



भारतीय मानक ब्यूरो BUREAU OF INDIAN STANDARDS

MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG, NEW DELHI 110002

Phone: + 91 11 23230131, 23233375, 23239402 Extn 8406, 23608406; Website: www.bis.gov.in

व्यापक परिचालन मसौदा

हमारा संदर्भ : सीईडी 43/टी-117

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 (21298)WC	मृदा के समेकन गुणों के निर्धारण के लिए समेकनमापी - विशिष्ट का भारतीय मानक मसौदा (IS 12287 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 कठिनाइयाँ आ सकती हैं।

सम्मतियाँ 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 फॉर्मेट 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 वेबसाइट www.bis.gov.in पर भी उपलब्ध हैं।

धन्यवाद।

भवदीय

ह-/

(अरुण कुमार एस.)

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

संलग्न: उपरलिखित



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**DRAFT IN
WIDE CIRCULATION**

DOCUMENT DESPATCH ADVICE

Reference	Date
CED 43/T-117	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 others interests

Dear Madam/Sir,

Please find enclosed the following draft:

Doc. No.	Title
CED 43 (21298)WC	Draft Indian Standard Consolidometer for determination of consolidation properties of soil — Specification (First Revision of IS 12287) (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

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

(Not to be reproduced without the permission of BIS or used as a Standard)

Draft Indian Standard

**CONSOLIDOMETER FOR DETERMINATION OF
CONSOLIDATION PROPERTIES OF SOIL — SPECIFICATION**

(First Revision of IS 12287)

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 covers the details of consolidometer used in one dimensional consolidation test for determination of consolidation characteristics of soil in accordance with IS 2720 (Part 15) : 1986 'Methods for test for soils Part 15 Determination of consolidation properties (*first revision*)'.

This standard was first published in 1988. 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) The title of the standard has been modified from 'Specification for consolidometer for determination of consolidation properties' to 'Consolidometer for determination of consolidation properties of soil — Specification'.
- b) Figure of consolidometer assembly has been updated to show the proper placement of rubber gasket.
- c) Provision for providing 25 mm travel dial-gauge mounted on comparator with the consolidometer for the purpose of measuring initial height of the test specimen has been added.
- d) Typical sketch of travel dial-gauge mounted on comparator has also been added.
- e) Marking clause has been modified to indicate size of the consolidometer.

- f) 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.

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

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Draft Indian Standard

**CONSOLIDOMETER FOR DETERMINATION OF
CONSOLIDATION PROPERTIES OF SOIL — SPECIFICATION**

(First Revision of IS 12287)

Soil and Foundation Engineering
Sectional Committee, CED 43

Last date for Comments:
31 December 2022

1 SCOPE

This standard covers the requirements for consolidometer used in the one dimensional consolidation test for determination of consolidation characteristics of soil. Consolidometer of sizes 50 mm and 60 mm are covered in the standard.

2 REFERENCES

The following standards 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 agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
IS 292 : 1983	Specification for leaded brass ingots and casting (<i>second revision</i>)
IS 2102 (Part 1) : 1993	General tolerances: Part 1 Tolerances for linear and angular dimensions without individual tolerance indications (<i>third revision</i>)
IS 3622 : 1977	Specification for sandstone (slabs and tiles) (<i>first revision</i>)

3 DIMENSIONS

The dimensions with tolerance of different component parts of equipment shall be as detailed in Fig 1. to 11. Except where tolerances are specifically mentioned against the dimensions, all dimensions shall be taken as nominal dimensions and tolerances to the dimensions shall be as given in IS 2102 (Part 1) and shall be of medium class.

