इंटरनेट मानक

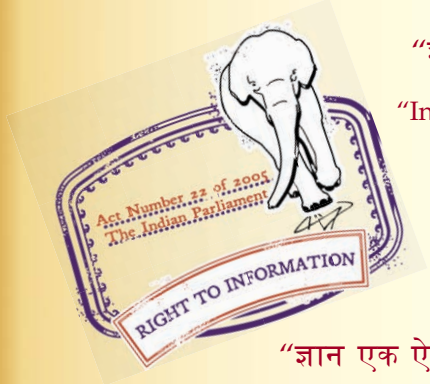
Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 9669 (1980): CBR moulds and its accessories [CED 43: Soil and Foundation Engineering]



"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

IS : 9669 - 1980
(Reaffirmed 2002)

Indian Standard

SPECIFICATION FOR CBR MOULDS AND ITS ACCESSORIES

UDC 624·131·379 : 620·1·05

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Rs 6·00

March 1981

Indian Standard

SPECIFICATION FOR CBR MOULDS AND ITS ACCESSORIES

Soil Engineering and Rock Mechanics Sectional Committee, BDC 23

Chairman	*Representing*
DR JAGDISH NARAIN	University of Roorkee, Roorkee
Members	
ADDITIONAL DIRECTOR, IRI	Irrigation Department, Government of Bihar, Patna
ADDITIONAL DIRECTOR RESEARCH (F. E.)	Ministry of Railways
DEPUTY DIRECTOR RESEARCH (SOIL MECH) (*Alternate*)	
PROF ALAM SINGH	University of Jodhpur, Jodhpur
COL AVTAR SINGH	Engineer-in-Chief's Branch, Army Headquarters
LT-COL V. K. KANITKAR (*Alternate*)	
DR A. BANERJEE	Cemindia Co Ltd, Bombay
SHRI S. GUPTA (*Alternate*)	
DR R. K. BHANDARI	Central Building Research Institute (CSIR), Roorkee
CHIEF ENGINEER (B&R)	Irrigation Department, Government of Punjab, Chandigarh
DR G. S. DHILLON (*Alternate*)	
SHRI M. C. DANDAVATE	The Concrete Association of India, Bombay
SHRI N. C. DUGGUL (*Alternate*)	
SHRI A. G. DASTIDAR	In personal capacity (*5 Hungerford Street, 12/1 Hungerford Court, Calcutta 700017*)
DR G. S. DHILLON	Indian Geotechnical Society, New Delhi
DIRECTOR, IRI	Irrigation Department, Government of Uttar Pradesh, Roorkee
SHRI A. H. DIVANJI	Asia Foundations & Construction (P) Ltd, Bombay
SHRI A. N. JANGLE (*Alternate*)	
DR GOPAL RAJAN	University of Roorkee, Roorkee; *and* Institution of Engineers (India), Calcutta
DR SHASHI K. GULHATI	Indian Institute of Technology, New Delhi
DR G. B. RAO (*Alternate*)	
SHRI O. P. MALHOTRA	Public Works Department, Union Territory of Chandigarh, Chandigarh

(*Continued on page* 2)

(*Continued from page* 1)

Members	*Representing*
SHRI T. K. NATRAJAN	Central Road Research Institute (CSIR), New Delhi
SHRI R. V. RANTHIDEVAN	Central Water Commission, New Delhi
DEPUTY DIRECTOR (CSMRS)	(*Alternate*)
RESEARCH OFFICER (B&RRL)	Public Works Department, Government of Punjab, Chandigarh
SHRI K. R. SAXENA	Public Works Department, Government of Andhra Pradesh, Hyderabad
SECRETARY	Central Board of Irrigation & Power, New Delhi
DEPUTY SECRETARY (*Alternate*)	
SHRI N. SIVAGURU	Roads Wing, Ministry of Shipping & Transport
SHRI D. V. SIKKA (*Alternate*)	
SHRI K. S. SRINIVASAN	National Buildings Organization, New Delhi
SHRI SUNIL BERRY (*Alternate*)	
SUPERINTENDING ENGINEER (P&D)	Public Works Department, Government of Tamil Nadu, Madras
EXECUTIVE ENGINEER (SMRD)	(*Alternate*)
SHRI H. C. VERMA	All India Instrument Manufacturers & Dealers Association, Bombay
SHRI H. K. GUHA (*Alternate*)	
SHRI S. D. VIDYARTHI	Public Works Department, Government of Uttar Pradesh, Lucknow
DR B. L. DHAWAN (*Alternate*)	
SHRI G. RAMAN, Director (Civ Engg)	Director General, ISI (*Ex-officio Member*)

