



**उत्पाद मैनुअल**  
**सीमेंट, कंक्रीट और पोझोलाना के परीक्षणों में प्रयुक्त सांचे के लिए**  
**आई एस 10086:2021 के अनुसार**

**PRODUCT MANUAL FOR**  
**MOULDS FOR USE IN TESTS OF CEMENT, CONCRETE AND POZZOLANA**  
**ACCORDING TO IS 10086:2021**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.

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|----|---------------------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | मानक संख्या<br>IS No.                       | : | IS 10086 : 2021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|    | शीर्षक<br>Title                             | : | Moulds for Use in Tests of Cement, Concrete and Pozzolana                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|    | संशोधनों की संख्या<br>No. of amendments     | : | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2. | नमूना दिशानिर्देश<br>Sampling Guidelines    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| a) | कच्चा माल<br>Raw material                   | : | Material for construction of moulds shall normally be as given in Table 1 of IS 10086:2021 and made of cast iron/mild steel conforming to IS 210 or IS 2062 or of acrylonitrile butadiene styrene (ABS) plastic or polyurethane. However, any other material which is non-absorbent and non-reactive with concrete (and mortar) and which shall retain the dimensional stability of the moulds may also be used. Material of tamping rod shall be of mild steel. Material of Gauging trowel and trowel shall be of mild steel or stainless steel (grade SS 304). Firm shall declare the materials being used in the moulds and its accessories.<br><br>Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/ Factory Surveillance |
| b) | समूहीकरण दिशानिर्देश<br>Grouping Guidelines | : | Please refer to Annex-A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| c) | <b>नमूने का परिमाण</b><br><b>Sample Quantity</b>                                                                                                                                                                                                                                                                                                                                                                                                                                         | :                                                         | 1 mould / accessories<br><br>Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (incase of market surveillance, effort may be made to procure therequired quantity of product sample, as far as possible since raw material sample may not be available in market) |
| d) | <b>परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर</b><br><b>Parameters to be Declared in Test Request</b>                                                                                                                                                                                                                                                                                                                                                                               | -                                                         | Same as the scope of licence                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 3. | <b>परीक्षण उपकरणों की सूची</b><br><b>List of Test Equipment</b>                                                                                                                                                                                                                                                                                                                                                                                                                          | :                                                         | Please refer to Annex-B                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 4. | <b>निरीक्षण और परीक्षण की स्कीम</b><br><b>Scheme of Inspection and Testing</b>                                                                                                                                                                                                                                                                                                                                                                                                           | :                                                         | Please refer to Annex-C                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 5. | <b>एक दिन में संभावित परीक्षण</b><br><b>Possible tests in a day</b>                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|    | (i) Dimension and Tolerances (Clause 5), (ii) Construction (Clause 6.1), (iii) Special Requirements (Clause 6.2), (iv) Arrangement for Fastening/Clamping (Clause 6.3)<br><br>Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide readyreference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor. |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 6. | <b>लाइसेंस का दायरा /Scope of the Licence:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|    | “Licence is granted to use Standard Mark as per IS 10086 : 2021 with the following scope:                                                                                                                                                                                                                                                                                                                                                                                                |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|    | Name of the product                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Moulds for Use in Tests of Cement, Concrete and Pozzolana |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|    | Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|    | Size                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|    | Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|    | Type & Size of Accessories, (if any)                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## **ANNEX A**

### **Grouping Guidelines**

1. IS 10086:2021 covers Moulds for Use in Tests of Cement, Concrete and Pozzolana which are classified as given below:
  - a) Type : Cube mould/ cylindrical mould/ Beam mould/ Bar mould
  - b) Size
  - c) Material : Cast iron/ mild steel/ ABS plastic/ Polyurethane  
Any other material which is non-absorbent and non-reactive with concrete (and mortar) and which shall retain the dimensional stability of the moulds may also be used
  - d) Accessories : Type-Tamping Rod (sizes as per Clause 7.1), Type-Gauging Trowel (sizes as per Clause 7.2), Type-Trowel (sizes as per Clause 7.3)
2. Considering the above, following grouping guidelines is developed for GoL/CSoL :
  - (a) Each type, size and material of moulds shall be tested for all requirements to cover that particular type, size and material of moulds in the scope of the licence.
  - (b) Each type and size of accessories shall be tested to cover that particular type and size of accessories in the scope of the licence.
3. The Firm shall declare the various varieties (i.e. type, size and material) of moulds they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
4. During the operation of the Licence, BO shall ensure that all the Varieties covered in the Licence are tested in rotation to the extent possible.

