भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS

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हमारा संदर्भ : सीईडी 43/टी-115 **20 अक्टूबर 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 (21050)WC	**मृदा के लिए पानी की मात्रा के शीघ्र निर्धारण हेतु तेज आद्रता मीटर – विशिष्टि का भारतीय मानक मसौदा (IS 12175 *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: 20 नवंबर 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-115	20 October 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 (21050)WC	**Draft Indian Standard Rapid Moisture Meter for Rapid Determination of Water Content for Soil — Specification (*First Revision of* IS 12175)** **(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: 20 November 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 (21050)WC**
TITLE	**Draft Indian Standard Rapid Moisture Meter for Rapid Determination of Water Content for Soil — Specification (*First Revision of* IS 12175)** **(ICS No. 93.020; 13.080.20)**
LAST DATE OF COMMENTS	**20 November 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 (21050)WC
October 2022

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

RAPID MOISTURE METER FORRAPID DETERMINATION OF WATER CONTENT FOR SOIL — SPECIFICATION

(*First Revision of* IS 12175)

Soil and Foundation Engineering Sectional Committee, CED 43	Last date of Comments: **20 November 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 as a part of the assembly for the equipment used for the determination of water content from the gas pressure developed by the reaction of calcium carbide with the free water of the soil covered in IS 2720 (Part 2) : 1973 ‘Methods of test for soils: Part 2 determination of water content (*second 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) Scope has been modified to explicitly specify the two ranges of rapid moisture meter covered in the standard.
b) Specification of calcium carbide has been specified.
c) Requirements of weighing balance for measuring specimen weight and calcium carbide measuring device to be supplied with rapid moisture meter have been included.
d) 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 (21050)WC
October 2022

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

Draft Indian Standard

RAPID MOISTURE METER FOR RAPID DETERMINATION OF WATER CONTENT FOR SOIL — SPECIFICATION

(*First Revision of* IS 12175)

Soil and Foundation Engineering Sectional Committee, CED 43	Last Date of Comments: **20 November 2022**

1 SCOPE

1.1 This standard covers the moisture meter used for rapid determination of water content from the gas pressure developed by the reaction of calcium carbide with the free water of the soil.

1.2 The standard covers following ranges of percentage water content of rapid moisture meter:

a) 0-25 percent; and
b) 0-50 percent.

2 REFERENCES

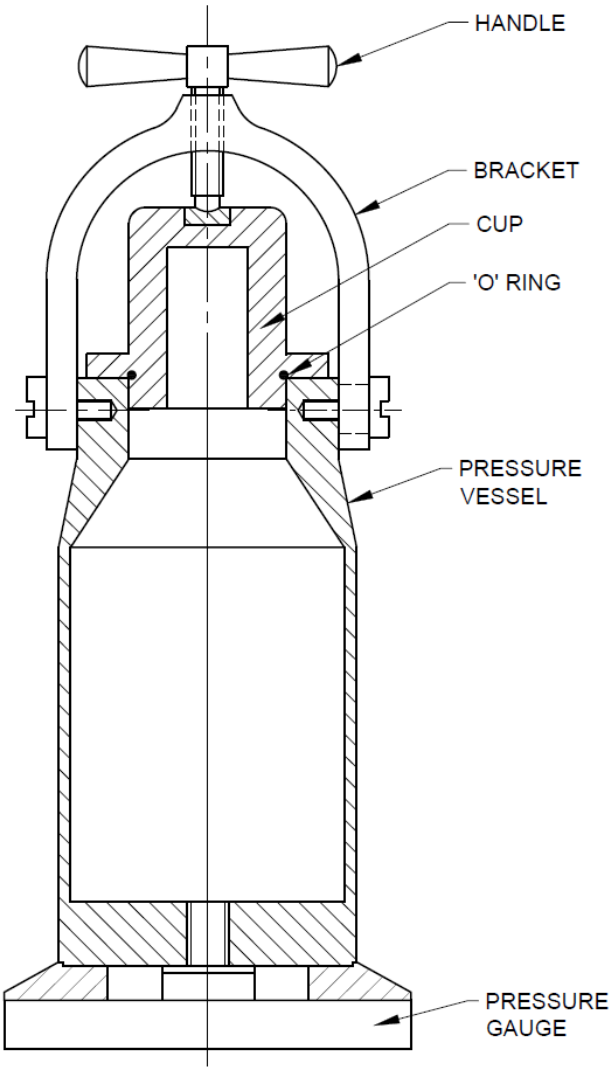
The following standards contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated are valid. All standards are subject to revision, and parties to agreement based on this standard are encouraged to investigate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

