# Tooted ja süsteemid betoonkonstruktsioonide kaitsmiseks ja parandamiseks. Testimismeetodid. Kasutamisaja määramine

Products and systems for the protection and repair of concrete structures - Test methods - Determination of open time

**EESTI STANDARDI EESSÕNA** **NATIONAL FOREWORD**

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| Käesolev Eesti standard EVS-EN 12189:2000 sisaldab Euroopa standardi EN 12189:1999 ingliskeelset teksti.<br><br>Käesolev dokument on jõustatud 19.07.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.<br><br>Standard on kättesaadav Eesti standardiorganisatsioonist. | This Estonian standard EVS-EN 12189:2000 consists of the English text of the European standard EN 12189:1999.<br><br>This document is endorsed on 19.07.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.<br><br>The standard is available from Estonian standardisation organisation. |

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| **Käsitlusala:**<br>Käesolev Euroopa standard kirjeldab meetodit konstruktsioonliimitise komponentide kasutamisaja mõõtmiseks liimitud betoonprismade testimisel paindele. | **Scope:** |

**ICS** 91.080.40

**Võtmesõnad:**

# EUROPEAN STANDARD
# NORME EUROPÉENNE
# EUROPÄISCHE NORM

EN 12189

May 1999

ICS 91.080.40; 91.100.30



**English version**

# Products and systems for the protection and repair of concrete structures

## Test methods – Determination of open time

Produits et systèmes pour la protection et la réparation des structures en béton – Méthodes d'essai – Détermination du temps ouvert

Produkte und Systeme für den Schutz und die Instandsetzung von Betontragwerken – Prüfverfahren – Bestimmung der Offenzeit

This European Standard was approved by CEN on 1999-04-16.

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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.

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CEN

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

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Ref. No. EN 12189 : 1999 E

# Contents





## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 104 "Concrete (performance, production, placing and compliance criteria)", 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 1999, and conflicting national standards shall be withdrawn at the latest by november 1999.

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.

It has been prepared by Sub-committee 8 "Products and systems for the protection and repair of concrete structures" (Secretariat AFNOR).

NOTE This Standard should be read together with EN 1504-1 and prEN 1504-4.

## 1 Scope

This European Standard describes a method for the measurement of the open time of structural bonding agents by use of bonded concrete prisms tested in flexure.

## 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 480-1, *Admixtures for concrete, mortar and grout - Test methods - Part 1 : Reference concrete and reference mortar for testing.*

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

## 3 Test method

The open time is defined as the period that elapses between the completion of mixing of the bonding agent and the longest time to closing of the joint which results in a failure plane within the concrete.

The open time is measured using the results from tensile bending tests performed on a series of concrete test prisms which have been bonded using the same mix of bonding agent but with the pairs of prisms being brought together at predetermined intervals after application of the bonding agent.

For those test prisms bonded within the open time the tensile bending test should result in fracture in the concrete. When fracture occurs within the bond line it is considered that the test prisms concerned were bonded outside the open time.

## 4 Equipment

**4.1** Steel moulds for producing concrete test pieces of size 40 mm x 40 mm x 80 mm.

**4.2** Concrete mixer as in EN 480-1.

**4.3** Grit blasting equipment.

**4.4** A stop clock calibrated in minutes to a maximum of 120 min.

**4.5** Clamping frames as shown in figure 1, capable of applying a compressional longitudinal force of 320 N and maintaining this force on the bonded concrete prisms during the tensile bending test.

**4.6** Testing machine capable applying a force at a rate of (50 ± 10) N/s up to 20 kN during the tensile bending test.

**4.7** Steel support frame, support rollers, loading rollers and spreader beam as shown in figure 2 for four point bending test on bonded concrete prisms.