

STN	Skúšanie zatvrdnutého betónu Časť 16: Stanovenie zmrašťovania betónu	STN EN 12390-16 73 1302
------------	---	---

Testing hardened concrete - Part 16: Determination of the shrinkage of concrete

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/20

Obsahuje: EN 12390-16:2019

130512

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12390-16

October 2019

ICS 91.100.30

English Version

Testing hardened concrete - Part 16: Determination of the shrinkage of concrete

Essais pour béton durci - Partie 16 : Détermination du retrait du béton

Prüfung von Festbeton - Teil 16: Bestimmung des Schwindens von Beton

This European Standard was approved by CEN on 19 August 2019.

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.

CEN members are the national standards bodies of 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, Turkey and United Kingdom.



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

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

EN 12390-16:2019 (E)

Contents	Page
European foreword.....	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Principle	6
5 Apparatus.....	7
6 Test specimens.....	9
7 Procedure.....	9
8 Calculation and expression of results.....	10
9 Test report.....	10
10 Precision.....	11
Annex A (normative) Simplified procedure for the determination of autogenous shrinkage.....	12
Bibliography.....	13

European foreword

This document (EN 12390-16:2019) 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 April 2020, and conflicting national standards shall be withdrawn at the latest by April 2020.

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 is based on ISO 1920-8.

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 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 (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;*

EN 12390-16:2019 (E)

- *Part 16: Determination of the shrinkage of concrete;*
- *Part 17: Determination of creep of concrete in compression.*

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, Turkey and the United Kingdom.

1 Scope

This document specifies the procedure for the determination of total shrinkage of concrete specimens in drying conditions.

NOTE 1 Possible shrinkage or length changes occurring before 24 h of age, and which could have significant amplitude and/or consequences, in case of restraint, could need to be measured according to a complementary procedure not covered by this document.

NOTE 2 Information on a simplified procedure for the determination of autogenous shrinkage is given in Annex A.

The test is suitable for specimens having a declared value of D of the coarsest fraction of aggregates actually used in the concrete (D_{\max}) not greater than 32 mm.

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 12350-1, *Testing fresh concrete - Part 1: Sampling and common apparatus*

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

EN 12390-2, *Testing hardened concrete - Part 2: Making and curing specimens for strength tests*

EN 12504-1, *Testing concrete in structures - Part 1: Cored specimens - Taking, examining and testing in compression*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN