SLOVENSKI STANDARD
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Preskušanje strjenega betona - 5. del: Upogibna trdnost preskušancev

Testing hardened concrete - Part 5: Flexural strength of test specimens

Prüfung von Festbeton - Teil 5: Biegezugfestigkeit von Probekörpern

Essai pour béton durci - Partie 5 : Résistance à la flexion sur éprouvettes

Ta slovenski standard je istoveten z: **prEN 12390-5**

ICS:

91.100.30	Beton in betonski izdelki	Concrete and concrete products

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EUROPEAN STANDARD

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ICS 91.100.30

Will supersede EN 12390-5:2009

English Version

Testing hardened concrete - Part 5: Flexural strength of test specimens

Essai pour béton durci - Partie 5 : Résistance à la flexion sur éprouvettes

Prüfung von Festbeton - Teil 5: Biegezugfestigkeit von Probekörpern

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 104.

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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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (prEN 12390-5:2017) 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 12390-5:2009.

It is recognized as good practice to include measurement of density prior to the determination of flexural strength, as a check on compaction of the concrete.

The two-point method of loading has been taken as the reference method, but the use of centre-point loading has been included as a normative annex. An inter-comparison of the two-point and the centre-point methods has been made as part of a test programme, part-funded by the EC under the Measurement and Testing Programme, contract MAT I-CT-94-CO43. The centre-point method gave results which were consistently 13 % higher than those from the two-point method.

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 amendments have been made to the 2009-02 edition of this standard:

— editorial revision.

1 Scope

This European Standard specifies a method for the determination of the flexural strength of 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 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*

3 Principle

Prismatic specimens are subject to a bending moment by the application of load through upper and lower rollers. The maximum load sustained is recorded and the flexural strength is calculated.

4 Apparatus

4.1 Testing machine

The test shall be carried out using a testing machine conforming to EN 12390-4.

4.2 Force application

The device for applying loads (see Figure 1) shall consist of:

1) two supporting rollers;

2) two upper rollers carried by an articulated cross member, which divides the load applied by the machine equally between the two rollers.

All rollers shall be manufactured from steel and shall have a circular cross-section with a diameter of 20 mm to 40 mm. They shall be at least 10 mm longer than the width of the test specimen.

Three rollers, including the two upper ones, shall be capable of rotating freely around their axis and of being inclined in a plane normal to the longitudinal axis of the test specimen.

The distance, I, between the outer rollers (i.e. the span) shall be equal to $3d$, where d is the width of the specimen. The distance between the inner rollers shall be equal to d. The inner rollers shall be equally spaced between the outer rollers as shown in Figure 1. All rollers shall be adjusted to the positions illustrated in Figure 1 to an accuracy of ± 2,0 mm

5 Test specimens

5.1 General

The test specimens shall be prisms conforming to EN 12390-1. Specimens cast in moulds shall conform to EN 12350-1 and EN 12390-2. The direction of casting shall be identified on the specimen.