KIVISTUNUD BETOONI KATSETAMINE. OSA 4: SURVETUGEVUS. KATSEMASINATELE ESITATAVAD NÕUDED

Testing hardened concrete - Part 4: Compressive strength - Specification for testing machines

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 12390-4:2025 sisaldab Euroopa standardi EN 12390-4:2025 ingliskeelset teksti.	This Estonian standard EVS-EN 12390-4:2025 consists of the English text of the European standard EN 12390-4:2025.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 26.03.2025.	Date of Availability of the European standard is 26.03.2025.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Testing hardened concrete - Part 4: Compressive strength - Specification for testing machines

Essais pour béton durci - Partie 4 : Résistance à la compression - Caractéristiques des machines d'essai

Prüfung von Festbeton - Teil 4: Bestimmung der Druckfestigkeit - Anforderungen an Prüfmaschinen

This European Standard was approved by CEN on 10 February 2025.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 12390-4:2025 E

Contents

Page

European foreword

This document (EN 12390-4:2025) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, the secretariat of which is held by SN.

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 September 2025, and conflicting national standards shall be withdrawn at the latest by September 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12390-4:2019.

This document is one of a series on testing concrete.

EN 12390, *Testing hardened concrete*, consists of the following parts:

— *Part 1: Shape, dimensions and other requirements for specimens and moulds*;

— *Part 2: Making and curing specimens for strength tests*;

— *Part 3: Compressive strength of test specimens*;

— *Part 4: Compressive strength — Specification for testing machines*;

— *Part 5: Flexural strength of test specimens*;

— *Part 6: Tensile splitting strength of test specimens;*

— *Part 7: Density of hardened concrete*;

— *Part 8: Depth of penetration of water under pressure*;

— *Part 10: Determination of the carbonation resistance of concrete at atmospheric levels of carbon dioxide*;

— *Part 11: Determination of the chloride resistance of concrete, unidirectional diffusion*;

— *Part 12: Determination of the potential carbonation resistance of concrete: Accelerated carbonation method*;

— *Part 13: Determination of secant modulus of elasticity in compression*;

— *Part 14: Semi-adiabatic method for the determination of heat released by concrete during its hardening process*;

— *Part 15: Adiabatic method for the determination of heat released by concrete during its hardening process*;

— *Part 16: Determination of the shrinkage of concrete*;

— *Part 17: Determination of creep of concrete in compression*.

EN 12390-4:2025 contains the following significant changes with respect to EN 12390-4:2019:

— reference to compliance with EN ISO 7500-1;

— insertion of Table 2 of EN ISO 7500-1;

— creation of two classes of machines.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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

Introduction

The requirements for testing machines set out in this document have been formulated to satisfy the needs of those compressive tests on concrete specimens which are specified in EN 206:2013+A2:2021. Machines conforming to this document can be suitable for other uses, but this needs to be carefully considered on an individual test basis. Particular care needs to be taken before using machines conforming to this document for compressive tests on small specimens, e.g. those with lateral dimensions significantly less than 100 mm. The main concern is that the ball-seating fitted to the upper platen can be too large to align satisfactorily on the top of such small specimens and special adaptations can be required. Another concern is the ability to accurately determine the failure load of small or low strength specimens.

1 Scope

This document specifies the requirements for the performance of compression testing machines for the measurement of the compressive strength of concrete test specimen in accordance with EN 12390-3 or cores in accordance with EN 12504-1.

Other additional or different requirements may apply for different uses.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method (ISO 6507-1)*

EN ISO 7500-1:2018, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system (ISO 7500-1:2018)*

EN ISO 21920-2, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 2: Terms, definitions and surface texture parameters (ISO 21920-2)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1
auxiliary platen
separate platen usually of a size equal to the designated size of the specimen being tested

3.2
contact area
part of the platen that comes into contact with the specimen

3.3
indicated force
force indicated on the machine scale(s) or display

3.4
indication range
total force range, from zero to maximum, displayed on the machine

3.5
machine platens
lower platen and upper platen both centred on the central vertical axis of the machine and where the upper platen is spherically seated