Secretary

SHRI K. M. MATHUR
Deputy Director (Civ Engg), ISI

Soil Testing Instrument and Equipment Subcommittee BDC 23 : 6

Convener	
SHRI H. C. VERMA	Associated Instruments Manufacturers (I) Pvt Ltd, New Delhi
Members	
SHRI M. D. NAIR (*Alternate* to Shri H. C. Verma)	
COL AVTAR SINGH	Engineer-in-Chief's Branch, Army Headquarters
SHRI S. K. GUPTA (*Alternate*)	
DEPUTY DIRECTOR RESEARCH (SM), (RDSO)	Ministry of Railways
DIRECTOR (CSMRS)	Central Water Commission, New Delhi
DEPUTY DIRECTOR (CSMRS)	(*Alternate*)
SHRI H. K. GUHA	Geologists' Syndicate Pvt Ltd, Calcutta
SHRI A. BHATTACHARYA (*Alternate*)	

(*Continued on page* 11)

Indian Standard

SPECIFICATION FOR CBR MOULDS AND ITS ACCESSORIES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 10 November 1980, after the draft finalized by the Soil Engineering and Rock Mechanics Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 A series of standards on methods of testing of soils has been published by the Institution. It has been recognized that reliable and inter-capability test results can be obtained only with the standard testing equipment capable of giving that 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 soils to encourage its development and manufacture in the country. The equipment covered in this standard is used for determination of CBR value covered in IS : 2720 (Part XVI)-1979*.

0.3 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 : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the details of mould, cutting collar, base plate, spacer disc, weights, penetration plunger and other accessories used for the determination of CBR value.

2. DIMENSIONS

2.1 Dimensions with tolerance of different equipment shall be as detailed in Fig. 1 to 9. Except where tolerances are specifically mentioned against

*Methods of test for soils: Part XVI Laboratory determination of CBR (*first revision*).

†Rules for rounding off numerical values (*revised*).

the dimensions, all dimensions shall be taken as nominal dimensions and tolerances as given in IS : 2102-1969*.

3. MATERIALS

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

TABLE 1 MATERIALS FOR CONSTRUCTION OF DIFFERENT EQUIPMENTS

Sl No.	Equipment	Material	Special Requirements, if Any	Relevant Indian Standard
(1)	(2)	(3)	(4)	(5)
1.	a) Mould (*see* Fig. 1)	a) Copper alloy or	—	IS : 318-1962*
	b) Cutting collar (*see* Fig. 2)	b) Brass or	—	IS : 292-1961†
	c) Base plate (*see* Fig. 3)	c) Phosphor bronze or	—	IS : 28-1975‡
		d) Mild steel	Chrome-plated	IS : 513-1973§
2.	Spacer disc and handle (*see* Fig. 4)	Mild steel	—	IS : 513-1973§
3.	Weights (*see* Fig. 5)	Cast iron	—	IS : 210-1978‖
4.	Adjustable stem with perforated plate (*see* Fig. 6)	Brass	—	IS : 410-1977¶
5.	Penetration plunger (*see* Fig. 7)	Mild steel	Plated	IS : 513-1973§
6.	Stay rod (*see* Fig. 8)	Mild steel	—	IS : 513-1973§
7.	Wing nut and washer (*see* Fig. 9)	Forged steel or Cast steel	Cadmium/ chrome-plated	—

*Specification for leaded tin bronze ingots and castings (*revised*).
†Specification for brass ingots and castings (*revised*).
‡Specification for phosphor bronze ingots and castings (*third revision*).
§Specification for cold rolled carbon steel sheets (*second revision*).
‖Specification for grey iron castings (*third revision*).
¶Specification for rolled brass sheet, strip and foil (*third revision*).

