भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS

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व्यापक परिचालन मसौदा

हमारा संदर्भ : सीईडी 43/टी-106 **01 दिसम्बर 2022**

तकनीकी समिति : मृदा एवं नींव इंजीनियरी विषय समिति, सीईडी 43

प्राप्तकर्ता :

1 सिविल इंजीनियरी विभाग परिषद, सीईडीसी के सभी सदस्य

2 मृदा एवं नींव इंजीनियरी विषय समिति, सीईडी 43 के सभी सदस्य

3 रूचि रखने वाले अन्य निकाय

महोदया/महोदय,

निम्नलिखित मसौदा संलग्न है:

प्रलेख संख्या	शीर्षक
सीईडी 43 (21297)WC	**संसजक रहित मृदा की घनत्व सूंचकांक (आपेक्षिक घनत्व) के निर्धारण के लिए साँचे और उपस्कर - विशिष्टि का भारतीय मानक मसौदा (IS 10837 *का पहला पुनरीक्षण*)** **(ICS No. 93.020; 13.080.20)**

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

सम्मतियॉ भेजने की अंतिम तिथि: 31 दिसम्बर 2022

सम्मति यदि कोई हो तो कृपया अधोहस्ताक्षरी को ई मेल द्वारा **madhurima@bis.gov.in** पर या उपरलिखित पते पर, संलग्न फोर्मेट में भेजें।

यदि कोई सम्मति प्राप्त नहीं होती है अथवा सम्मति में केवल भाषा संबंधी त्रुटि हुई तो उपरोक्त प्रलेख 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 प्रलेख को अंतिम रूप दे दिया जाएगा।

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

धन्यवाद।

भवदीय

ह/-

(अरुण कुमार एस.)

वै. 'ई'/निर्देशक और प्रमुख (सिविल इंजीनियरी)

सलंग्न: उपरिलिखित

भारतीय मानक ब्यूरो
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DRAFT IN WIDE CIRCULATION

DOCUMENT DESPATCH ADVICE

Reference	Date
CED 43/T-106	**01 December 2022**

TECHNICAL COMMITTEE:

SOIL AND FOUNDATION ENGINEERING SECTIONAL COMMITTEE, CED 43

ADDRESSED TO:

1. All Members of Civil Engineering Division Council, CEDC
2. All Members of Soil and Foundation Engineering Sectional Committee, CED 43
3. All other interests

Dear Madam/Sir,

Please find enclosed the following draft:

Doc. No.	Title
CED 43 (21297)WC	**Draft Indian Standard Moulds and accessories for determination of density index (relative density) of cohesionless soils — Specification (*First Revision* of IS 10837)** **(ICS No. 93.020; 13.080.20)**

Kindly examine the 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 December 2022

Comments if any, may please be made in the enclosed format and emailed at **madhurima@bis.gov.in** or sent at the above address.

In case no comments are received or comments received are of editorial nature, you will 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/-

(Arun Kumar S.)
Sc. 'E'/Director and Head (Civil Engg.)

Encl: As above

FORMAT FOR SENDING COMMENTS ON BIS DOCUMENTS

(Please use A4 size sheet of paper only and type within fields indicated. Comments on each clause/subclause/table/fig etc. be started on a fresh box. Information in column 5 should include reasons for the comments, and those in column 4 should include suggestions for modified wording of the clauses when the existing text is found not acceptable. Adherence to this format facilitates Secretariat's work) {Please e-mail your comments to madhurima@bis.gov.in }

DOC. NO.	**Doc: CED 43 (21297)WC**
TITLE	**Draft Indian Standard Moulds and accessories for determination of density index (relative density) of cohesionless soils — Specification (*First Revision of* IS 10837)** **(ICS No. 93.020; 13.080.20)**
LAST DATE FOR COMMENTS	**31 December 2022**
NAME OF THE COMMENTATOR/ ORGANIZATION	

Sl No. (1)	Clause/Sub-clause/Para No. (2)	Comments/Suggestions (3)	Modified Wording of the Clause (4)	Reasons/ Justifications for the Proposed Changes (5)

DOC: CED 43 (21297)WC
December 2022

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

Draft Indian Standard

MOULDS AND ACCESSORIES FOR DETERMINATION OF DENSITY INDEX (RELATIVE DENSITY) OF COHESIONLESS SOILS — SPECIFICATION

(*First Revision of* IS 10837)

