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SPECIFICATION FOR
CYLINDER MEASURES FOR
DETERMINATION OF AIR CONTENT OF
HYDRAULIC CEMENT MORTAR

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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Indian Standard

SPECIFICATION FOR CYLINDER MEASURES FOR DETERMINATION OF AIR CONTENT OF HYDRAULIC CEMENT MORTAR

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Indian Standard
SPECIFICATION FOR
CYLINDER MEASURES FOR
DETERMINATION OF AIR CONTENT OF
HYDRAULIC CEMENT MORTAR

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 12 March 1985, after the draft finalized by the Cement and Concrete Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 A number of standards on methods of testing of cement and concrete has already been published. Having recognized that reliable and reproducible test results could be obtained only with use of standard testing equipment capable of giving desired level of accuracy, the Cement and Concrete Sectional Committee had taken up formulation of Indian Standards on instruments for testing cement and concrete and, as a result, a number of Indian Standards on instruments for testing cement and concrete have already been published. These standards are expected to promote development and manufacture of standard testing equipment in the country.

0.3 Accordingly, this standard has been prepared to cover the requirements of cylinder measures used in tests for determination of air content of hydraulic cement mortar. The method for determination of air content of hydraulic cement mortar is covered in IS : 4031-1968*.

0.4 In the formulation of this standard, due weightage has been given to international coordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Methods of physical tests for hydraulic cement.

†Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard covers the requirements of cylinder measures used in tests for determination of air content of hydraulic cement mortar.

2. MATERIALS

2.1 The material of construction of cylinder measure shall be brass, stainless steel or any other material not attacked by cement mortar.

3. CONSTRUCTION

3.1 A cylindrical measure having an inside diameter of 75 ± 1.5 mm and a depth (approximately 90 mm) adjusted by standardization with water to contain 400 ± 1 ml at $27 \pm 2^\circ\text{C}$ (see Note). For the purpose of this test, the capacity of the measure in millilitres is the mass of the water content of the measure, in grams, divided by 0.997, no correction in weight being made for the buoyant effect of air. The measure shall have a uniform wall thickness. The thickness of the wall and bottom shall be not less than 3 mm. The total mass of the empty measure shall not be more than 900 g. The top surface of the rim shall be faced smooth.

NOTE — The 400-ml measure may be calibrated readily by filling with distilled water at $27 \pm 2^\circ\text{C}$ to a point where the meniscus extends appreciably above the top of the measure placing a clean piece of plate glass on the top of the measure, and allowing the excess water to be squeezed out. The absence of air bubbles as seen through the glass ensures that the measure is completely full. Care shall be taken that the excess water is wiped from the sides of the container before weighing.

4. ACCESSORIES

4.1 **Straight Edge** — Steel straight edge shall not be less than 100 mm long and not less than 1.5 mm nor more than 3 mm in thickness.

4.2 **Spatula** — A spatula with a steel blade 150 mm in length and 10 mm in width, with straight edges and a wooden handle.

4.3 **Tapping Stick** — Tapping stick shall be made of teak wood or other suitable timber, having a square cross-section of 16 mm side and a length of 150 mm.

5. MARKING

5.1 The following information shall be clearly and indelibly marked on each of the cylinder measures:

- a) Name of the manufacturer or his registered trade-mark or both, and
- b) Date of manufacture.

5.1.1 Cylinder measures may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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BDC 2 : 10

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