IS No.	*Title*
318 : 1981	Specification for leaded tin bronze ingots and castings (*second revision*)
513 (Part 1) : 2016	Cold reduced carbon steel sheet and strip: Part 1 Cold forming and drawing purpose (*sixth revision*)
617 : 1994	Cast aluminium and its alloys — Ingots and castings for general engineering purposes — Specification (*third revision*)
1040 : 1987	Specification for calcium carbide, technical (*third revision*)
2102 (Part 1) : 1993	General tolerances: Part 1 tolerances for linear and angular dimensions without individual tolerance indications (*third revision*)
3624 : 1987	Specification for pressure and vacuum gauges (*second revision*)
4398 : 1994	Carbon — Chromium steel for the manufacture of balls, rollers and

	bearing races — Specification (*second revision*)
9975	Specification for 'O' rings
(Part 1) : 1981	Dimensions
(Part 2) : 1984	Material selection and quality acceptance criteria
6603 : 2001	Stainless steel bars and flats — Specification (*first revision*)

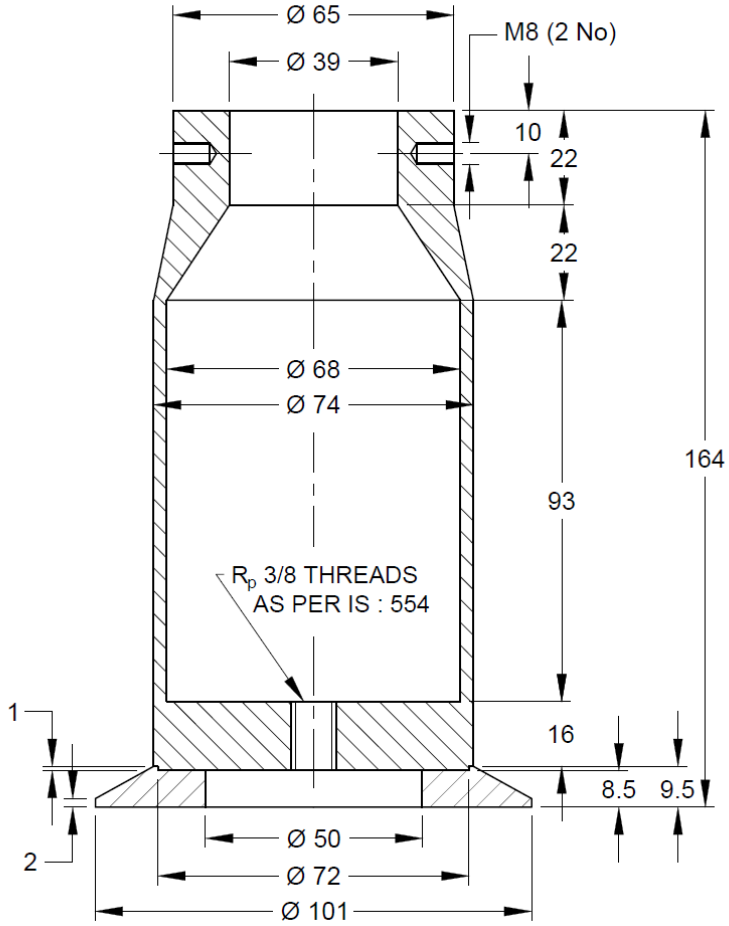
3 DIMENSIONS

Dimensions of the equipment and different component parts of the 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 tolerances thereon shall be as given in IS 2102 (Part 1) for medium class.