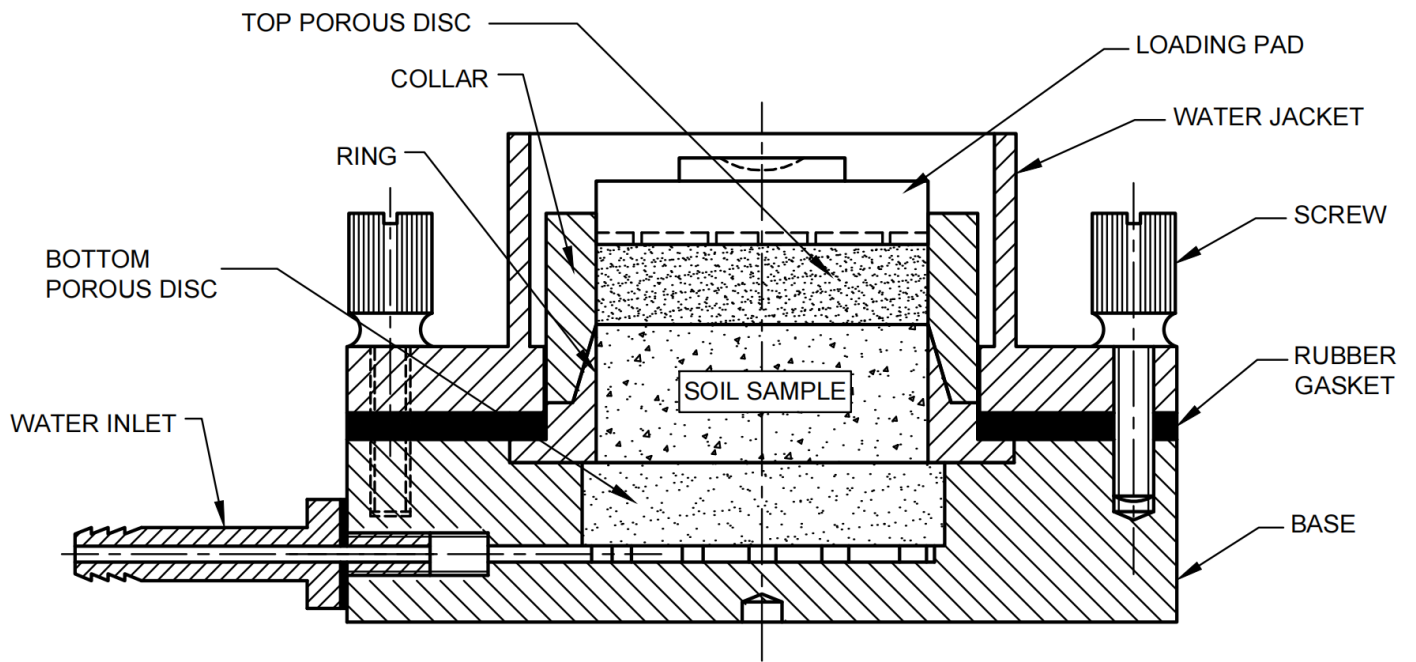
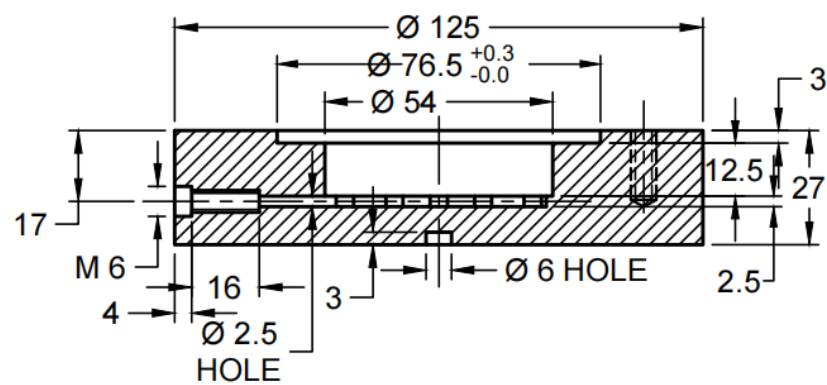
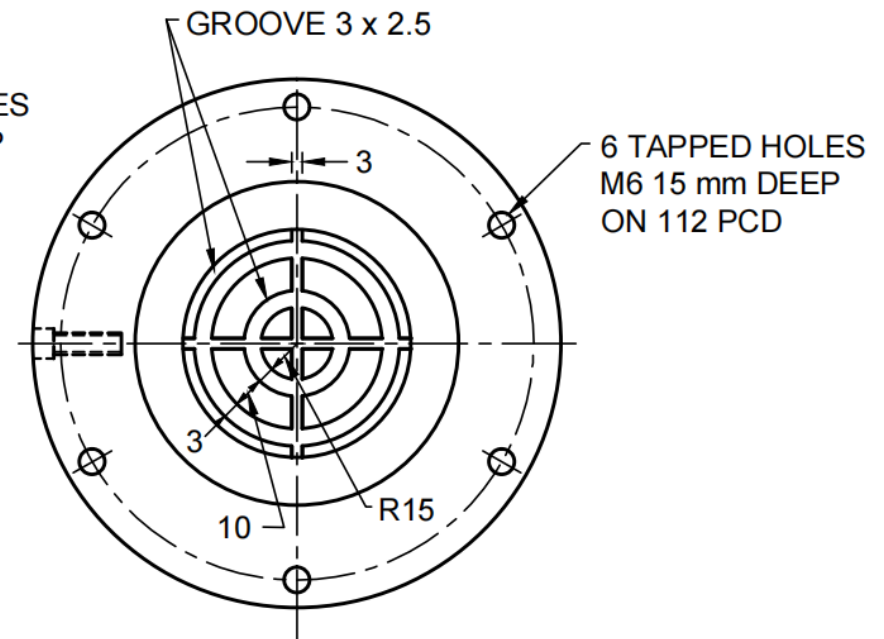
