Provning av sprutbetong –
Del 5: Energiupptagande förmåga hos fiberarmerade provplattor

Testing sprayed concrete –
Part 5: Determination of energy absorption capacity of fibre reinforced slab specimens

Testing sprayed concrete - Part 5: Determination of energy absorption capacity of fibre reinforced slab specimens

This European Standard was approved by CEN on 27 February 2006.

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Foreword

This European Standard (EN 14488-5:2006) 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of an identical text or by endorsement, at the latest by October 2006, and conflicting national standards shall be withdrawn at the latest by December 2007.

This European Standard is part of a series of standards concerning 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

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

This part of European Standard specifies a method for the determination of the load/deflection response of a slab specimen in order to calculate the energy absorption capacity up to a specified deflection.

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 12390-2, Testing hardened concrete - Part 2: Making and curing specimens for strength tests


EN 14488-1, Testing sprayed concrete - Part 1: Sampling fresh and hardened concrete

3 Principle

A fibre reinforced slab specimen, sprayed in accordance with EN 14488-1 is subject to a load, under deflection control, through a rigid steel block positioned at the centre of the slab.

The load-deflection curve is recorded and the test is continued until a deflection of at least 30 mm is achieved at the centre point of the slab.

From the load-deflection curve a second curve is calculated giving the absorbed energy as a function of the slab deflection.

4 Apparatus

4.1 Testing machine

4.1.1 The test shall be carried out using a testing machine conforming to 4.2 and 4.3 of EN 12390-4:2000.

4.1.2 The stiffness and control system of the testing machine shall be such that the test can be displacement controlled. The stiffness of the load system (including frame, load cell, loading block and support frame) shall be at least 200 kN/mm.

4.1.3 A calibrated electronic transducer with a resolution of at least 0,02 mm.

4.1.4 An electronic data logger or XY plotter.

4.2 Load application

The device for applying the load shall consist of:

- A frame with a rigid square support (20 ± 1) mm thick and (500 ± 2) mm x (500 ± 2) mm internal dimension supporting the slab.

- A rigid steel square loading block having a contact surface of (100 ± 1) mm x (100 ± 1) mm and thickness of (20 ± 1) mm, positioned at the centre of the upper face of the slab (see Figure 1).