Soil and Foundation Engineering Sectional Committee, CED 43	Last date for Comments: **31 December 2022**

Soil and Foundation Engineering Sectional Committee, CED 43

FOREWORD

(*Formal clauses to be added later*)

There is a series of standards on methods of testing of soils. It has been recognized that reliable and inter-comparable test results can be obtained only with the standard testing equipment capable of giving that desired level of accuracy. With this objective, a series of specifications covering the requirements of equipment used for testing soils have been published to encourage their development and manufacture in the country.

The equipment covered in this standard is used in the apparatus for determination of density index of cohesionless of soils covered in IS 2720 (Part 14) : 1983 'Methods of test for soils: Part 14 Determination of density index (relative density) of cohesionless soils' using vibratory table.

This standard was first published in 1984. The present revision has been taken up with a view to incorporating the modifications found necessary as a result of experience gained in the use of this standard. Also, in this revision, the standard has been brought into latest style and format of Indian Standards, and references to Indian Standards, wherever applicable have been updated. The other major modifications incorporated in this revision of the standard are given below:

a) Considering that copper alloy is not used for manufacturing materials and aluminium is not a suitable material for making moulds, these materials have been deleted from the list of permitted materials for making mould.
b) IS 782 : 1978 has been removed from the cross-referred standards as it has been withdrawn.
c) BIS certification marking clause has been modified to align with the revised *Bureau of Indian Standards Act, 2016*.

This standard contributes to the Sustainable Development Goal 9 - Industry, Innovation and Infrastructure: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

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 : 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.

DOC: CED 43 (21297)WC
December 2022

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

Draft Indian Standard

MOULDS AND ACCESSORIES FOR DETERMINATION OF DENSITY INDEX (RELATIVE DENSITY) OF COHESIONLESS SOILS — SPECIFICATION

(*First Revision of* IS 10837)

Soil and Foundation Engineering Sectional Committee, CED 43	Last date for Comments: **31 December 2022**

1 SCOPE

This standard covers the requirements of two types of moulds, guide sleeves surcharge base plate with handle and surcharge weights used for the laboratory determination of density index (relative density) of cohesionless free draining soils using vibratory table.

2 REFERENCE

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

IS No.	*Title*
IS 292 : 1983	Specification for leaded brass ingots and casting (*second revision*)
IS 513 (Part 1) : 2016	Cold reduced carbon steel sheet and strip: Part 1 Cold forming and drawing purpose (*sixth revision*)
IS 2102 (Part 1) : 1993	General tolerances: Part 1 Tolerances for linear and angular dimensions without individual tolerance indications (*third revision*)

3 DIMENSIONS

Dimensions with tolerance of different component parts of equipment shall be as detailed in Fig. 1 to 5. Except where tolerances are specifically mentioned against the dimensions, all dimensions shall be taken as nominal dimensions and the tolerances to the dimensions shall be as given in IS 2102 (Part 1) and shall be of medium class.

4 MATERIALS

The materials of construction of the various component parts of the equipment shall be as given in Table 1.

