



SLOVENSKI STANDARD

SIST EN 846-8:2001

01-februar-2001

Metode preskušanja dodatnih komponent zidovine - 8. del: Ugotavljanje nosilnosti in lastnosti sila-pomik obešal za stropnike

Methods of test for ancillary components for masonry - Part 8: Determination of load capacity and load-deflection characteristics of joist hangers

Prüfverfahren für Ergänzungsbauteile für Mauerwerk - Teil 8: Bestimmung der Tragfähigkeit und der Last-Verformungseigenschaften von Balkenauflagern

Méthodes d'essai des composants accessoires de maçonnerie - Partie 8: Détermination de la résistance et de la rigidité des étriers supports de poutrelles ou de solives

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ICS:

91.080.30 Zidane konstrukcije Masonry

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 846-8

February 2000

ICS 91.060.10; 91.080.30

English version

**Methods of test for ancillary components for masonry - Part 8:
Determination of load capacity and load-deflection
characteristics of joist hangers**

Méthodes d'essai des composants accessoires de
maçonnerie - Partie 8: Détermination de la résistance et de
la rigidité des étriers supports de poutrelles ou de solives

Prüfverfahren für Ergänzungsbauteile für Mauerwerk -
Teil 8: Bestimmung der Tragfähigkeit und der Last-
Verformungseigenschaften von Balkenauflagern

This European Standard was approved by CEN on 24 December 1999.

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 Central Secretariat 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 Central Secretariat 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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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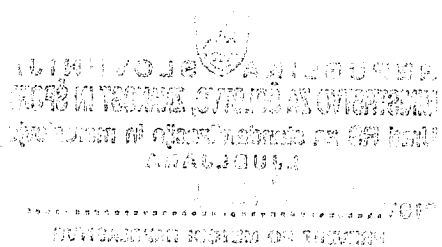
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Foreword

This European Standard 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 August 2000, and conflicting national standards shall be withdrawn at the latest by September 2000.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard specifies a method for determining the strength and load-deflection characteristics of joist hangers fixed to a masonry wall and supporting a timber joist.

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.

EN 338	Structural timber - Strength classes.
prEN 771-1	Specification for masonry units - Part 1: Clay masonry units.
prEN 771-2	Specification for masonry units - Part 2: Calcium silicate masonry units.
prEN 771-3	Specification for masonry units - Part 3: Aggregate concrete masonry units (dense and lightweight aggregates).
prEN 771-4	Specification for masonry units - Part 4: Autoclaved aerated concrete masonry units.
prEN 771-5	Specification for masonry units - Part 5: Manufactured stone masonry units.
prEN 771-6	Specification for masonry units - Part 6: Natural stone masonry units.
prEN 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.
prEN 845-1	Specification for ancillary components for masonry - Part 1: Ties, straps, hangers, brackets and support angles.
prEN 998-2	Specification for mortar for masonry - Part 2: Masonry mortar.
EN 1015-3	Methods of test for mortar for masonry - Part 3: Determination of the consistence of fresh mortar by flow table.
EN 1015-7	Methods of test for mortar for masonry - Part 7: Determination of air content of fresh mortar.
prEN 1015-11	Methods of test for mortar for masonry - Part 11: Determination of flexural and compressive strength of hardened mortar.

3 Principle

Joist hangers are fixed to a wall and loaded through joists in a manner representative of their intended use.

4 Materials

4.1 Masonry units

4.1.1 Sampling and conditioning

Masonry units shall be as specified in accordance with prEN 771. All of the masonry units for individual tests or for making the couplet specimens shall be taken from the same consignment.

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.

4.1.2 Testing

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

4.2 Mortar

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

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 the air content in accordance with EN 1015-7. Use the prism specimens to determine the mean compressive strength at the time of testing of the joist hanger specimens in accordance with prEN 1015-11.

4.4 Timber joists

Timber sections shall be of coniferous timber with a strength class of C16 in accordance with EN 338 and with a density of not greater than 600 kg/m³ and a moisture content by mass of 12 % ± 3 %.

4.5 Screws, nails, grouts, plugs, slot sections or other fixing ancillary items

Fixing materials shall be normal production items, in a clean dry uncontaminated state, supplied by the manufacturer or supplier for use with the product.