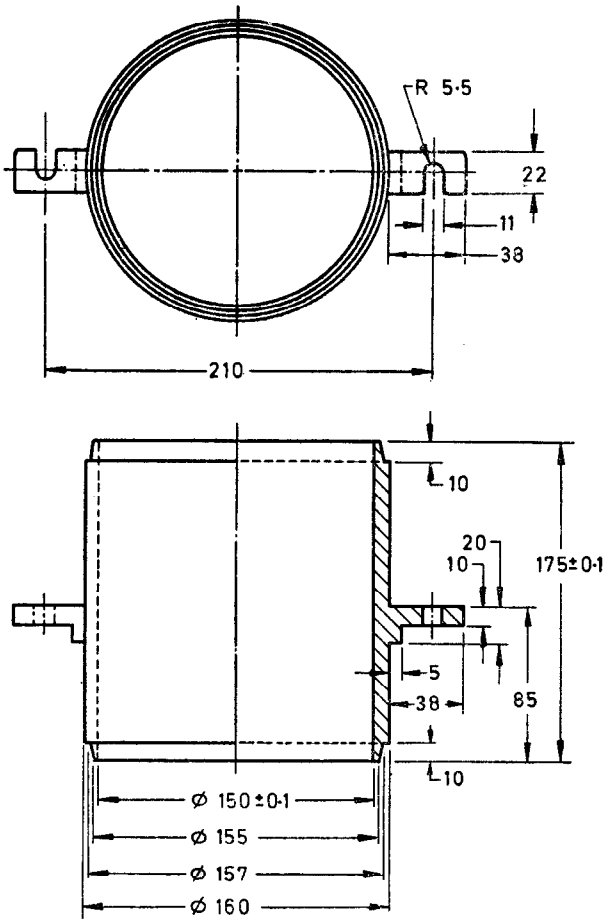
4. CONSTRUCTION

4.1 Mould — The mould shall be smooth from inside and shall have two ears either cast integral with the body or welded. It shall have suitable

*Specification for allowable deviations for dimensions without specified tolerances (*first revision*).

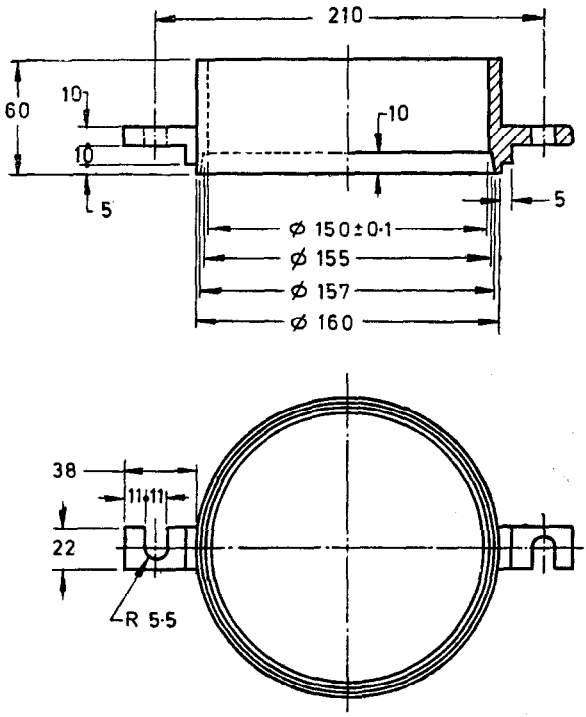
seatings at the ends for positioning the collar and the base plate (*see* Fig. 1).

4.2 Collar — The collar shall be made from same material as that of mould. Two similar ears as in the case of the mould shall be cast integral with the body or welded. It shall have suitable seatings at the lower end for sitting flush with the mould (*see* Fig. 2).



All dimensions in millimetres.

