**भारतीय मानक ब्यूरो**
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
**BUREAU OF INDIAN STANDARDS**

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**व्यापक परिचालन मसौदा**

**हमारा संदर्भ : सीईडी 02:1/टी-19** **04 सितम्बर 2024**

**तकनीकी समिति : सीमेंट और कंक्रीट अनुभागीय समिति , सीईडी 02**

**प्राप्तकर्ता :**

1. **सिविल अभियांत्रिकी विभाग परिषद, सीईडीसी के सभी सदस्य**
2. **सीमेंट और कंक्रीट अनुभागीय समिति , सीईडी 02**
3. **सीईडी 02 की उपसमितियों और अन्य कार्यदल के सभी सदस्य**
4. **रुचि रखने वाले अन्य निकाय।**

महोदय/महोदया,

निम्नलिखित मानक का मसौदा संलग्न है:

| प्रलेख संख्या | शीर्षक |
|---|---|
| **सीईडी 02(26503)WC** | **मानक सीमेंट मोर्टार घनों को ढालने के लिए कंपन मशीन — विशिष्टि**<br>(IS 10080 का पहला पुनरीक्षण) का भारतीय मानक मसौदा<br>आई सी एस संख्या: 91.100.10 |

कृपया इस मसौदे का अवलोकन करें और अपनी सम्मतियाँ यह बताते हुए भेजे कि यह मसौदा प्रकाशित हो तो इन पर अमल करने में आपको व्यवसाय अथवा कारोबार में क्या कठिनाइयां आ सकती हैं।

**सम्मतियाँ भेजने की अंतिम तिथि: 31 अक्टूबर 2024**

सम्मति यदि कोई हो तो कृपया अधोहस्ताक्षरी को ई-मेल द्वारा **ced2@bis.gov.in** पर या उपरलिखित पते पर, संलग्न फोर्मेट में भेजें। सम्मतियाँ बीआईएस ई-गवर्नेंस पोर्टल, **www.manakonline.in** के माध्यम से ऑनलाइन भी भेजी जा सकती हैं।

यदि कोई सम्मति प्राप्त नहीं होती है अथवा सम्मति में केवल भाषा संबंधी त्रुटि हुई तो उपरोक्त प्रालेख को यथावत अंतिम रूप दे दिया जाएगा। यदि सम्मति तकनीकी प्रकृति की हुई तो विषय समिति के अध्यक्ष के परामर्श से अथवा उनकी इच्छा पर आगे की कार्यवाही के लिए विषय समिति को भेजे जाने के बाद प्रालेख को अंतिम रूप दे दिया जाएगा।

यह प्रालेख भारतीय मानक ब्यूरो की वेबसाइट **www.bis.gov.in** पर भी उपलब्ध हैं।

धन्यवाद।

भवदीय
ह-/
द्वैपायन भद्र
वैज्ञानिक ई एवं प्रमुख
सिविल अभियांत्रिकी विभाग

**संलग्न: उपरलिखित**

भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
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WIDE CIRCULATION DRAFT

**Our Reference: CED 02:1/T-19** **04 September 2024**

**TECHNICAL COMMITTEE: CEMENT AND CONCRETE SECTIONAL COMMITTEE, CED 02**

**ADDRESSED TO:**

1. All Members of Civil Engineering Division Council, CEDC
2. All Members of Cement and Concrete Sectional Committee, CED 02
3. All Members of Subcommittees, Panels and Working Groups under CED 02
4. All others interested.

Dear Sir/Madam,

Please find enclosed the following draft:

| Doc No. | Title |
|---|---|
| **CED 02(26503)WC** | **Draft Indian Standard Vibration Machine for casting standard cement mortar cubes — Specification**<br>*(First Revision of IS 10080)*<br>ICS 91.100.10 |

Kindly examine the attached draft and forward your views stating any difficulties which you are likely to experience in your business or profession, if this is finally adopted as National Standard.

**Last Date for comments: 31 October 2024**

Comments if any, may please be made in the enclosed format and emailed at ced2@bis.gov.in or sent at the above address. Additionally, comments may be sent online through the BIS e-governance portal, www.manakonline.in.

In case no comments are received or comments received are of editorial nature, kindly permit us to presume your approval for the above document as finalized. However, in case comments, technical in nature are received, then it may be finalized either in consultation with the Chairman, Sectional Committee or referred to the Sectional Committee for further necessary action if so desired by the Chairman, Sectional Committee.

The document is also hosted on BIS website www.bis.gov.in.

Thanking you,

Yours faithfully,
Sd/-
Dwaipayan Bhadra
Scientist 'E' & Head
Civil Engineering Department

**Encl: As above**

**FORMAT FOR SENDING COMMENTS ON THE DOCUMENT**

[Please use A4 size sheet of paper only and type within fields indicated. Comments on each clause/sub-clause/ table/figure, etc, be stated on a fresh row. Information/comments should include reasons for comments, technical references and suggestions for modified wordings of the clause. Comments through e-mail to **ced2@bis.gov.in** shall be appreciated.]

