



SLOVENSKI STANDARD
SIST EN 12737:2004
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Montažni betonski izdelki - Hlevske gredice

Precast concrete products - Floor slats for livestock

Betonfertigteile - Spaltenböden für die Tierhaltung

Produits préfabriqués en béton - Caillebotis pour bétail

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Ta slovenski standard je istoveten z: EN 12737:2004

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ICS:

65.040.10

91.100.30

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ICS 65.040.10; 91.100.30

English version

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This European Standard was approved by CEN on 24 June 2004.

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.

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

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[008104510730/sist-en-12737-2004](#)

Foreword

This document (EN 12737:2004) has been prepared by Technical Committee CEN/TC 229 “Precast concrete products”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by March 2005, and conflicting national standards shall be withdrawn at the latest by March 2005.

No existing European Standard is superseded by this standard.

This standard is consistent with the Council Directive 2001/88/EC of 23 October 2001 amending Directive 91/630/EEC laying down minimum standards for the protection of pigs.

This document includes a Bibliography.

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.

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1 Scope

This document specifies the requirements for reinforced and prestressed precast concrete floor slats used in slatted floors for the housing of livestock and provides for the evaluation of conformity of these products. This document does not cover slats for loadings other than stock and stockmen.

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13369:2004 and the following apply.

3.1 floor slat
floor component suitable for use by livestock situated above a slurry pit or channel and provided with openings for the draining of slurry, feed and straw waste to the slurry pit or channel underneath (see Figure 1)

3.2 slat beam
single beam used as a floor slat

3.3 twin slat
assembly of two parallel spaced beams, mutually linked by means of two or more transversal connections, perpendicular to the longitudinal direction of those beams used as a floor slat

3.4 multiple slat
assembly of two or more parallel spaced beams, mutually linked by means of two or more transversal connections, perpendicular to the longitudinal direction of those beams, and/or with a perforated slab in between used as a floor slat

3.5 perforated panel
panel with a regular pattern of holes used as a floor slat

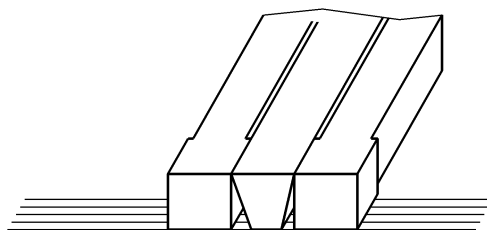
3.6 load class
class of floor slats according to the type of stock and mass of animal (see Table 3)

3.7**acceptance number**

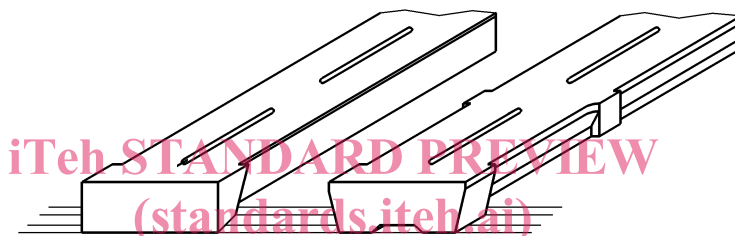
highest number of nonconforming products for which the consignment is accepted

3.8**rejection number**

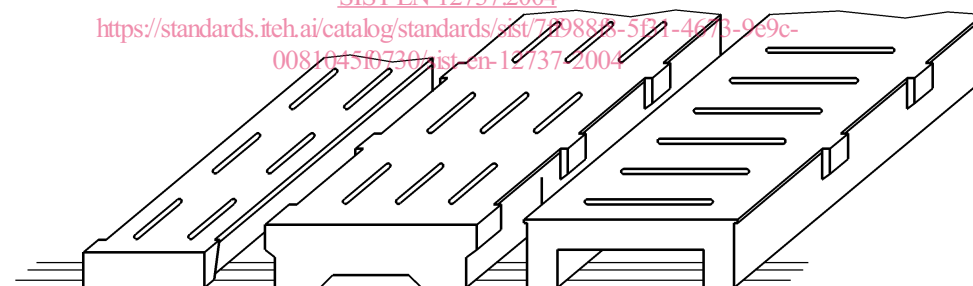
smallest number of nonconforming products for which the consignment is rejected



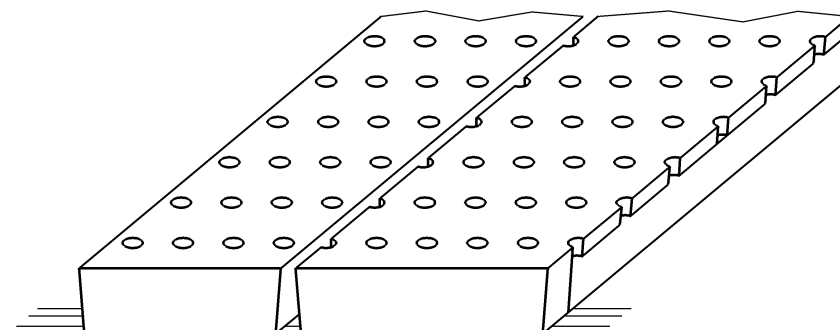
a) Slat beams



b) Twin slats



c) Multiple slats



d) Perforated panels

Figure 1 — Examples of floor slats

4 Requirements

4.1 Material requirements

4.1.1 General

Subclause 4.1.1 of EN 13369:2004 shall apply.

4.1.2 Constituent materials of concrete

Subclause 4.1.2 of EN 13369:2004 shall apply, provided that high alumina and super-sulphated cement are not used.

Special consideration shall be given to aggregates which may become slippery under the abrasion of hooves.

