



# SLOVENSKI STANDARD

## SIST EN 15037-2:2009+A1:2011

01-junij-2011

Nadomešča:

SIST EN 15037-2:2009

SIST EN 15037-2:2009/kFprA1:2010

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**Montažni betonski izdelki - Stropni sistemi iz nosilcev in polnil - 2. del: Polnila**

Precast concrete products - Beam-and-block floor systems - Part 2: Concrete blocks

Betonfertigeteile - Balkendecken mit Zwischenbauteilen - Teil 2: Zwischenbauteile aus Beton

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Produits préfabriqués en béton - Systèmes de planchers à poutrelles et entrevous -  
Partie 2: Entrevous en béton

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SIST EN 15037-2:2009+A1:2011

**Ta slovenski standard je istoveten z: EN 15037-2:2009+A1:2011**

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**ICS:**

91.060.30	Stropi. Tla. Stopnice	Ceilings. Floors. Stairs
91.100.30	Beton in betonski izdelki	Concrete and concrete products

**SIST EN 15037-2:2009+A1:2011** en,fr,de

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 15037-2:2009+A1**

February 2011

ICS 91.100.30

Supersedes EN 15037-2:2009

English Version

## Precast concrete products - Beam-and-block floor systems - Part 2: Concrete blocks

Produits préfabriqués en béton - Systèmes de planchers à  
poutrelles et entrevous - Partie 2: Entrevous en béton

Betonfertigteile - Balkendecken mit Zwischenbauteilen -  
Teil 2: Zwischenbauteile aus Beton

This European Standard was approved by CEN on 25 January 2009 and includes Amendment 1 approved by CEN on 10 January 2011.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

## Contents

The numbering of clauses is strictly related to EN 13369:2004 Common rules for precast concrete products, at least for the first three digits. When a clause of EN 13369:2004 is not relevant or included in a more general reference of this standard, its number is omitted and this may result in a gap on numbering.

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## EN 15037-2:2009+A1:2011 (E)

## Foreword

This document (EN 15037-2:2009+A1:2011) has been prepared by Technical Committee CEN/TC 229 "Precast concrete products", the secretariat of which is held by AFNOR. This document was examined by and agreed with a joint working party appointed by the Liaison Group CEN/TC 229 – CEN/TC 250, particularly for its compatibility with 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 August 2011, and conflicting national standards shall be withdrawn at the latest by August 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1, approved by CEN on 2011-01-10.

This document supersedes EN 15037-2:2009.

The start and finish of text introduced or altered by amendment is indicated in the text by tags  $\square_{A1}$   $\square_{A1}$ .

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.

The European Standard for beam-and-block floor system is made of 5 parts:

- EN 15037-1, *Precast concrete products — Beam-and-block floor systems — Part 1: Beams;*
- EN 15037-2, *Precast concrete products — Beam-and-block floor systems — Part 2: Concrete blocks;*
- EN 15037-3, *Precast concrete products — Beam-and-block floor systems — Part 3: Clay blocks;*
- $\square_{A1}$  EN 15037-4  $\square_{A1}$ , *Precast concrete products — Beam-and-block floor systems — Part 4: Polystyrene blocks;*
- prEN 15037-5, *Precast concrete products — Beam-and-block floor systems — Part 5: Lightweight blocks.*

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

For common aspects of concrete products, reference is made to EN 13369, from which also the relevant requirements of the EN 206-1 are taken.

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

$\square_{A1}$  Eurocodes are taken as a common reference for design aspects. The installation of some structural precast concrete products is dealt with by EN 13670:2009 *Execution of concrete structures*. In all countries it can be accompanied by alternatives for national application.  $\square_{A1}$