5 Apparatus

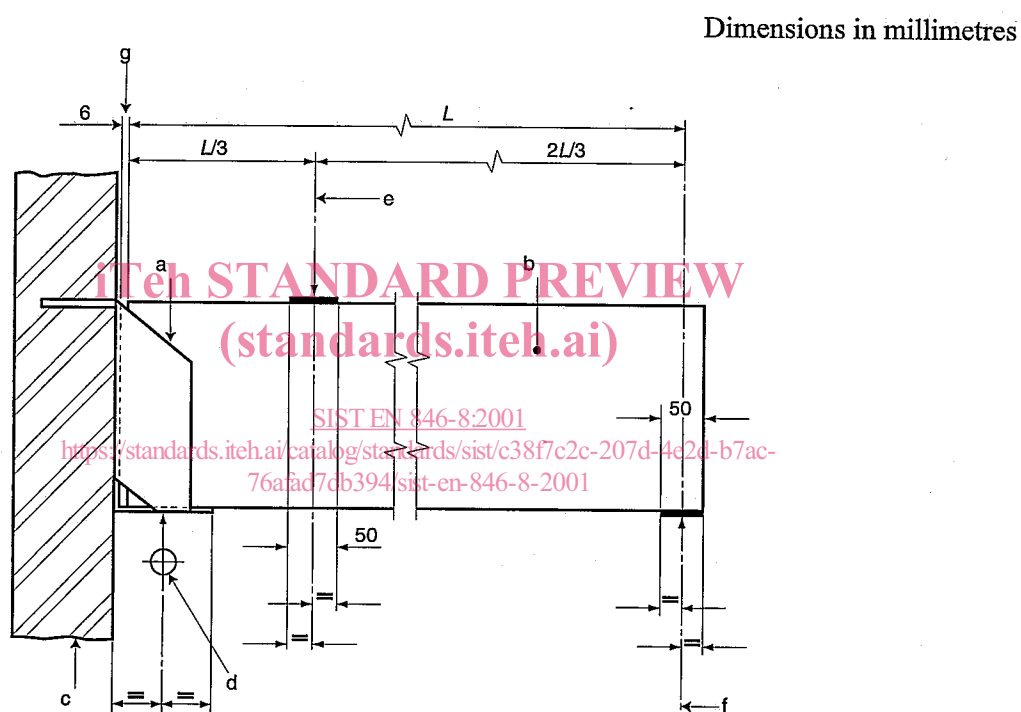
5.1 Method for applying the load, in accordance with the arrangement shown in Figure 1, through a timber joist of a size which the hanger is designed to support. In the case of stirrup or saddle hangers the load shall only be applied to one side, and the other side shall be unrestrained.

5.2 Loading system, which shall apply a vertical load to the specimen. Where the loading system is a test machine or apparatus this shall be capable of applying the load without distortion such that the maximum load occurs above 20 % of the full scale reading. The loading shall be measured to an accuracy of $\pm 2\%$.

Where the load is to be applied using weights this should be without shock, and each increment in load and the failure load shall be measured to an accuracy of $\pm 2\%$.

5.3 Means of measuring displacement, of the hanger in relation to the floor using dial gauges or electrical linear displacement transducers as shown in Figure 1. Displacement shall be measured to the nearest 0,01 mm.

Note: Where deep joists are used some lateral support to the joist will be required.



Key

- a Joist hanger
- b Timber joist
- c Wall
- d Deflection measuring gauge or transducer
- e Centre of action of loading device
- g Maximum clearance between joist end and the back of the hanger shall not be greater than 6 mm
- f Centre of support
- L Length of joist

Figure 1 - Loading geometry

5.4 For products dependent on polymer-based (plastic) components, e.g. face-fixed hangers fixed with screws and plastic wall plugs, only, a controlled temperature and humidity chamber or room.

5.5 A similar arrangement to that given in Figure 1 may be used for hangers designed to support inclined joists. In such cases however, both ends of the joists shall be supported in hangers and the load shall be applied vertically at mid-span through a suitable platen to accommodate the inclined surfaces.

6 Test specimens

6.1 Sampling

The method of sampling shall be in accordance with prEN 845-1. The minimum number of specimens shall be five.

Prior to building in or face-fixing the hangers, all relevant dimensions and thickness shall be measured.

6.2 Construction and storage

Test walls shall be built with masonry units representative of the types for which the manufacturer claims that the joist hanger to be tested are intended. Fix the joists and the joist hangers in accordance with the manufacturer's instructions for the type of hanger being tested. The coursing of the masonry wall shall be arranged so that each hanger is positioned at the mid-length of the masonry unit beneath it. Where face-fixed hangers are installed, the fixings shall be installed in accordance with the manufacturer's instructions and into the specified backing material (unit or mortar).

Build the walls on a flat horizontal surface. Strike off the mortar flush with the faces of the specimen.

Normal masonry mortar joints shall be between 8 mm and 15 mm thick. Thin layer mortar joints shall be between 1 mm and 3 mm thick. A typical test wall is shown in Figure 2.