



# SLOVENSKI STANDARD

## SIST EN 12350-5:2009

01-julij-2009

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SIST EN 12350-5:2001

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**Preskušanje svežega betona - 5. del: Preskus z razlezom**

Testing fresh concrete - Part 5: Flow table test

Prüfung von Frischbeton - Teil 5: Ausbreitmaß

Essai pour béton frais - Partie 5: Essai d'étalement à la table à chocs  
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**Ta slovenski standard je istoveten z: EN 12350-5:2009**

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**ICS:**

91.100.30      Beton in betonski izdelki      Concrete and concrete products

**SIST EN 12350-5:2009**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 12350-5**

March 2009

ICS 91.100.30

Supersedes EN 12350-5:1999

English Version

## Testing fresh concrete - Part 5: Flow table test

Essais pour béton frais - Partie 5: Essai d'étalement à la table à chocs

Prüfung von Frischbeton - Teil 5: Ausbreitmaß

This European Standard was approved by CEN on 20 January 2009.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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.

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

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## Foreword

This document (EN 12350-5:2009) has been prepared by Technical Committee CEN/TC 104 "Concrete and related products", the secretariat of which is held by DIN.

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 September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

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 supersedes EN 12350-5:1999.

This standard is one of a series concerned with testing concrete.

This series EN 12350 includes the following parts.

Part 1: Sampling;

Part 2: Slump-test;

Part 3: Vebe test;

Part 4: Degree of compactability;

Part 5: Flow table test;

Part 6: Density;

Part 7: Air content - Pressure methods;

Part 8: Self-compacting concrete - Slump-flow test (in preparation);

Part 9: Self-compacting concrete - V-funnel test (in preparation);

Part 10: Self-compacting concrete - L-box test (in preparation);

Part 11: Self-compacting concrete - Sieve segregation test (in preparation);

Part 12: Self-compacting concrete - J-ring test (in preparation).

**CAUTION — When cement is mixed with water, alkali is released. Take precautions to avoid dry cement entering the eyes, mouth and nose whilst mixing concrete. Prevent skin contact with wet cement or concrete by wearing suitable protective clothing. If cement or concrete enters the eye, immediately wash it out thoroughly with clean water and seek medical treatment without delay. Wash wet concrete off the skin immediately.**

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**EN 12350-5:2009 (E)**

The following amendments have been made to the 1999-10 edition of this standard:

- editorial revision
- indication that the test is not applicable for self-compacting concrete
- clarification of carrying out the test and the time for each cycle of lifting and dropping the mould to be between 1 s and 3 s (was not less than 2 s nor more than 5 s).

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, 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 the United Kingdom.

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## 1 Scope

This European standard specifies a method for determining the flow of fresh concrete. It is not applicable to self-compacting concrete, foamed concrete or no-fines concrete, nor to concrete with maximum aggregate size exceeding 63 mm.

NOTE The flow test is sensitive to changes in the consistency of concrete, which correspond to flow values between 340 mm and 600 mm. Beyond these extremes the flow table test may be unsuitable and other methods of determining the consistence should be considered.

## 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 12350-1, *Testing fresh concrete — Part 1: Sampling*

## 3 Principle

This test determines the consistency of fresh concrete by measuring the spread of concrete on a flat plate which is subjected to jolting.

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## 4 Apparatus

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**4.1 Flow table** (see Figure 1) consisting of: a moving table made from a flat plate with a plane area of  $(700 \pm 2) \text{ mm} \times (700 \pm 2) \text{ mm}$ , on which concrete can be placed, hinged to a rigid base onto which it can fall from a fixed height.

The flow table top shall have a flat metal surface with a minimum thickness of 2 mm. The metal surface shall not be readily attacked by cement paste or be liable to rusting. The flow table top shall have a mass of  $(16 \pm 0,5) \text{ kg}$  and may be detachable using a pin-hinge to allow weighing. The construction of the plate shall be such as to prevent distortion of the upper surface. The table top shall be hinged to the base in such a way that no aggregate can become trapped between the hinged surfaces.

The centre of the table shall be scribed with a cross, the lines of which run parallel to the edges of the plate and with a central circle  $(210 \pm 1) \text{ mm}$  in diameter.

At the front corners of the plate two hard and rigid blocks shall be firmly attached to the underside. They should not deform when wet and be non-absorbent. These stops shall transfer the load of the table top to the base without distorting the table. The base frame shall be constructed so that this load is transferred directly to the surface on which the apparatus is placed. This minimizes the tendency for the table top to bounce when allowed to fall freely.

Foot rests shall be provided to assist in stabilizing the table in use.

The fall height of the table top measured at the centre line of the front edge of the top plate shall be limited to  $(40 \pm 1) \text{ mm}$  by means of one or more stops.

For lifting the table top, a handle or lifting mechanism shall be provided to ensure that the top is lifted without jerking and allowed to fall freely over the entire lifting height.