FIG. 1 MOULD

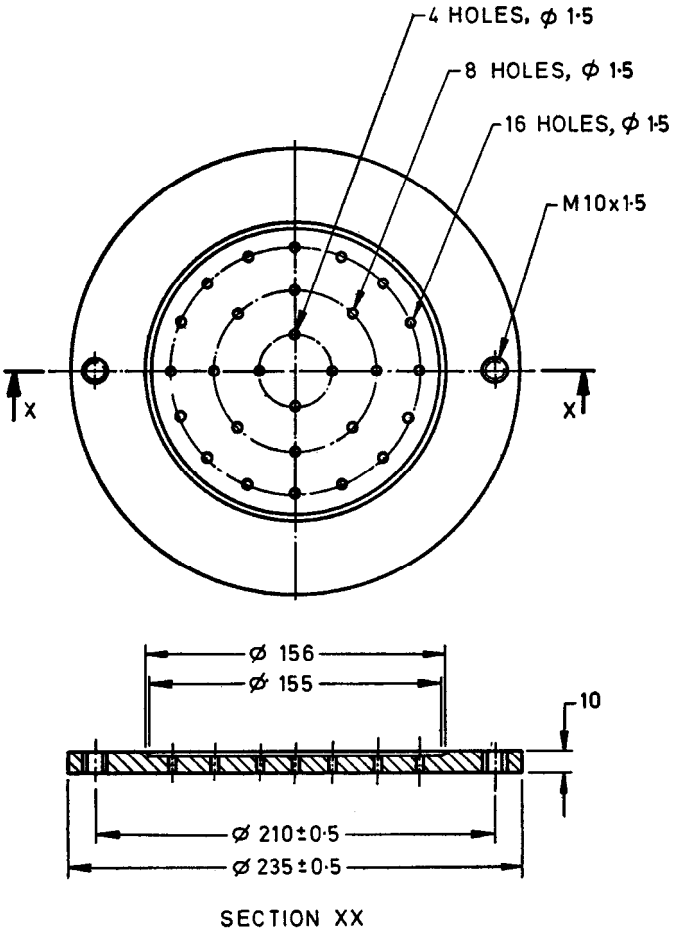


All dimensions in millimetres.

FIG. 2 CUTTING COLLAR

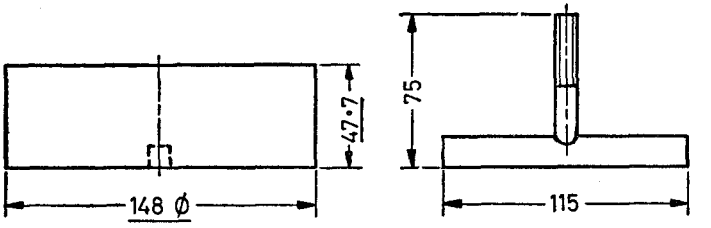
4.3 Base Plate — A suitable seating about 2 mm deep shall be provided on the top face for proper seating of the mould (*see* Fig. 3), and shall be of same material as mould.

4.4 The details of other accessories, namely, spacer disc, weights, adjustable stem with perforated plates, penetration plunger, stay rod and wing nut, are given from Fig. 4 to 9.



All dimensions in millimetres.

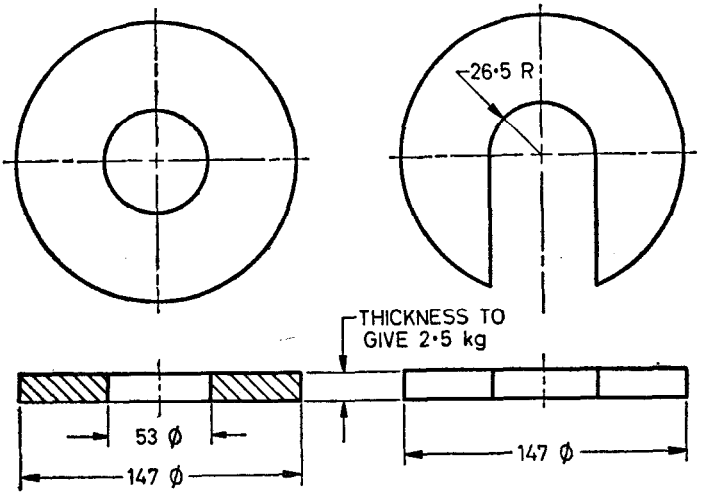
FIG. 3 BASE PLATE



4A Spacer Disc 4B Handle for Spacer Disc

All dimensions in millimetres.