**Doc. No.**: CED 02(26503)WC

**BIS Letter Ref**: CED 02:1/T-19

**Title: Draft Indian Standard Vibration Machine for casting standard cement mortar cubes — Specification** *(First Revision of IS 10080)* ICS No. 91.100.10

**Last date of comments:** 31 October 2024
**Name of the Commentator/ Organization**: _____

| Sl No. | Clause/ Para/ Table/ Figure No. commented | Type of Comment (General/ Technical/ Editorial) | Comments/ Modified Wordings | Justification of Proposed Change |
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NOTE- *Kindly insert more rows as necessary for each clause/table, etc*

**BUREAU OF INDIAN STANDARDS**

**DRAFT STANDARD FOR COMMENTS ONLY**

*(Not to be reproduced without the permission of BIS or used as an Indian Standard)*

*Draft Indian Standard*

# Vibration Machine for Casting Standard Cement Mortar Cubes — Specification

*(First Revision of IS 10080)*

| | |
|---|---|
| **Cement and Concrete Sectional Committee, CED 02** | **Last Date for Comments: 31 October 2024** |

## FOREWORD

(*Formal clauses of the standard to be added later*)

The Bureau of Indian Standards has already published a series of standards on methods of testing cement and concrete. It has been recognized that reproducible and repeatable test results can be obtained only with standard testing equipments capable of giving the desired level of accuracy. The Sectional Committee has, therefore, decided to bring out a series of specifications covering the requirements of equipment used for testing cement and concrete, to encourage their development and manufacture in the country.

Accordingly, this standard has been prepared to cover requirements of vibration machine used for moulding 70.6 mm cement mortar cubes in the test for determination of compressive strength of hydraulic cement. Use of this machine is covered in IS 4031 (Part 6).

This standard was first published in 1982. Since the publication of this standard, large number of amendments have been issued from time to time in order to modify various requirements based on experience gained with the use of the standard and the requirements of the users. Moreover, standards which were referred to in this specification has also been revised. These amendments have been incorporated in this revision so as to make it more convenient for the users.

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 the country.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

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 he rounded off in accordance with IS 2: 2022 'Rules for rounding off numerical values (Second Revision)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard

**BUREAU OF INDIAN STANDARDS**
**DRAFT STANDARD FOR COMMENTS ONLY**



*Draft Indian Standard*

# Vibration Machine for Casting Standard Cement Mortar Cubes — Specification

*(First Revision of IS 10080)*

## 1 SCOPE

**1.1** This standard specifies the requirements of vibration machine used in casting cement mortar cubes of 70.6 mm size.

## 2 REFERENCES

The standards listed below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in listed below.

| *IS Number* | *Title* |
|---|---|
| IS 210 : 2009 | Grey iron castings - Specification (*fifth revision*) |
| IS 2062 : 2011 | Hot rolled medium and high tensile structural steel - Specification (*seventh revision*) |
| IS 4031 (Part 6) : 1988 | Methods of Physical Tests for Hydraulic Cement: Part 6 Determination of Compressive Strength of Hydraulic Cement other than Masonry Cement (*first revision*) |
| IS 10086: 2021 | Moulds for Use in Tests of Cement, Concrete and Pozzolana — Specification (*first revision*) |

## 3 MATERIALS

**3.1** Materials for construction of different components of the vibration machine shall be as given in Table 1.

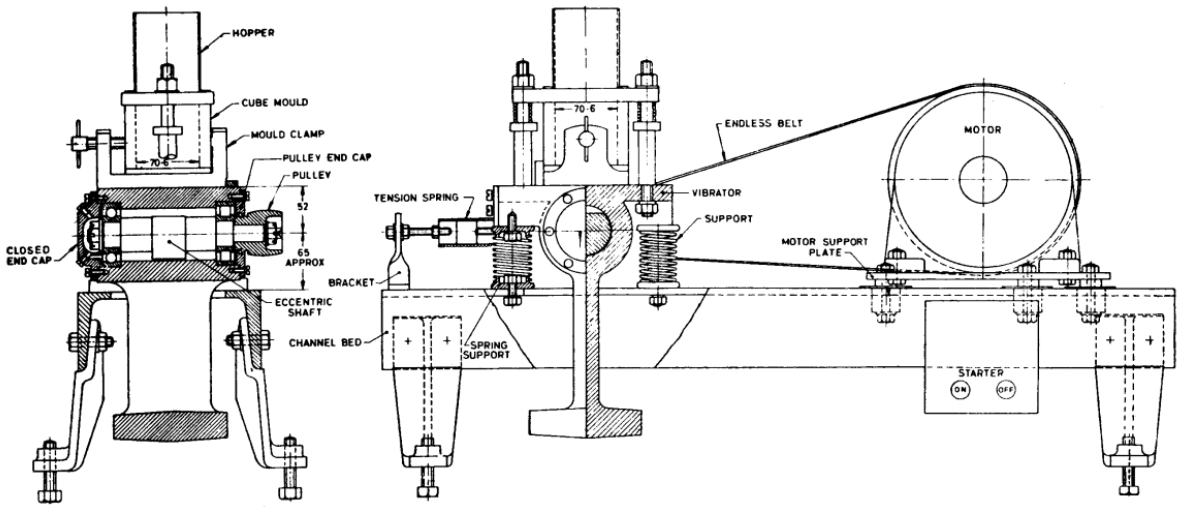
**Table 1 Materials for Construction of Different Components of Vibration Machine**
(*Clause* 3.1)

