

**Betoonvalmistooted. Eelvalatud
betoongaraažid. Osa 1: Nõuded
monoliitsetele või üksikutest ruumi
mõõtmetele vastavatest
komponentidest koosnevatele
sarrustatud (raudbetoonist) garaažidele**

Precast concrete products - Precast concrete
garages - Part 1: Requirements for reinforced
garages monolithic or consisting of single sections
with room dimensions

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 13978-1:2005 sisaldab Euroopa standardi EN 13978-1:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 22.06.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 13978-1:2005 consists of the English text of the European standard EN 13978-1:2005.</p> <p>This document is endorsed on 22.06.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This document regards precast reinforced concrete garages produced as monolithic units or as kits of single sections with room dimensions in stationary factories. These garages are intended to be erected on foundations designed by others and complying with the behaviour of the precast units.</p>	<p>Scope:</p> <p>This document regards precast reinforced concrete garages produced as monolithic units or as kits of single sections with room dimensions in stationary factories. These garages are intended to be erected on foundations designed by others and complying with the behaviour of the precast units.</p>
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ICS 91.090, 91.100.30

Võtmesõnad:

ICS 91.090; 91.100.30

English version

**Precast concrete products - Precast concrete garages - Part 1:
Requirements for reinforced garages monolithic or consisting of
single sections with room dimensions**

Produits préfabriqués en béton - Garages préfabriqués en
béton - Partie 1 : Exigences pour garages en béton armé
monolithiques ou composés d'éléments individuels de la
dimension d'une pièce

Betonfertigteile - Betonfertiggaragen - Teil 1:
Anforderungen an monolithische oder aus raumgroßen
Einzelteilen bestehende Stahlbetongaragen

This European Standard was approved by CEN on 24 February 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document (EN 13978-1:2005) has been prepared by Technical Committee CEN/TC 229 "Precast concrete products", the secretariat of which is held by AFNOR, and was examined by and agreed with a joint working party appointed by the Liaison Group CEN/TC 229-TC 250, particularly for its compatibility with structural Eurocodes.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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 November 2005, and conflicting national standards shall be withdrawn at the latest by February 2007.

This document is one of a series of product standards for precast concrete products.

For common aspects reference is made to EN 13369:2004 - *Common rules for precast products*, from which also the relevant requirements of the EN 206 - *Concrete — Part 1: Specification, performances, production and conformity* are taken.

The references to EN 13369:2004 by CEN/TC 229 product standards are intended to make them homogeneous and to avoid repetitions of similar requirements.

Eurocodes are taken as a common reference for design aspects. The installation of some structural precast concrete products is dealt with by ENV 13670-1: *Execution of concrete structures — Part 1: Common rules*, which has at the moment the status of an European prestandard. In all countries it can be accompanied by alternatives for national application and it shall not be treated as an European Standard.

The programme of standards for structural precast concrete products comprises the following standards, in some cases consisting on several parts:

- prEN 1168, *Precast concrete products — Hollow core slabs*.
- EN 12794, *Precast concrete products — Foundation piles*.
- EN 12843, *Precast concrete products — Masts and poles*.
- prEN 13747, *Precast concrete products — Floor plates for floor systems*.
- prEN 15037-1, *Precast concrete products - Beam-and-block floor systems - Part 1: Beams*.
- prEN 15037-2, *Precast concrete products - Beam-and-block floor systems - Part 2: Blocks*.
- EN 13224, *Precast concrete products — Ribbed floor elements*.
- EN 13225, *Precast concrete products — Linear structural elements*.
- prEN 14992, *Loadbearing wall and facades*.
- prEN 15258, *Retaining wall elements*.

- EN 13693, *Precast concrete products — Special roof elements.*
- prEN 14844, *Precast concrete products — Box culverts.*
- prEN 13978, *Precast concrete products — Precast concrete garages.*
- prEN 14991, *Precast concrete products — Foundation elements.*
- prEN 15050, *Precast concrete bridge elements.*
- WI00229019, *Precast concrete products — Silos.*
- prEN 14843, *Precast concrete products — Stairs.*

According to the CEN/CENELEC Internal Regulations, the national standards 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, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This document is Part 1 of the European Standard which consists of two parts:

- Part 1: "Requirements for reinforced garages monolithic or consisting of single sections with room dimensions" refers to precast concrete garages reinforced by bars or fabric;
- Part 2: "Requirements for steel fibre concrete garages" refers to precast garages produced of steel fibre concrete.

Part 1 contains 2 normative and 5 informative annexes.

Annex A (informative) contains recommendations regarding the concrete cover. Annex A is recommended for use if there are no national regulations standing in the way.

Annex B (normative) contains inspections schemes for carrying out the factory production control.

Annex C (informative) specifies simplified design rules for garages. These rules may be used if there are no national rules standing in the way. For garage boxes for basement garages, the applicability of Annex C is restricted (see C.1).

Annex D (normative) contains the initial tests to be carried out.

Annex E (informative) gives information about garage boxes for basement garages for which the resistance to parametric fire is ensured. The chosen fire load for the parametric fire represents the most unfavourable case of a burning car with regard to the energy release rate and the fire duration.

Garages dealt with in Part 1 allow smaller cover than accepted in EN 13369 and EN 1992-1-1. Hence the product is a separate class. This can be accepted due to the generally low stresses in the structure and that after 50 years of use no detrimental effects have been observed.

The evaluation of conformity given in this standard refers to the completed garages which are supplied to the market and covers all the production operations carried out in the factory.

1 Scope

This document regards precast reinforced concrete garages produced as monolithic units or as kits of single sections with room dimensions in stationary factories. These garages are intended to be erected on foundations designed by others and complying with the behaviour of the precast units. They may be free-standing, or may have backfilling behind some of the walls (earthfilled), or earth covered or built over with a parking area for cars or a second storey of precast garages. This document also applies to supplementary units, kits for double space garages and multiple parking garages as well as for garage boxes for one-storey basement garages. It does not apply to elements incorporated as a structural part of an upper structure unless they are designed according to EN 13369.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 206-1:2000, *Concrete — Part 1: Specification, performance, production and conformity*

EN 1992-1-1:2004, *Eurocode 2: Design of concrete structures — Part 1-1: General rules and rules for buildings*

EN 1992-1-2:2005, *Eurocode 2: Design of concrete structures — Part 1-2: General rules – Structural fire design*

EN 13369:2004, *Common rules for precast concrete products*

EN 12504-1, *Testing concrete in structures — Part 1: Cored specimens – Testing, examining and testing in compression*

3 Terms and definitions

For the purposes of this document, the following terms, definitions and symbols apply. In general the term "product" refers to an element which is produced in large numbers. For general terms see Clause 3 of EN 13369:2004.

3.10 Special definitions for garages

3.10.1

precast reinforced concrete garage

monolithic or as a kit of single sections with room dimensions prefabricated garage made of reinforced concrete

3.10.2

monolithic garage

garage forming a spatial load bearing system

3.10.3

double space garage

kit of two garage boxes situated side by side which are open at every adjoining side

3.10.4

double-deck garage

kit of two garage boxes arranged in two levels one on top of the other