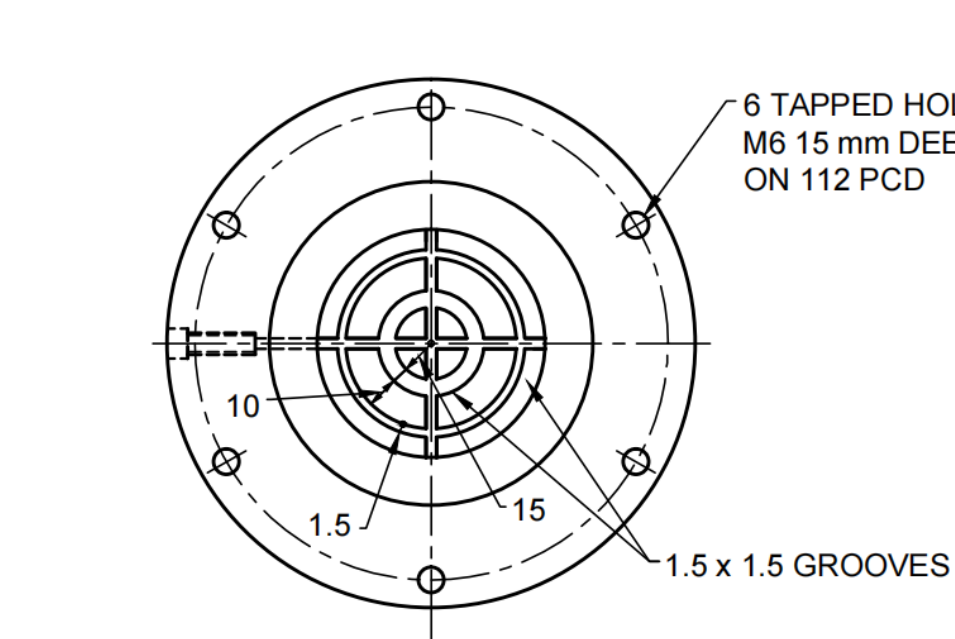
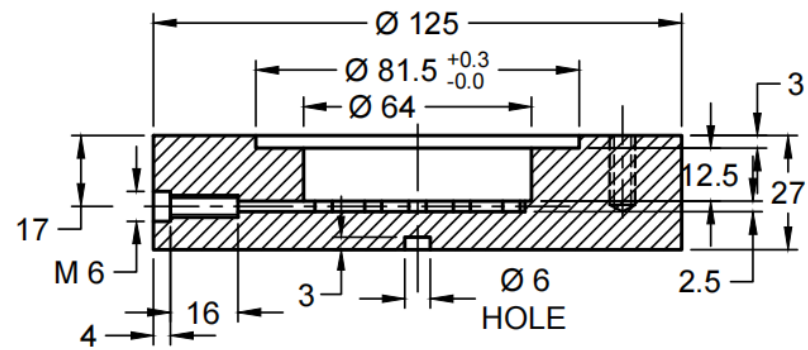