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

- EN 1168, *Precast concrete products — Hollow core slabs*
- EN 12794, *Precast concrete products — Foundation piles*
- EN 12843, *Precast concrete products — Masts and poles*
- EN 13224, *Precast concrete products — Ribbed floor elements*
- EN 13225, *Precast concrete products — Linear structural elements*
- EN 13693, *Precast concrete products — Special roof elements*
- EN 13747, *Precast concrete products — Floor plates for floor systems*
- EN 13978, *Precast concrete products — Precast concrete garages*
- EN 14843, *Precast concrete products — Stairs*
- EN 14844, *Precast concrete products — Box culverts*
- EN 14991, *Precast concrete products — Foundation elements*
- EN 14992, *Precast concrete products — Wall elements*
- EN 15037-1, *Precast concrete products — Beam-and-block floor systems — Part 1: Beams*
- EN 15050, *Precast concrete products — Bridge elements*
- EN 15258, *Precast concrete products — Retaining wall elements*

This European Standard defines in Annex ZA the application methods of CE marking to products designed using the relevant EN Eurocodes (EN 1992-1-1:2004 and EN 1992-1-2:2004). Where, in default of applicability conditions of EN Eurocodes to the works of destination, design provisions other than EN Eurocodes are used for mechanical strength and/or fire resistance, the conditions to affix CE marking to the product are described in ZA.3.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, 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.

**EN 15037-2:2009+A1:2011 (E)**

## **Introduction**

The evaluation of conformity refers to the completed precast elements which are supplied to the market and covers all the production operations carried out in the factory.

For design rules reference is made to EN 1992-1-1:2004. Additional complementary rules are provided where necessary.

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## 1 Scope

This European Standard deals with the requirements and the basic performance criteria for blocks made in normal or lightweight aggregate concrete, used in conjunction with precast concrete beams in compliance with EN 15037-1, with or without cast-in-situ concrete for the construction of beam-and-block floor and roof systems.

Examples of typology of floor and roof systems are given in Annex B of EN 15037-1:2008.

## 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 771-3:2003 <sup>A1</sup>, *Specification for masonry units — Part 3: Aggregate concrete masonry units (Dense and light-weight aggregates)*

EN 772-13, *Methods of test for masonry units — Part 13: Determination of net and gross dry density of masonry units (except for natural stone)*

EN 772-14, *Methods of test for masonry units — Part 14: Determination of moisture movement of aggregate concrete and manufactured stone masonry units*

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

EN 12390-4:2000, *Testing hardened concrete — Part 4: Compressive strength — Specification for testing machines*

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

EN 15037-1:2008, *Precast concrete products — Beam-and-block floor systems — Part 1: Beams*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **non-resisting block**

block with no mechanical function in the final floor system (designated NR)

NOTE Its only mechanical function is that of formwork during the construction of the floor system. Floor systems built with non-resisting blocks always have a cast-in-situ structural topping.

### 3.2

#### **semi-resisting block**

block participating in the transfer of loads to the beams (designated SR)

NOTE In conjunction with a cast-in-situ concrete, it may contribute to the final strength of the system. However, its top flange alone cannot act as a compression slab in the final floor system.

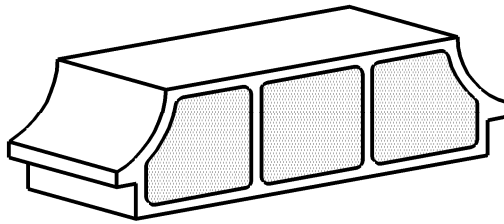


Figure 1 — Example of semi-resisting concrete blocks

### 3.3 resisting block

block with the same functions as semi-resisting blocks but whose top flange can, under certain conditions, play a role as compression slab in the final floor system (designated RR)