| **Sl No.** | **Part** | **Material** | **Specific requirements and recommended Indian Standard (if any)** |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| i) | Bed | ISLC 200 | — |
| ii) | Vibrator | Cast iron | Smooth surface, IS 210 |
| iii) | Eccentric shaft | Mild steel | IS 2062 |
| iv) | Pulley | Mild steel | IS 2062 |
| v) | Support spring | Spring steel | — |

| | | | |
|---|---|---|---|
| vi) | Tension spring | Spring steel | — |
| vii) | Hopper | Brass | — |
| viii) | Drive pulley | Cast iron | Smooth surface, IS 210 |
| ix) | Belt | Cotton/Nylon | Woven, endless belt |
| x) | Motor | — | 3/4 hp, 2800 rpm |
| xi) | Motor support plate | Mild steel | IS 2062 |
| xii) | Mould | Cast iron/Mild steel | IS 210/IS 2062 |

## 4 CONSTRUCTION

**4.1** Vibration machine shall be constructed generally as shown in Fig. 1 and shall consist of a vibrator, housing revolving shaft with eccentric supported on four springs, which assembly is mounted over a bed of channel. A motor (3/4 hp, 2 800 rpm) carrying a pulley shall be coupled to the vibrator revolving shaft through an endless belt. A belt guard shall be provided. The machine may be fitted with time switch.




All dimensions in my millimetres

FIG.1 TYPICAL VIBRATION MACHINE

**4.1.1** The vibrator shall be constructed to comply with the following essential requirements:

a) Mass of vibrator on its supporting springs ( excluding solid eccentric and cube hut, including mass of mould, mould clamp and hopper ) — 29 ± 0.5 kg
b) Out of balance moment of eccentric shaft — 0.001 6 kgm
c) Normal running speed of eccentric shaft — 12 000 ± 400 rpm

**4.1.2** The centre of gravity of the vibrator, including the cube and the mould, shall be either to the centre of the eccentric shaft or within a distance of 25 mm below it. For this purpose, a mild steel plate may be fixed to the vibrator.

**4.2 Bed** — The bed of the vibration machine shall be made of steel channel and shall be provided with four cast iron feet. It shall be provided with four levelling bolts. Four support springs shall be fitted for positioning the coiled springs. A bracket shall be provided for fixing one end of a tension spring.

**4.3 Vibrator**

**4.3.1** The vibrator shall be mounted over four coiled springs.

**4.3.2** The vibrator platform shall be provided with two guide pieces for positioning a cast iron mould clamp which carries a cube mould of size 70.6 mm. A suitable arrangement for mounting a hopper shall be provided and a tension spring shall be fitted as shown in Fig. 1.

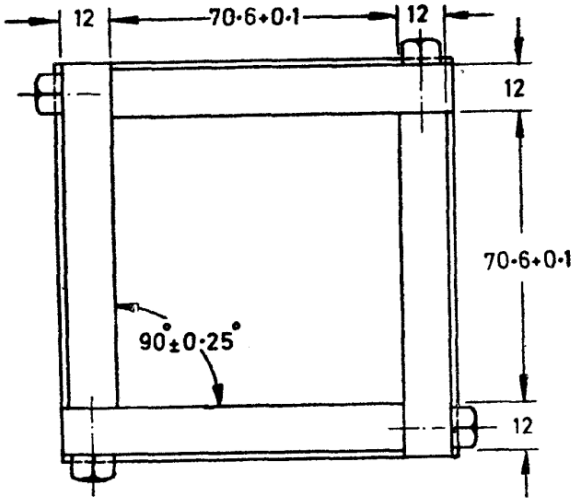
**4.3.3** A brass hopper fitted on to a mild steel frame with projecting lugs shall be positioned over the mould as shown in Fig.1.

