



SLOVENSKI STANDARD
SIST EN 1052-3:2004
01-januar-2004

A YrcXY'dfYg_i ýUb^UnjXcj jby!" "XY.'8c`c Yj Ub^Y'nU YfbY'ghfjybY'fXbcghj

Methods of test for masonry - Part 3: Determination of initial shear strength

Prüfverfahren für Mauerwerk - Teil 3: Bestimmung der Anfangsscherfestigkeit
(Haftscherfestigkeit)

Méthodes d'essai de la maçonnerie - Partie 3: Détermination de la résistance initiale au cisaillement

iteh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **EN 1052-3:2002**
<https://standards.iteh.ai/catalog/standards/sist/26686a40-9c1b-47de-8fce-283ade4489d/sist-en-1052-3-2004>

ICS:

91.080.30 Zidane konstrukcije Masonry

SIST EN 1052-3:2004 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 1052-3:2004](#)

<https://standards.iteh.ai/catalog/standards/sist/2b686a40-9c3-47de-8fee-283adef4489d/sist-en-1052-3-2004>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1052-3

July 2002

ICS 91.080.30

English version

Methods of test for masonry - Part 3: Determination of initial shear strength

Méthodes d'essai de la maçonnerie - Partie 3:
Détermination de la résistance initiale au cisaillement

Prüfverfahren für Mauerwerk - Teil 3: Bestimmung der
Anfangsscherfestigkeit (Haftscherfestigkeit)

This European Standard was approved by CEN on 11 April 2002.

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, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

[SIST EN 1052-3:2004](https://standards.iteh.ai/catalog/standards/sist/2b686a40-9cf3-47de-8fee-283adef4489d/sist-en-1052-3-2004)

<https://standards.iteh.ai/catalog/standards/sist/2b686a40-9cf3-47de-8fee-283adef4489d/sist-en-1052-3-2004>



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

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

EN 1052-3:2002 (E)

Contents

	page
Foreword	3
1 Scope	4
2 Normative references.....	4
3 Principle	4
4 Terms, definitions and symbols	5
5 Materials.....	6
6 Apparatus	6
7 Preparation and curing of specimens	7
8 Procedure.....	8
9 Calculations	11
10 Evaluation of results	11
11 Test report	12
Annex A (informative) Types of failure	13
Bibliography.....	14

iTeh STANDARD PREVIEW

(standards.iteh.ai)

SIST EN 1052-3:2004

<https://standards.iteh.ai/catalog/standards/sist/2b686a40-9c3b-47de-8fcc-283adef4489d/sist-en-1052-3-2004>

Foreword

This document EN 1052-3:2002 has been prepared by Technical Committee CEN/TC 125 "Masonry", the secretariat of which is held by BSI.

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 2003, and conflicting national standards shall be withdrawn at the latest by January 2003.

Annex A of this European Standard is informative.

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, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 1052-3:2004](https://standards.iteh.ai/catalog/standards/sist/2b686a40-9cf3-47de-8fee-283adef4489d/sist-en-1052-3-2004)

<https://standards.iteh.ai/catalog/standards/sist/2b686a40-9cf3-47de-8fee-283adef4489d/sist-en-1052-3-2004>

EN 1052-3:2002 (E)

1 Scope

This European Standard specifies a method for determining the in plane initial shear strength of horizontal bed joints in masonry using a specimen tested in shear.

Guidance is given on the preparation of the specimens, the conditioning required before testing, the testing machine, the method of test, the method of calculation and the contents of the test report.

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 772-1, *Methods of test for masonry units - Part 1: Determination of compressive strength.*

EN 772-10, *Methods of test for masonry units - Part 10: Determination of moisture content of calcium silicate and autoclaved aerated concrete units.*

EN 772-16, *Methods of test for masonry units - Part 16: Determination of dimensions.*

EN 998-2, *Specification for mortar for masonry - Part 2: Masonry mortar.*
<https://standards.iteh.ai/catalog/standards/sist/2b686a40-9c3b-47de-8fee-283ade4489d/sist-en-1052-3-2004>

EN 1015-3, *Methods of test for mortar for masonry - Part 3: Determination of consistence of fresh mortars (by flow table).*

EN 1015-7, *Methods of test for mortar for masonry - Part 7: Determination of air content of fresh mortar.*

EN 1015-11, *Methods of test for mortar for masonry - Part 11: Determination of flexural and compressive strength of hardened mortar.*

3 Principle

The initial shear strength of masonry is derived from the strength of small masonry specimens tested to destruction. The specimens are tested in shear under four-point load, with precompression perpendicular to the bed joints.

Four different failure modes are considered to give valid results. The initial shear strength is defined by the linear regression curve to zero normal stress.

4 Terms, definitions and symbols

4.1 Terms and definitions

For the purpose of this European Standard, the following terms and definitions apply.

