

DfYg\_i gbY'a YfcXY'nUHbY]nfUj bUbY]b#U]`j Y]fbY'a UgY'nU\ ]XfUj`] bc  
bUbUyUb`Y`Ei [ cHj`Ub`Y`i dc[ ]VbY]b`hU bYhfXbcgh]

Methods of test for hydraulic setting floor smoothing and/or levelling compounds -  
Determination of flexural and compressive strength

Prüfverfahren für hydraulisch erhärtende Boden-Spachtelmassen - Bestimmung der  
Biegezug- und Druckfestigkeit

Méthode d'essai pour les mortiers de lissage et/ou d'égalisation a prise hydraulique -  
Détermination de la résistance a la flexion et a la compression

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**Ta slovenski standard je istoveten z: EN 13851:2003**

**ICS:**

91.100.99      Drugi gradbeni materiali      Other construction materials

**SIST EN 13851:2004****en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13851**

November 2003

ICS 91.100.99

English version

**Methods of test for hydraulic setting floor smoothing and/or  
levelling compounds - Determination of flexural and compressive  
strength**

Méthode d'essai pour les mortiers de lissage et/ou  
d'égalisation à prise hydraulique - Détermination de la  
résistance à la flexion et à la compression

Prüfverfahren für hydraulisch erhärtende Boden-  
Spachtelmassen - Bestimmung der Biegezug- und  
Druckfestigkeit

This European Standard was approved by CEN on 1 September 2003.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (EN 13851:2003) has been prepared by Technical Committee CEN /TC 193, "Adhesives", the secretariat of which is held by AENOR.

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 May 2004, and conflicting national standards shall be withdrawn at the latest by May 2004.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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## EN 13851:2003 (E)

## 1 Scope

This European Standard specifies test methods for the determination of the flexural and compressive strength of a hydraulic setting floor smoothing and/or levelling compound which is referred to as "floor smoothing and/or levelling compound".

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 196-1, *Methods of testing cement – Part 1: Determination of strength*.

EN 1937:1999, *Test method for hydraulic setting floor smoothing and/or levelling compounds - Standard mixing procedures*.

ISO 554, *Standard atmospheres for conditioning and/or testing - Specifications*.

## 3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1937:1999 apply.

## 4 Principle

The test method comprises the determination of the compressive and the flexural strength of prismatic test specimens 40 mm x 40 mm x 160 mm in size. These test specimens are cast in moulds from a batch or sample of a floor smoothing and/or levelling compound which has been mixed and prepared in accordance with EN 1937.

The specimens are demoulded 24 h after casting. Moulded and demoulded specimens are stored at standard conditions. At the required age, the specimens are broken in flexure into two halves and each half tested for strength in compression.

## 5 Safety

The users of this standard shall be familiar with normal laboratory practice.

This standard does not purport to address all safety problems, if any, associated with its use.

It is the responsibility of the user to establish safety and health practices and to ensure compliance with any European and national regulatory conditions.

## 6 Apparatus and material

### 6.1 Mould in accordance with EN 196-1

The mould shall consist of three horizontal compartments so that three prismatic test specimens 40 mm x 40 mm in cross section and 160 mm in length can be prepared simultaneously. A typical design is shown in Figure 1.

The internal dimensions and tolerances of each mould compartment, based on four symmetrically-placed measurements, shall be as follows:

- length (160,0 ± 0,8) mm
- width (40,0 ± 0,2) mm
- depth (40,1 ± 0,1) mm.

In assembling the cleaned mould ready for use, a suitable sealing material, such as butyl rubber putty, shall be used to coat the joints of the mould. A thin film of mould oil shall be applied to the internal faces of the mould.

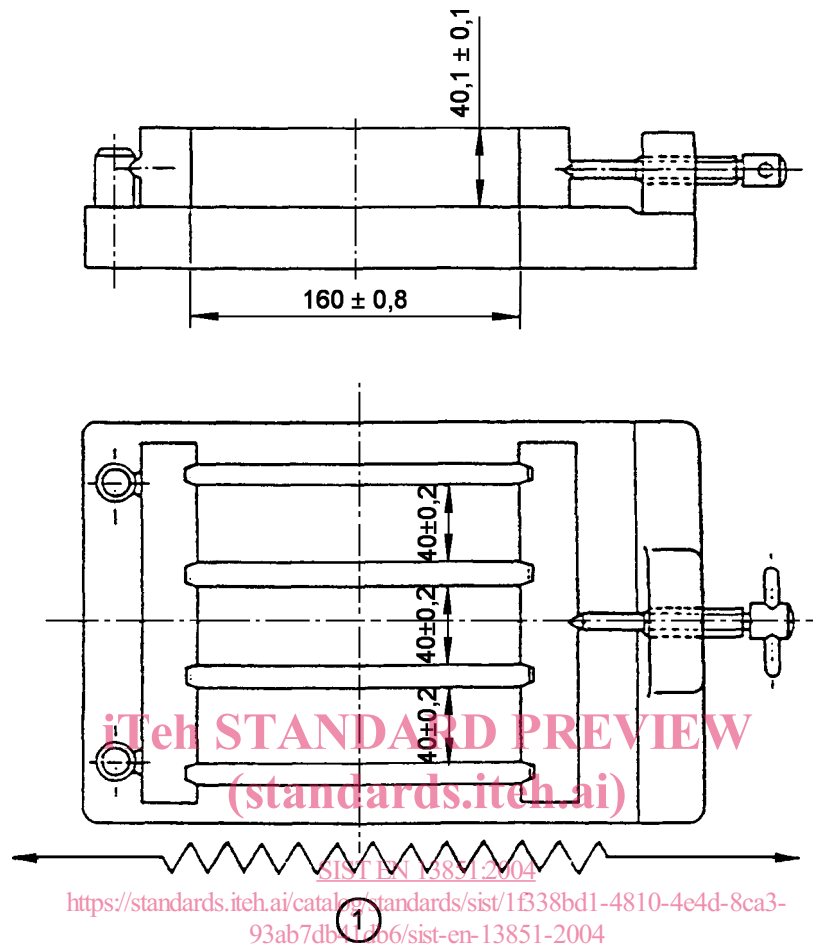
To facilitate the filling of the mould a tightly fitting metal hopper with vertical walls 20 mm to 40 mm in height can be used. When viewed in plan, the hopper walls shall overlap the internal walls of the mould by not more than 1 mm. The outer walls of the hopper shall be provided with a means of location to ensure correct positioning over the mould.