**ANNEX B****List of Test Equipment***(INDICATIVE LIST, FOR GUIDANCE ONLY)*

| <b>Sl. No.</b> | <b>Tests used in with <i>Clause</i> Reference</b> | <b>Test Equipment</b>                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.             | Dimensions and Tolerances (Clause 5, 6.1.2)       | <ul style="list-style-type: none"> <li>- Vernier Calliper</li> <li>- Micrometer</li> <li>- Bevel Protector</li> <li>- Straight Edge</li> <li>- Filler Gauges</li> <li>- Dial Height Gauge</li> <li>- Dial Bore Gauge</li> <li>- Dial Indicator (Plunger Type</li> <li>- Plain Plug Gauge (GO- NOGO)</li> <li>- Plunger Dial Gauge</li> <li>- Steel Scale</li> <li>- Weighing balance</li> <li>- Right angle</li> <li>- Hardness tester</li> </ul> |
| 2.             | Construction (Clause 6.1.1)                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 3.             | Special requirements (Clause 6.2)                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4.             | Accessories (Clause 7)                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 5              | Weight                                            | - Weighing balance                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 6              | Hardness Scale Shore A & D Value                  | - Type A & D Shore durometer                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 7              | Dimensional stability (Cl 6.1.2)                  | <ul style="list-style-type: none"> <li>- Hot oven</li> <li>- Vernier caliper</li> </ul>                                                                                                                                                                                                                                                                                                                                                           |
| 8              | Drop test (Cl 6.1.3)                              | <ul style="list-style-type: none"> <li>- Measuring tape</li> <li>- Sand with suitable enclosure</li> </ul>                                                                                                                                                                                                                                                                                                                                        |

## ANNEX C

### SCHEME OF INSPECTION AND TESTING

#### 1. QUALITY ASSURANCE PLAN

1.1 It is expected that during operation of BIS licence, manufacturers will implement a Quality Assurance Plan (QAP) i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or subcontracting/sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

#### 1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is : Entire quantity of moulds of the same Type, size and material manufactured under similar conditions in a day shall constitute a control unit.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**. Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan.

**2. ENSURING COMPLIANCE THROUGH TESTING-** manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred :

- i) Shared testing resources like common facility,
- ii) Cluster based testing facility,
- iii) Sub-contracting to outside laboratories which may either be:
  - a) BIS recognised/empanelled laboratories, or
  - b) Any accredited laboratory as per ISO/IEC 17025

**2.1 TEST RECORDS-** The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

**3. PACKING AND MARKING** - The Standard Mark as given in the Schedule of the licence shall be clearly and indelibly marked on each component of mould and the accessories, provided always that the material so marked conforms to each requirement of the specification.

3.1 Marking shall be done as per Clause 8 of IS 10086:2021.

3.2 **Additional Marking requirements:** Additionally, the following shall also be marked on product or package :

a) “For BIS certification details please visit [www.bis.gov.in](http://www.bis.gov.in)”

