



**NSAI**  
Standards

Irish Standard  
I.S. EN 1993-1-4:2006&A1:2015&A2:2020

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

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**I.S. EN 1993-1-4:2006&A1:2015&A2:2020**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

EN 1993-1-4:2006/A1:2015

EN 1993-1-4:2006/A2:2020

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*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.*

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NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

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## National Foreword

I.S. EN 1993-1-4:2006&A1:2015&A2:2020 is the adopted Irish version of the European Document EN 1993-1-4:2006, Eurocode 3 - Design of steel structures - Part 1-4: General rules - Supplementary rules for stainless steels

NSAI adopts all Eurocodes as Irish Standards.

Eurocodes permit certain design parameters to be selected nationally. In Ireland, the selection of National Design Parameters (NDP's) is the responsibility of the Eurocodes Consultative Committee (NSAI TC 015). National Annexes are developed in accordance with CEN and NSAI procedures and include a public consultation process.

Where NSAI TC 015 considers it appropriate, NDP's are agreed and listed in Irish National Annexes to Eurocodes.

Eurocodes must always be used in conjunction with the accompanying National Annex (NA), where available. For example, I.S. EN 1991-1-4, Eurocode 1: Actions on structures – Part 1-4: General actions – Wind actions is to be used in conjunction with NA to I.S. EN 1991-1-4.

National Annexes are reviewed as necessary e.g. when a new edition, an amendment or a corrigendum to a Eurocode is issued. The National Annex identifies what amendments/corrigenda are addressed. The user should check that the National Annex addresses the latest changes to the Eurocode. Previews of all documents are available on [www.standards.ie](http://www.standards.ie). Any questions should be directed to NSAI.

Where an Irish National Annex to a Eurocode has not been prepared, the user must make sure that the general requirements of I.S. EN 1990 and the accompanying Irish National Annex are complied with.

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Information on Eurocodes and the related national annexes is available from [www.nsai.ie](http://www.nsai.ie).

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EUROPEAN STANDARD

EN 1993-1-4:2006/A2

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EUROPÄISCHE NORM

December 2020

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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  
nichtrostender Stählen

This amendment A2 modifies the European Standard EN 1993-1-4:2006; it was approved by CEN on 20 November 2020.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (EN 1993-1-4:2006/A2:2020) has been prepared by Technical Committee CEN/TC 250 “Structural Eurocodes”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2021 and conflicting national standards shall be withdrawn at the latest by December 2021.

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**1 Modification to 5.4.2.1, "Buckling curves"**

Replace Table 5.3 by the following one:

"

**Table 5.3 — Values of  $\alpha$  and  $\bar{\lambda}_0$  for flexural, torsional and torsional-flexural buckling**

Buckling mode	Type of member	Axis of buckling	Austenitic and austenitic-ferritic		Ferritic	
			$\alpha$	$\bar{\lambda}_0$	$\alpha$	$\bar{\lambda}_0$
Flexural	Cold formed angles and channels	Any	0,76	0,2	0,76	0,2
	Cold formed lipped channels	Any	0,49	0,2	0,49	0,2
	Cold formed rectangular hollow sections	Any	0,49	0,3	0,49	0,2
	Cold formed circular hollow sections	Any	0,49	0,2	0,49	0,2
	Hot finished rectangular hollow sections	Any	0,49	0,2	0,34	0,2
	Hot finished circular hollow sections	Any	0,49	0,2	0,34	0,2
	Hot rolled sections and welded open or box sections	Major	0,49	0,2	0,49	0,2
Minor		0,76	0,2	0,76	0,2	
Torsional and torsional-flexural	All members	The values of $\alpha$ and $\bar{\lambda}_0$ for flexural buckling about the minor axis apply.				

".



EUROPEAN STANDARD

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## 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 amendment A1 modifies the European Standard EN 1993-1-4:2006; it was approved by CEN on 1 March 2015.

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## Foreword

This document (EN 1993-1-4:2006/A1:2015) has been prepared by Technical Committee CEN/TC 250 “Structural Eurocodes”, the secretariat of which is held by BSI.

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## 1 Modification to the Foreword

In the Foreword, in the section “National Annex for EN 1993-1-4”, in the 2<sup>nd</sup> paragraph, add the following clauses for national choices at the end of the list:

“

- 7(1),
- A.2(8) and
- A.3, Table A.4.”.

## 2 Modifications to 1.2, Normative references

Replace “EN 1993-1-1” with “EN 1993-1-1:2005”.