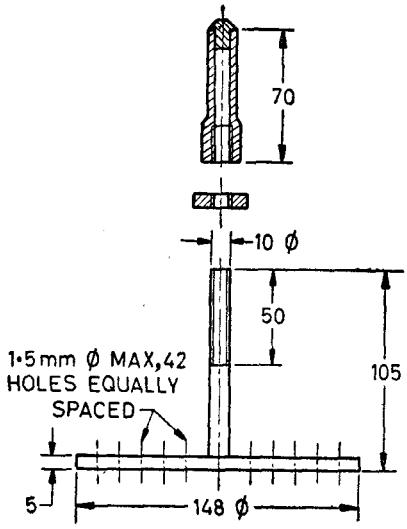
FIG. 4 SPACER DISC AND HANDLE



5A Annular Weight 5B Slotted Weight

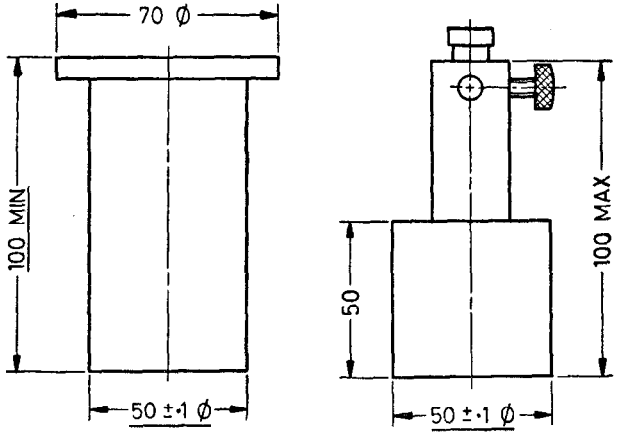
All dimensions in millimetres.

FIG. 5 METAL WEIGHTS



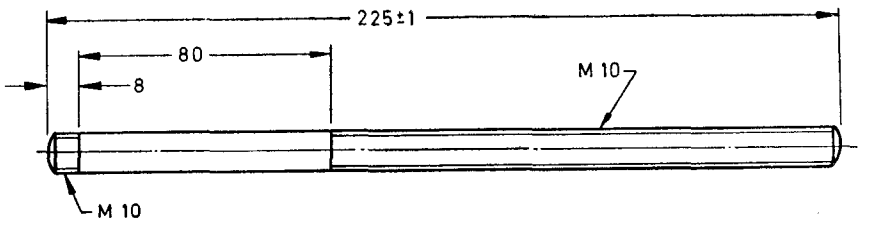
All dimensions in millimetres.

FIG. 6 ADJUSTABLE STEM AND PERFORATED PLATES



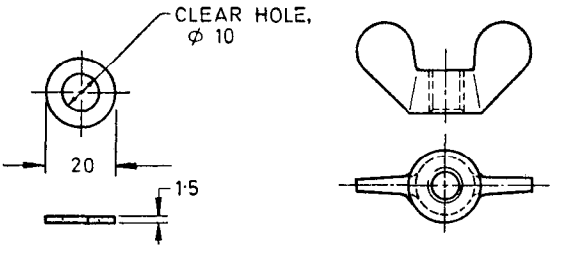
All dimensions in millimetres.

FIG. 7 PENETRATION PLUNGER



All dimensions in millimetres.

FIG. 8 STAY ROD



All dimensions in millimetres.

FIG. 9 WING NUT AND WASHER

5. MARKING

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

a) Name of the manufacturer or his registered trade-mark or both,

b) Type of material used, and

c) Date of manufacture.

5.1.1 The equipment may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

(*Continued from page* 2)

Members	*Representing*
SHRI A. K. GUPTA	Saraswati Engineering Agency, Roorkee
SHRI RAKESH GOEL (*Alternate*)	
DR B. R. MALHOTRA	Central Road Research Institute (CSIR), New Delhi
DR P. NANDAKUMARAN	University of Roorkee, Roorkee
SHRI S. PATHANIA	Central Scientific Instruments Organization (CSIR), Chandigarh
SHRI Y. C. SOOD (*Alternate*)	
SHRI S. G. PRASAD	Industrial Electronics Pvt Ltd, Bangalore
SHRI H. S. DAHELE (*Alternate*)	
DR T. RAMAMURTHY	Indian Institute of Technology, New Delhi
SHRI RESHAM SINGH	Hydraulic & Engineering Instruments Co, New Delhi
SHRI JATINDER SINGH (*Alternate*)	
DR V. SREENIVASULU	Central Building Research Institute (CSIR), Roorkee

