 applies.

NOTE: Brief definitions and descriptions of stainless steels are given in annex A.