BRITISH STANDARD

BS EN
13863-2:2003

Concrete pavements —

Part 2: Test method for the determination of the bond between two layers

The European Standard EN 13863-2:2003 has the status of a British Standard

ICS 93.080.20

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 13863-2:2003.

The UK participation in its preparation was entrusted by Technical Committee B/510, Road materials, to Subcommittee B/510/3, Materials for concrete roads, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

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This British Standard, was published under the authority of the Standards Policy and Strategy Committee on 27 October 2003

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 5 and a back cover.

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Amendments issued since publication

Amd. No.	Date	Comments

ISBN 0 580 42819 2

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13863-2

October 2003

ICS 93.080.20

English version

Concrete pavements - Part 2: Test method for the determination of the bond between two layers

Revêtements en béton - Méthodes d'essais - Partie 2: Détermination de la masse volumique d'une carotte à l'état saturé

Fahrbahnbefestigungen aus Beton - Teil 2: Prüfverfahren zur Bestimmung des Verbundes zwischen zwei Schichten

This European Standard was approved by CEN on 25 March 2003.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 13863-2:2003 E

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Foreword

This document (EN 13863-2:2003) 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of an identical text or by endorsement, at the latest by April 2004, and conflicting national standards shall be withdrawn at the latest by March 2005.

This European Standard is one of a series of standards as listed below:

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.*

prEN 13863-3, *Concrete pavements — Test methods for functional requirements - Part 3: Determination of the thickness of a concrete slab.*

prEN 13863-4, *Concrete pavements — Test methods - Part 4: Determination of wear resistance to studded tyres.*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a method for the determination of the tensile bond strength between two concrete layers. This method is carried out on cores cut from hardened concrete.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

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

EN ISO 7500-1, *Metallic materials — Verification of static uniaxial testing machines — Part 1 : Tensile/compression testing machines (ISO 7500-1:1999).*

3 Principle

The tensile strength of the bond between two layers is determined by pulling the specimen in a tensile strength testing machine until the ultimate tensile strength is reached.

The test specimens have a maturity equivalent to at least 28 days at the time of testing.

4 Apparatus

4.1 Tensile strength testing machine in accordance with EN ISO 7500-1, able to apply a load not less than the expected tensile load. The loading rate shall be within the range from 0,03 $(N/mm^2)/s$ to 0,07 $(N/mm^2)/s$, with an accuracy of ± 3%.

4.2 Core drilling equipment in accordance with EN 12504-1.

4.3 Saw and face grinding machine.

4.4 Steel platens (two for each test specimen).

NOTE 1 One face of the platen should be equipped with a device permitting the fastening to the testing machine of a concentric tensile loading apparatus perpendicularly to the surface.

NOTE 2 The bonded steel platens may be replaced with other types of equipment on condition that the eccentricity should not increase on account of this change.

5 Sampling

The diameter of the core shall be greater than four times the maximum aggregate size in the concrete.

The length/diameter ratio shall be at least equal to 2.

6 Preparation of specimens

Both ends of the test specimens shall be sawn and ground. After preparation, the length/diameter ratio shall be not less than 2. For perpendicularity, the tolerance for the prepared ends, with respect to the side, shall conform to EN 12390-1.

The surfaces of the core to be bonded to the platens shall conform to the requirements of EN 12390-1 with a tolerance of ± 0,05 mm.

During preparation the test specimens shall be protected against drying by using wet towels or similar materials.

Prior to bonding of the steel platens to the ends of the core, the core shall be dried in air until the concrete become light in colour.

After preparation, the test specimens shall be stored under water until testing.

NOTE Bonding should be carried out in accordance with the instructions of the manufacturer of the adhesive.

7 Procedure

The following procedure shall be performed for each test specimen:

7.1 Determine the cross sectional area of the test specimen in accordance with EN 12390-1.

7.2 Place the test specimen centrically in the tensile strength testing machine with a tolerance of ± 1 mm.

7.3 Increase the tensile load at a constant rate within the range from 0,03 (N/mm^2)/s to 0,07 (N/mm^2)/s until failure occurs. Record the tensile load at failure.

7.4 Discard any test result where a break occurs at a glued joint between the sample and the platen.

7.5 Calculate the tensile bond strength as the ultimate tensile load at failure, expressed in N, divided by the cross sectional area, expressed in square millimetres.

7.6 Identify the position of the break in the specimen, for example, the bottom or in the top concrete or at the interface between the concrete layers.

7.7 The tensile strength shall be expressed in newtons per square millimetre to two decimal figures. The last figure shall be rounded to 0 or 5.

8 Test report

The test report shall contain at least the following information:

a) reference to this European Standard;

b) identification, composition and age of the specimens;

c) test results: Tensile bond strength and place of break in specimens;

d) any deviation from this standard.

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