

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

This document is a preview generated by EVS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12350-8:2010 sisaldab Euroopa standardi EN 12350-8:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 30.09.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 21.07.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 12350-8:2010 consists of the English text of the European standard EN 12350-8:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 30.09.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 21.07.2010.

The standard is available from Estonian standardisation organisation.

ICS 91.100.30

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: 605 5050; E-mail: info@evs.ee

ICS 91.100.30

English Version

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

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

Prüfung von Frischbeton - Teil 8: Selbstverdichtender
Beton - Setzfließmaß-Prüfung

This European Standard was approved by CEN on 20 June 2010.

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, 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.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents		Page
Foreword.....		3
1	Scope	5
2	Normative references	5
3	Principle	5
4	Apparatus	5
5	Test sample	6
6	Procedure	7
7	Test result.....	7
8	Test report	7
9	Repeatability and reproducibility.....	8
Bibliography		9

Foreword

This document (EN 12350-8:2010) 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 January 2011, and conflicting national standards shall be withdrawn at the latest by January 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 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).

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 concerned with testing fresh concrete.

EN 12350, *Testing fresh concrete*, consists of 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*

- *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*

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.

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 the United Kingdom.

1 Scope

This European Standard specifies the procedure for determining the slump-flow and t_{500} time for self-compacting concrete. The test is not suitable when the maximum size of the aggregate exceeds 40 mm.

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*

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

3 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.

4 Apparatus

The apparatus shall be in accordance with EN 12350-2 except as detailed below.

4.1 Baseplate, 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.

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 ± 1) mm diameter and (500 ± 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.

4.2 Rule or measuring tape, of minimum length 1 000 mm and having sub-divisions not greater than 5 mm along its entire length.

4.3 Stop watch, capable of measuring to 0,1 s.

4.4 Spirit level, for checking horizontality of base plate prior to commencing the test.