



**SLOVENSKI STANDARD**  
**SIST EN 12350-8:2019**

**01-september-2019**

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**Preskušanje svežega betona - 8. del: Samozgoščevalni beton - Preskus razleza s posedom**

Testing fresh concrete - Part 8: Self-compacting concrete - Slump-flow test

Prüfung von Frischbeton - Teil 8: Selbstverdichtender Beton - Setzfließversuch

Essai pour béton frais - Partie 8 : Béton auto-plaçant - Essai d'étalement au cône

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**Ta slovenski standard je istoveten z: EN 12350-8:2019**

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**ICS:**

91.100.30      Beton in betonski izdelki      Concrete and concrete products

**SIST EN 12350-8:2019**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 12350-8**

June 2019

ICS 91.100.30

Supersedes EN 12350-8:2010

English Version

## Testing fresh concrete - Part 8: Self-compacting concrete - Slump-flow test

Essais pour béton frais - Partie 8 : Béton auto-plaçant -  
Essai d'étalement au cône

Prüfung von Frischbeton - Teil 8: Selbstverdichtender  
Beton - Setzfließversuch

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

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-CENELEC 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-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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European foreword

This document (EN 12350-8:2019) 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 12350-8:2010.

This standard is based on the results from the EU-project “Testing-SCC” under the 5th Frame Programme (GRD2-2000-30024/G6RD-CT-2001-00580).

Owing to its significant advantages in the improvement of construction quality and working environment, self-compacting concrete (SCC) has been widely accepted by the construction owners. The use of SCC in practical concrete construction is steadily increasing. Since SCC has to give satisfactory *in situ* properties (perfect filling of the mould and embedment of the reinforcement, homogeneity and full compaction) without vibration, the proper methods for testing the fresh SCC are very important. These should address three key properties: filling ability, passing ability and resistance to segregation. It is desirable, especially in the case of new constituents or new concrete compositions, to test the consistence of fresh SCC before casting in place.

A number of test methods including this test are available for testing fresh SCC. Most of the commonly used test methods were evaluated in the recently closed EU-project “Testing-SCC” under the 5th Frame Programme (GRD2-2000-30024/G6RD-CT-2001-00580). According to the results from this EU project, it seems no single test method can completely cover all three key properties. Nevertheless any test method should at least be correlated to the practical situation and give consistent results in order to provide reliable data for judgment of concrete workability.

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*

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- *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 2010 edition of this standard:

- a) reference to common apparatus and specification given in EN 12350-1;
- b) reference and procedure for slump-flow retention testing;
- c) option to include specified slump-flow class or slump-flow target value in report.

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 the procedure for determining the slump-flow and  $t_{500}$  time for self-compacting concrete.

The test is suitable for specimens having a declared value of  $D$  of the coarsest fraction of aggregates actually used in the concrete ( $D_{\max}$ ) not greater than 40 mm.

## 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 12350-2, *Testing fresh concrete — Part 2: Slump test*

## 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

The slump-flow and  $t_{500}$  time is used to assess the flowability and the flow rate of self-compacting concrete in the absence of obstructions. It is based on the slump test described in EN 12350-2. The result is an indication of the filling ability of self-compacting concrete. The  $t_{500}$  time is a measure of the speed of flow and an indication of the relative viscosity of the self-compacting concrete.

The fresh concrete is poured into a cone as used for the EN 12350-2 slump test. When the cone is withdrawn upwards the time from commencing upward movement of the cone to when the concrete has flowed to a diameter of 500 mm is measured; this is the  $t_{500}$  time. The largest diameter of the flow spread of the concrete and the diameter of the spread at right angles to it are then measured and the mean is the slump-flow.

Measurement of the  $t_{500}$  time may be omitted if not requested.

## 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 EN 12350-1 and as specified below.

**5.1.2 Hollow cone.**

**5.1.3 Funnel (optional).**

**5.1.4 Measuring tape.**

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5.1.5 Remixing container or tray.