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Dimensions in millimetres



### Key

- 1 Striking off direction with sawing motion

**Figure 1 — Typical mould**

**6.2 Cover plate**, of glass plastic or other impermeable material of suitable dimensions to cover the mould.

**6.3 Metal straight edge** in accordance with EN 196-1.

**6.4 Jolting apparatus** in accordance with EN 196-1 if required according to 8.1.

**6.5 Flexural strength testing machine** in accordance with EN 196-1.

The testing machine for the determination of flexural strength shall be capable of applying loads up to 10 kN, with a limit deviation of  $\pm 1,0$  % of the recorded load in the upper four-fifths of the range being used, at a rate of loading of  $(50 \pm 10)$  N/s. The machine shall be provided with a flexure device incorporating two steel supporting rollers of  $(10,0 \pm 0,5)$  mm diameter spaced  $(100,0 \pm 0,5)$  mm apart and a third steel loading roller of the same diameter placed centrally between the other two. The length 'a' of these rollers shall be between 45 mm and 50 mm. The loading arrangement is shown in Figure 2.



Dimensions in millimetres

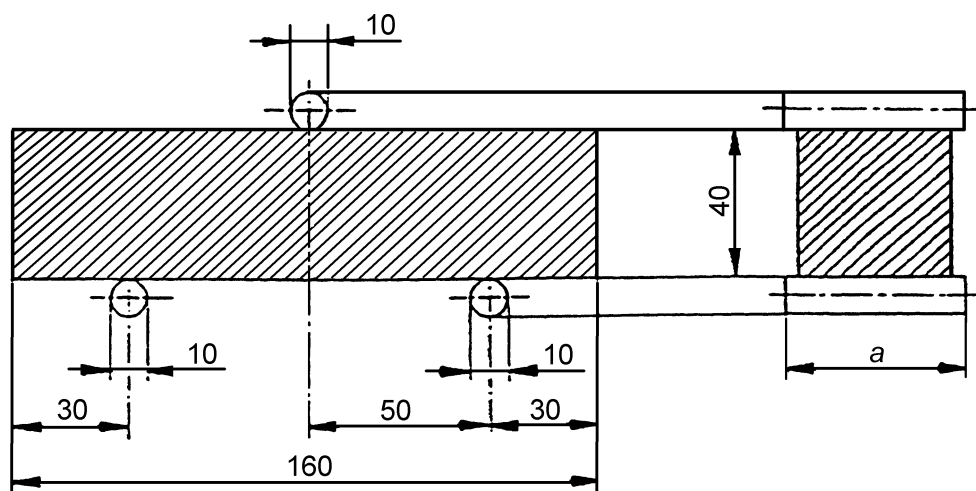


Figure 2 — Arrangement of loading for determination of flexural strength  
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## 6.6 Compressive strength testing machine in accordance with EN 196-1

The testing machine for the determination of compressive strength shall be of suitable capacity for the test. It shall have a limit deviation of  $\pm 1,0$  % of the recorded load in the upper four-fifths of the range being used and it shall provide a rate of load increase of  $(2\,400 \pm 200)$  N/s. It shall be fitted with an indicating device which shall be so constructed that the value indicated at failure of the specimen remains indicated after the testing machine is unloaded. This can be achieved by the use of a maximum indicator on a pressure gauge, memory on digital display, or a recording system.

Manually operated testing machines shall be fitted with a pacing device to facilitate the control of the load increase.

## 6.7 Smoothing and/or levelling compound mixed and prepared in accordance with EN 1937.

## 7 Standard test conditions

The standard test conditions shall be  $(23 \pm 2)$  °C and  $(50 \pm 5)$  % relative humidity in accordance with ISO 554.

## 8 Preparation of test specimens

### 8.1 Moulding of test specimens

A minimum of three test specimens is required for each age of test specimen.

Precondition the moulds for at least 24 h in the standard test conditions.

The mixture, prepared and mixed in accordance with EN 1937, is cast into the prepared mould. For spreading and striking off surplus paste from the filled mould a metal straightedge may be used, if necessary held almost vertically and moved slowly, with a transverse sawing motion once in each direction. Smooth the surface of the specimens using the same straightedge held almost flat. Clean the perimeter of the mould. If compaction is necessary, i. e. if