

Building construction — Sealants — Determination of resistance to compression

The European Standard EN ISO 11432:2005 has the status of a
British Standard

ICS 91.100.50

National foreword

This British Standard is the official English language version of EN ISO 11432:2005. It is identical with ISO 11432:2005. It supersedes BS EN ISO 11432:1998 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/547, Sealants for building and construction, which has the responsibility to:

- aid enquirers to understand the text;
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Additional information

EN ISO 11432:2005 is a test method useful in the determination of compressive properties and one of the procedures used for classifying construction sealants within BS EN ISO 11600:2003.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii to iv, pages 1 to 5 and a back cover.

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English Version

**Building construction - Sealants - Determination of resistance to
compression (ISO 11432:2005)**

Construction immobilière - Mastics - Détermination de la
résistance à la compression des mastics (ISO 11432:2005)

Hochbau - Fugendichtstoffe - Bestimmung des
Druckwiderstands (ISO 11432:2005)

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EN ISO 11432:2005

Foreword

This document (EN ISO 11432:2005) has been prepared by Technical Committee ISO/TC 59 "Building construction" in collaboration with CMC.

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of an identical text or by endorsement, at the latest by January 2006, and conflicting national standards shall be withdrawn at the latest by January 2006.

This document supersedes EN ISO 11432:1997.

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

Endorsement notice

The text of ISO 11432:2005 has been approved by CEN as EN ISO 11432:2005 without any modifications.

INTERNATIONAL
STANDARD

ISO
11432

Second edition
2005-07-01

**Building construction — Sealants —
Determination of resistance to
compression**

*Construction immobilière — Mastics — Détermination de la résistance à
la compression des mastics*



Reference number
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Foreword

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ISO 11432 was prepared by Technical Committee ISO/TC 59, *Building construction*, Subcommittee SC 8, *Jointing products*.

This second edition cancels and replaces the first edition (ISO 11432:1993), Clauses 5, 6 and 7 of which have been technically revised.

Building construction — Sealants — Determination of resistance to compression

1 Scope

This International Standard specifies a method for the determination of the resistance to compression of sealants used in joints in building construction.

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.

ISO 6927, *Building construction — Jointing products — Sealants — Vocabulary*

ISO 13640, *Building construction — Jointing products — Specifications for test substrates*

3 Terms and definitions

For the purposes of this document, the definitions given in ISO 6927 apply.

4 Principle

Test specimens, in which the sealant to be tested is adhered to two parallel substrate surfaces, are compressed by a defined percentage of the original width and the force recorded.

5 Apparatus

5.1 Substrate materials, used for the preparation of test specimens, are defined in ISO 13640, *Specification for test substrates*. The materials shall be selected from mortar and/or anodized aluminium and/or glass. Other substrate materials may be used as agreed by the parties concerned. For each test specimen, two substrate pieces of the same material are required; with dimensions as shown in Figures 1 and 2. Test substrates of other dimensions may be used, but then the dimensions of the sealant bead and the area of adhesion shall be the same as those shown in Figures 1 and 2.

5.2 Spacers, for the preparation of the test specimens, of cross-sections (12 mm × 12 mm) with anti-adherent surface.

5.3 Anti-adherent substrate, for the preparation of test specimens, e.g. polyethylene (PE) film, preferably according to the advice of the sealant manufacturer.

5.4 Ventilated convection-type oven, capable of operating at (70 ± 2) °C for conditioning according to method B.

5.5 Container, for water immersion of the specimen for conditioning according to method B.

5.6 Tensile test machine, capable of compressing the test specimens at a rate of $(5,5 \pm 0,7)$ mm/min.

6 Preparation of test specimens

The sealant and the test substrate shall be brought to (23 ± 2) °C. For each substrate material, three test specimens shall be prepared.

For each test specimen, two substrates (5.1) and two spacers (5.2) shall be assembled (see Figures 1 and 2) and set on the anti-adherent substrate (5.3).

The instructions of the sealant manufacturer shall be followed concerning, for instance, whether a primer is to be used and the mixing procedure for multi-component sealants. The hollow volume formed by the substrates shall be filled with the sealant.

The following precautions shall be taken:

- a) the formation of air bubbles shall be avoided;
- b) the sealant shall be pressed to the contact surfaces of the substrates;
- c) the sealant surface shall be trimmed so that it is flush with the faces of the substrates and the spacers.

The test specimens shall be set on the edge of one of the supports and the anti-adherent substrate shall be removed as soon as possible. The test specimens shall be kept in this position to allow curing or optimum drying of the sealant.

The spacers shall be maintained in place during conditioning.

7 Conditioning of test specimens

7.1 General

The test specimens shall be conditioned either according to method A (see 7.2) or method B (see 7.3).

7.2 Conditioning method A

The test specimens shall be conditioned for 28 days at (23 ± 2) °C and (50 ± 5) % relative humidity.

7.3 Conditioning method B

First the test specimens shall be conditioned according to method A and subsequently subjected three times to the following storage cycle:

- a) three days in the oven (5.4) at (70 ± 2) °C;
- b) one day in distilled water (5.5) at (23 ± 2) °C;
- c) two days in the oven (5.4) at (70 ± 2) °C;
- d) one day in distilled water (5.5) at (23 ± 2) °C.

This cycle may be carried out alternatively in the sequence: c), d), a), b).

After conditioning according to method B, the test specimens shall be stored for a further period of 24 h at (23 ± 2) °C and (50 ± 5) % relative humidity before testing.

NOTE Conditioning method B is a normal conditioning procedure using the influence of heat and water. It is not intended to give information on the durability of the sealant.