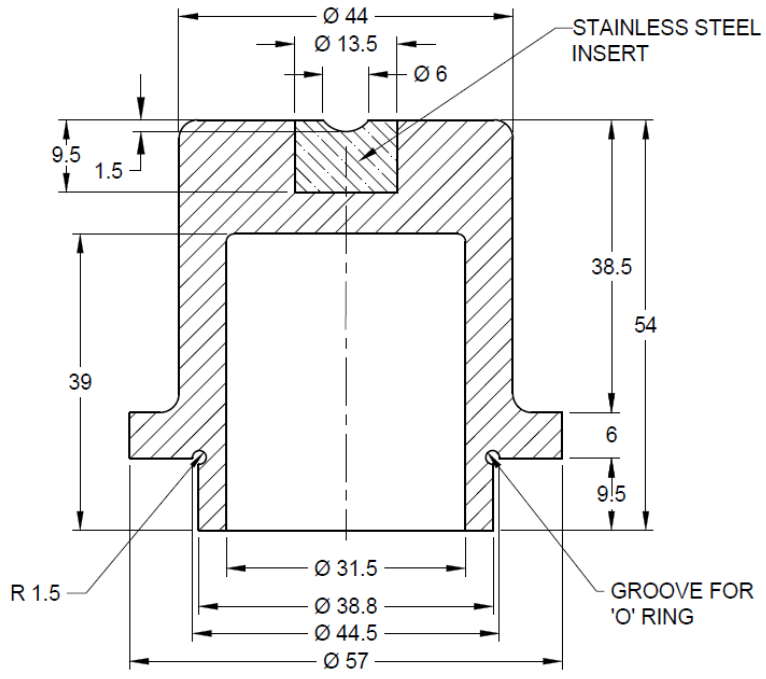
All dimensions in millimetres.

FIG. 1 ASSEMBLY



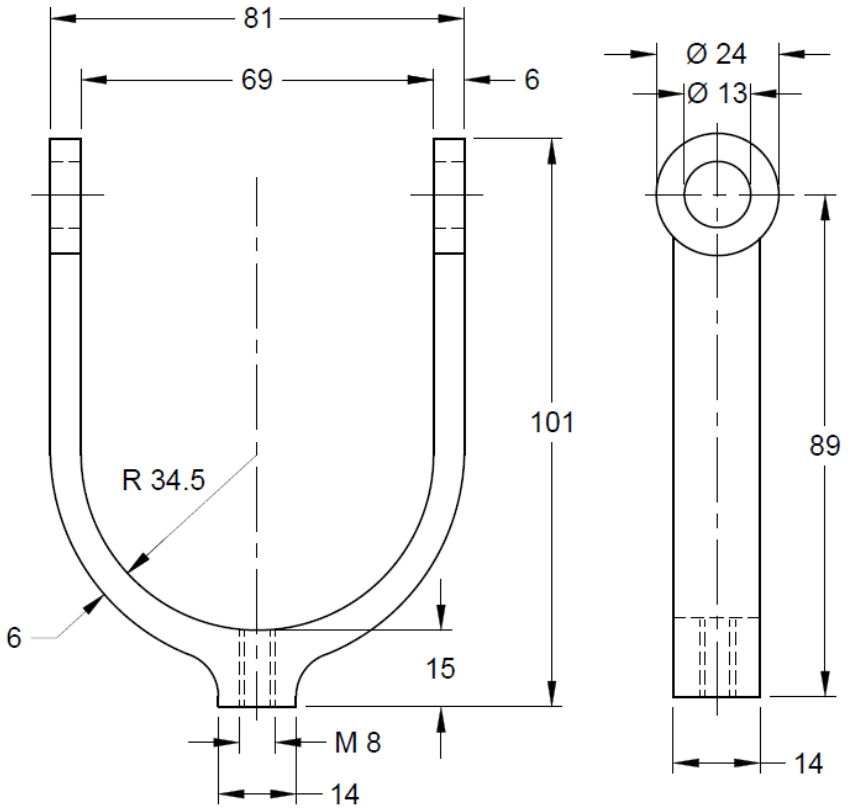
All dimensions in millimetres.

