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IS 10510 (1983): Specification for vee-bee consistometer
[CED 2: Cement and Concrete]



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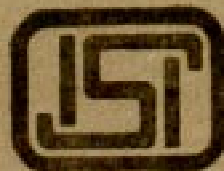
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IS : 10510 - 1983

Indian Standard
SPECIFICATION FOR
VEE-BEE CONSISTOMETER

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

SPECIFICATION FOR VEE-BEE CONSISTOMETER

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(Continued on page 2)

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(Continued on page 8)

Indian Standard

SPECIFICATION FOR VEE-BEE CONSISTOMETER

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 28 February 1983, 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 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 concrete have already been published. These standards are expected to promote development and manufacture of standard testing equipment in the country.

0.3 This standard has been formulated to cover the requirements of Vee-Bee Consistometer used for determination of consistency of concrete. The method of determining consistency of concrete using Vee-Bee Consistometer is laid down in IS : 1199 - 1959*.

0.4 In the formulation of this standard due weightage has been given to international co-ordination 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 sampling and analysis of concrete.

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

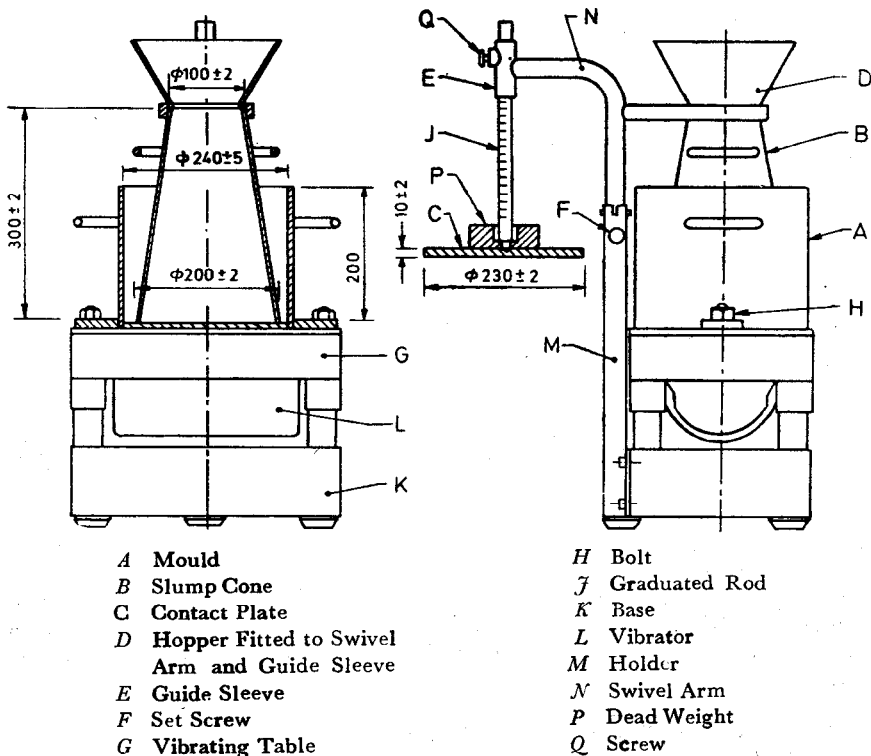
1. SCOPE

1.1 This standard covers the requirements of the apparatus and accessories used for determining consistency of fresh concrete made with nominal maximum aggregate size not exceeding 40 mm, in terms of Vee-Bee degrees.

2. CONSTRUCTION

2.1 General — The assembly of the apparatus, essential dimensions and the tolerances shall be as given in Fig. 1. The apparatus shall consist mainly of the following:

- a) Slump cone without foot rests,
- b) Mould,
- c) Vibrating table resting on elastic supports,
- d) Swivel arm with hopper, and
- e) Contact plastic disc with graduated rod.



All dimensions in millimetres.

FIG. 1 TYPICAL VEE-BEE CONSISTOMETER

2.2 Materials — Materials of construction of different component parts of Vee-Bee Consistometer apparatus shall be as given in Table 1.

