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Testing hardened concrete - Part 3: Compressive strength of test specimens

Prüfung von Festbeton - Teil 3: Druckfestigkeit von Probekörpern

Essai pour béton durci - Partie 3 : Résistance à la compression des éprouvettes

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ICS:

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English Version

Testing hardened concrete - Part 3: Compressive strength of test specimens

Essai pour béton durci - Partie 3 : Résistance à la compression des éprouvettes

Prüfung von Festbeton - Teil 3: Druckfestigkeit von Probekörpern

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 12390-3:2017) has been prepared by Technical Committee CEN/TC 104 "Concrete and related products", the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

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 will supersede EN 12390-3:2009.

It is recognized good practice to include measurement of density prior to the determination of compressive strength.

The methods for adjusting the ends of test specimens, given in Annex A, have been validated in a laboratory inter-comparison, part-funded by the EC under the Measurement and Testing Programme; contract MATI-CT-94-0043.

This standard is one of a series concerned with testing concrete.

This series EN 12390, *Testing hardened concrete*, includes 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*

— *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 (in preparation)*

— *Part 15: Adiabatic method for the determination of heat released by concrete during its hardening process (in preparation)*

The following amendment has been made to the 2009 edition of this standard:

— editorial revision.

1 Scope

This European Standard specifies a method for the determination of the compressive strength of test specimens of hardened concrete.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 197-1, *Cement - Part 1: Composition, specifications and conformity criteria for common cements*

EN 12350-1, *Testing fresh concrete - Part 1: Sampling*

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 12390-4, *Testing hardened concrete - Part 4: Compressive strength - Specification for testing machines*

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

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

3 Principle

Specimens are loaded to failure in a compression testing machine conforming to EN 12390-4. The maximum load sustained by the specimen is recorded and the compressive strength of the concrete is calculated.

4 Apparatus

Compression testing machine, conforming to EN 12390-4.

5 Test specimens

5.1 Requirement

The test specimen shall be a cube, cylinder or core meeting the requirements of EN 12350-1, EN 12390-1, EN 12390-2, or EN 12504-1. If the dimension of the test specimen does not conform to the tolerances for designated size in EN 12390-1, it can be tested in accordance with the procedure given in Annex B.

Damaged specimens or specimens which are badly honeycombed should not be tested.

5.2 Adjustment of test specimens

Where the dimensions or shapes of test specimens do not conform to the requirements given in EN 12390-1 because they exceed the respective tolerances, they shall be rejected, adjusted or tested in accordance with Annex B.

One of the methods given in Annex A shall be used to adjust specimens.