BRITISH STANDARD

BS EN
14488-6:2006

Testing sprayed concrete —

Part 6: Thickness of concrete on a substrate

The European Standard EN 14488-6:2006 has the status of a British Standard

ICS 91.100.30

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National foreword

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The UK participation in its preparation was entrusted by Technical Committee B/517, Concrete, to Subcommittee B/517/10, Sprayed concrete.

A list of organizations represented on B/517/10 can be obtained on request to its secretary.

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EUROPEAN STANDARD

NORME EUROPÉENNE

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English Version

Testing sprayed concrete - Part 6: Thickness of concrete on a substrate

Essais pour béton projeté - Partie 6 : Epaisseur du béton sur un support

Prüfung von Spritzbeton - Teil 6: Schichtdicke von Beton auf einem Untergrund

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Foreword

This document (EN 14488-6:2006) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, 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of an identical text or by endorsement, at the latest by December 2006, and conflicting national standards shall be withdrawn at the latest by December 2007.

This Draft European Standard part of a series concerned with testing sprayed concrete.

This series EN 14488 ‘Testing sprayed concrete’ includes the following parts:

— Part 1: Sampling fresh and hardened concrete

— Part 2: Compressive strength of young sprayed concrete

— Part 3: Flexural strengths (first peak, ultimate and residual) of fibre reinforced beam specimens

— Part 4: Bond strength of cores by direct tension

— Part 5: Determination of energy absorption capacity of fibre reinforced slab specimens

— Part 6: Thickness of concrete on a substrate

— Part 7: Fibre content of fibre reinforced concrete

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1 Scope

This standard describes methods for the determination of the thickness of sprayed concrete on a substrate after spraying. The results can also give an indication of the parallelism of the concrete to the substrate. The substrate may be rock, soil, concrete or other surface.

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

Not applicable.

3 Principle

In fresh concrete, a depth gauge is pushed into sprayed concrete and the thickness is measured.

In hardened concrete, holes or cores are drilled to the substrate. The depth of the holes or extracted cores is then measured.

4 Equipment

4.1 **Template sheet**, if used, as shown in Figure 1.

The template sheet may be made of suitable material. Drill five holes to be spaced (600 ± 50) mm in two lines of three at right angles as shown in figure 1. The template shall be flat when in use.

Dimensions in mm

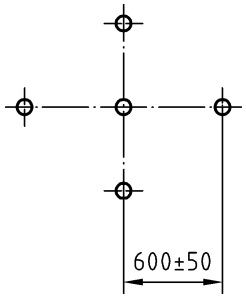

Figure 1 — Template sheet dimensions

4.2 **Hammer drill** of sufficient length to penetrate fully through the expected thickness of sprayed concrete.

4.3 **Core drill** of sufficient length and diameter.

4.4 **Lamp**, or torch.

4.5 **Depth gauge**, such as a Talmeter or similar.

4.6 Metal, plastic or wood **rule**.

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5 Test procedures

5.1 General

The standard does not describe nor define the area to be tested, the extent of testing or the requirements in respect of the results. A template may be used to facilitate the marking of positions where the thickness is to be controlled. The choice of a cored hole may facilitate the simultaneous extraction of a cored sample for the determination of other sprayed concrete properties, including compressive strength (in accordance with EN 12504-1) and bond strength (in accordance with EN 14488-4).

5.2 Marking of positions

Mark and number five positions, spaced (600 ± 50) mm in two lines of three at right angels (see template in figure 1) unless an alternative agreement has been taken between the parties. If a template is used, place it within the area of which the thickness is to be checked, and mark and number the positions of the holes on the concrete.

5.3 Drilling of holes or cores

Using the hammer or core drill, drill holes or cores with size to be agreed between parties, the method being chosen so that the interface can be reliably identified. Drill holes at the marked positions, approximately perpendicular to the surface of the concrete, to such a depth that the entire cross sectional area of the bottom of the hole consists of substrate. If the drill encounters a reinforcing bar, drill a new hole within 50 mm of the original hole.

Clean the hole with water or compressed air so that you can reliably see the surface at the bottom of the hole.

5.4 Measurement

5.4.1 Fresh concrete

In fresh concrete, the depth gauge is pushed perpendicular through the sprayed concrete to the substrate and the thickness measured to nearest mm relative to a rule placed across the surfaces avoiding any highspots. Repeat the procedure for the other measurements.

5.4.2 Hardened concrete

Place the rule across a hole, passing through its centre and avoiding any high spots in the concrete surface. Measure the depth of the hole with the depth gauge, to the nearest mm, from the edge of the rule to the substrate surface. Repeat the procedure for the other holes.

Alternatively, the depth may be determined by measurement of the extracted core, when available.

If the substrate surface is not perpendicular to the line of the hole, measure the depth of the hole as the mean value of the greatest and the least depths between the edge of the rule and the surface of the substrate. Use the lamp to identify the surface of the substrate.

6 Results

Calculate the mean depth of the 5 holes, in millimetres.

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7 Report

The test report shall include:

a) reference to this standard;

b) method used (holes or cores);

c) identifications, size and position of the area checked;

d) placing of the template, if used, within the area;

e) depth of individual holes (nearest millimetre);

f) thickness of the sprayed concrete, giving the minimum, maximum and the mean depths (nearest millimetre);

g) date of the test;

The report may include:

h) The three values in line in each direction, which can be used to give an indication of the parallelism of the sprayed concrete to the substrate surface.

Bibliography

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

[2] EN 14488-4, *Testing sprayed concrete - Part 4: Bond strength of cores by direct tension.*

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