TABLE 1 MATERIALS OF CONSTRUCTION FOR DIFFERENT PARTS OF VEE-BEE CONSISTOMETER APPARATUS

| SL No. | PART | MATERIAL | SPECIAL REQUIREMENTS AND RECOMMENDED INDIAN STANDARD SPECIFICATIONS, IF ANY |
|--------|--------------------------------|------------------------------------|---|
| (1) | (2) | (3) | (4) |
| 1. | Mould | Mild steel | Galvanized, IS : 226 - 1975* |
| 2. | Table | Cast iron or mild steel | IS : 210 - 1978† |
| 3. | Frame for table top | Mild steel channel | IS : 226 - 1975* |
| 4. | Clamp for holding motor | Mild steel | IS : 226 - 1975* |
| 5. | Swivel arm with hopper | | |
| | a) Swivel arm | Mild steel pipe | IS : 1239 (Part I) - 1979‡ |
| | b) Hopper | Cast iron or galvanized iron sheet | IS : 210 - 1978† |
| 6. | Graduated rod | Mild steel rod | IS : 226 - 1975* |
| 7. | Contact disc | Transparent acrylic | — |
| 8. | Swivel arm holder | Mild steel pipe | IS : 1239 (Part I) - 1979‡ |
| 9. | Dead weight over contact plate | Cast iron | IS : 210 - 1978† |
| 10. | Guide for rubber support | Mild steel pipe | Corrosion resistant finish, IS : 1239 (Part I) - 1979‡ |
| 11. | Guide for rubber feet | Mild steel pipe | Corrosion resistant finish, IS : 1239 (Part I) - 1979‡ |

*Specification for structural steel (standard quality) (*fifth revision*).

†Specification for grey iron castings (*third revision*).

‡Specification for mild steel tubes, tubulars and other wrought steel fittings: Part I Mild steel tubes (*fourth revision*).

2.3 Slump Cone — The slump cone shall be as per IS : 7320 - 1974*, except for foot rests.

*Specification for concrete slump test apparatus.

2.4 Mould — The mould shall be made of galvanized iron sheet or such other material which does not get corroded by cement. The thickness of the mould shall not be less than 2 mm. The internal and bottom surfaces of the mould shall be smooth and free from dents, projections, etc.

2.5 Vibrating Table — The table top shall be either of cast iron or fabricated by welding a mild steel plate to a suitable steel frame. The table top shall be welded to a frame of steel channel. The metal mould shall be secured to the table top by bolts. The table along with the vibrating unit shall be supported on rubber shock absorbers. The table shall be mounted on a base resting on three rubber feet.

The table top shall be fitted with electrically operated vibrator mounted under it with clamp. The motor shall be 0.75kW 3-phase motor. The vibrator shall operate at a frequency of 3 000 vibrations per minute at an amplitude of 0.5 mm.

The vibrating unit shall be supported such that the natural frequency of the unit is well below the minimum frequency of the vibration.

2.6 Swivel Arm with Hopper — The swivel arm with hopper shall be telescoped into swivel arm holder welded to the base of the table. It shall be of rigid construction and shall be able to easily sit and get removed from the top of the slump cone.

2.7 Contact Plastic Disc with Graduated Rod — A graduated rod with centimeter markings shall be fitted with a plastic contact plate. A dead mass placed directly above the disc shall be provided, such that the moving assembly comprising rod, disc and mass weighs $2\,750 \pm 50\text{g}$. The whole assembly shall be attached to the swivel arm.

3. ACCESSORIES

3.1 Tamping Bar — A tamping bar conforming to IS : 7320 - 1974* shall be provided with the apparatus.

3.2 Stop Watch — A stop watch capable of recording to an accuracy of 0.1 second shall be provided with the apparatus.

4. MARKING

4.1 The following information shall be clearly and indelibly marked on each component of the apparatus, as far as practicable, in such a way

*Specification for concrete slump test apparatus.

that it does not interfere with the performance of the apparatus:

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

4.1.1 The apparatus 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.

(Continued from page 2)

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