

Concrete pavements —

Part 3: Test methods for the determination of the thickness of a concrete pavement from cores

The European Standard EN 13863-3:2004 has the status of a
British Standard

ICS 93.080.20

National foreword

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Concrete pavements - Part 3: Test methods for the determination of the thickness of a concrete pavement from cores

Revêtements en béton - Partie 3: Méthodes d'essai pour la détermination de l'épaisseur d'une chaussée béton à partir de carottes

Fahrbahnbefestigungen aus Beton - Teil 3: Prüfverfahren zur Dickenbestimmung einer Fahrbahnbefestigung aus Beton aus Bohrkernen

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Foreword

This document (EN 13863-3:2004) has been prepared by Technical Committee CEN/TC 227 “Road materials”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

This European Standard is one of a series concerned with test methods for the functional requirements for concrete pavements.

EN 13863-1, *Concrete pavements — Part 1: Test method for the determination of the thickness of a concrete pavement by survey method.*

EN 13863-2, *Concrete pavements — Part 2: Test method for the determination of the bond between two layers.*

EN 13863-3, *Concrete pavements — Part 3: Test methods for the determination of the thickness of a concrete pavement from cores.*

EN 13863-4, *Concrete pavements — Part 4: Test methods for the determination of wear resistance of concrete pavements to studded tyres.*

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1 Scope

This document describes a method for determination of the thickness of a concrete pavement by measurements of cores taken from the full depth of the pavement.

2 Normative references

The following referenced documents are indispensable for the application 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 12504-1, *Testing concrete in structures — Part 1: Cored specimens — Testing, examining and testing in compression.*

3 Apparatus

3.1 General

Coring equipment capable of extracting cores from hardened concrete to the dimensions given in Clause 4 and in accordance with EN 12504-1.

The measurement obtained by any one of the permitted procedures shall have an accuracy of $\pm 0,5$ mm.

The measuring apparatus used shall comply in accordance with specifications in the place of use.

3.2 Measuring equipment

One of the following pieces of equipment shall be used to measure the dimensions of test cores:

- metal rule or tape,
- calliper gauge,
- approved suitable jig or other device in accordance with specifications in the place of use.

4 Test specimens

Cores used as test specimens for thickness measurements shall be representative of the area of concrete in the pavement from which they are taken. Cores shall be taken with the axis normal to the surface of the pavement and the ends shall be characteristic of the upper and lower surfaces of the pavement. Cores that show abnormal defects or that have been damaged appreciably in the coring operation (for example, cores that are fragmented, split or curved) shall not be used.

NOTE 1 The recommended diameter of the cores is 100 mm or 150 mm.

NOTE 2 To prevent undue damage to the pavement surface, cores should not be extracted at points where high stresses can occur such as corners of slabs and not within 0,5 m of any joint. The ideal locations for taking cores are between the quarter points along a slab in a jointed pavement, and between two consecutive transverse cracks in a Continuously Reinforced Concrete Pavement and a Continuously Reinforced Concrete Roadbase.

NOTE 3 When taking cores to check for compliance with the design the positions for cutting the cores should be agreed in advance by the relevant parties.

5 Procedure

Measurements on cores shall be made between the upper and lower surfaces, or between well defined construction demarcation lines in cases where layers of other materials are bonded to the concrete, using the apparatus specified in Clause 3.

Measurements should be made, either

- with the core standing firmly on its top end and in a vertical position, approximately perpendicular to the upper plane of the core, or
- with the core laid on a level surface in a horizontal position and rolled as necessary to permit the taking of all measurements.

The length of the core shall be measured at four points evenly spaced around the circumference of the core. The positions of these measurements shall be clearly marked on the core. The measurements shall be determined to the nearest 1 mm. The average of these four measurements shall be the length of the core.

NOTE Exceptionally, where cores are damaged, measurements to determine the pavement thickness can usually be made from measurements on the side of a cored hole. This situation can arise, for example, when concrete with a low strength is used, especially in a multi-layer construction with a weak bond between layers; in these circumstances cores may fragment during coring.

6 Results

The thickness of the concrete pavement shall be taken as the average length of the core determined by the procedure in Clause 5. The measurement shall be reported to the nearest 1 mm.

7 Test report

The test report shall contain the following information:

- a) reference to this document;
- b) unambiguous identification of the cores;
- c) dates of receipt and testing of specimens;
- d) details of the measurement apparatus used;
- e) the individual measurements and the average value for the core;
- f) any deviation from this document.

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