FIG. 1 CONSOLIDOMETER ASSEMBLY

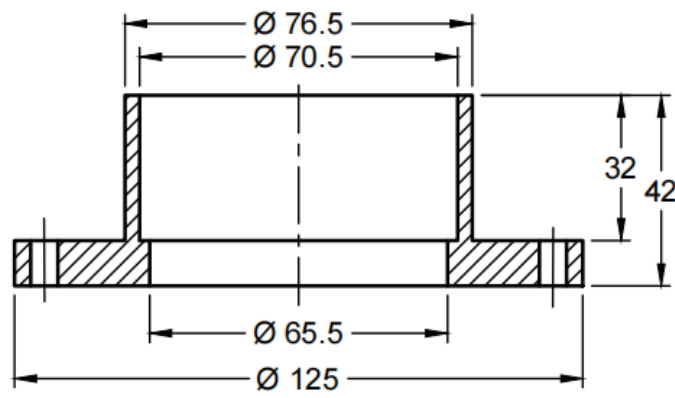
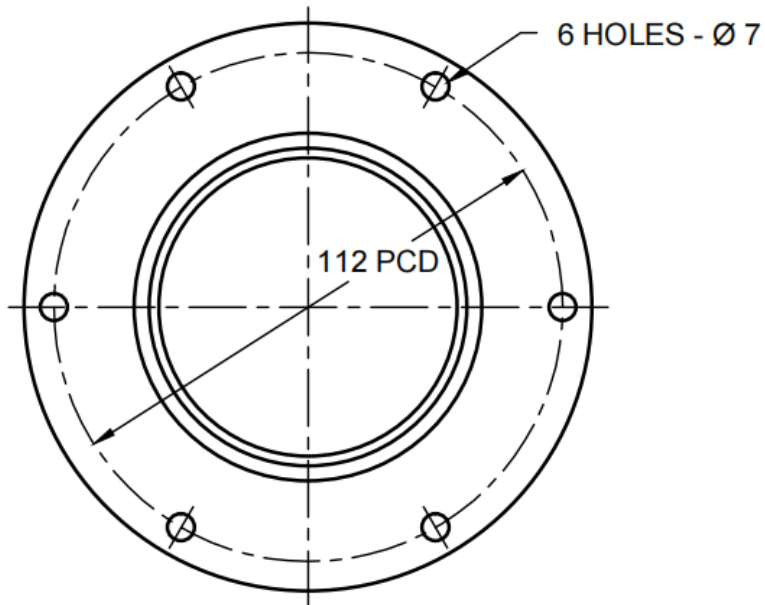
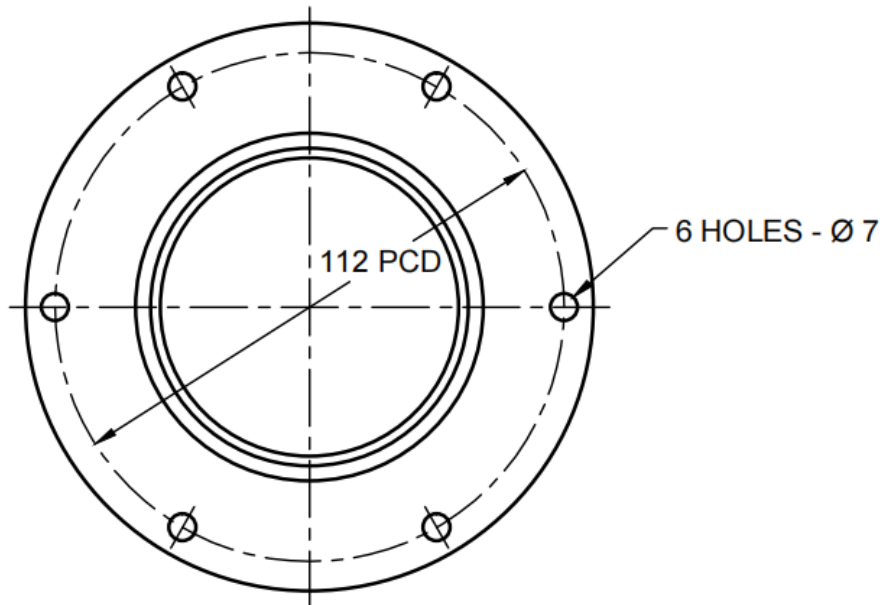


All dimensions in millimetres
2A BASE FOR 50 mm SIZE



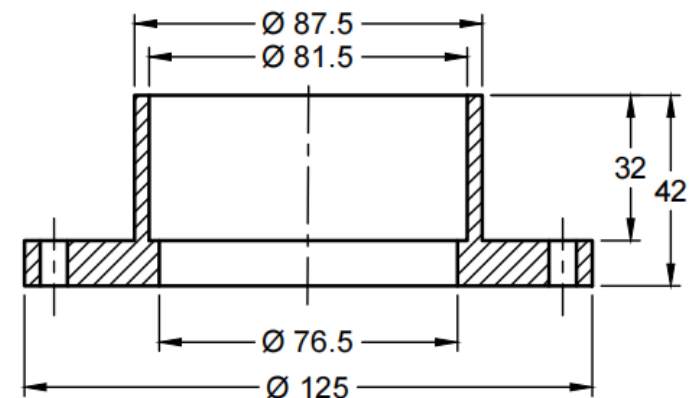
All dimensions in millimetres
2B BASE FOR 60 mm SIZE

