



SLOVENSKI STANDARD
SIST EN 12350-6:2019

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SIST EN 12350-6:2009

Preskušanje svežega betona - 6. del: Gostota

Testing fresh concrete - Part 6: Density

Prüfung von Frischbeton - Teil 6: Frischbetonrohichte

Essai pour béton frais - Partie 6 : Masse volumique

Ta slovenski standard je istoveten z: EN 12350-6:2019

ICS:

91.100.30 Beton in betonski izdelki Concrete and concrete products

SIST EN 12350-6:2019

en,fr,de

ITeH STANDARD PREVIEW
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Full standard:
<https://standards.iteh.ai/catalog/standards/sist/6099db3a-2a91-43fc-ba94-1fe92e85a7aa/sist-en-12350-6-2019>

EUROPEAN STANDARD

EN 12350-6

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English Version

Testing fresh concrete - Part 6: Density

Essais pour béton frais - Partie 6 : Masse volumique

Prüfung von Frischbeton - Teil 6: Frischbetonrohichte

This European Standard was approved by CEN on 29 April 2019.

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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-CENELEC Management Centre 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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European foreword

This document (EN 12350-6:2019) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, the secretariat of which is held by SN.

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of an identical text or by endorsement, at the latest by December 2019, and conflicting national standards shall be withdrawn at the latest by December 2019.

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

This document supersedes EN 12350-6:2009.

The compactions of specimens using hand tamping, vibrating table, or internal (poker) vibrator are accepted as equivalent. However, the use of an internal vibrator to compact specimens containing entrained air should be carried out with caution.

A procedure for calibrating the density container has been included as a normative Annex A.

This standard is one of a series on testing concrete.

EN 12350, *Testing fresh concrete*, consists of the following parts:

- *Part 1: Sampling and common apparatus*
- *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*
- *Part 9: Self-compacting concrete – V-funnel test*
- *Part 10: Self-compacting concrete – L-box test*
- *Part 11: Self-compacting concrete – Sieve segregation test*
- *Part 12: Self-compacting concrete – J-ring test*

The following amendments have been made to the 2009 edition of this standard:

- a) editorial revision;
- b) reference to common apparatus and specification given in EN 12350-1;
- c) option to include specified consistence class or consistence target value in report.

EN 12350-6:2019 (E)

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This document specifies a method for determining the density of compacted fresh concrete both in the laboratory and in the field.

It may not be applicable to very stiff concrete which cannot be compacted by normal vibration.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 and common apparatus*

EN 206, *Concrete — Specification, performance, production and conformity*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Principle

Fresh concrete is compacted into a rigid and watertight container of known volume and mass and is then weighed.

5 Apparatus

5.1 Common apparatus for fresh concrete testing

The apparatus listed below for the execution of this test method shall be in accordance with the specification given in EN 12350-1 and as specified below.

5.1.2 Density container, having the same specification and dimensions as the container specified in EN 12350-1.

5.1.3 Filling frame, filling may be simplified by using a filling frame fitted tightly to the density container.

5.1.4 Means of compacting the concrete, which may be one of the following:

- a) internal (poker) vibrator;
- b) vibrating table;
- c) compacting rod;
- d) compacting bar.

5.1.5 Balance or scales.

EN 12350-6:2019 (E)**5.1.6 Straight-edged scraper.****5.1.7 Scoop.****5.1.8 Trowel** or float.**5.1.9 Remixing container or tray.****5.1.10 Shovel.****5.1.11 Mallet.****5.1.12 Moist cloth.****6 Sampling**

The sample shall be obtained in accordance with EN 12350-1.

The sample shall be re-mixed using the remixing container and the shovel. Alternative sampling procedures may be given in provisions in the place of use of the concrete.

7 Procedure**7.1 Calibration**

Calibrate the container in accordance with Annex A, to obtain the volume of the container (V).

7.2 Mass of density container

Clean the density container and dampen with a moist cloth immediately prior to starting the test. Weigh the density container to determine its mass (m_1) to the nearest 0,01 kg and record the value indicated.

7.3 Filling the density container

Depending on the consistence of the concrete and the method of compaction, the density container shall be filled in as many layers as necessary to achieve full compaction, except in the case of self-compacting concrete for which the density container shall be filled in one operation.

If a filling frame is used, the amount of concrete used to fill the density container shall be such that a layer of concrete remains in the filling frame after compaction. The thickness of this layer shall be 10 % to 20 % of the height of the density container.

7.4 Compacting the concrete**7.4.1 General**

The concrete shall be compacted immediately after placing in the density container in such a way as to produce full compaction of the concrete with neither excessive segregation nor laitance. Each layer shall be compacted by using one of the methods described in 7.4.2 or 7.4.3.

In the case of self-compacting concrete, no mechanical or hand compaction shall be applied during filling or after the density container is filled.

NOTE Full compaction is achieved using mechanical vibration, when there is no further appearance of large air bubbles on the surface of the concrete and the surface becomes relatively smooth with a glazed appearance, without excessive segregation.

Further guidance on methods of compaction for concretes having different consistencies or cast in different sizes of density containers, may be given in provisions in the place of use of the concrete.

7.4.2 Mechanical compaction

7.4.2.1 Compacting with internal vibrator

Apply the vibration for the minimum duration necessary to achieve full compaction of the concrete. Avoid over-vibration, which may cause loss of entrained air.

Care should be taken not to damage the density container. The use of a filling frame is recommended.

Ensure that the vibrator is kept vertical and not allowed to touch the bottom or sides of the density container. Laboratory tests have shown that great care is needed if loss of entrained air is to be avoided, when using an internal vibrator.

7.4.2.2 Compacting with vibrating table

Apply the vibration for the minimum duration necessary to achieve full compaction of the concrete. The density container should preferably be attached to, or firmly held against the table. Avoid over-vibration, which may cause loss of entrained air.

7.4.3 Compacting by hand with compacting rod or bar

Distribute the strokes of the compacting rod, or bar, in a uniform manner over the cross-section of the density container. Ensure that the compacting rod, or bar, does not forcibly strike the bottom of the density container when compacting the first layer, nor penetrate significantly any previous layer. Subject the concrete to a sufficient number of strokes per layer, typically 25 for concretes having a consistence equivalent to slump classes S1 and S2 according to EN 206, in order to remove pockets of entrapped air but not the entrained air. After compaction of each layer, tap the sides of the density container smartly with the mallet until large bubbles of air cease to appear on the surface and depressions left by the compacting rod or bar, are removed.

7.5 Surface levelling

If a filling frame is used, remove it immediately after compaction.

After the top layer has been compacted, smooth it level with the top of the density container, using the steel float or trowel. Skim the surface and rim with the straightedge and wipe the outside of the density container clean.

7.6 Weighing

Weigh the density container with its contents to determine its mass (m_2) to the nearest 0,01 kg and record the value indicated.