Table 1 Materials Of Construction of Different Components

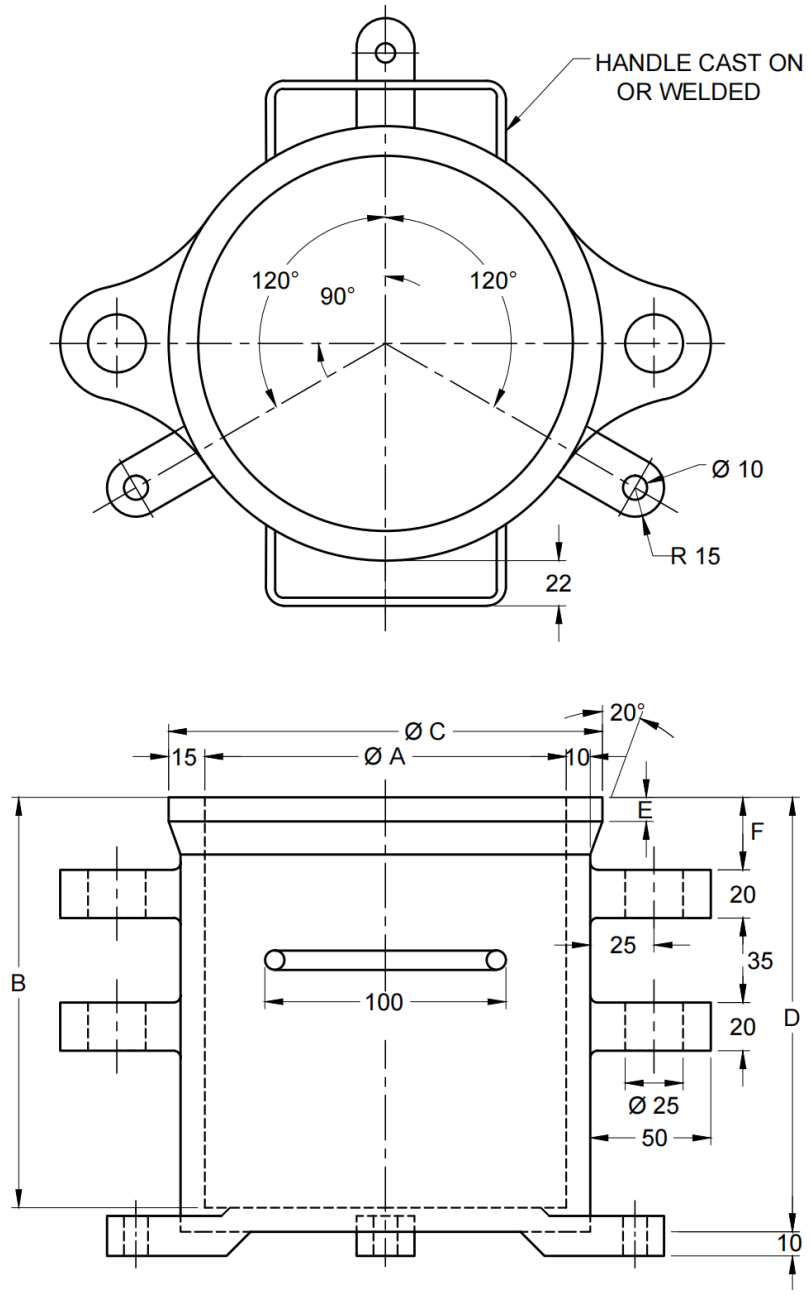
(*Clause* 4)

Sl No.	Equipment	Materials	Special Requirements, if any	Conforming to Indian Standard
(1)	(2)	(3)	(4)	(5)
i)	Mould	Brass	—	IS 292
		or		
		Mild steel	Cadmium plated	IS 513 (Part 1)
ii)	Guide sleeve	Mild steel	Cadmium plated	IS 513 (Part 1)
iii)	Surcharge base plate with handle	Mild steel	Cadmium plated	
iv)	Surcharge weight:			
	a) Body	Mild steel	—	IS 513 (Part 1)
	b) Filling	Lead	Cadmium plated	

5 CONSTRUCTION

5.1 Mould

The mould shall be smooth from inside and shall have two handles either cast integral with the body or welded. The moulds shall be of capacity 3 000 cm^3 and 15 000 cm^3 as detailed in Fig. 1.