Replace the following references:

- “EN 10088-1      *Stainless steels – Part 1: List of stainless steels;*  
 EN 10088-2,      *Stainless steels — Part 2: Technical delivery conditions for sheet/plate and strip for general purposes;*  
 EN 10088-3,      *Stainless steels — Part 3: Technical delivery conditions for semi-finished products, bars, rods and sections for general purposes;”*

with the following one:

“EN 10088 (all parts),      *Stainless steels”.*

## 3 Modifications to 2.1.1, General

Replace Paragraph (1):

“(1) The provisions given in this Part 1-4 should be applied only to design using austenitic, austenitic-ferritic and ferritic stainless steels.”

with:

“(1) The design provisions specified in this Part 1-4 are applicable for stainless steel material in the annealed condition in accordance with Table 2.1 and for austenitic stainless steel material in the cold worked condition in accordance with Table 2.2.

The typical grades used for the construction of building structures are listed in Tables 2.1 and 2.2. The design rules in this standard may also be applied to other grades in EN 10088–4 and EN 10088–5, provided the relevant partial factor ( $\gamma_M$ ) is increased by 10 %. Specialist advice should be sought regarding the durability, fabrication, weldability, fatigue resistance and high temperature performance of these grades, if appropriate.”.

In Paragraph (3), replace “EN 10088” with “EN standards”.

Delete Paragraphs (4) and (5).

EUROPEAN STANDARD

EN 1993-1-4

NORME EUROPÉENNE

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October 2006

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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 nichtrostender  
Stählen

This European Standard was approved by CEN on 9 January 2006.

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## Foreword

This European Standard EN 1993-1-4, Eurocode 3: Design of steel structures: Part 1-4 General Rules – Supplementary rules for stainless steels, has been prepared by Technical Committee CEN/TC250 « Structural Eurocodes », the Secretariat of which is held by BSI. CEN/TC250 is responsible for all Structural Eurocodes.

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### National Annex for EN 1993-1-4

This standard gives alternative procedures, values and recommendations with notes indicating where national choices may have to be made. The National Standard implementing EN 1993-1-4 should have a National Annex containing all Nationally Determined Parameters to be used for the design of steel structures to be constructed in the relevant country.

National choice is allowed in EN 1993-1-4 through clauses:

- 2.1.4(2)
- 2.1.5(1)
- 5.1(2)
- 5.5(1)
- 5.6(2)
- 6.1(2)
- 6.2(3)

## 1 General

### 1.1 Scope

(1) This Part 1.4 of EN 1993 gives supplementary provisions for the design of buildings and civil engineering works that extend and modify the application of EN 1993-1-1, EN 1993-1-3, EN 1993-1-5 and EN 1993-1-8 to austenitic, austenitic-ferritic and ferritic stainless steels.

**NOTE 1:** Information on the durability of stainless steels is given in Annex A.

**NOTE 2:** The execution of stainless steel structures is covered in EN 1090.

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

### 1.2 Normative references

This following normative documents contain provisions which, through reference to this text, constitute provisions of this European Standard. For dated references, subsequent amendments to or revisions of any of these publications do not apply. However, parties to agreements based on this European Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

EN 1990	<i>Eurocode 0: Basis of structural design</i>
EN 508-3	<i>Roofing products from metal sheet. Specification for self-supporting products of steel, aluminium or stainless steel sheet. Stainless steel;</i>
EN 1090-2	<i>Execution of steel structures and aluminium structures – Part 2: Technical requirements for steel structures;</i>
EN 1993-1-1	<i>Design of steel structures: General rules and rules for buildings;</i>
EN 1993-1-2	<i>Design of steel structures: Structural fire design;</i>
EN 1993-1-3	<i>Design of steel structures: Cold formed thin gauge members and sheeting;</i>
EN 1993-1-5	<i>Design of steel structures: Plated structural elements;</i>
EN 1993-1-6	<i>Design of steel structures: Strength and stability of shell structures;</i>
EN 1993-1-8	<i>Design of steel structures: Design of joints;</i>
EN 1993-1-9	<i>Design of steel structures: Fatigue;</i>
EN 1993-1-10	<i>Design of steel structures: Material toughness and through-thickness properties;</i>
EN 1993-1-11	<i>Design of steel structures: Design of structures with tension components made of steel;</i>
EN 1993-1-12	<i>Design of steel structures: Additional rules for the extension of EN 1993 up to steel grades S 700;</i>
EN ISO 3506-1	<i>Mechanical properties of corrosion resistant stainless steel fasteners – Part 1: Bolts, screws and studs;</i>
EN ISO 3506-2	<i>Mechanical properties of corrosion resistant stainless steel fasteners – Part 2: Nuts</i>
EN ISO 3506-3	<i>Mechanical properties of corrosion resistant stainless steel fasteners – Part 3: Set screws and similar fasteners under tensile tests;</i>
EN ISO 7089	<i>Plain washers - Normal series - Product grade A;</i>
EN ISO 7090	<i>Plain washers, chamfered - Normal series - Product grade A;</i>
EN ISO 9445	<i>Continuously cold-rolled stainless steel narrow strip, wide strip, plate/sheet and cut lengths - Tolerances on dimensions and form</i>
EN 10029	<i>Specification for tolerances on dimensions, shape and mass for hot rolled steel plates 3 mm thick or above;</i>



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