**EN 12350-5:2009 (E)**

**4.2 Mould**, to form the test specimen, made of metal not readily attacked by cement paste and not thinner than 1,5 mm. The interior of the mould shall be smooth and free from projections, such as protruding rivets and shall be free from dents. The mould shall be in the form of a hollow frustum of a cone having the following internal dimensions:

- diameter of base:  $(200 \pm 2)$  mm;
- diameter of top:  $(130 \pm 2)$  mm;
- height:  $(200 \pm 2)$  mm.

The base and the top shall be open and parallel to each other and at right angles to the axis of the cone. The mould shall be provided with two handles, on the upper portion, and fixing clamps or foot pieces on the bottom portion to hold it steady (see Figure 2). A mould which can be clamped to the base is acceptable provided the clamping arrangement can be fully released without movement of the mould or interference with the slumping concrete.

NOTE Magnets can be used to assist in positioning the mould.

**4.3 Tamping bar**, made of hard material, having a square section of side  $(40 \pm 1)$  mm and a length of approximately 200 mm. A further 120 mm to 150 mm may be turned to a circular section to form a handle to the bar (see Figure 3)

**4.4 Rule or measuring tape**, of minimum length 700 mm and having sub-divisions not greater than 5 mm along its entire length.

**4.5 Remixing container**, flat tray of rigid construction and made from a non-absorbent material not readily attacked by cement paste. It shall be of appropriate dimensions such that the concrete can be thoroughly re-mixed, using the square-mouthed shovel.

**4.6 Shovel**, with square mouth

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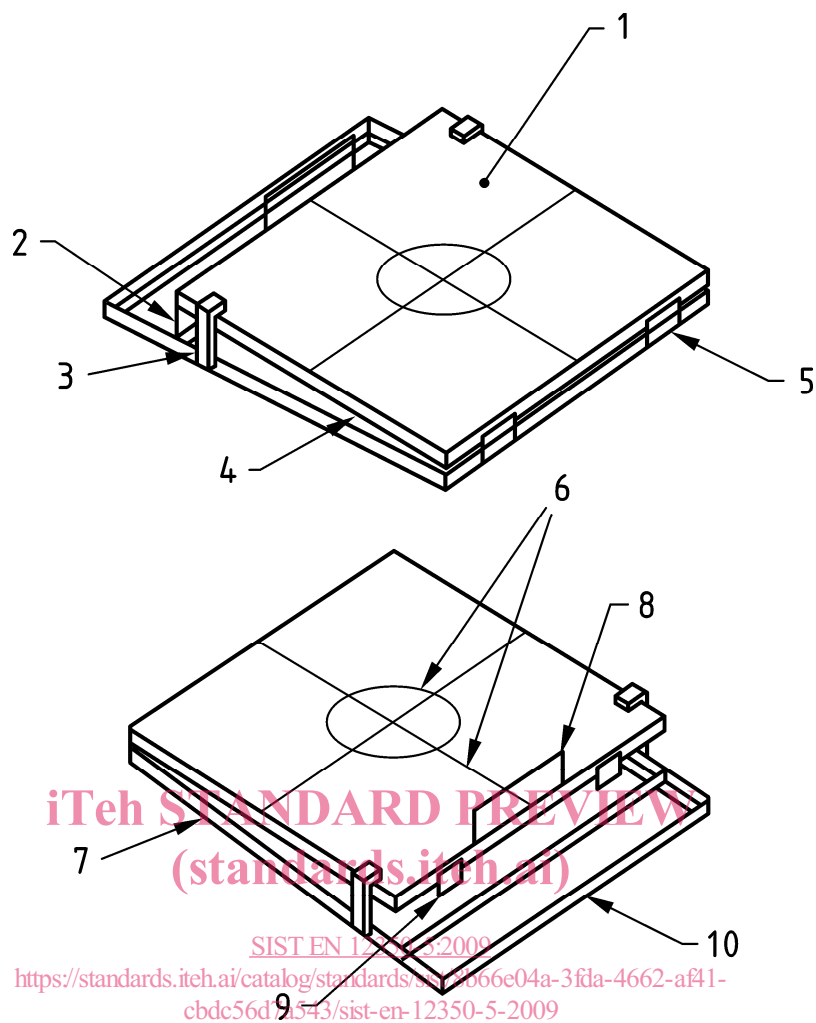
NOTE The square mouth is required to ensure proper mixing of concrete on the remixing container.

**4.7 Moist cloth**

**4.8 Scoop**, approximately 100 mm in width.

**4.9 Timer or watch**, capable of measuring time to 1 s.



**Key**

- |   |                                |    |                |
|---|--------------------------------|----|----------------|
| 1 | Metal plate                    | 6  | Markings       |
| 2 | Travel limited to $(40 \pm 1)$ | 7  | Base frame     |
| 3 | Upper stop                     | 8  | Lifting handle |
| 4 | Table top                      | 9  | Lower stop     |
| 5 | External hinges                | 10 | Toe board      |

**Figure 1 — Typical flow table**