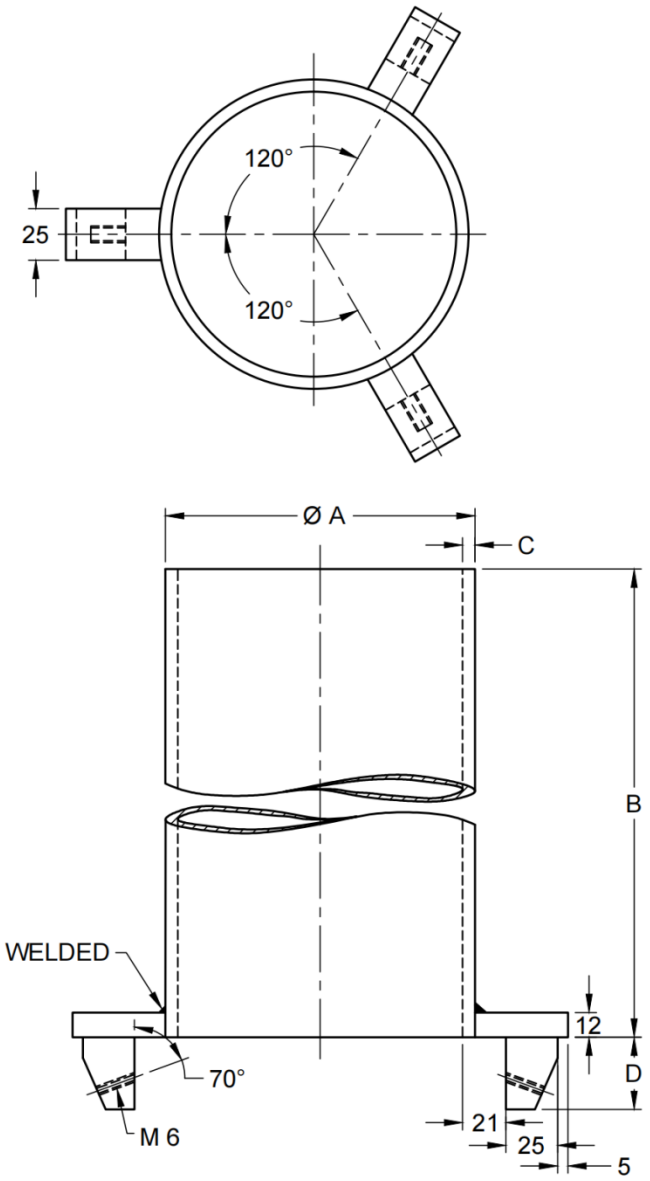
Size of Mould cm^3	A	B	C	D	E	F
3 000	150 ± 0.05	169.77 ± 0.05	180	180	10	30
15 000	280 ± 0.05	243.60 ± 0.05	310	225	15	50

All dimensions in millimetres.

FIG. 1 MOULD

5.2 Guide Sleeve

The inside of the sleeve shall be finished smooth and one sleeve shall be provided with each mould. Two of the three set screws on the clamp assembly shall be provided with lock nuts. The details of guide sleeve for two capacities of mould are given in Fig. 2.



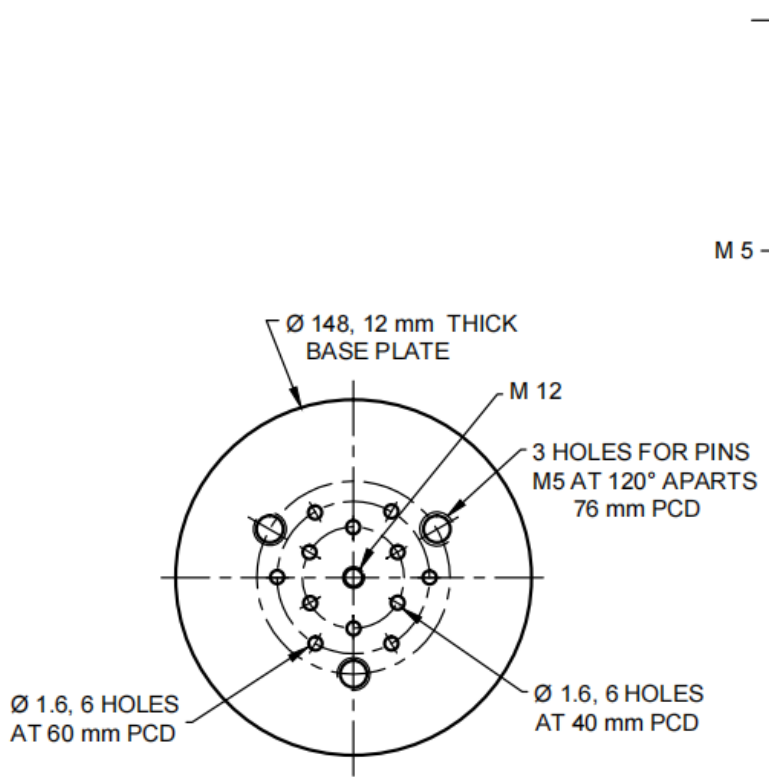
Size of Mould cm^3	A	B	C	D
3 000	150 ± 0.05	300	6	35
15 000	280 ± 0.05	200	10	38

All dimensions in millimetres.

