# SLOVENSKI STANDARD

**oSIST prEN 12350-10:2008**

**01-januar-2008**

---

**Preskuġanje sveġega betona - 10. del: Samozgoġļ evalni beton - Preskus z L-zabojem**

Testing fresh concrete - Part 10: Self-compacting concrete - L box test

Prüfung von Frischbeton - Teil 10: Selbstverdichtender Beton - L-Kasten-Versuch

Essai pour béton frais - Partie 10 : Béton auto-plaçant - Essai a la boîte en L



**Ta slovenski standard je istoveten z:** **prEN 12350-10**



---

**ICS:**

91.100.30

**oSIST prEN 12350-10:2008** **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# DRAFT
# prEN 12350-10

November 2007

ICS 91.100.30

English Version

# Testing fresh concrete - Part 10: Self-compacting concrete - L box test

Essai pour béton frais - Partie 10 : Béton auto-plaçant - Essai à la boîte en L

Prüfung von Frischbeton - Teil 10: Selbstverdichtender Beton - L-Kasten-Versuch

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 104.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.



Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

**Warning** : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

**Management Centre: rue de Stassart, 36 B-1050 Brussels**



Ref. No. prEN 12350-10:2007: E

# Contents

Page

# Foreword

This document (prEN 12350-10:2007) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

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 more widely accepted by the construction owners. The use of SCC in practical concrete construction is stably 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 workability of fresh SCC are very important. The workability of fresh SCC should basically include 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 workability of fresh SCC before casting in place.

A number of test methods 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 the 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.



This series EN 12350 includes the following parts.

EN 12350, *Testing fresh concrete*

- *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.

# 1 Scope

This document specifies the procedure for determining the passing ratio, using the L-box test, for self-compacting concrete.

# 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*

ISO 5725, *Precision of test methods - Determination of repeatability and reproducibility for a standard test method by inter-laboratory tests.*

# 3 Principle

The L-box test is used to assess the passing ability of self-compacting concrete to flow through tight openings including spaces between reinforcing bars and other obstructions without segregation or blocking. There are two variations; the two bar test and the three bar test. The three bar test simulates more congested reinforcement.



A measured volume of fresh concrete is allowed to flow horizontally through the gaps between vertical, smooth reinforcing bars. The height of the concrete behind the bars and at the end of the end of the box is measured and the ratio determined which enables the passing or blocking behaviour of SCC to be estimated.



# 4 Apparatus

## 4.1 L-box

having the general arrangement and internal dimensions as shown in figure 1. The L-box shall be of rigid construction with surfaces that are smooth, flat and not readily attacked by cement paste or be liable to rusting. The vertical hopper may be removable for ease of cleaning. With the gate closed, the volume of the vertical hopper shall be (12.7 ± 0,1) l when filled level with the top.

The bar positioning system shall be such that 2 smooth steel bars of (12 ± 0,2) mm diameter will provide a gap of (59 ± 1) mm for the two bar test and 3 smooth steel bars of (12 ± 0,2) mm diameter will provide a gap of (41 ± 1) mm for the three bar test. The system shall locate the bars in the L -box so that they are vertical and equidistant across the width of the box, as shown in figure 2. The surface of any material used in the assemblies shall not be readily attacked by cement paste or be liable to rusting.

NOTE 1 A steel mould is preferred but 12 mm coated formwork plywood with the end grain sealed has also been found to be suitable.

NOTE 2: Other bar spacing or type of bar for the L-box may be used. Refer to national annex NA

## 4.2 Rule or measuring tape

of minimum length 500 mm and having sub-divisions not greater than 1mm along the entire length

## 4.3 Containers

to hold the sample and having a total volume not less than 14 l

### 4.4 Spirit level

for checking horizontality of base of L-box base prior to commencing the test

### 4.5 Straight edge

for striking off concrete level with the top of the L-box

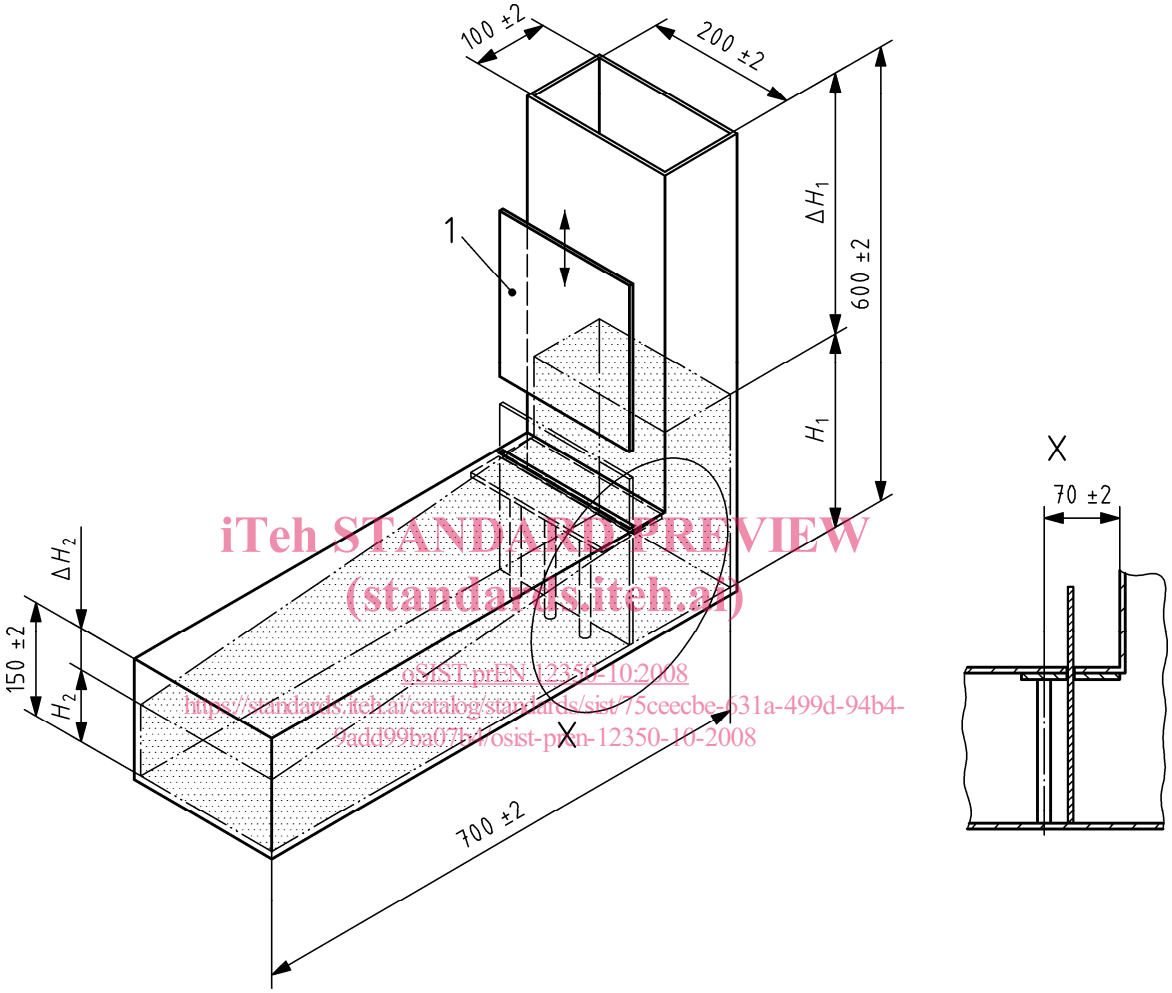




**Figure 1 — Typical general assembly of L-box showing required dimensions**