FIG. 2 BASE



All dimensions in millimetres

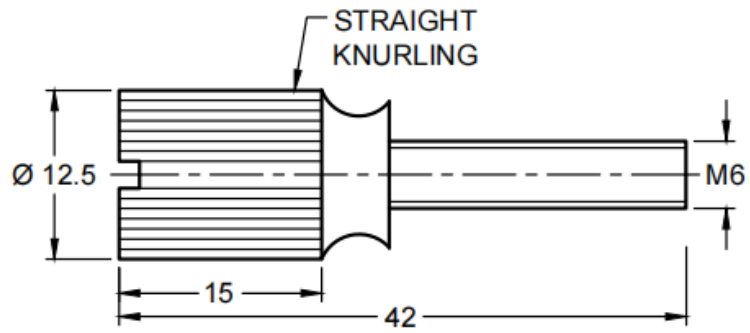
3A WATER JACKET OF 50 mm SIZE



All dimensions in millimetres

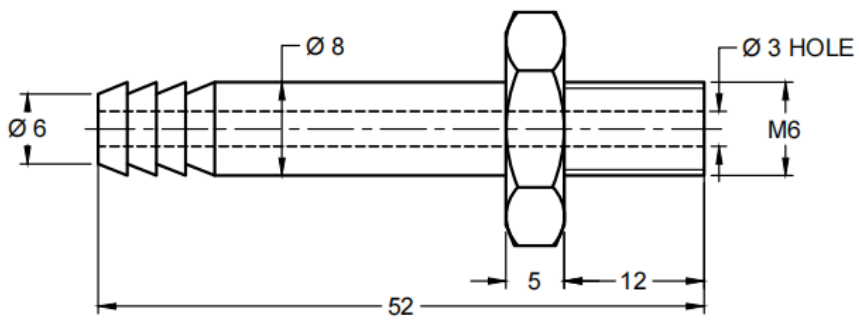
3B WATER JACKET OF 60 mm SIZE

FIG. 3 WATER JACKET



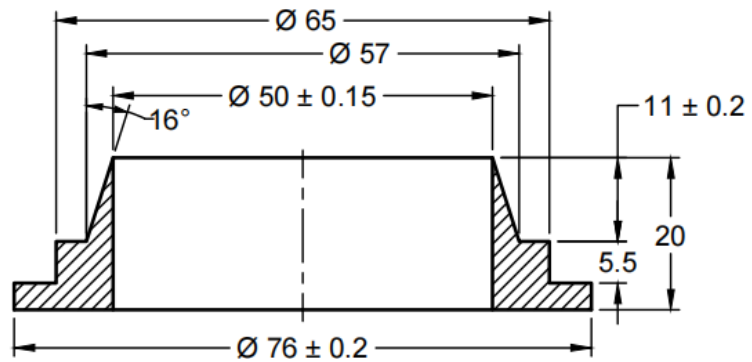
All dimensions in millimeters.

FIG. 4 SCREWS



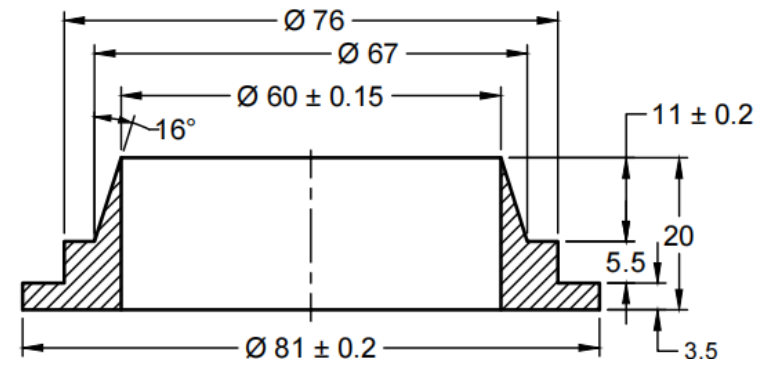
All dimensions in millimetres.