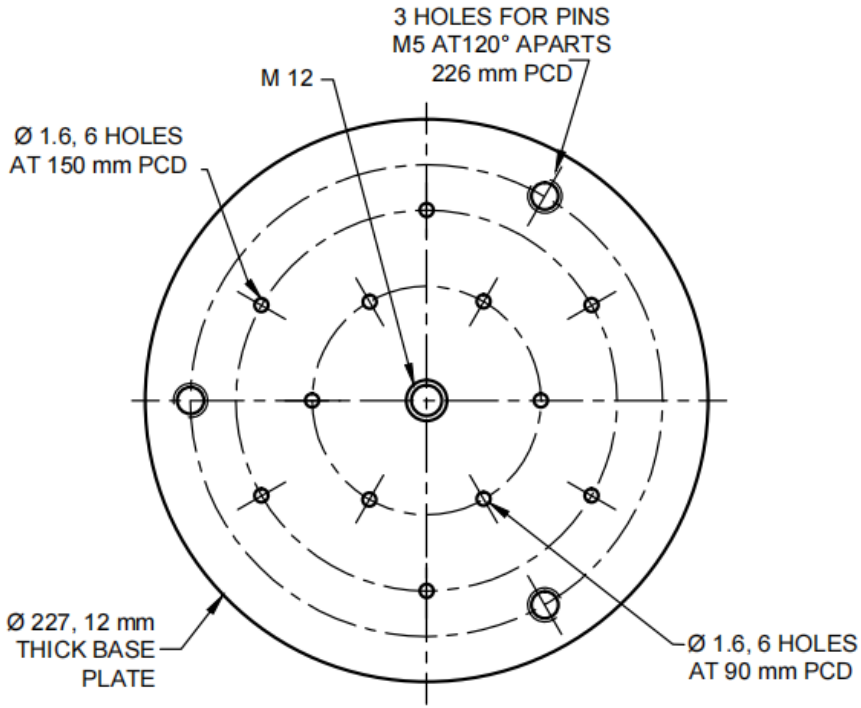
FIG. 2 GUIDE SLEEVE

5.3 Surcharge Base Plates with Handles

The surcharge base plate as detailed in Fig. 3 shall be provided with each mould. The details of handle for both sizes are given in Fig. 4.



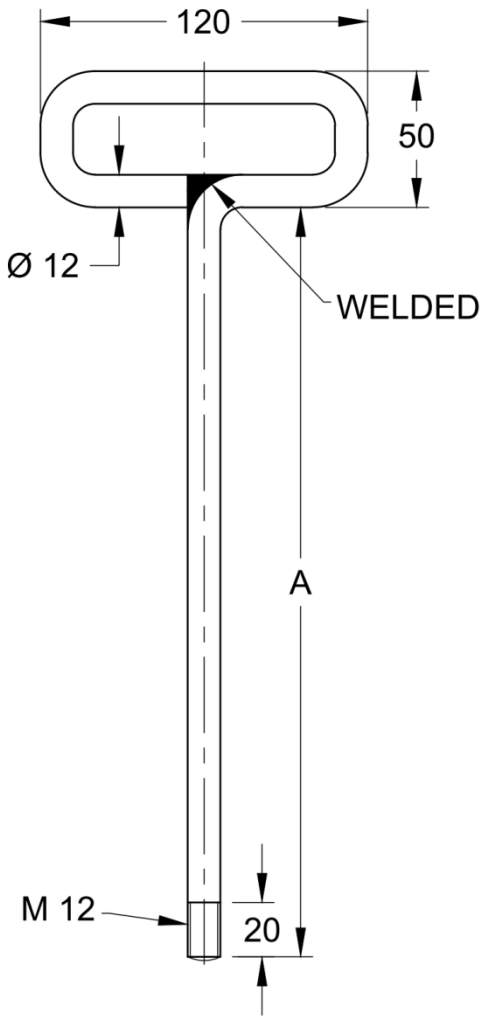
3A SURCHARGE BASE PLATE
(FOR MOULD 3 000 cm^3)



3A SURCHARGE BASE PLATE
(FOR MOULD 15 000 cm^3)

All dimensions in millimetres.