**4. REJECTION** - The production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act,2016.

**TABLE 1***(Recommended Levels of Control by BIS- for Guidance Only)*

| <b>(1)</b>          |                                                                   |                              |                              | <b>(2)</b>                                                                                                                                                                       |                   |                                                                                  |
|---------------------|-------------------------------------------------------------------|------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------------------------------------------------------------------|
| <b>Test Details</b> |                                                                   |                              |                              | <b>Levels of Control</b>                                                                                                                                                         |                   |                                                                                  |
| <b>CI</b>           | <b>Requirements</b>                                               | <b>Test Method</b>           |                              | <b>No. of Samples</b>                                                                                                                                                            | <b>Frequency</b>  | <b>Remarks</b>                                                                   |
|                     |                                                                   | <b>Clause</b>                | <b>Reference</b>             |                                                                                                                                                                                  |                   |                                                                                  |
| 4, 7                | Material                                                          | 4, 7, Table 1                | IS 10086                     | One                                                                                                                                                                              | Each consignment  | No further testing is required, if received with test certificate or ISI marked. |
| 5                   | Dimensions and Tolerances                                         | 5, Table 2 to 5, Fig 1 to 14 | IS 10086<br>IS 2102 (Part 1) | Firm to have adequate in-process controls to check compliance of this parameter. However, appropriate records shall be maintained by the manufacturer for evidence of conformity |                   |                                                                                  |
| 6                   | Construction General                                              | 6.1, 6.1.1, 6.1.2            | IS 10086                     |                                                                                                                                                                                  |                   |                                                                                  |
| 6.1.2               | Dimensional Stability                                             | 6.1.2                        | IS 10086                     | One                                                                                                                                                                              | Each control unit | -                                                                                |
| 6.1.2               | Additional Requirements for ABS plastic and polyurethane Moulds - |                              |                              |                                                                                                                                                                                  |                   |                                                                                  |
|                     | Weight                                                            | 6.1.2, Table 6, table 7      | IS 10086                     |                                                                                                                                                                                  |                   |                                                                                  |
|                     | Hardness Scale Shore D Value                                      |                              | IS 10086                     |                                                                                                                                                                                  |                   |                                                                                  |
|                     | Wall Thickness                                                    |                              | IS 10086                     |                                                                                                                                                                                  |                   |                                                                                  |
|                     | Density (only for polyurethane moulds)                            |                              | IS 10086                     |                                                                                                                                                                                  |                   |                                                                                  |
| 6.1.3               | Drop test                                                         | 6.1.2                        | IS 10086                     | One                                                                                                                                                                              | Each control unit | -                                                                                |
| 6.2                 | Special requirements                                              | 6.2                          | IS 10086                     | Firm to have adequate in-process controls to check compliance of this parameter. However, appropriate records shall be maintained                                                |                   |                                                                                  |

|     |                                                    |                    |          |                                                                                                                                                                                  |                  |                                                                                  |
|-----|----------------------------------------------------|--------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------|
| 6.3 | Arrangement of Fastening/<br>Clamping/ De-moulding | 6.3                | IS 10086 | by the manufacturer for evidence of conformity                                                                                                                                   |                  |                                                                                  |
| 7   | <b>ACCESSORIES (if supplied with moulds)</b>       |                    |          |                                                                                                                                                                                  |                  |                                                                                  |
| 7.1 | Tamping Rod –                                      |                    |          |                                                                                                                                                                                  |                  |                                                                                  |
|     | Material                                           | 7.1,<br>Fig 15, 16 | IS 10086 | One                                                                                                                                                                              | Each consignment | No further testing is required, if received with test certificate or ISI marked. |
|     | Dimensions and construction                        |                    | IS 10086 | Firm to have adequate in-process controls to check compliance of this parameter. However, appropriate records shall be maintained by the manufacturer for evidence of conformity |                  |                                                                                  |
|     | Shore A durometer Hardness                         |                    | IS 10086 | One                                                                                                                                                                              | Each consignment | -                                                                                |
| 7.2 | Gauging Trowel -                                   |                    |          |                                                                                                                                                                                  |                  |                                                                                  |
|     | Material                                           | 7.2, Fig. 17       | IS 10086 | One                                                                                                                                                                              | Each consignment | No further testing is required, if received with test certificate or ISI marked. |
|     | Dimensions                                         |                    | IS 10086 | Firm to have adequate in-process controls to check compliance of this parameter. However, appropriate records shall be maintained by the manufacturer for evidence of conformity |                  |                                                                                  |
|     | Weight                                             |                    | IS 10086 | One                                                                                                                                                                              | Each consignment | -                                                                                |
| 7.3 | Trowel -                                           |                    |          |                                                                                                                                                                                  |                  |                                                                                  |
|     | Material                                           | 7.3, Fig. 17       | IS 10086 | One                                                                                                                                                                              | Each consignment | No further testing is required, if received with test certificate or ISI marked. |
|     | Dimensions                                         | 7.3, Fig. 17       | IS 10086 | Firm to have adequate in-process controls to check compliance of this parameter. However, appropriate records shall be maintained by the manufacturer for evidence of conformity |                  |                                                                                  |