FIG. 5 WATER INLET



All dimensions in millimetres

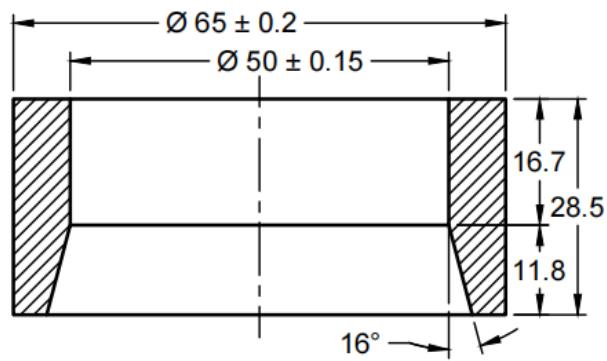
6A RING FOR 50 mm SIZE



All dimensions in millimetres

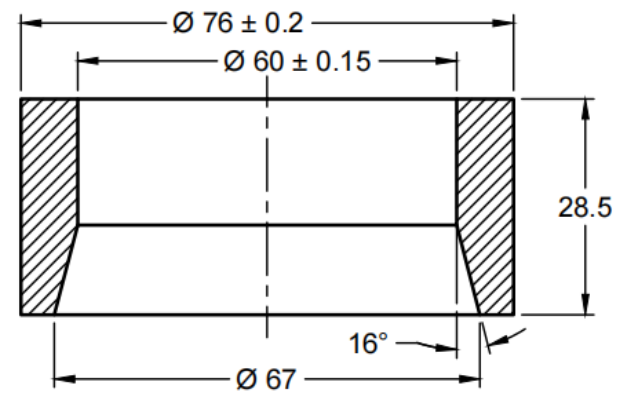
6B RING FOR 60 mm SIZE

FIG. 6 RING



All dimensions in millimetres

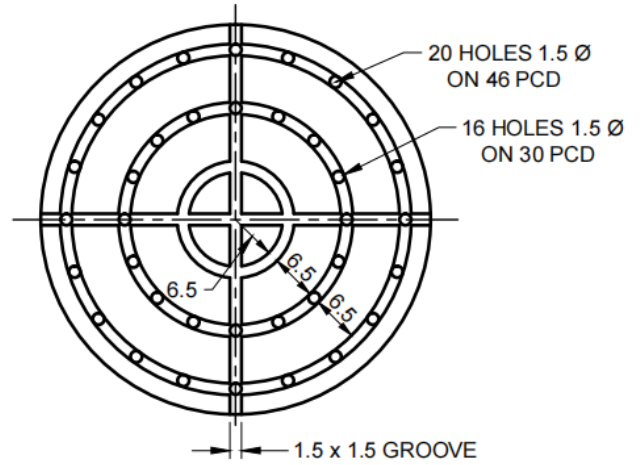
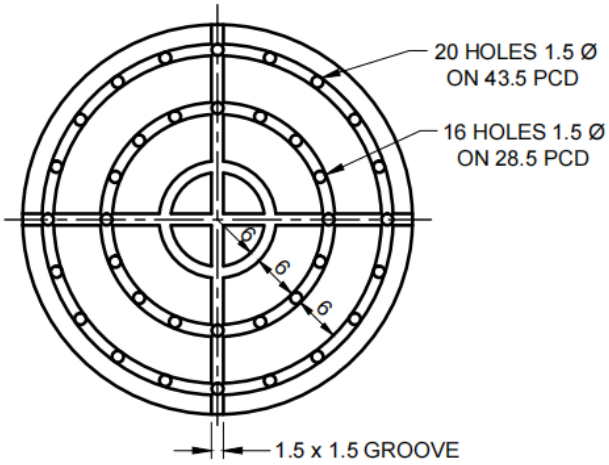
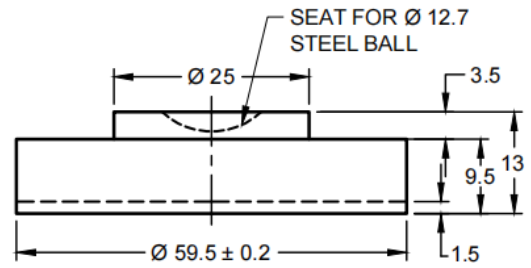
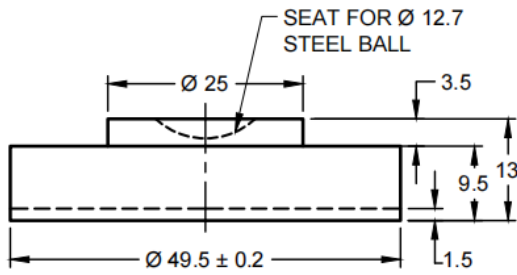
7A COLLAR FOR 50 mm SIZE



