

**Products and systems for the
protection and repair of concrete
structures - Test methods - Part 4:
Determination of shrinkage and
expansion**

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of concrete structures - Test methods - Part 4:
Determination of shrinkage and expansion

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12617-4:2002 sisaldab Euroopa standardi EN 12617-4:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 12.07.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12617-4:2002 consists of the English text of the European standard EN 12617-4:2002.</p> <p>This document is endorsed on 12.07.2002 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>
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<p>Käsitlusala:</p> <p>This European Standard specifies a method for measuring the dimensional stability (i.e. the shrinkage and expansion movement) due to changes in the moisture content of hydraulic mortars or concretes (CC) or polymer hydraulic cement mortars or concretes (PCC) as defined in EN 1504-1. Two methods are proposed, namely a procedure for unrestrained movement and a procedure for restrained movement.</p>	<p>Scope:</p> <p>This European Standard specifies a method for measuring the dimensional stability (i.e. the shrinkage and expansion movement) due to changes in the moisture content of hydraulic mortars or concretes (CC) or polymer hydraulic cement mortars or concretes (PCC) as defined in EN 1504-1. Two methods are proposed, namely a procedure for unrestrained movement and a procedure for restrained movement.</p>
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Võtmesõnad: area, binders, construction, construction materials, determination, dimensional stability, extenders, materials, protection, protection systems, repair, repairs, shrinkage, shrinkage behaviour, structures, surfaces, swelling, testing

ICS 91.080.40

English version

Products and systems for the protection and repair of concrete structures - Test methods - Part 4: Determination of shrinkage and expansion

Produits et systèmes de protection et de réparation des structures en béton - Méthodes d'essai - Partie 4: Détermination du retrait et du gonflement

Produkte und Systeme für den Schutz und die Instandsetzung von Betontragwerken - Prüfverfahren - Teil 4: Bestimmung des Schwindens und Quellens

This European Standard was approved by CEN on 4 January 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.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document EN 12617-4:2002 has been prepared by Technical Committee CEN/TC 104 "Concrete and related products", the secretariat of which is held by DIN.

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 November 2002, and conflicting national standards shall be withdrawn at the latest by December 2002.

It was prepared by sub-committee 8 "Products and systems for the protection and repair of concrete structures", the secretariat of which is held by AFNOR.

This European Standard is one of a series dealing with products and systems for the protection and repair of concrete structures.

This European Standard describes two methods for determining the dimensional stability of repair products and systems subject to conditions of drying and immersion. The first method measures the unrestrained shrinkage and expansion, while the second method measures the effects of restraint on the unrestrained shrinkage and expansion.

It is one of a series of inter-related parts dealing with dimensional stability of repair products and systems. The other parts are:

prEN 12617-1, *Products and systems for the protection and repair of concrete structures - Test methods – Part 1: Determination of linear shrinkage.*

prEN 12617-2, *Products and systems for the protection and repair of concrete structures - Test methods – Part 2: Determination of volumetric shrinkage.*

EN 12617-3, *Products and systems for the protection and repair of concrete structures - Test methods - Part 3: Determination of early age linear shrinkage for structural bonding agents.*

Annex A is normative.

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.

1 Scope

This European Standard specifies a method for measuring the dimensional stability (i.e. the shrinkage and expansion movement) due to changes in the moisture content of hydraulic mortars or concretes (CC) or polymer hydraulic cement mortars or concretes (PCC) as defined in EN 1504-1. Two methods are proposed, namely a procedure for unrestrained movement and a procedure for restrained movement.

The provisions of the standard are applicable to grout, mortar or concrete products or systems with a maximum aggregate size of 10 mm.

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 196-1:1994, *Methods of testing cement - Part 1: Determination of strength*.

EN 1015-2, *Methods of test for mortar for masonry – Part 2: Bulk sampling of mortars and preparation of test mortars*.

EN 1504-1, *Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity- Part 1: Definitions*.

prEN 1504-3¹, *Products and systems for the protection and repair of concrete structures - Part 3: Structural and non-structural repair*.

EN 1542, *Products and systems for the protection and repair of concrete structures - Test methods - Measurement of bond strength by pull-off*.

EN 1766, *Products and systems for the protection and repair of concrete structures - Test Methods - Reference concretes for testing*.

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

3 Terms and definitions and symbols

3.1 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1504-1 apply.

3.2 Symbols

The following list of symbols is used in this standard.

c	is the specific length variation, in % ;
m	is the specific mass change, in % ;
L	is the initial length of test specimen at time of release from mould, in mm ;

¹ Under preparation.