8 Test procedure

The test shall be carried out at $(23 \pm 2) ^\circ\text{C}$ and $(50 \pm 5) \%$ relative humidity. The spacers (5.2) shall be removed. The test specimens shall be placed in the tensile test machine (5.6) and compressed at a rate of $(5,5 \pm 0,7) \text{ mm/min}$ to 75 % or 80 % of the initial width, or by any other percentage as agreed by the parties concerned.

The following table gives the correspondence in millimetres of the percentage compression for a test specimen of 12 mm initial width.

**Table 1 — Correspondence of compression values
original width 12 mm**

Compressed width relative to the original width %	Compression %	Width after compression mm
75	25	9,0
80	20	9,6

The force, expressed in newtons, required for the appropriate compression shall be recorded.

9 Expression of results

For each test specimen, the secant compression modulus shall be calculated, for the chosen compression amplitude, rounded to $0,01 \text{ N/mm}^2$, using the equation:

$$\text{Secant compression modulus} = \text{Force at chosen compression (expressed in N)} / \text{initial cross-section area (expressed in mm}^2\text{)}$$

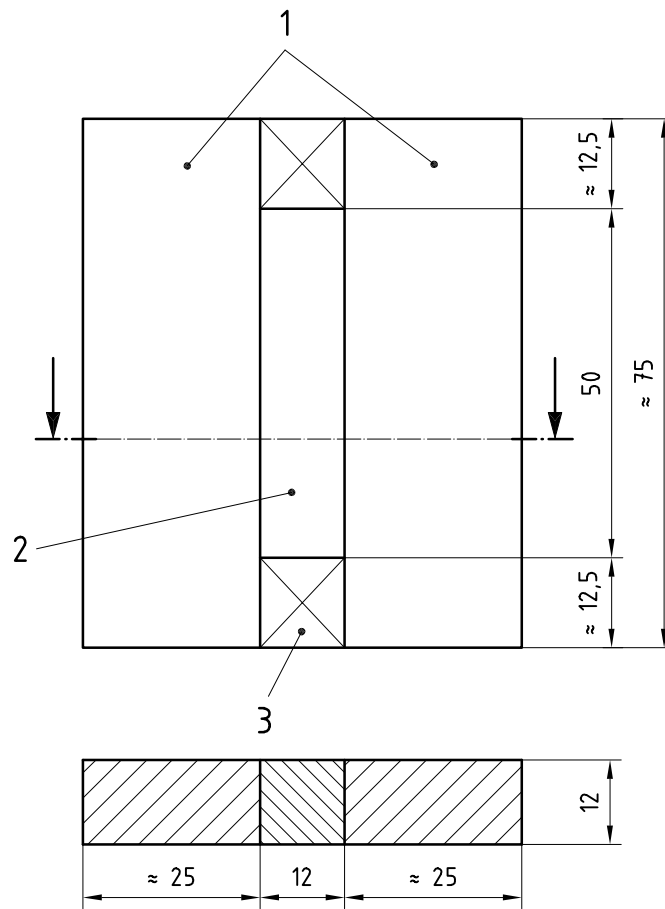
The arithmetic mean of the three secant compression modulus values shall be calculated, rounded to $0,01 \text{ N/mm}^2$.

10 Test report

The test report shall contain the following information:

- a) the test laboratory's name and the date of testing;
- b) a reference to this International Standard;
- c) name, type (chemical family) and colour of sealant;
- d) batch of sealant from which the test specimens were produced;
- e) substrate material used;
- f) the primer used, if applicable;
- g) the method of conditioning (see Clause 7);
- h) the percentage compression (see Clause 8);
- i) the secant compression modulus of each test specimen (N/mm^2);
- j) the arithmetic mean of the three secant compression modulus;
- k) any deviations from this International Standard.

Dimensions in millimetres

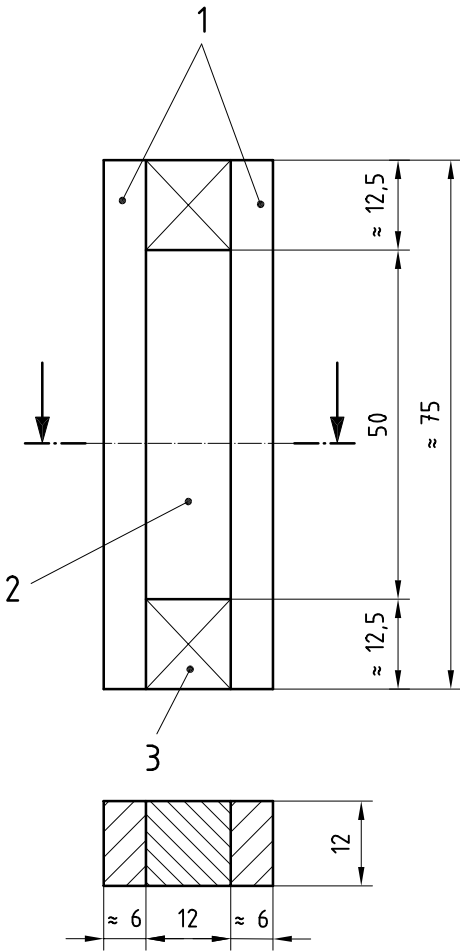


Key

- 1 mortar substrates
- 2 sealant
- 3 spacers (5.2)

Figure 1 — Test specimens with mortar substrates

Dimensions in millimetres



- Key**
- 1 anodized aluminium or glass substrates
 - 2 sealant
 - 3 spacers (5.2)

Figure 2 — Test specimens with anodized aluminium or glass substrates

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