FIG. 2 PRESSURE VESSEL



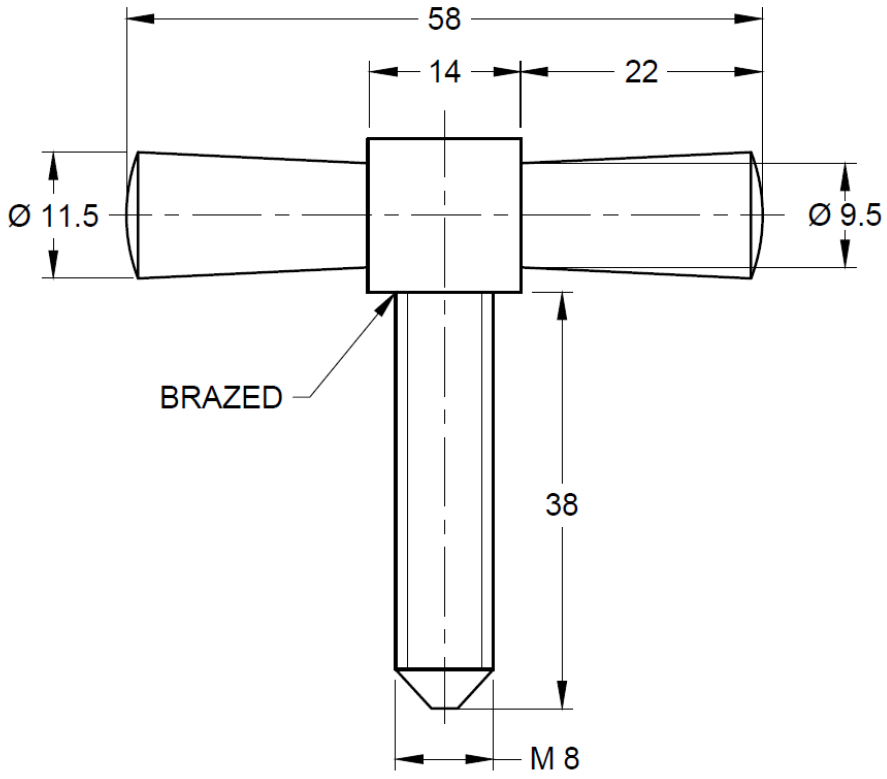
All dimensions in millimetres.

FIG. 3 CUP



All dimensions in millimetres.

FIG. 4 BRACKET



All dimensions in millimetres.

FIG. 5 HANDLE

4 MATERIAL

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

Table 1 Materials of Construction of Component Parts of Rapid Moisture Meter
(*Clause* 4)

Sl No.	Component Part	Material	Special Requirement, if any	Conforming to Indian Standard
(1)	(2)	(3)	(4)	(5)
i)	Pressure vessel	Aluminium alloy	Shall be machined smooth from inside	IS 617
ii)	Cup			
	a) Body	Aluminium alloy	Shall be machined smooth from inside	IS 617
	b) Inset	Stainless steel	Shall be machined smooth from inside	IS 6603
iii)	Bracket	Copper alloy	Nickel/Chrome Plated	IS 318
iv)	Handle	Mild steel	Nickel/Chrome Plated	IS 513 (Part 1)
v)	'O' Ring	Synthetic rubber		IS 9975 (Parts 1 and 2)
vi)	Balls	Steel	Nickel/Chrome Plated	IS 4398
vii)	Calcium carbide	-	-	IS 1040
viii)	Pressure gauge	Conforming to requirements for industrial concentric scale gauge Class IA covered in IS 3624		

5 CONSTRUCTION

5.1 The mating parts of the pressure vessel and the cup shall be machined properly to ensure a proper and leak-proof seating when assembled with 'O' ring fitted in its position.

5.2 Pressure Gauge

A pressure gauge shall be fitted as shown in Fig. 1 to the pressure vessel. The dial of the pressure gauge shall be calibrated in percentage of water content either in the range of 0 - 25 percent or 0 - 50 percent for two different ranges of the moisture meters on the basis of dry soil. The minimum divisions on the dial shall be 1 percent.

5.3 Steel Balls

Three steel balls of about 12.5 mm diameter and one steel ball of 25 mm diameter shall be provided with the moisture meter.

5.4 Weighing Balance

A weighing balance of capacity 10 g and least count of 0.01 g shall be provided with the rapid moisture meter for weighing the sample.

5.5 Calcium Carbide Measuring Device

Suitable calcium carbide measuring device shall be provided as per the range of the rapid moisture meter.

6 MARKING

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

a) Name of the manufacturer or his registered trade-mark or both;
b) Range of rapid moisture meter;
c) Type of material; 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.