5.1.6 Shovel.

5.1.7 Moist cloth.

5.1.8 Scoop.

5.1.9 Timer.

5.1.10 Spirit level.

5.1.11 Container.

5.1.12 Sealed container (when slump retention is to be measured).

5.1.13 Trowel or float.

5.1.14 **Baseplate/surface** made from a flat steel plate, which shall be the reference material, with a plan area of at least 900 mm × 900 mm on which concrete can be placed.

The plate shall have a flat, smooth surface. If the plate is made from other materials, in-use performance test data shall be available which demonstrates long-term equivalence with steel plate.

NOTE Results may be influenced if alternative materials to steel are used.

The surface shall not be readily attacked by cement paste or be liable to rusting. The construction of the plate shall be such as to prevent distortion. The deviation from flatness shall not exceed 3 mm at any point when a straight edge is placed between opposing sides and corners.

The centre of the plate shall be scribed with a cross, the lines of which run parallel to the edges of the plate and with circles of  $(210 \pm 1)$  mm diameter and  $(500 \pm 1)$  mm diameter having their centres coincident with the centre point of the plate. See Figure 1. All lines to be a maximum of 2,0 mm wide and 1,0 mm deep.

Dimensions in millimetres

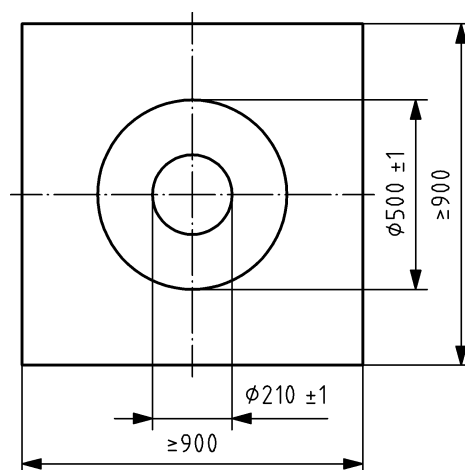


Figure 1 — Baseplate



**5.1.15 Collar** (optional), having a mass of at least 9 kg (see Figure 2).

NOTE The collar allows the test to be carried out by one person.

Dimensions in millimetres

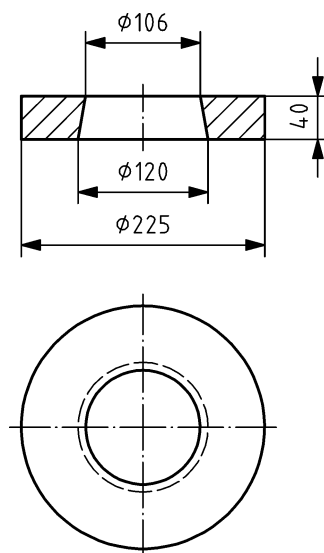


Figure 2 — Example of dimensions of a steel weighted collar

## 6 Test sample

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

The sample shall be re-mixed using the remixing container or tray and the shovel or scoop before carrying out the test. Where the sample is intended to be used to measure slump-flow retention at a specified time, the concrete from the sealed container shall be emptied on the remixing container or tray and re-mixed using the shovel or scoop before carrying out the test.

Alternative sampling procedures may be given in provisions valid in the place of use of the concrete.

## 7 Procedure

Place the baseplate on a flat and horizontal surface free from external vibration or shock. Check the top surface for horizontality using the spirit level. Clean the table and the hollow cone and dampen with the moist cloth immediately prior to testing, but keep free from excess moisture.

Fit the collar to the cone if being used.

Place the cone centrally within the 210 mm circle on the baseplate and hold in position by standing on the foot pieces (or use the collar), ensuring that no concrete can leak from under the cone.

Fill the cone in one operation without any agitation or mechanical compaction, and strike off the surplus from the top of the cone with the trowel. Allow the filled cone to stand for not more than 30 s; during this time remove any spilled concrete from the baseplate.

Lift the cone vertically in 1 s to 3 s in one movement without interfering with the flow of concrete. If the  $t_{500}$  time has been requested, start the stop watch immediately the cone ceases to be in contact with the baseplate and record the time taken to the nearest 0,5 s for the concrete to first touch the 500 mm circle.

NOTE 1 This operation may need two persons.