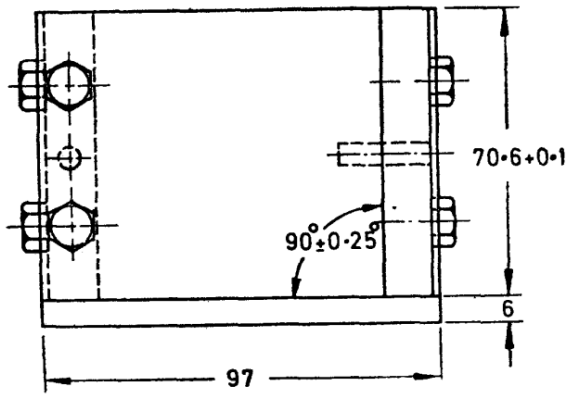
**4.3.4** The vibrator shall house a revolving shaft with an accurately machined eccentric. A pulley shall be fitted to the shaft.

**4.3.5** *Springs* — The springs shall be as shown in Fig.1. The stiffness of the spring shall be such that the natural frequency of the machine mounted on it is well below its minimum running speed.

**4.3.6** *Drive* — The drive should be by an endless belt running on a pulley on the motor and a pulley on the vibrator.

**4.4 Mould** — The mould shall be of 70.6 mm size and shall be constructed generally in accordance with Fig. 2. The dimensions of the mould with tolerances shall be as specified in Table 2.






All dimensions in millimetres.

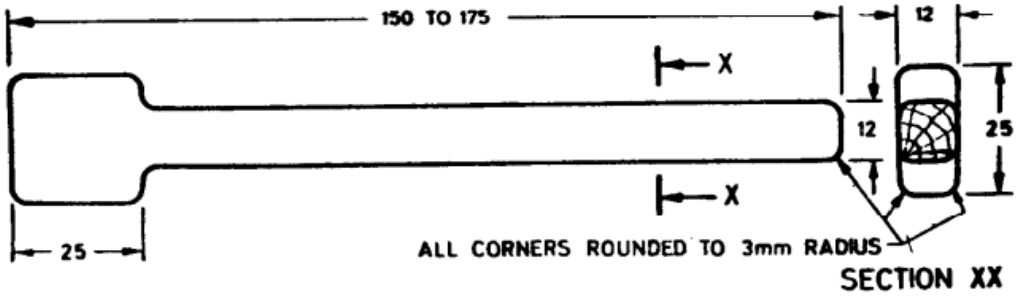
FIG. 2 TYPICAL CUBE MOULD, 70.6 MM SIZE

**Table 2 Dimensions and Tolerances of Mould**
(*Clause* 4.4)

| **Sl No.** | **Description** | **Dimensions** |
|---|---|---|
| (1) | (2) | (3) |
| i) | Distance between opposite faces, *mm* | 70.6 ± 0.1 |
| ii) | Height of mould, *mm* | 70.6 ± 0.1 |
| iii) | Thickness of wall plate, *mm* | 12.0 to 12.5 |
| iv) | Angle between adjacent interior faces and between interior faces and top and bottom planes of mould | 90° ± 0.5° |
| v) | Length of base plate, *mm* | 97 |
| vi) | Width of base plate, *mm* | 97 |
| vii) | Thickness of base plate, *mm* | 6 |
| viii) | Permissible variation in the planeness of interior faces, *mm* | |
| | for new moulds | 0.03 |
| | for moulds in use | 0.05 |
| ix) | Permissible variation in the planeness of base plate, *mm* | 0.15 |

**4.4.1** The cube mould shall be constructed in such a manner as to facilitate separation into two parts. The mass of the mould together with the base plate shall be 2.8 kg ± 0.2 kg. Other requirements of the mould shall be as laid down in IS 10086.

**4.5 Poking Rod** — The poking rod shall be made of non-absorptive, non-abrasive, non-brittle material, such as rubber compound having shore A durometer hardness of 80 ± 10, or seasoned teak wood rendered non-absorptive by immersion for 15 minutes in paraffin at approximately 200°C, or ebonite fibre. The poking rod shall be 150 mm to 175 mm long and shall have cross-section of 12 mm x 25 mm with tamping face in the form of a blunt torpedo (*see* Fig. 3).




All dimensions in millimetres

FIG. 3 POKING ROD

## 5 MARKING

**5.1** The following information shall be clearly and indelibly marked on each component of the vibration machine and the accessories as far as practicable in a way that it does not interfere with the performance of the apparatus**:**

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

### 5.2 BIS Certification Marking

**5.2.1** The product may also be marked with Standard Mark.

**5.2.2** The product (vibration machine) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of *the Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the product may be marked with the Standard Mark.

*******

**Annex A**
(*Foreword*)

(Committee composition will be added after finalization)

*******