All dimensions in millimetres

7B COLLAR FOR 60 mm SIZE

FIG 7 COLLAR



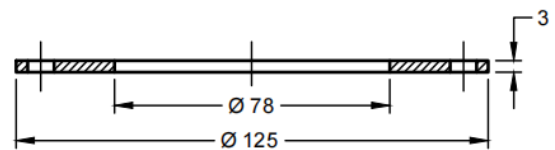
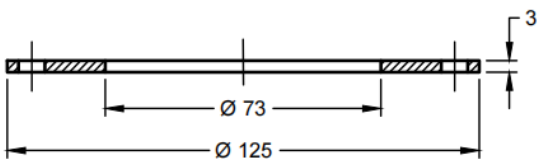
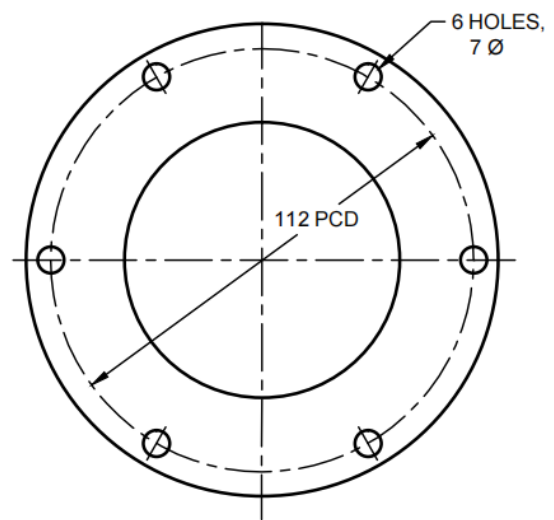
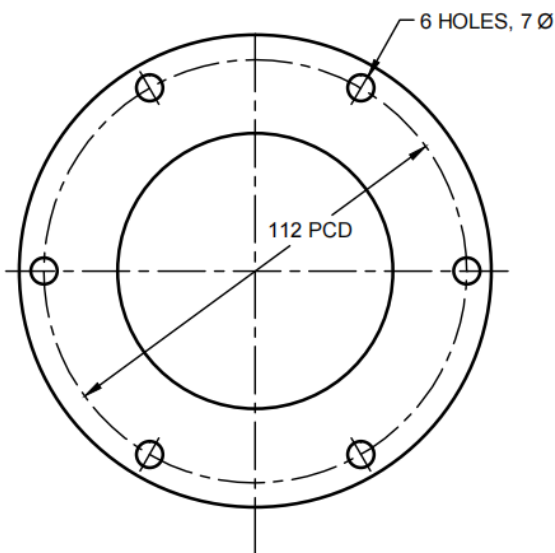
All dimensions in millimetres