FIG. 3 SURCHARGE BASE PLATE



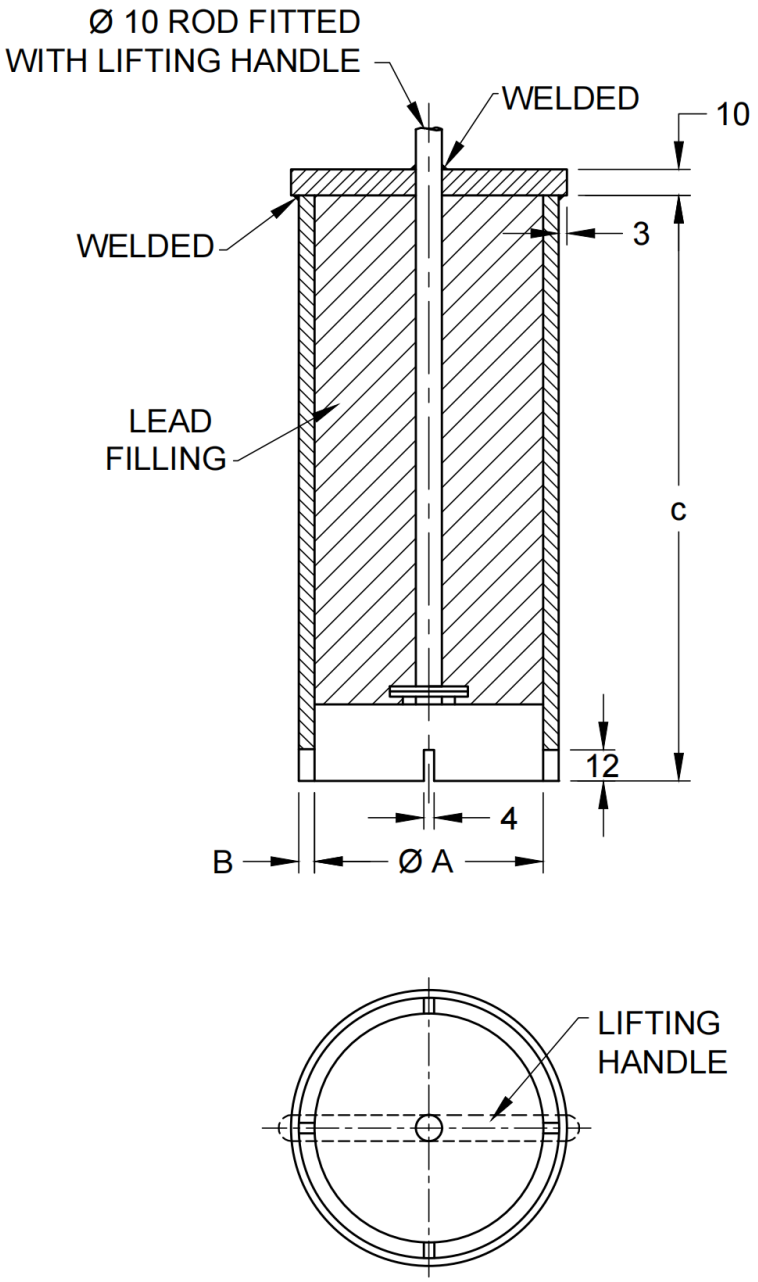
A = 275 mm for mould of capacity 3 000 cm^3
A = 200 mm for mould of capacity 15 000 cm^3

All dimensions in millimetres.

FIG. 4 LIFTING HANDLE

5.4 Surcharge Weight

The surcharge weight as detailed in Fig. 5 shall be provided with each mould. The body shall be filled with lead from bottom to have a specified weight as mentioned in Fig. 5.



Size of Mould cm^3	A	B	C	Total Weight Required kg
3 000	100 ± 0.05	6	225	24.7 ± 0.2
15 000	250 ± 0.05	10	150	86.0 ± 0.5

FIG. 5 SURCHARGE WEIGHT

6 MARKING

6.1 The following information shall be clearly and indelibly marked on each part of the equipment:

a) Name of the manufacturer or his registered trade-mark or both;
b) Type of material used;
c) Size of the mould; and
d) Date of manufacture.

6.2 BIS Certification Marking

The product 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.