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

AMENDMENT NO. 1 MARCH 1983

TO

IS : 9669-1980 SPECIFICATION FOR CBR MOULDS AND ITS ACCESSORIES

Addenda

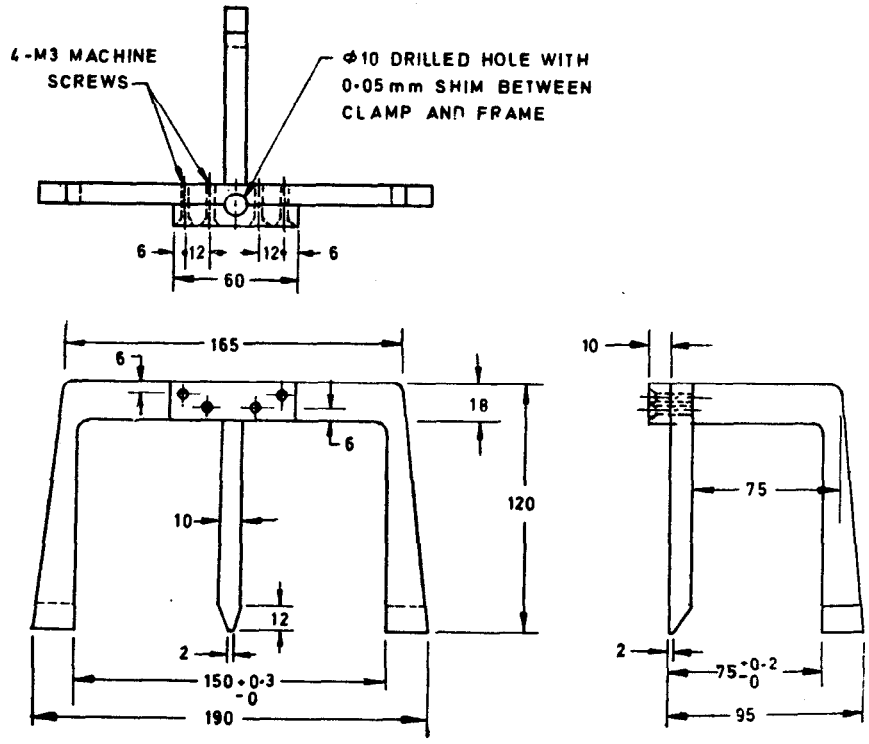
(*Page* 4, *Table* 1, *Sl No.* 7) — Add the following new matter under respective columns after Sl No. 7:

(1)	(2)	(3)	(4)	(5)
8.	Tripod (*see* **4.4**)	Copper alloy	—	IS : 318-1962*

(*Page* 6, *clause* **4.4**) — Add the following new matter at the end of the clause:

' The details of tripod are given in Fig. 10. '

(*Page* 10, *Fig.* 9) — Add the following new figure after Fig. 9:



All dimensions in millimetres.

FIG. 10 METAL TRIPOD

(BDC 23)

Printed at New India Printing Press, Khurja, India

AMENDMENT NO. 2 SEPTEMBER 1984

TO

IS:9669-1980 SPECIFICATION FOR CBR MOULDS AND ITS ACCESSORIES

Corrigenda

(*Page 4, clause 2.1*) - Substitute 'for medium class in IS:2102(Part 1)-1980*,' *for* 'in IS:2102-1969*.'

[*Page 4, Table 1, Sl No.*(1)(a) *and* (8) *read with* Amendment No, 1] - Substitute 'IS:318-1981*' *for* 'IS:318-1962*'.

(*Page 4, Table 1, foot-note with* '*' *mark*) - Substitute the following for the existing foot-note:

'*Specification for leaded tin bronze ingots and castings (*second revision*).'

(*Page 6, Fig. 2*) - Delete the first dimension '11' of the ear.

(EDC 23)

Reprography Unit, ISI, New Delhi, India