

**Methods of test for ancillary  
components for masonry - Part 5:  
Determination of tensile and  
compressive load capacity and load  
displacement characteristics of wall ties  
(couple test)**

Methods of test for ancillary components for  
masonry - Part 5: Determination of tensile and  
compressive load capacity and load displacement  
characteristics of wall ties (couple test)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 846-5:2000 sisaldab Euroopa standardi EN 846-5:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 08.08.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 846-5:2000 consists of the English text of the European standard EN 846-5:2000.</p> <p>This document is endorsed on 08.08.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p><b>Käsitlusala:</b></p> <p>This Standard specifies the couplet method for determining the tensile and compressive load capacity and load displacement characteristics of wall ties embedded in mortar joints. The test is intended for ties used for connecting together two leaves of masonry and for the mortar-bedded end of ties for connecting masonry leaves to other structures.</p>	<p><b>Scope:</b></p> <p>This Standard specifies the couplet method for determining the tensile and compressive load capacity and load displacement characteristics of wall ties embedded in mortar joints. The test is intended for ties used for connecting together two leaves of masonry and for the mortar-bedded end of ties for connecting masonry leaves to other structures.</p>
--	--

ICS 91.060.10, 91.080.30

**Võtmesõnad:**

**English version**

**Methods of test for ancillary components for masonry**

Part 5: Determination of tensile and compressive load capacity and load displacement characteristics of wall ties (couple test)

Méthodes d'essai des composants  
accessoires de maçonnerie –  
Partie 5: Détermination de la  
résistance à la traction et à la  
compression et des caractéristiques  
effort-déformation des attaches de  
murs (essai entre deux éléments)

Prüfverfahren für Ergänzungsbauteile  
für Mauerwerk – Teil 5: Bestimmung  
der Zug- und Drucktragfähigkeit  
sowie der Steifigkeit von Mauer-  
ankern (Steinpaar-Prüfung)

This European Standard was approved by CEN on 1999-12-04.

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.

The European Standards exist 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, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

**Central Secretariat: rue de Stassart 36, B-1050 Brussels**

## Contents

	Page
Foreword .....	2
1 Scope .....	3
2 Normative references .....	3
3 Principle .....	4
4 Materials .....	4
5 Apparatus .....	5
6 Preparation and storage of test specimens .....	6
7 Procedure .....	7
8 Expression of results .....	8
9 Test report .....	8

## 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.

This European standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports the essential requirements of the EU Construction Products Directive (89/106/EEC) and includes the performance requirements referred to in the Eurocode for masonry Structures.

## 1 Scope

This European Standard specifies the couplet method for determining the tensile and compressive load capacity and load displacement characteristics of wall ties embedded in mortar joints. The test is intended for ties used for connecting together two leaves of masonry and for the mortar-bedded end of ties for connecting masonry leaves to other structures.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate place 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.

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 masonry units
prEN 845-1	Specification for ancillary components for masonry - Part 1 : Ties, straps, hangers, brackets and supports angles
prEN 998-2	Specification for mortar for masonry - Part 2 : Masonry mortar
EN 1015-3	Methods of test for mortar for masonry- Part 1 : Determination of 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

The tie is embedded in a mortar typical of the type for which the tie is specified between a pair (couplet) of masonry units. The tie is then subjected to tension or compression until failure occurs.

### 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 **prEN 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 conform to the requirements of **prEN 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 prisms 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 of the masonry specimens in accordance with **prEN 1015-11**.

#### 4.3 Wall ties

The method of sampling shall be in accordance **prEN 845-1**. The minimum number of specimens shall be 12, but this number shall be doubled where both ends of asymmetrical ties are tested separately.