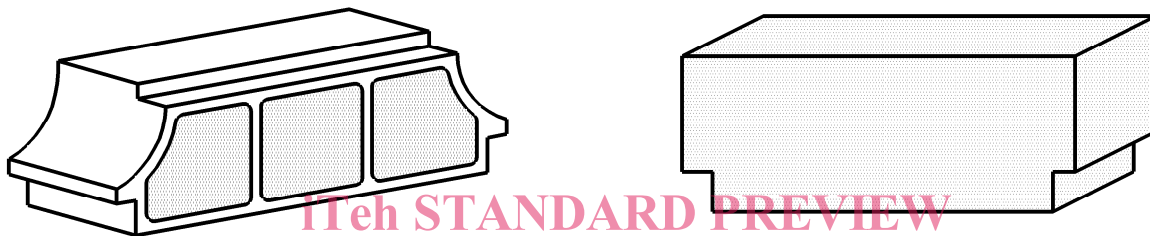


Figure 2 — Examples of resisting concrete blocks

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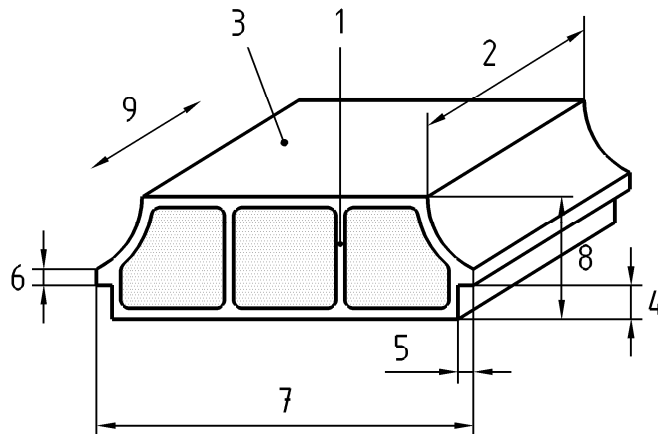
### 3.4 nib

shape given to the block so that it will bear on the beam

### 3.5 longitudinal block

block where the axis of the perforations are parallel to the beam

NOTE An example of a longitudinal block is given in Figure 3.



### Key

1	web	6	depth of the nib
2	overall length	7	overall width
3	flange (top part of the block)	8	overall height
4	height to nib	9	direction of the beam
5	width of the nib		

Figure 3 — Example of a longitudinal block

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### 3.6

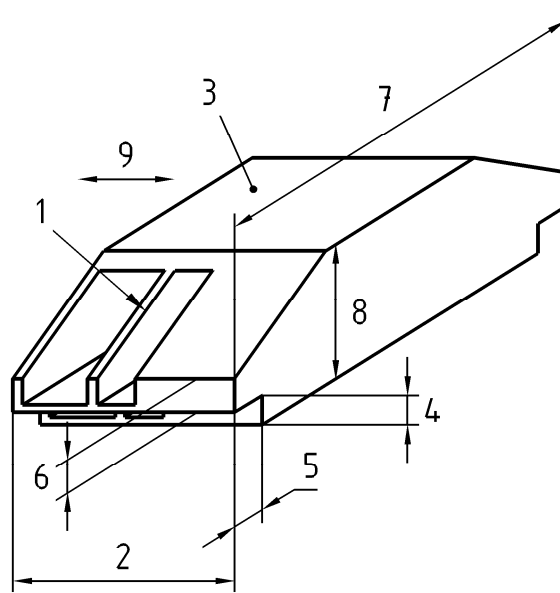
#### transverse block

block where the axis of the perforations are perpendicular to the beam

NOTE An example of a transverse block is given in Figure 4.

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## EN 15037-2:2009+A1:2011 (E)

**Key**

- |   |                                |   |                       |
|---|--------------------------------|---|-----------------------|
| 1 | web                            | 6 | depth of the nib      |
| 2 | overall length                 | 7 | overall width         |
| 3 | flange (top part of the block) | 8 | overall height        |
| 4 | height to nib                  | 9 | direction of the beam |
| 5 | width of the nib               |   |                       |

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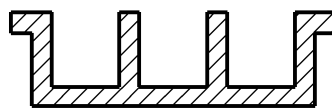
**Figure 4 — Example of a transverse block**

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**3.7****open block**

non-resisting or semi-resisting block without top flange

NOTE An example of an open block is given in Figure 5.



**Figure 5 — Example of open block**

**3.8****gross dry density**

mass per unit gross volume after drying to constant mass

**4 Requirements****4.1 Material requirements**

4.1.1 and 4.1.2 of EN 13369:2004 or 4.1 of **A1** EN 771-3:2003 **A1** shall apply.