

**Eurocode 3: Design of steel structures
Part 3-2: Towers, masts and chimneys
Chimneys**

**Eurokoodeks 3: Teraskonstruksioonide projekteerimine
Osa 3-2: Tornid, mastid ja korstnad
Korstnad**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

**Eurocode 3 - Design of steel structures - Part 3-2: Towers,
masts and chimneys - Chimneys**

Eurocode 3 - Calcul des structures en acier - Partie 3-2:
Tours, mâts et cheminées - Cheminées

Eurocode 3 - Bemessung und Konstruktion von
Stahlbauten - Teil 3-2: Türme, Maste und Schornsteine -
Schornsteine

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Foreword

This European Standard EN 1993-3-2, Eurocode 3: Design of steel structures: Part 3-2 Towers, masts and chimneys – Chimneys, 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.

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of an identical text or by endorsement, at the latest by April 2007 and conflicting National Standards shall be withdrawn at latest by March 2010.

This Eurocode supersedes ENV 1993-3-2.

According to the CEN-CENELEC Internal Regulations, the National Standard Organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

National Annex for EN 1993-3-2

This standard gives alternative procedures, values and recommendations for classes with notes indicating where national choices may have to be made. Therefore the National Standard implementing EN 1993-3-2 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 1993-3-2 through paragraphs:

- 2.3.3.1(1)
- 2.3.3.5(1)
- 2.6(1)
- 4.2(1)
- 5.1(1)
- 5.2.1(3)
- 6.1(1)P
- 6.2.1(6)
- 6.4.1(1)
- 6.4.2(1)
- 6.4.3(2)
- 7.2(1)
- 7.2(2)
- 9.1(3)
- 9.1(4)
- 9.5(1)
- A.1(1)
- A.2(1) (2 places)
- C.2(1)

1 General

1.1 Scope

- (1) This Part 3.2 of EN 1993 applies to the structural design of vertical steel chimneys of circular or conical section. It covers chimneys that are cantilevered, supported at intermediate levels or guyed.
- (2) The provisions in this Part supplement those given in Part 1.1 of EN 1993.
- (3) This Part 3.2 is concerned only with the requirement for resistance (strength, stability and fatigue) of steel chimneys.

NOTE: In this context (i.e. resistance) the term chimney refers to:

- a) chimney structures
- b) the steel cylindrical elements of towers
- c) the steel cylindrical shafts of guyed masts

- (4) For provisions concerning aspects, such as chemical attack, thermo-dynamical performance or thermal insulation see EN 13084-1. For the design of liners see EN 13084-6.
- (5) Foundations in reinforced concrete for steel chimneys are covered in EN 1992 and EN 1997. See also 4.7 and 5.4 of EN 13084-1.
- (6) Wind loads are specified in EN 1991-1-4.

NOTE: Procedures for the wind response of guyed chimneys are given in annex B of EN 1993-3-1.

- (7) This Part does not cover special provisions for seismic design, which are given in EN 1998-6. See also 5.2.4.1 of EN 13084-1.
- (8) Provisions for the guys and their attachments are given in EN 1993-3-1 and EN 1993-1-11.
- (9) For the execution of steel chimneys, reference should be made to EN 1090, Part 2 and EN 13084-1.

NOTE: Execution is covered to the extent that is necessary to indicate the quality of the construction materials and products that should be used and the standard of workmanship on site needed to comply with the assumptions of the design rules.

- (10) The following subjects are dealt with in EN 1993-3-2:

Section 1: General

Section 2: Basis of design

Section 3: Materials

Section 4: Durability

Section 5: Structural analysis

Section 6: Ultimate limit states

Section 7: Serviceability limit states

Section 8: Design assisted by testing

Section 9: Fatigue

1.2 Normative references

(1) The following normative documents contain provisions which, through references in 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 1090	<i>Execution of steel structures and aluminium structures</i>
EN 10025	<i>Hot rolled products of non-alloy structural steels. Technical delivery conditions</i>
EN 10088	<i>Stainless steels</i>
EN 13084-1	<i>Free standing industrial chimneys – Part 1 : General Requirements</i>
EN ISO 5817	<i>Welding - Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) - Quality levels for imperfections</i>

1.3 Assumptions

(1) See 1.3 of EN 1993-1-1.

1.4 Distinction between principles and application rules

(1) See 1.4 of EN 1993-1-1.

1.5 Terms and definitions

(1) The terms and definitions that are defined in EN 1990 for common use in the Structural Eurocodes apply to this Part 3.2 of EN 1993.

(2) Supplementary to Part 1 of EN 1993, for the purposes of this Part 3.2, the following definitions apply. Definitions used for chimney structures are shown in Figure 1.1.

1.5.1

chimney

Vertical construction works or building components that conduct waste gases, or other flue gases, supply or exhaust air to the atmosphere.

1.5.2

self-supported chimney

A chimney whose supporting shaft is not connected with any other construction above the base level.

1.5.3

guyed chimney

A chimney whose supporting shaft is held in place by guys at one or more height levels.

1.5.4

single-wall chimney

A chimney whose structural shell also conducts the flue gases. It may be fitted by thermal insulation and/or internal lining.

1.5.5

double-wall chimney

A chimney consisting of an outer steel structural shell and one inner liner which carries the flue gases.