4.1.3 Reinforcing steel

4.1.3.1 Bars, coils and welded fabric

Subclause 4.1.3 of EN 13369:2004 shall apply.

4.1.3.2 Lattice girders

The suitability of lattice girders shall be verified following 4.1.1 of EN 13369:2004.

4.1.4 Prestressing steel

Subclause 4.1.4 of EN 13369:2004 shall apply. [SIST EN 12737:2004](#)

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4.2 Production requirements

4.2.1 Concrete production

Subclause 4.2.1 of EN 13369:2004 shall apply.

4.2.2 Hardened concrete

Subclause 4.2.2 of EN 13369:2004 shall apply, provided that the strength class is at least C35/45 for reinforced concrete and at least C 45/55 for prestressed concrete.

4.2.3 Structural reinforcement

Subclause 4.2.3 of EN 13369:2004 and the following shall apply.

The reinforcement shall be positioned correctly throughout the component.

The longitudinal reinforcement of reinforced concrete components shall continue to less than 10 mm and more than 25 mm before the head-end of the component.

The exposed ends of prestressing tendons shall be protected.

4.3 Finished product requirements

4.3.1 Geometrical characteristics

4.3.1.1 Dimensions

The nominal length of the floor slat shall be declared by the manufacturer.

The nominal sizes of the beam width and gap width between beams, or for perforated slabs the diameter of round holes shall be as given in Table 1 (see also Figure 2).

Table 1 — Nominal sizes for floor slats

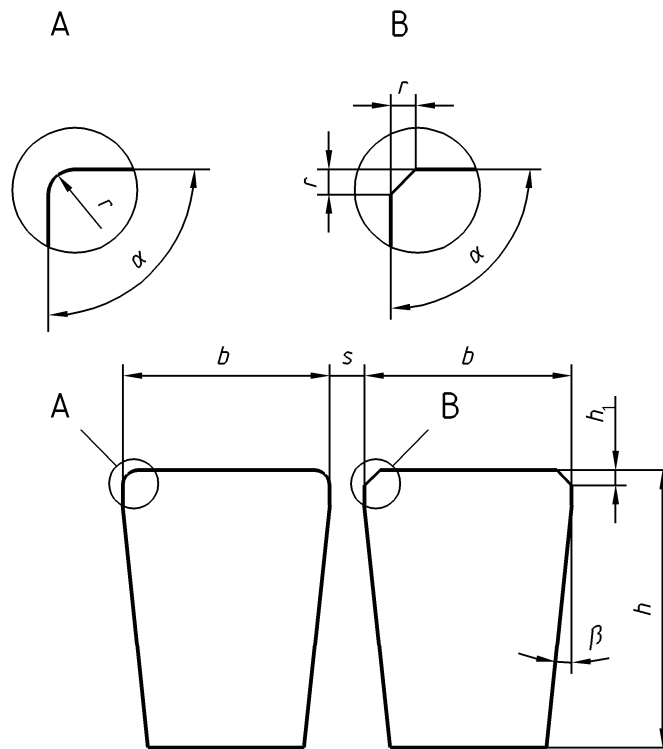
(dimensions in millimetres)

Load class	Beam width (<i>b</i>)	Gap width (<i>s</i>)	Hole diameter (<i>d</i>)
A1	70 - 120	20 - 28	≤ 30
A2	70 - 160	30 - 35	≤ 50
A3	70 - 180	30 - 40	
B1	50 - 80	10 - 14 ^a	≤ 20
B2	80 - 120	14 - 18	≤ 25
B3	80 - 120	14 - 20	

^a For piglets, the maximum gap width is 11 mm (see Council Directive 2001/88/EC of 23 October 2001).

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Key

$r \leq 5$ mm for load class A

≤ 3 mm for load class B

$88^\circ \leq \alpha \leq 90^\circ$

$5 \leq h_1$ (mm) ≤ 20

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$\beta \geq 5^\circ$

Figure 2 — Geometry of slat beam sections

4.3.1.2 Dimensional tolerances

The maximum permitted dimensional deviations of length ($\Delta \ell$), height (Δh), beam width (Δb) or gap width (Δs) and diameter (Δd) of round holes shall be as given in Table 2.

Table 2 — Maximum permitted dimensional deviations

(dimensions in millimetres)

Load class	Maximum permitted deviation			
	$\Delta \ell$	Δh	$\Delta b = \Delta s$	Δd
A1	+ 0 - 10	± 3	± 3	± 5
A2			± 5	
A3				
B1	+ 0 - 6	± 3	± 2	± 2
B2			± 3	± 3
B3				

4.3.1.3 Shape of the gaps

The inclination of the side faces of the openings in floor slats shall conform to Figure 2 so as to enable efficient slurry drainage. The top of the beams shall have no sharp edges. Where radius or chamfer are provided these shall not exceed 5 mm for load class A and 3 mm for load class B.

4.3.1.4 Flatness

The upper face of the floor slats shall be flat across the width.

The flatness of end supported floor slats subjected only to their self weight shall conform to the following:

- for reinforced concrete components the upper face of the component shall not deviate more than 5 mm from the connection line between the upper faces at the ends;
- for prestressed concrete components the vertical camber along the length of the component shall not deviate from the declared camber by more than 5 mm.

4.3.2 Surface characteristics

Before use, the upper face and edges shall be free from burrs and projections.

At departure from the factory, slats shall show no cracks with a width greater than 0,1 mm.

4.3.3 Mechanical resistance

4.3.3.1 General

Subclause 4.3.3.1 of EN 13369:2004 shall apply.

4.3.3.2 Loads

Table 3 gives the classification of the slats for livestock housing defined on the base of type of stock and mass of animals.

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