All dimensions in millimetres

8A LOADING PAD FOR 50 mm SIZE

8B LOADING PAD FOR 60 mm SIZE

FIG. 8 LOADING PAD



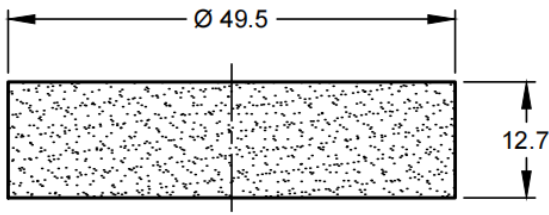
All dimensions in millimetres

All dimensions in millimetres

9A RUBBER GASKET FOR 50 mm SIZE

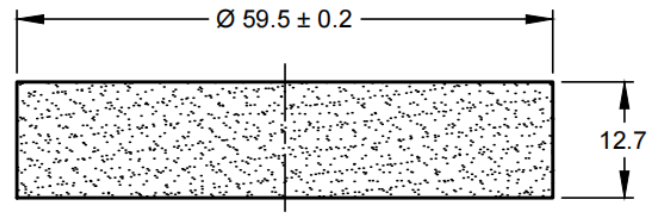
9B RUBBER GASKET FOR 60 mm SIZE

FIG. 9 RUBBER GASKET



All dimensions in millimetres

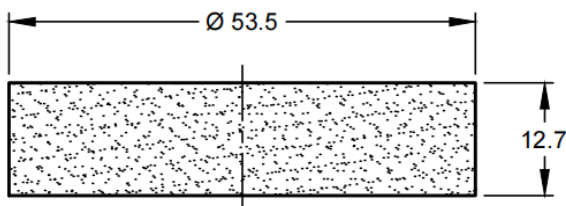
10A POROUS DISC 'A' FOR 50 mm SIZE



All dimensions in millimetres

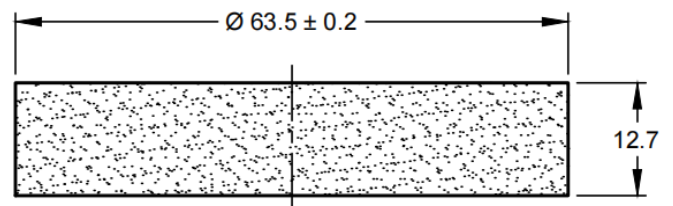
10B POROUS DISC 'A' FOR 60 mm SIZE

FIG. 10 POROUS DISC 'A'



All dimensions in millimetres

11A POROUS DISC 'B' FOR 50 mm SIZE



All dimensions in millimetres

11B POROUS DISC 'B' FOR 60 mm SIZE

FIG. 11 POROUS DISC 'B'

4 MATERIAL

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

Table 1 Materials for Construction of Consolidometer Equipment
(Clause 4)

SI No.	Parts of the Equipment	Material	Remarks	Conforming to Indian Standard
(1)	(2)	(3)	(4)	(5)
i)	Base	Leaded brass	Chrome/Rhodium plated	IS 292
ii)	Water jacket	-do-	-do-	IS 292
iii)	Screws	-do-	-do-	IS 292
iv)	Water inlet	-do-	-do-	IS 292
v)	Ring	-do-	-do-	IS 292
vi)	Collar	-do-	-do-	IS 292
vii)	Loading pad	-do-	-do-	IS 292
viii)	Gasket	Rubber	—	—
ix)	Porous disc A	Stone	—	IS 3622
x)	Porous disc B	Stone	—	IS 3622

5 CONSTRUCTION

5.1 The ring and the collar shall be machined smooth inside. The inside diameters of the ring and collar shall be matching.

5.2 The assembly shall be leakproof when water is filled in the water jacket with hand tightening of the screws.

5.3 The consolidometer may also be provided with 25 mm travel dial-gauge mounted on comparator for measuring initial height of the test specimen (see Fig. 12). It shall be such to measure with an accuracy of 0.01 mm or greater.

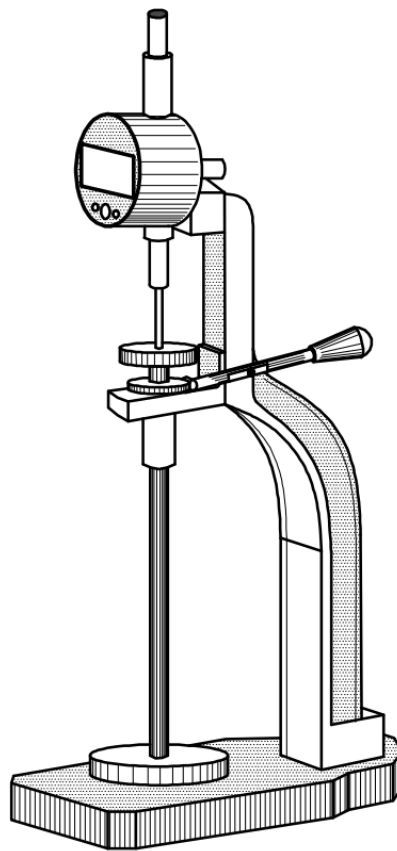


FIG. 12 TYPICAL SKETCH OF TRAVEL DIAL-GAUGE MOUNTED ON COMPARATOR

6 MARKING

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

- a) Name of the manufacturer, his registered trade-mark or both;
- b) Size of the consolidometer (50 mm or 60 mm);
- c) Date of manufacture; and
- d) Type of material.

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.