

**KIVISTUNUD BETOONI KATSETAMINE. OSA 7:
KIVISTUNUD BETOONI TIHEDUS**

**Testing hardened concrete - Part 7: Density of hardened
concrete**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 12390-7:2019 sisaldab Euroopa standardi EN 12390-7:2019 ja selle paranduse AC:2020 ingliskeelset teksti.	This Estonian standard EVS-EN 12390-7:2019 consists of the English text of the European standard EN 12390-7:2019 and its corrigendum AC:2020.
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English Version

Testing hardened concrete - Part 7: Density of hardened concrete

Essais pour béton durci - Partie 7 : Masse volumique du béton durci

Prüfung von Festbeton - Teil 7: Dichte von Festbeton

This European Standard was approved by CEN on 29 April 2019.

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European foreword

This document (EN 12390-7:2019) 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of an identical text or by endorsement, at the latest by December 2019, and conflicting national standards shall be withdrawn at the latest by December 2019.

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 12390-7:2009.

This standard 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 of 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 11: Determination of the chloride resistance of concrete, unidirectional diffusion;*
- *Part 12: Determination of the potential carbonation resistance of concrete: Accelerated carbonation method (in preparation);*
- *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 (in preparation);*
- *Part 17: Determination of creep of concrete in compression (in preparation);*
- *Part 18: Determination of the chloride migration coefficient (in preparation).*

This edition includes the following significant technical changes with respect to EN 12390-7:2009:

- editorial revision;
- technical corrections.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies a method for determining the density of hardened concrete. It is applicable to lightweight, normal-weight and heavy-weight concrete.

It differentiates between hardened concrete in the following states:

- 1) as-received;
- 2) water saturated;
- 3) oven-dried.

The mass and volume of the specimen of hardened concrete are determined and the density calculated.

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 12390-1, *Testing hardened concrete — Part 1: Shape, dimensions and other requirements for specimens and moulds*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

4 Apparatus

4.1 Callipers and rules, with a maximum permissible error of 0,5 % of the dimension, for measuring the dimensions of the specimens.

4.2 Balance, equipped with a stirrup for weighing the specimen in both air and water with a maximum permissible error of $\pm 0,1\%$ of the mass.

4.3 Water tank, fitted with a device to maintain the water at a constant level and of sufficient size to allow the specimen on the stirrup to be fully immersed to a constant depth (see Figure 1).

If the reading of the balance is affected to within the accuracy required due to the displacement of water when immersing the specimen, then the tank should be fitted with a device to maintain the water at a constant level. The tank should be of sufficient size to allow the specimen to be fully immersed.

4.4 Ventilated oven, in which the temperature is capable of being controlled at $(105 \pm 5)^\circ\text{C}$.

NOTE The apparatus required depends upon the method selected for determining the volume of the specimen.

4.5 Moist cloth.