4.1.1

masonry

assemblage of masonry units laid in a specified pattern and jointed together with mortar

4.1.2

shear strength of masonry

strength of masonry subjected to shear forces

4.2 Symbols

A_i	is the cross-sectional area of a specimen parallel to the bed joints, in square millimetres (mm^2)
e	distance between centre lines of the mortar bed and the loading roller, in millimetres (mm)
f_{voi}	is the shear strength of an individual sample, in Newton per square millimetres (N/mm^2)
f_{pi}	is the precompressive stress of an individual sample, in Newton per square millimetres (N/mm^2)
f_{vo}	is the mean initial shear strength, in Newton per square millimetres (N/mm^2)
f_{vko}	is the characteristic initial shear strength, in Newton per square millimetres (N/mm^2)
F	is the representation of the force applied to the specimen, in Newton (N)
$F_{i,max}$	is the maximum shear load, in Newton (N)
F_{pi}	is the precompressive force, in Newton (N)
h_1 and h_2	are the heights of cut units, in millimetres (mm)
h_u	is the height of the units according to EN 772-16 , in millimetres (mm)
l_s	is the length of specimen, in millimetres (mm)
l_u	is the length of the units according to EN 772-16 , in millimetres (mm)
t_{bj}	is the thickness of the bed joint, in millimetres in millimetres (mm)
t_s	is the thickness of the steel loading plates, in millimetres (mm)
α	is the angle of internal friction, in degrees
α_k	is the characteristic angle of internal friction, in degrees

5 Materials

5.1 Masonry units

5.1.1 Conditioning of the units

The conditioning of masonry units shall be as specified:

Record the method of conditioning the masonry units prior to laying. Measure the moisture content by mass of autoclaved aerated concrete and calcium silicate units in accordance with EN 772-10. Record the age of non-autoclaved concrete units at the time of testing the masonry specimens.

5.1.2 Testing

Determine the compressive strength of a sample of masonry units, using the test method given in EN 772-1. For non autoclaved concrete units determine the compressive strength at the time of testing the masonry specimens.

5.2 Mortar

The mortar, its mixing procedure and its flow value shall conform with the requirements of EN 998-2, unless otherwise specified, and these shall be reported in the test report.

Take representative samples of fresh mortar from the mason's board to make mortar prism specimens, to determine the flow value in accordance with EN 1015-3 and to determine the air content in accordance with EN 1015-7. Use the prism specimens to determine the mean compressive strength at the time of testing the masonry specimens in accordance with EN 1015-11.

6 Apparatus

The testing machines used to apply the shear loads and precompression shall comply with the requirements given in Table 1.

The testing machine to apply the shear loads shall have adequate capacity but the scale used shall be such that the ultimate load on the specimen exceeds one fifth of the full scale reading. The machine shall be provided with a load pacer or equivalent means to enable the load to be applied at the rate specified.

Table 1 - Requirements for testing machines

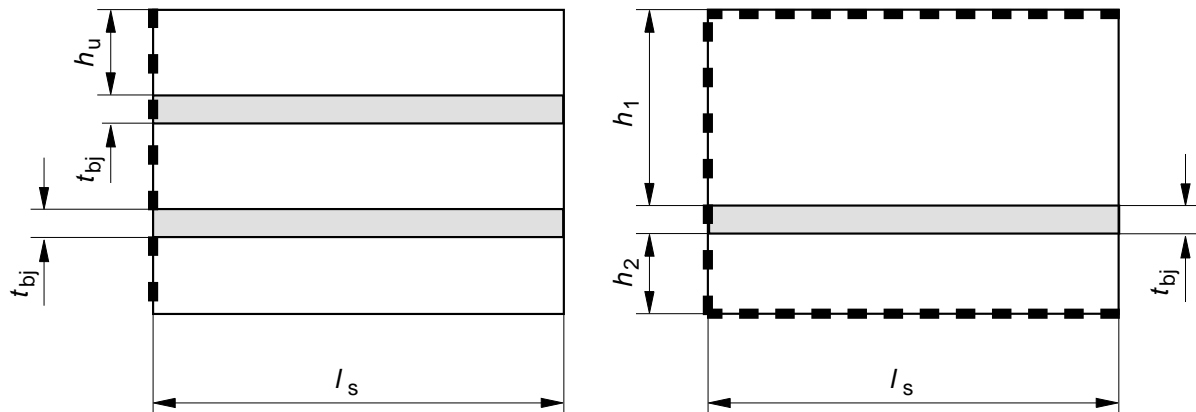
Maximum permissible repeatability of forces as percentage of indicated force	Maximum permissible mean error of forces as percentage of indicated force	Maximum permissible error of zero force as percentage of maximum force of range
2,0	± 2,0	± 0,4

Apparatus capable of measuring the cross sectional area of the specimens to an accuracy of 1 %.

7 Preparation and curing of specimens

7.1 Preparation of masonry specimens

Prepare at least nine specimens with dimensions according to Table 2 and to Figure 1, type A if $h_u \leq 200$ mm or according to Figure 1, type B if $h_u > 200$ mm.



iTeh STANDARD PREVIEW
(standards.iteh.ai)

Type A

[SIST EN 1052-3:2004](https://standards.iteh.ai/catalog/standards/sist/2b686a40-9cf3-47de-8fee-283adef4489d/sist-en-1052-3-2004)

Type B

<https://standards.iteh.ai/catalog/standards/sist/2b686a40-9cf3-47de-8fee-283adef4489d/sist-en-1052-3-2004>

Key

■■■■■■■■ Possible saw cuts

Figure 1 - Dimensions of shear test specimen

Table 2 - Dimensions and type of shear test specimens

Unit size		Specimen type and dimensions	
l_u mm	h_u mm	Type according to Figure 1	Dimensions mm
≤ 300	≤ 200	A	$l_s = l_u$
> 300	≤ 200	A	$l_s = 300$
≤ 300	> 200	B	$h_1 = 200$ $l_s = l_u$
> 300	> 200	B	$h_1 = 200$ $l_s = 300$